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## Evaluating the Impact of Positive and Negative Emotionality on Psychological Distress among Police Employees: Role of Resilience as a Mediator

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**Background.** The current study aimed to examine the impact of positive and negative emotionality on psychological distress among police employees with resilience as a mediator.

**Method.** The sample comprised of 150 police employees which was further divided into lower ( $n = 75$ ) and higher ranked police employees ( $n = 75$ ). The study utilized descriptive-predictive survey method in which purposive sampling technique was employed. The instruments used to measure study variables were Positive and Negative Affect Schedule (PANAS), Ego Resiliency Scale (ERS) and General Health Questionnaire-12 (GHQ-12).

**Results.** The findings of the study revealed that positive emotionality negatively predicted psychological distress while negative emotionality positively predicted psychological distress among police employees. In addition, mediation analysis revealed that resilience partially mediated the relationship between positive emotionality and psychological distress. Significant differences have been observed in positive emotionality and resilience among lower and higher rank police employees.

**Conclusion.** The present study provides awareness on how resilience, positive emotionality and good mental health status are important for adequate functioning of people working under stressful conditions.

**Keywords:** Positive emotionality, Negative emotionality, Psychological distress, Resilience



## Introduction

There is ongoing research exploring factors related to the mental health of police employees. They experience work-related stressors (i.e., administrative and executive constrictions, unequal workload, incompatible partners, lack of positive feedback, unsatisfactory treatment, unclear roles, conflict in work and family) and temporal factors for example, change in shifts, financial and family problems (Hurell et al., 1998; Mikkelsen & Burke, 2004). In Pakistan, several problems or issues have been identified, and faced by police organization. Serious reforms and effective policies are needed to be executed (Abbas, 2011; Perito & Parvez, 2013; Suddle, 2003). The inequality and provincially based nature of policing has generated an ineffective system (Perito & Parvez, 2013). This organization is neglected by the higher authorities, which is a significant reason for the inefficiency of police employees, unsatisfactory performance, corruption in the police department, the imbalanced and unfair workload on individuals, socioeconomic problems faced by the lower-ranked employees, and conflict between the public and police department (Imam, 2011; Suddle, 2003). We aimed to evaluate the impact of positive and negative emotionality on psychological distress among police employees while taking resilience as a mediator in the relationship between positive emotionality and psychological distress.

Positive and negative emotionality, psychological distress and resilience may play a significant role. According to Watson et al., (1988), both positive and negative emotions are two distinct dimensions of human emotionality. Positive emotionality is defined as the degree to which an individual becomes enthusiastic, inspired, determined, active, alert, and interested (Algoe & Haidt, 2009; Watson et al., 1988) while negative emotionality reflects subjective distress, anger, irritability, disgust, guilt, shame, and fear (Lazarus, 1991; Watson et al., 1988). For the present study, positive and negative emotionality have been studied as positive and negative emotions measured by scores of the

Positive and Negative Affect Schedule. It consists of 20 items (Watson et al., 1988).

Psychological distress is an indicator of mental health status in the general and clinical population. It is defined as an emotional state of suffering, explained by symptoms of depression, anxiety, social dysfunctioning, and somatic complaints (Drapeau et al., 2012; Haftgoli et al., 2010). For this research, psychological distress has been measured by scores on General Health Questionnaire-12 (Goldberg, 1972).

Theoretically, resilience has been defined in various ways by different theorists as reported by Shean (2015) in her literature review of current theories on resilience. Two conditions should be met inevitably for making an individual resilient (a) the presence of significant adversity and (b) achievement of positive adaptation (Luthar et al., 2000). Resilience is defined as an individual's capacity to actively engage in new situations in everyday life, can easily respond to changes, solve problems, control impulses, cope with stressful situations and recover from these situations (Block & Kremen, 1996; Garmezy, 1991). For this research, it was studied as an individual's ego-resiliency which infers regulation of ego-control to improve ego functioning and adapt to environmental demands by maintaining emotional, cognitive and behavioural state. It has been measured by scores of the Ego Resiliency Scale, containing 14 items (Block & Kremen, 1996).

In the present study, resilience was studied as a mediator in the relationship between positive emotionality and low psychological distress. According to Baron and Kenny (1986), a variable may qualify for the role of mediator if it has empirical support in association with the predictor and outcome variable in question. In this respect, resilience has been consistently associated with positive emotionality (Fredrickson, 2004; Block & Kremen, 1996; Klohnen, 1996; Xing & Sun, 2012) and psychological distress (Galatzer et al., 2013; Mccraty & Atkinson, 2012). The mediation model is an effective tool to provide insight into complex relational patterns among variables (Baron & Kenny, 1986; Frazier, Tix,

& Baron, 2004). So, mediation analysis was done to identify a clear pathway which could explain *how* positive emotionality was associated with level of psychological distress.

Researches were conducted to examine the mechanism of effects that interplay between positive and negative emotionality, resilience and psychological distress. Galatzer and his colleagues (2013) hypothesized that positive and negative emotions might predict courses of resilience and psychological distress in police officers exposed to highly threatened situations. They identified four types of responses in which resilience was regarded as one of the key factors. The police officers showing resilience, reported lower levels of negative emotionality and higher levels of positive emotionality. As a result, they had lower levels of psychological distress.

Xing and Sun (2012) researched the effectiveness of positive emotions and resilience in dealing with risky situations. This study proved both variables as important constructs of an individual that provide long-term consistency, steadiness, and psychological and social benefits. The final evaluation demonstrated psychological resilience as a key factor in enhanced outcomes of happier people. In other words, psychological resilience fuels more positive emotions that help individuals take more proactive steps in handling adverse situations.

Police employees are trained how to stay calm in adverse situations in their jobs. In addition, faking their true emotions could be considered necessary for their jobs as they were not allowed to disclose negative emotions in public (Adams, 2010). As a result, it might disrupt the process of emotional regulation which leads to disturbance in positive emotionality. It increases the level of psychological distress. McCraty and Atkinson (2012) stated that the police department is among the most stressful occupations and officers typically undergo psychological distress. Negative emotions predicted an increase in psychological distress. Resilience can improve officers' capacity to recognize

and self-regulate their responses to stressors in both work and personal settings.

The concerned research also hypothesized that there was a difference between higher and lower-rank police employees on positive emotionality, negative emotionality, resilience and psychological distress. A significant study has been executed by Biggam and Power (1996) in this respect. They evaluated the personality traits of Scottish police officers for their level of positive and negative affectivity, compared with the general population. They found that police officers did not differ from the norm on either of these indices. Differences were observed in gender, marital status, post, working location, and job satisfaction. The highest levels of negative affectivity were found in officers working in urban and rural environments where more severe stressors were encountered by them. However, differences in affectivity were observed according to rank, in that the higher ranks reported more positive affectivity and the lower ranks had more negative affectivity. Another research by Husain (2014) reported similar trend in differences between junior and senior police officers. Moreover, a cross-sectional study was executed by Parsekar et al., (2015) in India. The researchers aimed to highlight the prevalence of psychological distress in police constables. The study signified 95% of participants fell on higher levels of psychological distress.

The present study was therefore designed to examine the impact of positive and negative emotionality on psychological distress among police employees. Positive and negative emotionality was studied in terms of one's degree of feeling positive and negative emotions. In addition, the mediating role of resilience in the relationship between positive emotionality and low psychological distress helped in identify a clear pathway between these variables.

The present study will provide awareness on how resilience and positive emotionality are important for adequate functioning to the general population, higher authorities of defence area, mental health professionals and educators. Researches on

the mental health status of the police department suggest providing more awareness on how to cope with negative emotionality, psychological distress and employ positive emotions and resilience in police employees (Humayon et al., 2018). Lack of knowledge and difficulty in noticing stress-related symptoms in police workers should be incorporated (Arvidsdotter et al., 2016). So, the proposed study will target police organization specifically and help provide awareness in this aspect. Likewise, the effects of negative emotionality on the level of psychological distress will also be highlighted. In addition, this study may help in suggesting ways and means for prevention level. It might suggest introducing screening tools to identify psychological distress among police workforce to help them in their jobs. Moreover, it will support the existing literature and offer new researches to be done in this area.

### **Theoretical Framework**

Frederickson's Broaden-n-Build Theory of positive emotions (1998) provides a theoretical framework for the current study which states that positive emotions broaden individuals' thought-action repertoires and lead them to attain more enduring personal resources but negative emotions minimize their personal resources by limiting their thinking. This theory also claims that positive emotions and psychological resilience affect each other reciprocally. Resilience is a resource that lowers the level of stress by reducing the effects of negative impulses in individuals (Block & Kremen, 1996). According to Garmezy, (1991) being resilient identifies maintenance of functional adequacy through presenting oneself as competent irrespective of interfering emotionality under stressful conditions.

In the context of this theory, the current study investigated whether positive emotions could affect the level of psychological distress of police officials. As concerned with the impact of negative emotions, this research predicted high psychological distress which incorporated the assumption of concerned theory. Two psychological constructs or variables are not always directly associated with each other. Their effects are mediated or moderated by the third variable. Researchers suggest that a mediator should have an association with the predictor and outcome variable (Baron & Kenny, 1986). If a reciprocal relationship is present between positive emotions and resilience, as suggested in the current theory, resilience could be taken as a mediator in the relationship between positive emotions and low psychological distress. This study investigated whether level of psychological distress was produced by only positive emotions or a third variable that might mediate this relationship.

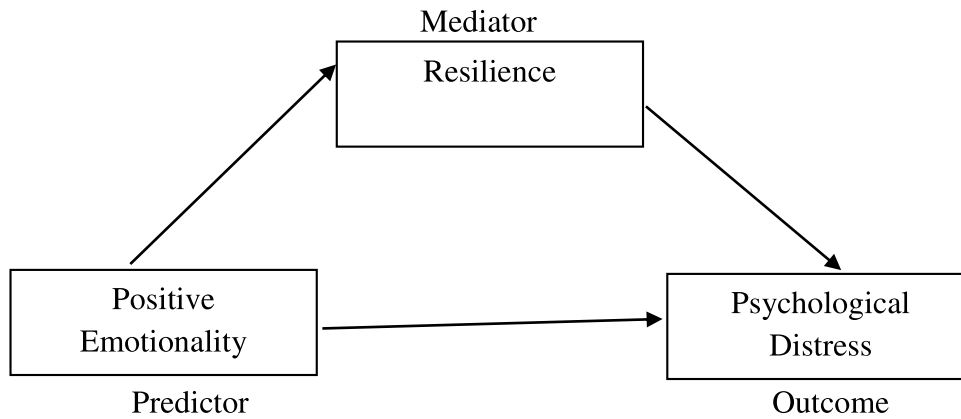
### **Hypotheses**

The hypotheses of the present study are as follows:

1. Positive emotionality will predict low psychological distress among police employees.
2. Negative emotionality will predict high psychological distress among police employees.
3. Resilience mediates the relationship between positive emotionality and low psychological distress.
4. There is a difference between higher and lower rank police employees on positive emotionality, negative emotionality, resilience and psychological distress.



## Conceptual Framework for Mediation



### Method

#### Participants and Procedure

The study was conducted by using descriptive-predictive survey method. Data collection was held between January and February 2021. The sample size was calculated through sample size calculator which included 150 members of police staff ( $N=150$ ). The sample was classified into two groups. One group comprised of 75 participants from lower rank police employees ( $n=75$ ), the constables and head constables. The other group consisted of 75 participants from higher rank police employees ( $n=75$ ) in which assistant sub inspectors and sub inspectors were included. Purposive sampling technique was employed for data collection. The age range of the sample was 25 to 56 years. Data was collected from different police stations of Rawalpindi, Attock, and Islamabad. Individuals with minimum intermediate education and having two or more than two years of work experience were included in the research. Participants with any history of psychological disorder were excluded.

The scales used for data collection of present research were Positive and Negative Affect Schedule (PANAS, Watson, 1988), General Health Questionnaire-12 (GHQ-12, Goldberg, 1972) and Ego- Resiliency Scale (ERS) (Block & Kremen, 1996). It took almost ten to fifteen minutes to complete the questionnaires. After taking approval from the Ethical Review Board, participants were approached by the researchers. Researchers first took permission from concerned

authorities of the police department. After a brief introduction about the study informed consent form was provided to the participants. After that they were provided with Demographic Sheet, Positive and Negative Affect Schedule, General Health Questionnaire-14, and Ego Resiliency Scale. They were requested to be honest while giving responses to statements. At the end, they were thanked for their cooperation.

#### Data Analysis

Data analysis was done through SPSS 25.0. Means, standard deviations, frequencies, and percentages of the variables were computed. Psychometric properties of the questionnaires were analyzed. Impact of positive and negative emotionality was evaluated through simple linear regression analysis and mediating role of resilience was tested by regression analysis. T-test was used to infer differences in variables between lower and higher rank police officials.

#### Measuring Instruments

**Positive and Negative Affect Schedule.** The Positive and Negative Affect Schedule is a self-report questionnaire, by Watson and his colleagues (1988) to measure a person's positive and negative emotions. It consists of 20 items; 10 items depicting positive mood states and 10 for denoting negative mood states. It is a 5 point scale that ranges from 1 "very slightly or not at all", to 5 "very much". A number of different time-frames have been used with the PANAS. Scores on positive affect ranges from 10 – 50, with higher scores representing higher levels of positive affect. Scores on negative affect

range from 10 – 50, with lower scores representing lower levels of negative affect. Positive Affect (PA) Scale showed Cronbach alpha coefficient as 0.94 and Negative Affect (NA) Scale, as 0.94 for this sample.

**General Health Questionnaire-12.**

General Health Questionnaire-12 is the short version of original General Health Questionnaire, developed by Goldberg in 1972 (Banks et al., 1980). It is a screening tool used for presence of any psychiatric illness and to measure the level of psychological distress in general and clinical population. It consists of 12 items, containing 4 point likert scale ranging from 0 to 3. There are two types of items (i.e., positive items and negative items) in this questionnaire. Positive items refer to absence of symptom and negative items are related to presence of symptom. For positive items scale is ranging from 0 “always” to 3 “never” whereas scale for negative items ranges from 0 “never” to 3 “always”. Total score ranges from 0 to 36. Higher scores show higher level of distress.

The reliability of General Health Questionnaire-12 was reported as .93 for the concerned sample.

**Ego Resiliency Scale.** Ego Resiliency scale was developed by Block & Kremen in 1996, to measure one’s capacity to adapt in changing environment by coping with stress and resisting to vulnerabilities. It examines three components of individual’s general resiliency (i.e., dynamic engagement with the world, repertoire of problem solving approaches, integrated performance while facing stress) (Farkas & Orosz, 2015). It comprises of 14 items based on 4 point scale, ranging from 1 as “does not apply at all” to 4 as “applies very strongly”. The score ranges 10 to 56 in which 0-10 indicates very low resiliency trait, 11-22 low resiliency trait, 23-34 undetermined trait, 35-46 high resiliency trait, and 47-56 shows very high resiliency trait. The test retest correlations of this scale were .81 that was significant. The Cronbach’s alpha value of Ego Resiliency Scale was .95.

**Results**

The findings of the study were computed and analyzed through SPSS version 25.0.

**Table 1**

*Frequencies and percentages of demographic variables of the Study (N=150).*

Variables	Category	f	%
Age	25-40	83	55.3
	41-65	67	44.7
Education	Intermediate	57	38.0
	Bachelor	58	38.7
	Masters	35	23.3
Marital status	Single	39	26.0
	Married	111	74.0
Family type	Nuclear	9	6.0
	Joint	141	94.0
Post	Lower rank police employees	75	50.0
	Higher rank police employees	75	50.0
Working location	Rawalpindi	40	26.7
	Islamabad	56	37.3
	Attock	54	36.0
Working experience	2-8 years	70	46.7
	More than 9 years	80	53.3
Total working hours	6 hours	45	30.0
	8 hours	59	39.3
	12 hours	46	30.7

Table 1 shows that greater number of police employees have fallen in the category of early adult men (n=83, 55.3%) as compared to middle adult men (n=67, 44.7%). Police employees with degree in masters were lower in number (n=35, 23.3%) as compared to intermediate (n=57, 38.0%) and bachelors (n=58, 38.7). Majority of participants were married (n=111, 74.0%) as compared to unmarried men (n=39, 26.0%). Majority of respondents lived in joint family system (n=141, 94.0%) as compared to respondents with nuclear family system (n=9, 6.0%). Half of the participants were lower rank police

employees (n=75, 50.0%) while the other half (n=75, 50.0) of participants were from higher rank police staff. Greater number of police employees worked in Islamabad (n=56, 37.3) and Attock (n=54, 36.0) as compared to Rawalpindi (n=40, 26.7%). Higher number of respondents (n=80, 53.3%) appeared to have more than 9 years of experience as compared to respondents with 2 to 8 years of experience (n=70, 46.7%). Greater number of police employees (n=59, 39.3%) had to work for 8 hours a day as compared to police employees working for 6 (n=45, 30.0%) and 12 (n=46, 30.7%) hours a day.

**Table 2**

*Regression Coefficients of Positive Emotionality on Psychological Distress (N=150).*

Variable	B	$\beta$	SE
Constant	24.48***		1.15
Positive emotionality	-.49***	-.76	.03
$R^2$	.59		

Note. N=150, \*\*\* $p < .001$

Table 2 shows the impact of positive emotionality on psychological distress in police employees. The findings revealed that positive emotionality predicted low psychological distress ( $\beta = -.76, p < .001$ ). The  $R^2$  value of .59 indicated that the predictor variable explained 59% variance in the outcome variable with  $F(1, 148) = 208.16, p < .001$ .

**Table 3**

*Regression Coefficients of Negative Emotionality on Psychological Distress (N=150).*

Variable	B	$\beta$	SE
Constant	-2.44**		.88
Negative emotionality	.52***	.75	.04
$R^2$	.57		

Note. N=150, \*\*\* $p < .001$ , \*\* $p < .01$

Table 3 shows the impact of negative emotionality on psychological distress in police employees. The findings revealed that negative emotionality significantly predicted psychological distress ( $\beta = .75, p < .001$ ). The  $R^2$  value of .57 indicated that the predictor variable explained .57% variance in the outcome variable with  $F(1, 148) = 192.74, p < .001$ .

**Table 4**

*Mediation effect of Resilience between Positive Emotionality and Psychological Distress among Police Employees (N=150).*

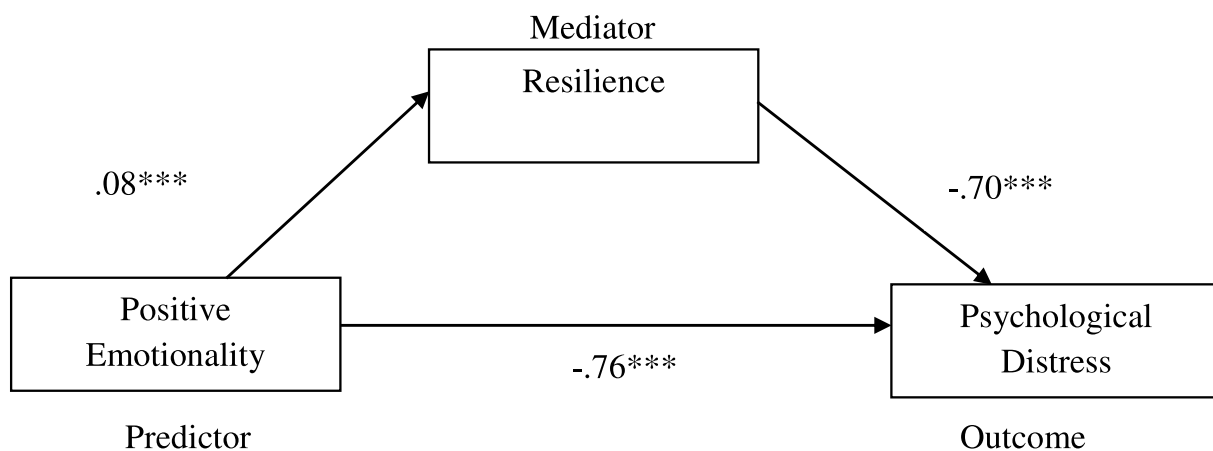
Variables	<i>B</i>	95% <i>CI</i>	<i>SEB</i>	$\beta$	$R^2$	$\Delta R^2$
Step 1					.58***	.58***
Constant	24.48***	[26.75,22.22]	1.15			
Positive emotionality	-.49***	[-.42,-.56]	.03	-.76***		
Step 2					.59***	.01
Constant	24.83***	[27.19,22.47]	1.19***			
Positive emotionality	-.45***	[-.34,-.55]	.05***	-.70***		
Resilience	-.05	[.05,-.14]	.05	-.08		

*Note.* N=150, \*\*\* $p < .001$

Table 4 shows regression analysis of mediating effect of resilience in relationship between positive emotionality and psychological distress among police employees. In step 1, the  $R^2$  value .58 revealed that positive emotionality explained 58% variance in psychological distress with  $F(1,148)=208.15$ , \*\*\* $p < .001$  in police employees. The findings showed that positive emotionality ( $\beta = -.76$ ,  $p < .001$ ) negatively predicted psychological distress. In step 2, the  $R^2$  value .59 revealed that positive emotionality and resilience explained 59% variance in psychological distress with  $F(2,147)=104.67$ , \*\*\* $p < .001$

in police employees. The findings also indicated that positive emotionality ( $\beta = -.70$ ,  $p < .001$ ) and resilience ( $\beta = -.08$ ,  $p < .001$ ) negatively predicted psychological distress. The  $\Delta R^2$  value of .01 explained 1% change in variance of model 1 and model 2 with  $F(2,147) = 104.67$ , \*\*\* $p < .001$ . The regression also denoted that positive emotionality has subsequently reduced from Model 1 to Model 2 (-.76 to -.70) but remained significant which confirmed partial mediation. Moreover, positive emotionality has direct as well as indirect effect on psychological distress.

Figure 1. Mediation effect of Resilience between Positive Emotionality and Psychological Distress among Police Employees



**Table 5**

*Mean, Standard Deviations and t-values along lower and higher rank of police employees on Positive Emotionality, Negative Emotionality, Resilience and Psychological Distress (N=150).*

Variables	Lower rank (n=75)	Higher rank (n=75)	<i>t</i> (148)	<i>p</i>	95% <i>CI</i>		Cohen's <i>d</i>
	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )			<i>UL</i>	<i>LL</i>	
Positive emotionality	30.49(8.90)	33.85(11.34)	-2.01	.05	[-.06,-6.67]		.33
Negative emotionality	22.24(8.50)	20.64(10.53)	1.02	.31	[4.69,-1.49]		.12
Resilience	30.77(10.79)	36.35(11.12)	-3.12	.00	[-2.04,-9.11]		.51
Psychological distress	9.47(6.74)	7.97(6.47)	1.39	.15	[3.63,-.64]		.23

*Note.* *CI* = Confidence Interval; *LL* = Lower Limit; *UL* = Upper Limit.

\*\**p* < .01

Table 5 revealed significant mean differences on positive emotionality with  $t(148) = -2.01$ , ( $p > .05$ ). Similarly, differences on resilience were significant with  $t(148) = -3.12$ , ( $p < .01$ ) which revealed that higher rank police employees exhibited higher scores on resilience ( $M = 36.35$ ,  $SD = 11.12$ ) compared to lower rank police employees ( $M = 30.77$ ,  $SD = 10.79$ ). However, mean differences on negative emotionality and psychological distress were non-significant having  $t(148) = 1.02$ ,  $p > .05$  and  $t(148) = 1.39$ ,  $p > .05$ .

## Discussion

In the current study, we aimed to examine whether positive emotionality is linked to low psychological distress among police employees. The findings revealed that positive emotionality significantly negatively predicted psychological distress in the sample. Our findings are in line with the concerned theoretical assumption (Fredrickson, 2000; Folkman & Moskowitz, 2000). These theories regarded positive emotions as being key factors to have buffering effects on psychological distress (Folkman & Moskowitz, 2000; Tugade, Fredrickson & Feldman, 2004; Lazarus, 1991). For example, when a stress hormone is triggered as a result of exposure to a stressor, the individuals' cardiovascular activity and blood flow increase and they experience psychological distress. During this process, positive emotions try to prepare the body and mind for a broader array of thinking and actions and as a consequence lower the production of stress hormones and the person feels low

psychological distress (Fredrickson et al., 2000).

Vice versa of the previous assumption, in the present study we also found that negative emotionality significantly positively predicted psychological distress among police employees. Previous literature also supported these findings (McCraty & Atkinson, 2012). Moreover, the Broaden-n-build theory of positive emotions states that people with negative emotionality exhibit more symptoms of anxiety and depression (Fredrickson, 2004). In addition, much of the recent literature found similar reports (Adams, 2010; Fox et al., 2012; Galatzer et al., 2013). According to Frederickson (2000), negative emotions narrow individuals' thought actions tendencies and leave them with a limited choice of actions which can lead to prolonged experiences of psychological distress.

Similarly, we assumed that resilience mediates the relationship between positive emotionality and level of psychological distress. The results revealed that resilience partially mediated the relationship between

positive emotionality and psychological distress. Our findings are in line with the theoretical framework of Broaden-and-Build theory of positive emotions, which states that positive emotionality and resilience affect each other reciprocally (Fredrickson, 2004). Fredrickson and Joiner's (2002) study predicted the positive relationship between positive emotionality and broad-minded thinking that was inferred as resilience. This study claimed that attention and cognition generated by past experiences of positive emotions could facilitate coping. As this sequence continues, individuals build psychological resilience and boost their emotional well-being by lowering psychological distress.

The fourth hypothesis of the current study inferred a difference between high and lower-rank police employees regarding positive and negative emotionality, resilience and psychological distress. Results showed significant differences in positive emotionality and resilience among lower and higher rank police employees. The majority of the higher rank police employees appeared to be more resilient and exhibit positive emotionality.

In addition, differences have been found in negative emotionality and psychological distress in lower and higher rank police employees. Reports of previous research also supported this notion. Researchers identified that the level of psychological distress is varied in higher and lower-rank police employees (Parsekar, Singh & Bhumika, 2015). Lower-rank police staff experience increased psychological distress. Negative emotions (e.g., depression, anxiety, and stress) have a greater prevalence in junior police officers as compared to senior police officers whereas positive emotionality and resilience were proved to be high in senior police staff (Hussain, 2014). The other reasons for this variability may be inequality of the pay grades, negligence by higher authorities, unfair workload, and more socioeconomic problems faced by the lower-ranked police employees (Hussain, 2014; Suddle, 2003).

### **Conclusion**

The findings of the study have revealed that positive emotionality has

significantly positively predicted resilience and negative emotionality has significantly positively predicted psychological distress. Results also reported that resilience mediated the relationship between positive emotionality and low psychological distress. Moreover, significant differences have been observed in positive emotionality and resilience in the sample.

### **Limitations and suggestions**

The present study had some limitations that need to be considered in further research. As it was a descriptive-predictive study and was conducted on small sample size, therefore renders it towards limited generalizability. Moreover, as it was not an experimental study so a causal relationship between the study variables could not be assessed. . If the experimental method was implied, environmental factors could be controlled to some extent and more reliable results could be attained.

The current research has some recommendations for future studies. As police employees work under extremely challenging circumstances, therefore they are more prone to mental health issues. Their mental health is neglected by the mental health professionals and the higher authorities at large. Therefore, much research is needed to be carried out on police employees' mental health status as well as highlighting important variables that can buffer the effects of a negative work environment. Moreover, by conducting research having a large sample size of police employees across different areas of Pakistan, researchers can further identify different psychosocial and organizational issues and their psychological impact. Further research is also needed to explore positive emotions following the broaden-and-build theory of positive emotions as it gives a logical and creative explanation of their importance and functions.

### **Declaration**

### **Conflicts of Interest**

The authors did not have any personal or financial interests that could potentially influence the outcome or interpretation of

their study. This ensures the integrity and objectivity of their study.

### **Acknowledgement**

Authors are very thankful to all the participants who have participated in the study.

### **Availability of data and materials**

The datasets used and/or analyzed during the current study are available from the corresponding authors on reasonable request.

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## **References**

- Abbas, H. (2011). Reforming Pakistan's police and law enforcement infrastructure is it too flawed to fix? *Special Report*, 266. <https://purl.fdlp.gov/GPO/gpo19423>
- Adams, G. A., & Buck, J. (2010). Social stressors and strain among police officers: It's not just the bad guys. *Criminal Justice and Behavior*, 37(9), 1030-1040. <https://doi.org/10.1177/0093854810374282>
- Algoe, S. B., & Haidt, J. (2009). Witnessing excellence in action: The "other-praising" emotions of elevation, gratitude, and admiration. *The Journal of Positive Psychology*, 4, 105-127. <http://dx.doi.org/10.1080/17439760802650519>
- Arvidsdotter, T., Marklund, B., Kylén, S., Taft, C., & Ekman, I. (2016). Understanding persons with psychological distress in primary health care. *Scandinavian Journal of Caring Sciences*, 30(4), 687-694. <https://doi.org/10.1111/scs.12289>
- Banks, M. H., Clegg, C. W., Jackson, P. R., Kemp, N. J., Stafford, E. M., & Wall, T. D. (1980). The use of the General Health Questionnaire as an indicator of mental health in occupational studies. *Journal of Occupational Psychology*, 53(3), 187-194. <https://doi.org/10.1111/j.2044-8325.1980.tb00024.x>
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173-1182.
- Biggam, F. H., & Power, K. G. (1996). The personality of the Scottish police officer: The issue of positive and negative affectivity. *Personality and Individual Differences*, 20(6), 661-667. [https://doi.org/10.1016/0191-8869\(96\)00011-6](https://doi.org/10.1016/0191-8869(96)00011-6)
- Block, J., & Kremen, A. M. (1996). IQ and ego-resiliency: Conceptual and empirical connections and separateness. *Journal of Personality and Social Psychology*, 70(2), 349-361. [doi:10.1037/0022-3514.70.2.349](https://doi.org/10.1037/0022-3514.70.2.349)
- Caldwell, J. G., & Shaver, P. R. (2012). Exploring the cognitive-emotional pathways between adult attachment and ego-resiliency. *Individual Differences Research*, 10(3). [www.idr-journal.com](http://www.idr-journal.com)
- Drapeau, A., Marchand, A., & Beaulieu-Prévost, D. (2012). Epidemiology of psychological distress. *Mental Illnesses-understanding, Prediction and Control*, 69, 105-106. <https://books.google.com.pk/>
- Farkas, D., & Orosz, G. (2015). Ego-resiliency reloaded: a three-component model of general resiliency. *PloS One*, 10(3), e0120883. <https://doi.org/10.1371/journal.pone.0120883>
- Folkman, S., & Moskowitz, J. T. (2000). Positive affect and the other side of coping. *American Psychologist*, 55(6), 647. <https://doi.org/10.1037/0003-066X.55.6.647>
- Fox, J., Desai, M. M., Britten, K., Lucas, G., Luneau, R., & Rosenthal, M. S. (2012). Mental-health conditions, barriers to care, and productivity loss among officers in an urban police department. *Connecticut Medicine*, 76(9), 525. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4089972/>

- Frazier, P. A., Tix, A. P., & Barron, K. E. (2004). Testing moderator and mediator effects in counseling psychology research. *Journal of Counseling Psychology, 51*, 115-134.
- Fredrickson, B. L. (1998). What good are positive emotions? *Review of general psychology, 2*(3), 300-319. <https://doi.org/10.1037/1089-2680.2.3.300>
- Fredrickson, B. L. (2000). Cultivating positive emotions to optimize health and well-being. *Prevention and Treatment, 3*. <http://journals.apa.org/prevention/volume3/pre0030001>
- Fredrickson, B. L. & Joiner, T. (2002). Positive emotions trigger upward spirals toward emotional well-being. *Psychology Science, 13*, 172-175. <https://doi.org/10.1111/1467-9280.00431>
- Fredrickson, B. L. (2004). Gratitude, like other positive emotions, broadens and builds. R. A. Emmons & M. E. McCullough (Eds.). *The Psychology of Gratitude*. 145-166. New York: Oxford University Press.
- Galatzer-Levy, I. R., Brown, A. D., Henn-Haase, C., Metzler, T. J., Neylan, T. C., & Marmar, C. R. (2013). Positive and negative emotion prospectively predict trajectories of resilience and distress among high-exposure police officers. *Emotion, 13*(3), 545. <https://doi.org/10.1037/a0031314>
- Garmezy, N. (1991). Resilience in children's adaptation to negative life events and stressed environments. *Pediatric Annals, 20*(9), 459-466. <https://doi.org/10.3928/0090-4481-19910901-05>
- Goldberg, D. P. (1972). The detection of psychiatric illness by questionnaire. *Maudsley Ponograph, 21*.
- Haftgoli, N., Favrat, B., Verdon, F., Vaucher, P., Bischoff, T., Burnand, B., & Herzig, L. (2010). Patients presenting with somatic complaints in general practice: depression, anxiety and somatoform disorders are frequent and associated with psychosocial stressors. *BMC Family Practice, 11*(1), 1-8.
- Humayon, A. A., Raza, S., Amir, H., Hussain, M. S., & Ansari, N. ul A. (2018). Assessment of Work Stress Among Police in Pakistan. *Journal of Applied Environmental and Biological Sciences, 8*(2), 68-73. [https://www.researchgate.net/profile/Shoaib\\_Raza2/publication/322861603\\_Assessment\\_of\\_Work\\_Stress\\_among\\_Police\\_in\\_Pakistan/](https://www.researchgate.net/profile/Shoaib_Raza2/publication/322861603_Assessment_of_Work_Stress_among_Police_in_Pakistan/)
- Hurrell Jr, J. J., Nelson, D. L., & Simmons, B. L. (1998). Measuring job stressors and strains: Where we have been, where we are, and where we need to go. *Journal of Occupational Health Psychology, 3*(4), 368. <https://psycnet.apa.org/buy/1998-12418-006>
- Husain, W. (2014). Depression, anxiety and stress among junior and senior police officers. *Academic Research International, 5*(3), 239-244. [www.savap.org.pk239www.journals.savap.org.pk](http://www.savap.org.pk239www.journals.savap.org.pk)
- Khan, A., Shah, I. M., Khan, F., & Suhail, S. (2013). Reliability and validity assessment of 12 items general health questionnaire (GHQ: 12) among Pakistani university teachers. *World Applied Sciences Journal, 24*(5), 603-608. <https://doi.org/10.5829/idosi.wasj.2013.24.05.13212>
- Klohnen, E. C. (1996). Conceptual analysis and measurement of the construct of ego-resiliency. *Personality Social Psychology, 70*, 1067-1079. <https://doi.org/10.1037/0022-3514.70.5.1067>
- Lazarus, R. S., (1991). Emotion and adaptation. New York: Oxford University Press.
- Luthar, S. S., Cicchetti, D., & Becker, B. (2000). The construct of resilience: A critical evaluation and guidelines for future work. *Child Development, 71*, 543-562. <https://doi.org/10.1111/1467-8624.00164>
- McCarty, R., & Atkinson, M. (2012). Resilience training program reduces physiological and psychological stress in police officers. *Global Advances in Health and Medicine, 1*(5), 44-66.



- <https://doi.org/10.7453/gahmj.2012.1.5.013>
- Mikkelsen A, Burke R. (2004). Work-family concerns of Norwegian police officers: Antecedents and consequences. *Int J Stress Manag*, 11, 429–444. <https://doi.org/10.1037/1072-5245.11.4.429>
- Parsekar, S., Singh, M., & Bhumika, T. (2015). Occupation-related psychological distress among police constables of Udupitaluk, Karnataka: A cross-sectional study. In *Indian Journal of Occupational and Environmental Medicine*, 19(2), 80–83). <https://doi.org/10.4103/0019-5278.165329>
- Perito, R., & Parvez, T. (2013). *Empowering The Pakistan Police*. United States Institute of Peace. <https://journals.sagepub.com/doi/abs/10.1177/1049732308325536>
- Shean, M. (2015). Current theories relating to resilience and young people. Victorian Health Promotion Foundation: Melbourne, Australia, 45. <https://evidenceforlearning.org.au/assets/Grant-Round-II-Resilience/Current-theories-relating-to-resilience-and-young-people.pdf>
- Suddle, M. S. (2003). Reforming Pakistan Police: An Overview. *International Senior Seminar, Visiting Experts' Papers*, 94–104. [https://www.unafei.or.jp/publications/pdf/RS\\_No60/No60\\_12VE\\_Suddle.pdf](https://www.unafei.or.jp/publications/pdf/RS_No60/No60_12VE_Suddle.pdf)
- Tugade, M. & Fredrickson, B. L. (2004). Resilient individuals use positive emotions to bounce back from negative emotional arousal. *Personality Social Psychology*, 86, 320-333. <https://doi.org/10.1037/0022-3514.86.2.320>
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: the PANAS scales. *Journal of Personality and Social Psychology*, 54(6), 1063. <https://psycnet.apa.org/buy/1988-31508-001>
- Xing, C., & Sun, J. (2013). The role of psychological resilience and positive affect in risky decision-making. *International Journal of Psychology*, 48, 935–943. <https://doi.org/10.1080/00207594.2012.729840>

## Mediating Roles of Coping Strategies in Relationship between Gender Roles and Academic Adjustment

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### Abstract

**Background.** Some undergraduates face problems in academic adjustment thus are unable to continue their studies. By using the theory of gender schema and the transactional model of stress and coping, this study aims to explore the relationships among gender roles, coping strategies and academic adjustment, and to examine whether coping strategy is a mediator for the effects of gender roles on academic adjustment.

**Method.** The descriptive predictive survey method was used in this study. Altogether 196 undergraduate participants were selected through the purposive sampling method. They were asked to fill in a questionnaire consisting of three measurements: Academic Adjustment Scale, Bem Sex Role Inventory, and Brief COPE.

**Results.** The findings of the study showed that different gender roles are associated with different coping strategies and academic adjustment, and that different coping strategies are associated with academic adjustment differently. In addition, positive thinking is a statistical mediator for the effects of femininity on academic adjustment while avoidance is a statistical mediator for the effects of masculinity on academic adjustment.

**Conclusion.** The findings indicate the importance of considering gender roles in the transactional model of stress and coping, besides creating awareness among undergraduates about the importance of using different coping strategies corresponding to their gender roles while facing problems in academic adjustment.

**Keywords.** Gender roles, academic adjustment, coping strategies, undergraduates.



## Introduction

Entering university is a challenging yet rewarding experience for many undergraduates as various new tasks are laid ahead of them with these new experiences either helping them to grow or bringing them down (Parker et al., 2004). Since these challenging and yet rewarding experiences can be overwhelming for undergraduates, many of them face problems in adjusting themselves to the newer environment (Dyson & Renk, 2006).

As observed, the challenges faced by undergraduates can come from different sources. For instance, most undergraduates whom are away from their homes for the first time would experience the feeling of homesickness thus wish to always stay together with their parents and friends (Thurber & Walton, 2012). In addition, as they need to learn the skills to build up new relationships with peers, they need to adjust and accommodate themselves to the unfamiliar community (Parker et al., 2004). In a study that recruited 117 freshmen in Jordan, Al-Qaisy (2010) concluded that there are multiple changes that can be expected in the first year of college experience, among them, an increase in responsibilities dealing with daily schedules, socializing with group mates or acquaintances, managing expenditures, allocating time for other necessary routines such as homework and exercising, managing time correctly to meet deadlines and studying so that students are not left behind in preparation for their tests and examinations. Therefore, most undergraduates need to adjust themselves by developing self-care skills, making personal choices, taking individual responsibilities and being independent (Parker et al., 2004). Those who cannot adjust to the better may have to drop out from their studies.

In Malaysia, about 21% of undergraduates are estimated not being able to graduate from their studies (Ministry of Education, 2018). Sabtu et al. (2016) conducted an in-depth interview with 15 students from a private technical vocational education institution in Malaysia, and their results indicated institutional factors such as staff and lecturers' attitudes, and the student characteristics like family problems, poor academic performance, and lost interest to

study as the students' main reasons of attrition. Yadav, Yusoff and Tan (2012) earlier adopted a retrospective approach to analyse student records of a medical university and they found the attrition rate of males higher than that of females.

Meanwhile, Araque, Roldán and Salguero (2009) used the student data provided by the information technology department from a university in Spain and found that starting age, parents' studies and academic performance are significant predictors for undergraduates' drop out, and those similar outcomes emerged across software engineering, humanities and economic science undergraduates. Bernardo et al. (2016) who recruited 1301 Spain undergraduates found three factors relevant to undergraduates' persistent dropout from studies, which are coexistence (relationships with teachers), adaptation (social and academic adaption) and performance (compliance with program, studying time, use of study techniques and class attendance). Willcoxson, Cotter and Joy (2011) recruiting 4361 Australia undergraduates from six public universities found varying reasons of attrition among them. Year one undergraduates mentioned their expectations of the institution which may be related to their expectations on academic and educational experiences. Year two and year three undergraduates quoted their commitments to the course, availability of learning-related support and quality feedback. Overall, these studies suggested that problems in academic adjustment are the main factor that relevant to the attrition among tertiary students (Baker, 2004).

Gerdes and Mallinckrodt (1994) defined academic adjustment as a student's psychological capacity to adjust, adapt and overcome problems, difficulties and different requests encountered in his or her everyday lives. In order for an individual to be successful academically, they must have the capacity to both engage favourably with other people in their academic environment and to successfully navigate the various expectations and pressures that come with that environment (Van Rooij et al., 2018). Academic adjustment is not only relevant to students' scholarly potential but also motivation to learn and

extent of satisfaction with the learning environment (Gerdes & Mallinckrodt, 1994). Anderson, Guan and Koc (2016) suggested a construct of academic adjustment that includes three aspects, namely, academic lifestyle (the disparity between the role of a student and that of a person), academic motivation (the degree to which one is motivated to continue and complete academic work), and academic accomplishment (the amount of success achieved in academic work).

### **Academic Adjustment and Coping Strategies**

As poor academic adjustment is relevant to the attrition from universities, information would be helpful for undergraduates to help them cope with different challenges in their academic lives, and to make them become more independent and responsible in managing their own lives (Sevinç & Gizir, 2014). Undergraduates who are not able to positively adjust themselves to university lives would be bound to face difficulties not only in their studies but also in psychological developments (A. Wang et al., 2006).

Lazarus and Folkman (1984) proposed the transactional model of stress and coping to explain the process that different coping strategies adopted by an individual would affect the outcomes of given stressful situations, and that outcomes can vary from person to person. Context is the primary determinant of coping effectiveness, since coping in one situation may be ineffective in another (Folkman, 2013). Lazarus and Folkman (1984) defined coping as “constantly changing cognitive and behavioural efforts in order to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person” (p. 141). In other words, coping refers to any attempt or effort that people make to manage stressful events or situations in their lives.

Usually, coping methods are categorized into problem-based coping and emotion-based coping. Problem-based coping is different methods or actions adopted by individuals to tackle the problems so that their stress can be reduced. The emotional-based coping is different methods or actions adopted by individuals to manage their distress

feelings that are related to the problems. However, Skinner et al. (2003) argued that the strategies adopted by people to deal with difficult situations are more complicated.

For example, the use of social support coping strategy is difficult to categorize under the problem-focused or the emotion-focused coping strategies. Furthermore, the problem-focused and emotion-focused coping categories do not reflect many coping strategies' instrumental and affective functions. A problem-solving strategy may help to reduce negative emotions related to the stressor (Folkman & Moskowitz, 2004; Skinner et al., 2003). Therefore, different approaches to categorizing coping strategies have been proposed, such as Suls & Fletcher (1985) proposed the approach versus avoidance coping categories; Baumstarck et al., (2017) proposed four coping categories that include social support, problem solving, avoidance, and positive thinking, and Benson (2010) proposed another four coping categories that include engagement, distraction, disengagement, and cognitive framing.

Gan, Hu and Zhang (2010) examined the relationships between coping and adjustment among 403 freshmen at a Chinese university and found that proactive, but not preventive, coping mediates the effect of stress on maladjustment. Besides, most of the 25 Turkey first-year undergraduates interviewed by Sevinc and Gizir (2014) mentioned that they employ the avoidance coping strategy in their academic adjustment. Tao, Dong, Pratt and Hunsberger (2000) who studied on 390 first-year China undergraduates found positive coping being positively associated with academic adjustment, and negative coping negatively associated with academic adjustment.

### **Gender Roles and Academic Adjustment**

Besides, some studies have compared gender differences in academic adjustment, but the results are inconsistent. For example, Clinciu et al. (2021) surveyed 194 students from Transylvania University of Brasov and reported that female students adjusted better than male students. Brass et al. (2019) also

reported female students adjusted better than male students. Their sample includes 1003 grade 5 and 6 students. Nonetheless, Aloka (2022) surveyed 213 fresh undergraduates from a university in Kenya and reported no gender difference in academic adjustment. Similarly, Jain et al. (2017) survey 522 undergraduate and postgraduate students in India reported no gender difference in academic adjustment. In our knowledge, we did not find studies that compare gender roles difference in academic adjustment.

### **Gender Roles and Coping**

Elsewhere, some studies suggested that the types of coping strategies adopted by individuals are relevant to their gender roles (Cecen, 2008; Tamres et al., 2002). Basically, masculine gender roles consist of traits and roles traditionally believed to be masculine such as in leadership, ambition and aggressiveness (Eagly & Steffen, 1984). Meanwhile, feminine gender roles encompass traits and roles traditionally believed to be feminine such as in community, care and nurture (Eagly & Steffen, 1984; Sikdar & Mitra, 2009).

There are different theories to explain the socialization of gender roles, which include traditional learning theory, social learning theory, social cognitive theory, developmental constructivist approaches and gender schema theory (Miller, 2016; Stockard, 2006). According to a literature review conducted by Starr and Zurbriggen (2017), the gender schema theory that is proposed by Bem is significant in its impacts; as of June 2015, more than 1300 citations in PsycINFO have been found to be relevant to this theory.

The Gender schema theory is a social-cognitive theory that explains how people become gendered from an early age through the socialization that affects the formation and development of gender schema throughout their lifetime (Starr & Zurbriggen, 2017). The theory claims that it is important to differentiate sex, gender, and gender roles, as children learn to identify themselves with gender and play the roles of gender through the socialization. This socialization is also known as a sex typing procedure. A boy and a girl learn to form the gender schema of masculinity and femininity through their

parents, as their parents have also been socialized about the distinctions between genders. The internalized of gender roles would be formed and developed into a gender schema, and the children will use the gender schema to assimilate cultural expectations of gender roles and become self-fulfilling prophecies. Through such societal influences, a child would then form and develop gender role schema alongside the extensive and intensive dichotomy between genders (Bem, 1981; Keener et al., 2017).

Furthermore, the above-mentioned socialization process also affects the stressors and coping strategies experienced by genders. Through the socialization by same-sex peers, boys learn to use masculinity strategies to interact with their same sex friends, and girls learn to use the femininity strategies to interact with their same sex friends (Keener et al., 2017). For instance, among 2816 Spanish people of ages between 18 to 65 years old surveyed by Matud (2004), males prefer to use rational and detachment strategies whereas females favour emotional and avoidance strategies to cope with their stressful problems. In addition, compared to males, females report more stressful events like chronic stress, minor daily stressors, and psychological stress. Similarly, Madhyastha, Latha and Kamath (2014) who surveyed 94 third-year medical students from India found that females are more likely to use emotional and instrumental support. Males would use avoidance and negative coping strategies such as self-blame, denial, and substance use. Meanwhile, among 86 Korean students in the United States participating in an online survey, females are found more likely to use collectivistic coping such as talking with others about the problem while facing acculturative stress (Lee, 2014). Besides, Cecen (2008) reported male Turkish undergraduates using self-confident, optimistic, and hopeless coping styles and female Turkish undergraduates adopting social support seeking and submissive coping styles. According to a meta-analysis on 50 studies from English-speaking countries conducted by Tamres and colleagues (2002), women, in comparison to men, are more likely to employ coping mechanisms that involve verbal expressions to either others or to

themselves. These include trying to obtain emotional support, ruminating about difficulties, and engaging in positive self-talk. Overall, these studies reported considerable gender differences in coping strategies.

However, it is noteworthy that sex and gender need not be linked, as sex is fixed and will not change with time while gender roles may change and reflect the beliefs of the current society (Bresnahan et al., 2001; Holt & Ellis, 1998). Therefore, femininity and masculinity can be regarded to be in variable states rather than stable traits. In other words, gender roles can be changed across time and context (Keener et al., 2017). Hence, most of the above-mentioned studies that are using sex instead of gender roles for comparisons may not capture the reality. Due to the social change whereby the society is more likely to accept males taking the feminine rather than masculine gender roles, and females taking the masculine rather than feminine gender roles, it is only appropriate to examine the relationships of gender roles with coping strategies and academic adjustment than to examine gender differences in coping strategies and academic adjustment.

**Aims of the study**

By combining the theory of gender schema and the transactional model of stress and coping (Holt & Ellis, 1998; Lazarus & Folkman, 1984), this study examined the relationships among gender roles, coping strategies and academic adjustment in undergraduates. Since the transactional model of stress and coping proposed that different

coping strategies adopted by an individual would affect the outcomes of given stressful situations (Lazarus & Folkman, 1984), which is academic adjustment in this study, and the gender schema theory suggested that the types of coping strategies adopted by individuals are relevant to their gender roles (Cecen, 2008; Tamres et al., 2002), we expected that the relationship between coping strategies and academic adjustment is relevant to gender roles, therefore gender roles would affect the adopted coping strategies, and that the adopted coping strategies would affect the academic adjustment. In other words, the influences of gender roles on academic adjustment are mediated by coping strategies.

**Research Questions**

The research questions and the conceptual framework (see Fig. 1) of the study are as follows:

1. What is the relationship between gender roles and coping strategies?
2. What is the relationship between gender roles and academic adjustment?
3. What is the relationship between coping strategies and academic adjustment?
4. Are coping strategies statistical mediators for the effects of gender roles on academic adjustment?

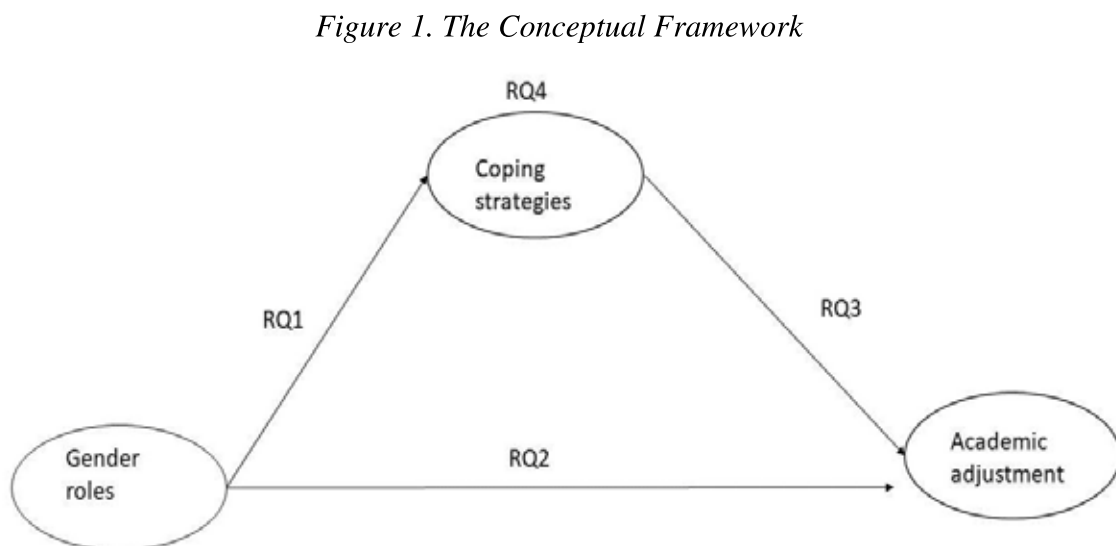


Figure 1. The Conceptual Framework

## Method

A total of 196 undergraduate students (49.5%, n = 95 males; 50.5%, n = 97 females) participated in this study. Hair Jr et al. (2016) suggested that the minimum sample size should be equal or the larger than the ten times of the largest number of formative indicators in one construct. Based on this suggestion, the minimum sample size of this study is 80. The age of the participants ranged from 19 to 26 years old (M = 21.99, SD = 1.43).

### Assessment Measures

The questionnaire executed in this study included four parts: Participant's demographic information, femininity and masculinity in gender role, adaptation to university lifestyle as well as coping strategies. The demographic information consists of the student's general characteristics such as race, ethnicity, gender, age, course of study and year of study.

#### *Academic Adjustment Scale (AAS).*

AAS is a 9-item questionnaire consisting of three factors: Academic lifestyle, academic achievement, and academic motivation. Academic lifestyle represents the fit between the individuals and their temporary roles as students. Academic achievement depicts the students' satisfaction with academic progress and performance. Academic motivation conceptualizes the students' efforts to continue and complete their academic studies. The student participants answered on the 5-point Likert scales ranging from 1 (Rarely applies to me) to 5 (Always applies to me). Both Cronbach's alpha and test-retest reliability were reported as above .70 (Anderson et al., 2016).

*12-Item Bem Sex Role Inventory (BSRI-12).* This inventory includes 12-items on two factors. The first factor is 'Masculine' that consists of six items, such as "Has leadership abilities" and "Acts as leader". The second factor, 'Feminine' that also consists of six items, such as "Warm" and "Sensitive to other's needs". Participants were required to answer how well the items described them on a 7-point Likert scale (1 = "not applicable" to 7 = "totally applicable"). The Cronbach's alpha of the measurement was .78 for

Masculinity and .88 for Femininity respectively (Carver et al., 2013).

*Brief COPE Inventory.* Brief COPE Inventory is the shortened version of Coping Orientation to Problems Experienced (COPE) that contains 28-items on four factors: Social support (8 items), problem solving (4 items), avoidance (10 items) and positive thinking (6 items). The 4-point Likert scale ranges from 1 = I haven't been doing this at all to 4 = I've been doing this a lot. The internal consistency of the four scales were from 0.64 to 0.82 (Baumstarck et al., 2017).

### Procedure

We applied for the approval from the Scientific and Ethical Committee of the university first. After getting the approval, we then use the purposive sampling to recruit undergraduate participants. The inclusive criteria are the participant should be a Malaysian and an undergraduate in a Malaysia university. Those international undergraduates who study in a Malaysia university or a Malaysian who study overseas were excluded. The descriptive predictive survey method was used. Questionnaires were distributed at different locations of the university. A consent form was presented to the participants who were willing to take part in this study, and they were briefed on ethical issues such as the confidentiality of their data as well as the purpose of this study. Each of them was required to complete the 10 to 15-minute questionnaire and hand it back to the researchers for data collection. The researchers thanked the participants for their cooperation upon their questionnaire completion. Altogether, 192 responses were collected from the distributed 200 questionnaires thus the response rate was 96%.

## Results

### Demographic Factors

*Gender, age, and academic adjustment.* The results of independent t-test found no significant difference between male (M = 3.57, SD = .65) and female participants (M = 3.54, SD = .57) in academic adjustment,  $t(190) = -.28, p = .782$ . Also, no significant relation was found between ages and academic adjustment by using Pearson

correlation analysis,  $r(190) = .08$ ,  $p = .287$ . Accordingly, both gender and age are not included as control variables in further analyses.

**Gender and gender roles.** No significant difference was found between male ( $M = 4.78$ ,  $SD = .88$ ) and female participants ( $M = 4.71$ ,  $SD = .92$ ) in femininity,  $t(189.88) = -.56$ ,  $p = .576$ . However, male participants ( $M = 4.61$ ,  $SD = 1.08$ ) achieved a higher score in masculinity than female participants did ( $M = 4.14$ ,  $SD = 1.11$ ),  $t(190) = -2.97$ ,  $p = .003$ .

**Measurement Model**

**Construct reliability.** The composite reliability of all measurements ranged from .77 to .87. In terms of the four coping strategies, the composite reliabilities of avoidance, positive thinking, problem solving,

and social support were 0.80, 0.77, 0.81 and 0.82 respectively. The composite reliability of the two gender roles were 0.87 for femininity and 0.86 for masculinity. Lastly, the composite reliability of academic adjustment was 0.80. The findings suggested that the latent constructs of all measurements are acceptable, as suggested by Hair et al. (2016) that the results should exceed the value of .7 for the composite reliability.

**Discriminant validity.** Using the Fornell-Larcker criterion, the discriminant validity of the measurements was evaluated. As all other measurement indexes were less than the measurement's square root, the discriminant validity of the measurements is deemed satisfactory (see Table 1). (Hair Jr et al., 2016).

**Table 1**

*Discriminant Validity of All Measurements (N=196)*

	1	2	3	4	5	6	7
1. Avoidance	.56						
2. Femininity	.04	.72					
3. Masculinity	-.27	.37	.73				
4. Positive thinking	.15	.44	.25	.64			
5. Problem solving	.09	.46	.32	.64	.72		
6. Social support	.38	.36	.14	.44	.45	.63	
7. Academic adjustment	-.31	.25	.39	.38	.29	.18	.59

**Coefficient of determination, effect size and collinearity statistics of measurements.** As shown in Table 2, all the predictors explained 34% of the total variance of academic adjustment, hence a large effect size. The below 5 variance inflation factor of

all scales indicated no collinearity issue (Hadi et al., 2016). In addition, the results revealed a medium effect size of the avoidance coping on academic adjustment. There were also medium effect sizes of femininity on positive thinking and problem solving.



**Table 2***Coefficient of Determination, Effect Size and Collinearity Statistics of Measurements (N=196)*

DV	Predictors	R <sup>2</sup>	f <sup>2</sup>	VIF
Academic adjustment		.34		
	Femininity		.01	1.35
	Masculinity		.04	1.46
	Avoidance		.15	1.34
	Positive thinking		.09	1.85
	Problem solving		.01	1.94
Avoidance	Social support		.03	1.58
		.09		
	Femininity		.03	1.16
Positive thinking	Masculinity		.10	1.16
		.21		
Problem solving	Femininity		.17	1.16
	Masculinity		.01	1.16
Social support		.23		
	Femininity		.18	1.16
Academic adjustment	Masculinity		.03	1.16
		.13		
	Femininity		.12	1.16
	Masculinity		.01	1.16

**Structural Model**

Table 3 showed that femininity was positively associated with all coping strategies except avoidance,  $ps < .001$ , and that masculinity was positively associated with problem solving but negatively associated

with avoidance coping,  $ps < .05$ . Only positive thinking and avoidance were associated with academic adjustment,  $ps < .001$ , and only masculinity but not femininity was positively associated with academic adjustment,  $p = .019$ .

**Table 3***Results of Direct Effects (N=196)*

Direct effects	B	SE	T	p
Femininity -> Avoidance	.16	.11	1.45	.148
Femininity -> Positive thinking	.40	.08	5.34	< .001
Femininity -> Problem solving	.39	.08	4.76	< .001
Femininity -> Social support	.35	.10	3.46	.001
Femininity -> Academic adjustment	.01	.08	.07	.942
Masculinity -> Avoidance	-.33	.09	3.58	< .001
Masculinity -> Positive thinking	.10	.09	1.10	.271
Masculinity -> Problem solving	.17	.08	2.09	.036
Masculinity -> Social support	.01	.14	.06	.955
Masculinity -> Academic adjustment	.19	.08	2.34	.019
Avoidance -> Academic adjustment	-.37	.09	3.97	< .001
Positive thinking -> Academic adjustment	.33	.09	3.57	< .001
Problem solving -> Academic adjustment	-.03	.09	.27	.787
Social support -> Academic adjustment	.16	.11	1.48	.140

**Mediating effect.** As shown in Table 4, only the specific indirect effects of femininity on academic adjustment through positive thinking was significant,  $p = .005$ , which indicated a mediating effect. In addition, since the direct effect of femininity on academic adjustment was not significant and the total effect was positive, an indirect only mediating

**Table 4**

*Results of Indirect Effects (N=196)*

	B	SE	T	p
Femininity -> Avoidance -> Academic adjustment	-.06	.04	1.44	.151
Femininity -> Positive thinking -> Academic adjustment	.13	.05	2.83	.005
Femininity -> Problem solving -> Academic adjustment	-.01	.04	.26	.797
Femininity -> Social support -> Academic adjustment	.06	.04	1.44	.150
Masculinity -> Avoidance -> Academic adjustment	.12	.04	3.26	.001
Masculinity -> Positive thinking -> Academic adjustment	.03	.03	1.05	.293
Masculinity -> Problem solving -> Academic adjustment	.01	.02	.24	.811
Masculinity -> Social support -> Academic adjustment	.01	.02	.05	.958

## Discussion

Literature suggests that university attrition is relevant to poor academic adjustment (Sabtu, Noor, & Isa, 2016), and poor academic adjustment is related to the coping strategies adopted by undergraduates and their gender roles (Madhyastha et al., 2014; Matud, 2004). Accordingly, this study aimed to examine the relationships among gender roles, coping strategies, and academic adjustment in a sample of Malaysian undergraduate students. Besides, by using the theory of gender schema and the transactional model of stress and coping (Holt & Ellis, 1998; Lazarus & Folkman, 1984), we seek to investigate whether gender roles do affect academic adjustment through their adopted coping strategies.

The results showed significant differences between gender roles and coping strategies in that both gender roles are associated with problem solving. However, femininity, but not masculinity, is positively associated with positive thinking and social support, whereas masculinity but not femininity is negatively associated with avoidance. In other words, different gender roles did affect the participants' adopted

effect was observed (Zhao et al., 2010). Also, the specific indirect effects of masculinity on academic adjustment through avoidance was significant,  $p = .001$ . Meanwhile, the direct effect of masculinity on academic adjustment was significant and the total effect was positive, suggesting a complementary mediating effect.

coping strategies. These results are consistent with the findings of Mclean and Hope (2010) who reported that femininity is not significantly related to avoidance while masculinity shows significance to avoidance. Besides, the findings of Gianakos (2000) showed that females tend to be more socially active in seeking support from their surrounding and males tend to use less avoidance. Blanchard-Fields and Coats (2008) presumed that people high in masculinity could be more afraid to be labelled as gayish if they use more avoidance strategy.

In terms of coping strategies and academic adjustment, the results showed positive thinking and avoidance being associated with academic adjustment, while problem solving and social support are not significantly associated with academic adjustment. In other words, not all coping strategies are able to improve academic adjustment effectively. The results are consistent with the findings of Wang (2009) who suggested that optimistic international students in America often see opportunities in difficult situations and are able to find solutions for their problems, thus are more likely to create a better situation that brings

positive outcomes. The results in this study is also consistent with the findings of Abdullah, Elias, Uli and Mahyuddin (2010) who suggested that scape-avoidance as well as distancing had a negative relationship with academic adjustment, and that the avoidance may create other psychological effects leading to more problems with adjustment.

Likewise, the results are inconsistent with other studies that found social support as an important factor in one's adjustment during the transition state from high school to university (Friedlander et al., 2007). A possible reason for the inconsistent result is that most participants need to leave their homes and start anew in their studies, thus are unable to get social supports from their families and friends staying far away from homes. In addition, the results are also inconsistent with the findings of Abdullah et al. (2010) who reported strategic problem solving linking to better overall academic adjustment. According to them, some of the problems such as institutional factors and financial issues that are encountered in academic adjustment may not be under the students' control. Nonetheless, more studies are needed to examine the relationships between coping strategies and academic adjustment in the tertiary education context.

The results in this study revealed that not all coping strategies are the statistical mediators for the effects of gender roles on academic adjustment. Positive thinking is the statistical mediator for the effects of femininity on academic adjustment, and avoidance is the statistical mediator for the effects of masculinity on academic adjustment. However, problem solving and social support are not statistical mediators for the effects of gender roles on academic adjustment.

#### **Limitation and Recommendations**

Nonetheless, the results should be interpreted with caution. Since the participants were recruited from a university, future researchers may need to recruit more participants from different universities to determine the robustness of the findings. In addition, as this study is a cross-sectional design that may not be able to explain its cause and effect, researchers in future studies may consider using a sessional or longitudinal

design to further examine the mediating roles of coping strategies on the effects of gender roles on academic adjustment.

These findings support our prediction that most previous studies have not differential sex and gender roles and thus omit the possible cultural influences on gender roles and how the gender roles affect the use of coping strategies and academic adjustment. Therefore, the findings of this study further expand the transactional model of stress and coping by including the theory of gender schema (Holt & Ellis, 1998; Lazarus & Folkman, 1984) whereby gender roles can be important factors to be considered while comprehending the relationships among stress, coping strategies and outcomes. In terms of practical application, the findings recommend the raise of awareness among students about the issues of masculinity, as students who emphasis masculinity role are more likely to use avoidant strategy to cope their problems and thus more likely to have academic adjustment problem. Since gender roles are learnt through socialization and not attach to biological sex, both male and female students may adopt femininity role by using more positive thinking strategies, since this strategy has been found to improve academic adjustment.

#### **Conclusion**

In conclusion, the findings of this study found the influences of gender roles on coping strategies and academic adjustment besides the influences of different coping strategies on academic adjustment. In addition, the mediating roles of coping strategies on the effects of gender roles on academic adjustment are also observed. The findings indicate the importance of including gender roles in the transactional model of stress and coping.

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#### **Conflict of interest**

The authors have no conflict of interest to disclose.

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## Availability of data and materials

The information about dataset and analyses for the present study is available from corresponding authors.

## Ethics approval and consent to participate

The informed consent was taken from the study participants before administration.

## Competing interest

The authors have no competing interests to declare.

## References

- Abdullah, M. C., Elias, H., Uli, J., & Mahyuddin, R. (2010). Relationship between Coping and University Adjustment and Academic Achievement amongst First Year Undergraduates in a Malaysian Public University. *International Journal of Arts and Sciences*, 3(11), 379–392.
- Aloka, P. J. (2022). Gender Effects on Adjustment among Freshmen in One Selected Public University. *International Journal of Social Sciences & Educational Studies*, 9(3), 16–28. <https://doi.org/10.23918/ijsses.v9i3p16>
- Al-Qaisy, L. M. (2010). Adjustment of college freshmen: The importance of gender and the place of residence. *International Journal of Psychological Studies*, 2(1), 142. <https://doi.org/10.5539/ijps.v2n1p142>
- Anderson, J. R., Guan, Y., & Koc, Y. (2016). The academic adjustment scale: Measuring the adjustment of permanent resident or sojourner students. *International Journal of Intercultural Relations*, 54, 68–76. <https://doi.org/10.1016/j.ijintrel.2016.07.006>
- Araque, F., Roldán, C., & Salguero, A. (2009). Factors influencing university drop out rates. *Computers & Education*, 53(3), 563–574. <https://doi.org/10.1016/j.compedu.2009.03.013>
- Baker, S. R. (2004). Intrinsic, extrinsic, and amotivational orientations: Their role in university adjustment, stress, well-being, and subsequent academic performance. *Current Psychology*, 23(3), 189–202. <https://doi.org/10.1007/s12144-004-1019-9>
- Baumstarck, K., Alessandrini, M., Hamidou, Z., Auquier, P., Leroy, T., & Boyer, L. (2017). Assessment of coping: A new French four-factor structure of the brief COPE inventory. *Health and Quality of Life Outcomes*, 15(1), 1–9. <https://doi.org/10.1186/s12955-016-0581-9>
- Bem, S. L. (1981). Gender schema theory: A cognitive account of sex typing. *Psychological Review*, 88(4), 354. <https://doi.org/10.1037/0033-295x.88.4.354>
- Benson, P. R. (2010). Coping, distress, and well-being in mothers of children with autism. *Research in Autism Spectrum Disorders*, 4(2), 217–228. <https://doi.org/10.1016/j.rasd.2009.09.008>
- Bernardo, A., Esteban, M., Fernández, E., Cervero, A., Tuero, E., & Solano, P. (2016). Comparison of personal, social and academic variables related to university drop-out and persistence. *Frontiers in Psychology*, 7, 1610. <https://doi.org/10.3389/fpsyg.2016.01610>
- Blanchard-Fields, F., & Coats, A. H. (2008). The experience of anger and sadness in everyday problems impacts age differences in emotion regulation. *Developmental Psychology*, 44(6), 1547. <https://doi.org/10.1037/a0013915>
- Brass, N., McKellar, S. E., North, E. A., & Ryan, A. M. (2019). Early Adolescents' Adjustment at School: A Fresh Look at Grade and Gender Differences. *The Journal of Early Adolescence*, 39(5), 689–716. <https://doi.org/10.1177/0272431618791291>
- Bresnahan, M. J., Inoue, Y., Liu, W. Y., & Nishida, T. (2001). Changing gender roles in prime-time commercials in Malaysia, Japan, Taiwan, and the United States. *Sex Roles*, 45(1–2),

- 117–131. <https://doi.org/10.1023/a:1013068519583>
- Carver, L. F., Vafaei, A., Guerra, R., Freire, A., & Phillips, S. P. (2013). Gender differences: Examination of the 12-item Bem Sex Role Inventory (BSRI-12) in an older Brazilian population. *PloS One*, *8*(10). <https://doi.org/10.1371/journal.pone.0076356>
- Cecen, A. R. (2008). The effects of gender and loneliness levels on ways of coping among university students. *College Student Journal*, *42*(2).
- Cliniciu, A. I., Cazan, A.-M., & Ives, B. (2021). Academic Dishonesty and Academic Adjustment Among the Students at University Level: An Exploratory Study. *SAGE Open*, *11*(2), 215824402110218. <https://doi.org/10.1177/21582440211021839>
- Dyson, R., & Renk, K. (2006). Freshmen adaptation to university life: Depressive symptoms, stress, and coping. *Journal of Clinical Psychology*, *62*(10), 1231–1244. <https://doi.org/10.1002/jclp.20295>
- Eagly, A. H., & Steffen, V. J. (1984). Gender stereotypes stem from the distribution of women and men into social roles. *Journal of Personality and Social Psychology*, *46*(4), 735. <https://doi.org/10.1037/0022-3514.46.4.735>
- Folkman, S. (2013). Stress: Appraisal and coping. In M. D. Gellman & J. R. Turner (Eds.), *Encyclopedia of Behavioral Medicine* (pp. 1913–1915). Springer. [https://doi.org/10.1007/978-1-4419-1005-9\\_215](https://doi.org/10.1007/978-1-4419-1005-9_215)
- Folkman, S., & Moskowitz, J. T. (2004). Coping: Pitfalls and promise. *Annu. Rev. Psychol.*, *55*, 745–774. <https://doi.org/10.1146/annurev.psych.55.090902.141456>
- Friedlander, L. J., Reid, G. J., Shupak, N., & Cribbie, R. (2007). Social support, self-esteem, and stress as predictors of adjustment to university among first-year undergraduates. *Journal of College Student Development*, *48*(3), 259–274. <https://doi.org/10.1353/csd.2007.0024>
- Gan, Y., Hu, Y., & Zhang, Y. (2010). Proactive and Preventive Coping in Adjustment to College. *The Psychological Record*, *60*(4), 643–658. <https://doi.org/10.1007/BF03395737>
- Gerdes, H., & Mallinckrodt, B. (1994). Emotional, social, and academic adjustment of college students: A longitudinal study of retention. *Journal of Counseling & Development*, *72*(3), 281–288. <https://doi.org/10.1002/j.1556-6676.1994.tb00935.x>
- Gianakos, I. (2000). Gender roles and coping with work stress. *Sex Roles*, *42*(11–12), 1059–1079. <https://doi.org/10.1023/a:1007092718727>
- Hadi, N. U., Abdullah, N., & Sentosa, I. (2016). Making sense of mediating analysis: A marketing perspective. *Review of Integrative Business & Economics Research*, *5*(2), 62–76.
- Hair, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2016). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*. Sage Publications. <https://doi.org/10.15358/9783800653614>
- Holt, C. L., & Ellis, J. B. (1998). Assessing the current validity of the Bem Sex-Role Inventory. *Sex Roles*, *39*(11–12), 929–941. <https://doi.org/10.1023/a:1018836923919>
- Jain, D., Tiwari, G. K., & Awasthi, I. D. (2017). Impact of metacognitive awareness on academic adjustment and academic outcome of the students. *International Journal of Indian Psychology*, *5*(1), 123–138.
- Keener, E., Mehta, C., & Smirles, K. (2017). Contextualizing Bem: The developmental social psychology of masculinity and femininity. *Advances in Gender Research*, *23*, 1–18. <https://doi.org/10.1108/S1529-212620170000023001>
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. Springer Publishing Company.
- Lee, C. F. (2014). An investigation of factors determining the study abroad destination choice: A case study of Taiwan. *Journal of Studies in*

- International Education*, 18(4), 362–381. <https://doi.org/10.1177/1028315313497061>
- Madhyastha, S., Latha, K. S., & Kamath, A. (2014). Stress, coping and gender differences in third year medical students. *Journal of Health Management*, 16(2), 315–326. <https://doi.org/10.1177/0972063414526124>
- Matud, M. P. (2004). Gender differences in stress and coping styles. *Personality and Individual Differences*, 37(7), 1401–1415.
- McLean, C. P., & Hope, D. A. (2010). Subjective anxiety and behavioral avoidance: Gender, gender role, and perceived confirmability of self-report. *Journal of Anxiety Disorders*, 24(5), 494–502. <https://doi.org/10.1016/j.janxdis.2010.03.006>
- Miller, C. F. (2016). Gender Development, Theories of. *The Wiley Blackwell Encyclopedia of Gender and Sexuality Studies*, 1–6.
- Ministry of Education. (2018). *Quick Facts 2018: Malaysia Educational Statistics Booklet*. <https://www.moe.gov.my/penerbitan/1587-quick-facts-2018-malaysia-educational-statistics-1/file>
- Parker, J. D., Summerfeldt, L. J., Hogan, M. J., & Majeski, S. A. (2004). Emotional intelligence and academic success: Examining the transition from high school to university. *Personality and Individual Differences*, 36(1), 163–172. [https://doi.org/10.1016/s0191-8869\(03\)00076-x](https://doi.org/10.1016/s0191-8869(03)00076-x)
- Sabtu, H. H., Noor, W. S. W. M., & Isa, M. F. M. (2016). Revisiting student attrition studies: A new conceptual perspective. *Sains Humanika*, 8(4–2). <https://doi.org/10.11113/sh.v8n4-2.1065>
- Sabtu, H. H., Noor, W. S. W. M., Shakizah, W., Isa, M. F. M., & Faizal, M. (2016). Student attrition at technical and vocational educational training (TVET) institutions: The case of XCel Technical College in Malaysia. *Asian Social Science*, 12(12), 197–204. <https://doi.org/10.5539/ass.v12n12p197>
- Sevinç, S., & Gizir, C. A. (2014). Factors Negatively Affecting University Adjustment from the Views of First-Year University Students: The Case of Mersin University. *Educational Sciences: Theory and Practice*, 14(4), 1301–1308. <https://doi.org/10.12738/estp.2014.4.2081>
- Sikdar, A., & Mitra, S. (2009). *An Exploration of Gender Stereotypes in Perception and Practice of Leadership*. 1–8.
- Skinner, E. A., Edge, K., Altman, J., & Sherwood, H. (2003). Searching for the structure of coping: A review and critique of category systems for classifying ways of coping. *Psychological Bulletin*, 129(2), 216. <https://doi.org/10.1037/0033-2909.129.2.216>
- Starr, C. R., & Zurbriggen, E. L. (2017). Sandra Bem's gender schema theory after 34 years: A review of its reach and impact. *Sex Roles*, 76(9–10), 566–578. <https://doi.org/10.1007/s11199-016-0591-4>
- Stockard, J. (2006). Gender socialization. In *Handbook of the Sociology of Gender* (pp. 215–227). Springer.
- Suls, J., & Fletcher, B. (1985). The relative efficacy of avoidant and nonavoidant coping strategies: A meta-analysis. *Health Psychology*, 4(3), 249–288. <https://doi.org/10.1037/0278-6133.4.3.249>
- Tamres, L. K., Janicki, D., & Helgeson, V. S. (2002). Sex differences in coping behavior: A meta-analytic review and an examination of relative coping. *Personality and Social Psychology Review*, 6(1), 2–30. [https://doi.org/10.1207/s15327957pspr0601\\_1](https://doi.org/10.1207/s15327957pspr0601_1)
- Tao, S., Dong, Q., Pratt, M. W., Hunsberger, B., & Pancer, S. M. (2000). Social Support: Relations to Coping and Adjustment. *Journal of Adolescent Research*, 15(1), 123–144. <https://doi.org/10.1177/0743558400151007>
- Thurber, C. A., & Walton, E. A. (2012). Homesickness and adjustment in university students. *Journal of American College Health*, 60(5), 415–

419. <https://doi.org/10.1080/07448481.2012.673520>
- Van Rooij, E. C., Jansen, E. P., & Van De Grift, W. J. (2018). First-year university students' academic success: The importance of academic adjustment. *European Journal of Psychology of Education, 33*(4), 749–767. <https://doi.org/10.1007/s10212-017-0347-8>
- Wang, A., Chen, L., Zhao, B., & Xu, Y. (2006). First-Year Students' Psychological and Behavior Adaptation to College: The Role of Coping Strategies and Social Support. *Online Submission, 3*(5), 51–57.
- Wang, J. (2009). A study of resiliency characteristics in the adjustment of international graduate students at American universities. *Journal of Studies in International Education, 13*(1), 22–45. <https://doi.org/10.1177/1028315307308139>
- Willcoxson, L., Cotter, J., & Joy, S. (2011). Beyond the first-year experience: The impact on attrition of student experiences throughout undergraduate degree studies in six diverse universities. *Studies in Higher Education, 36*(3), 331–352. <https://doi.org/10.1080/03075070903581533>
- Yadav, H., Yusoff, N., & Tan, K. L. (2012). Attrition of Medical Students in International Medical University-2002 to 2007. *South East Asian Journal of Medical Education, 6*(1), 43. <https://doi.org/10.4038/seajme.v6i1.183>
- Zhao, X., Lynch Jr, J. G., & Chen, Q. (2010). Reconsidering Baron and Kenny: Myths and truths about mediation analysis. *Journal of Consumer Research, 37*(2), 197–206. <https://doi.org/10.1086/651257>

## Measuring Body Image Guilt and Shame: Gender and Disordered Eating Behaviors in Perspective

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### Abstract

**Objectives.** The goal of the current study was to investigate the association between bodily perception guilt together with shame, and aberrant eating patterns in adolescents. Differences across gender in the proposed relationship were also studied. Moderating role of gender between the study variables was also explored.

**Method.** Disordered Eating Behavior Scale (Muazzam & Khalid, 2011), Body Image Guilt and Shame Scale (Thompson et al., 2003), with a demographic table was employed for collecting data among 316 teenagers using convenience sampling method that included educational institutes of District Rawalpindi and Islamabad. Phase I of the study's four phases comprises the conversion and modification of Body Image Guilt and Shame Scale (Thompson et al., 2003).

**Results.** The results in the present study indicated that aberrant eating behaviors are importantly positively connection to bodily perception guilt and shame. According to the results, boys experience more bodily perception guilt and shame as compared to girls.

**Conclusion.** The present study concluded that body satisfaction should be promoted among adolescents in order to prevent them from body related guilt and shame, and disordered eating behaviors that consequently enhances their psychological well-being.

**Keywords:** Body dissatisfaction, body image guilt and shame, disordered eating behavior, puberty, adolescents.





## Introduction

Adolescence is a dynamic stage of human development accompanied by transition between childhood and adulthood, accompanied by intense emotional, cognitive, social, and physical changes that present challenges to adolescents, families, educators, health professionals, and communities. During adolescence, sexual maturation and pubertal development occurs and hormonal changes accelerate the physical growth. Young adolescents are preoccupied with physical fluctuations of bodily changes and how others' perceive them. These changes may occur earlier and later in adolescence period, but ultimately these occur (Gaudineau et al., 2010; Ge et al., 2001).

Due to these dramatic biological changes associated with puberty can affect their psychosocial development. Also, an intensified preoccupation with body image and an increased awareness regarding sexuality are necessary psychosocial tasks during adolescence. Among adolescents, especially, among girls, dramatic variations in body size and shape can cause emergence of negative self-image and eating problems. While, among boys, an apparent delay in developmental processes and sex development may cause a person to acquire low self-esteem and a negative body image (Fuchs, 2003; Wong et al., 1995). Weight dissatisfaction because of body fat accumulation in certain areas is prevalent leading to a risk of increased behaviors that are harmful to health such as frequent dieting, extreme calories limitation, use of diet laxatives or pills, extreme distortions of body image, and disordered eating behaviors (Gong & Heald, 1994; Seidler, 2000). The United States Department of Health and Human Service (2004) explains eating disorders to eating habits that are troublesome such as less extreme forms of dieting, overeating, or purging or occur sometimes as compared to one that requires to fulfill the diagnostic requirements for the eating problems DSM V.

Associated with disordered eating are body image concerns. Body image is one's body dynamic perception, how it feels, looks,

and moves. It is formed by physical sensations, emotions, perception, and is not fixed; but in relation to physical experience, mood, and environment, can vary (Stang & Story, 2005). Adolescents experience body dissatisfaction due to associated physical changes with puberty, where girls experience menstruation and an increase in body fat in areas of breast, hips, and stomach (Abraham & O'Dea, 2001). Among adolescent girls, because of increased body fat, body image apprehensions have become so prevalent that it becomes a probable part of puberty (Kater, Rohwer, Londre, 2002). On the other hand, boys are more expected to increase their body size and want to have a masculine V-shaped physique with wide shoulders (McCabe & Riccardelli, 2004). Boys' popularity is defined by athletic abilities (Coyle, 2009). Shape and weight dissatisfaction may lead to unhealthy exercise (Holland et al., 2014), and substance use, diuretics pills, and laxatives (Stang & Story, 2005). One of the potential predictor of eating disturbances is an individual's body image (Cash & Pruzinsky, 2002). Body dissatisfaction is a significant contributor to the emergence of clinical disorders of eating (Cooley & Toray, 2001a) and also subtle eating disorders and eating patterns (Cooley & Toray, 2001b).

Additionally, adolescence is escorted by an interest in sexuality that causes them to feel that their physical appearance is vital than it was during childhood (Baumeister et al., 2001). *Shame* is an emotion stemming from public disclosure of some inadequacy or transgression, however, *guilt*, is viewed as an experience that is 'private' comprising one's own conscience pangs (Tangney, 1996, p. 742). *Shame*, is associated to depression and can be destructive. Smith (2010) studied severely depressed patients, he noted that most of their memories had more themes of shame than guilt themes. Some data furthermore showed that guilt and shame proneness were linked also to depression. A common focus of shame in adolescence is one's body (Davison & McCabe, 2006). About 30% of boys and 60% of girls say they would like to alter their bodies' shape or size (Presnell et al., 2004).

Shame converts to guilt when the norms of society as one's own feelings of value are assumed and when self-condemnation is expected by exposure to public. The person with guilt feels depressed, dejected, head bowed, and lies on his chest an oppressing heavy weight. Guilt unlike shame does not ease like it does outside of the shameful condition (Fuchs, 2003). Shame-proneness certainly has been associated with numerous psychopathology forms including depression, anxiety, and eating disorders (Mills, 2005; Tangney & Dearing, 2002). During adolescence transition, girls predominantly become vulnerable to shame experiences (Walter & Burnaford, 2006). For increased cognitive and physical changes, cognitive development concurrently enables heightened capacities for social-comparison and self-evaluation. Girls during this period of self-focus and quick change are prone, particularly, to engage in negative self-evaluations, that is a shame-proneness characteristic (Rudolph et al., 2006).

Particularly, girls get extremely aware of their appearance and considerably invest emotional and cognitive resources in relation to physical body (Cash & Pruzinski, 2002). At extreme, in order to alter body parts, resort to cosmetic surgeries. These procedures as a choice are considered, chiefly, when higher levels of body shame is experienced by a person and uses appearance fixing strategy to cope with dissatisfaction and to match with ideal standards (Tyler, 2013). Rudd and Lennon (2000) showed that although teens are aware of unhealthiness of their acts, but due to conform to social expectation of beauty, they ignore this risk. Also, holding the concept that one has control over one's body, if they do not adhere to their regimen for handling appearance, they could feel guilty (Rudd et al., 2000).

The situation of being seen and shame is of significance especially for the pathology of body image or external body in certain disorders such as erythrophobia, body dysmorphic disorder, or social phobia. In puberty they are obvious for the first time, when changes take place in body and gain a

new external facet through the developing sexual sphere (Seidler, 2000). Body dysmorphic disorder thus is linked closely to shame. Cosmetic surgery is sought often, but as a rule does not alter the lack of severe self-esteem in which the disorder is ingrained (Philips, 2000). It has been observed that among teenage girls (Johnson & Wardle, 2005; Stice, 2001), college women (Cooley & Toray, 2001a) and middle-aged women (Tiggemann & Lowes, 2002), body image guilt and shame leads to eating pathology (Stice et al., 2002; Wertheim et al., 2001). In Pakistan, however, not much research has been conducted to study body image guilt and shame, hence, the present study addresses this gap.

Theoretical perspective supporting the idea of these interrelated issues in adolescent is addressed by a study that established mediated and direct links of racist discrimination and objectification theory constructs with depressive symptomatology and eating disorder in 180 Latina women. Path analysis showed that internalization of sociocultural attractiveness standards were allied greater depressive symptoms and eating disorder in part by way of the mediating functions of body scrutiny and shame towards one's body, and body scrutiny was linked with greater depressive symptoms and eating problems through the mediator of body shame (Van et al., 2007). Objectification theory (Fredrickson & Roberts, 1997) thinks that many women are considered as objects, subjected to sexual objectification and serves as an object to be appreciated for its use by others. SO (self-objectification) occurs when the body or parts of a woman are detached and singled out from her as an individual and she mainly is viewed as a physical item of sexual desire of males. Self-objectification of women according to objectification theory is expected to contribute to psychological health issues that influence women extremely (i.e., depressive disorders, eating problems, and dysfunctional sexual behaviour) via two main paths. The first is overt and direct path and involves experiences of self-objectification. The second is subtle and indirect path and

involves women's self-objectification or internalization of self-objectification experiences (Fredrickson & Roberts, 1997).

Although these issues are usually prevalent during puberty among both girls and boys, a researcher for the last 14 years as a junior high coach has found out that during adolescence most studies and programs concentrating on body image satisfaction are for girls. There is a lack of realization that adolescent boys are getting sidelined and that for adolescent boys, programs are needed as they also are worried about their body size and shape and may face body image disturbances (Gupta, 2011). The present study therefore, included both girls and boys and their body image concerns have been examined in order to address the literature gap. One of the main causes of disordered eating behaviours is an incorrect view of one's body that leads to a preoccupation with food. Disordered eating behaviors that are leading towards aberrant eating pattern can have negative e.g., stressful, harmful and even life-threatening effects (APA, 2000).

Research examining the relationship between disordered eating and puberty in boys is sparse. Studies however, have proposed that among boys, early maturation is linked with fewer attention problems and more favorable social outcomes, but is connected also to externalizing behaviors. Results are inconsistent for disordered eating. Retrospective and cross-sectional reports show that boys who, as compared to their peers, exhibit higher degrees of problematic eating behaviours when they mature sooner. Boys, who in contrast to males who say they matured sooner than their contemporaries, who indicate that pubertal development was either on time or late exhibit increased body dissatisfaction. report that their pubertal development was late or on time show higher body dissatisfaction compared with boys reporting maturing earlier than their

peers (Kaltiala-Heino et al., 2001). It is difficult in boys to examine the relationship between the age of a pubertal occurrence is known as pubertal timing, and disordered eating. Contrary to girls, there are no lone pubertal timing metric that corresponds to menstruation time. Earlier ages at which ejaculations begin or oigarche however, have indicated a link with the symptoms of bulimia. There had been no connection between early-onset and late-onset oigarche and bulimic symptomatology. At this time, it is unknown if puberty has the same relationship with the chance for eating disorders in males as it occurs among girls (Zehr et al., 2007). Therefore, the goal of the current study was to focus on the eating patterns among boys as well as to address the gap.

Following are the hypotheses of the study:

1. There will be a positive relationship between adolescents' problematic eating patterns, self-image guilt, and humiliation.
2. Girls have higher level of guilt of body image and shame, along with the disordered eating behaviors as compared to boys.

## Method

### Sample

In order to validate the parameters used in this investigation, validation was carried out through convenient sampling; data were collected from private and public schools/colleges in the District Rawalpindi and Islamabad ( $n = 316$ ). However, no support was available from Oxfam facilitators in arranging the sample and data collection in the validation phase. The gender distribution for this sample consisted of 169 girls and 147 boys. The inclusion criteria included those enrolled in schools with age range of 13 till 18 years ( $M = 15.83$ ;  $SD = 1.66$ ).

**Table 1***Mean, Standard Deviation, Frequency, and Percentage along Demographic Variables (N = 316)*

Demographics	Boys (n = 147)		Girls (n = 169)		M	SD
	f	%	f	%		
Age	-	-	-	-	15.83	1.66
Education	-	-	-	-	10.05	1.84
Family size	-	-	-	-	4.70	2.04
Family Income	-	-	-	-	58588.18	123800.03
Family System						
Nuclear	79	53.7	114	67.5	-	-
Joint	51	34.7	42	24.9	-	-
Missing	17	11.6	13	7.7	-	-

*Note.* Table 1 shows the sample distribution of validation study.

### Assessment Measures

**Demographic Sheet.** A demographic sheet was created with details on gender, age, and household income. A demographic sheet was developed including information regarding gender, age, family's income, occupation, number of siblings, school attendance, level, family structure, and size of the family, occupation of mother and father, education level of mother and father, province, residence district, participation in awareness campaigns, access to social support and sources of knowledge about puberty, and religion.

**Body Image Guilt and Shame Scale (BIGSS).** This measure is a particular, based on scenario, body-related based questionnaire. It suggests a tendency to feel guilty and ashamed about body and attitudes related to the body. Established by Thompson et al. (2003) and transcribed in the current study. It comprises 15 items based on scenario with response categories ranging from not likely (1) to highly likely (5) for the first four response choices. It consists of 2 subscales

particularly physique guilt, and Body Image Shame. Typically, the scale is divided into four subscales: Externalization of Blame, Guilt, Shame, and Detachment-Unconcern. There are no items for a reverse score. In the current study, externalisation/ rationalisation and detachment served as filler items, with just the Shame and Guilt subscales being assessed. Body Image Guilt has a reliability of .88, and Body Image Shame has a reliability of .91 in the original scale (Thompson et al., 2003). Large score shows higher levels of guilt and shame. This scale was transcribed and adapted in Urdu language in the present research.

### **BIGSS, Translation and adaptation.**

In this phase, the standard instructions for translation and adaptation were accompanied (Souza & Rojjanasrirat, 2010).

*Step 1: Forward translation.* Original English version was translated into target language that is, Urdu language. Three bilingual translators (two M.Phil. and one PhD scholar) had knowledge regarding the terminologies and constructs of the original

instruments. The original measure was given to two subject matter experts, both were PhD scholars as well as faculty members. They identified certain words (e.g., to replace the word partner with friend or the one with opposite gender, in the questionnaire) that were not culturally appropriate and recommended to replace these words (i.e. partner to be replaced with friend) by giving their opinion.

*Step 2: Comparison among received versions translated in a committee.* The three forward-translated variants of the instruments' instructions, items, and answer format were contrasted to the initial edition of the BIGSS in a committee consisting of bilingual subject matter experts including two PhD and two M.Phil. in Psychology to evaluate inconsistencies and uncertainties in words and phrases, and definition accompanying with each other (Urdu translated versions) and also with original version. Any questions or differences were addressed in the panel and solved. Dictionaries (Oxford and Urdu) were consulted where ambiguity in translation prevailed.

The word of beach was replaced with function/bank of a river (item 7), and item 10 was deleted as the author himself recommended to exclude this item as it was not psychometrically sound. Otherwise, the best items were selected from the three versions (with 100% agreement, less than 75% agreement were discarded in every item) and for certain translations, two or three translated statements were merged in certain items in order to get the exact meaning of the original version. This procedure produced the Instrument's initial, rough translation.

*Step 3: Original-translation.* The version was initially translated with the help of other three bilingual translators (M.Phil. scholars). All the translators had knowledge regarding the instrument's construction and jargon, but were not aware and had not seen the authentic instrument.

*Step 4: Comparison among received versions in back-translation for final selection in a committee.* Initially, the phrasing, structure of grammar, consistency in meaning,

and relevance of the instructions, items, and answer format of the three back translations were examined in a committee with those of the original English version. The committee consisted of three subject matter experts (two PhD, and one M.Phil.) and one researcher of the study. The word including new clothes was replaced with these clothes (item 11a), I was replaced with you in all the sub-items, and for the word body, *jisamat* [physique] was replaced with *jism* [body] (item 2, 4, 10, and 12). After discussion, consensus was made with the members of the committee to create the instrument's final form.

After forward and backward translation, and consulting the subject matter expert, certain words were replaced that were not culturally relevant. Filler items were eliminated by taking the permission from the author, also certain words that were not appropriate in our culture (e.g. partner, beach etc.), were also replaced by the consent of the author. Additionally, item number 10b and 10d were eliminated because the author recommended that these items are not psychometrically sound. The last version (translated and modified) had 14 items that are based on scenarios with an additional two answer options, one of which represented perceived body image guilt and shame.

***Disordered Eating Behavior Scale.*** This 26-item self-report measure for disordered eating behaviours was developed by Muazzam and Khalid (2011). Each item is rated on a 5-point scale, with 0 meaning never and 4 meaning always, to reflect how much it best describes the respondent. The scale was used with the author's consent. It was created with teens and the general adult population in mind. It has no items for reverse scoring. Social Pressure (items 21–26), Eating Withdrawal (items 1–8), Eating Choices and Habits (items 16–20), and Overeating (items 9–15) are the four subscales. Two subscales, namely Eating Withdrawal and Overeating, were employed in the current study. The total scale's alpha coefficient is .86. The alphas for the subscales for societal pressure, eating choices and habits, eating withdrawal, and binge eating are respectively .94, .95, .84,

and.83. Greater score indicates more proneness towards disordered eating behavior.

**Procedure**

The data were collected from Islamabad/Rawalpindi. Permission to collect data was taken from the school and college authorities. Data were collected through convenient sampling. The study's objectives were explained to those who participated verbally, and written informed permission was obtained to confirm their desire to participate. It was granted to those who participated that their privacy and anonymity would be maintained. The scales were used with the authors' consent. While collecting data in one school the principal got offended on the questionnaire and stopped data collection in between. Data collected from others schools was arranged from the personal resources and some principals after thoroughly viewing the questionnaires gave permission for data collection, however, initially, they do showed some reluctance.

**Results**

In order to evaluate the measures' psychometric capabilities and subscales utilized in the current research, descriptive statistics, Cronbach alpha, and confirmatory factor analysis were carried out on the validation study data ( $n = 316$ ). The analyses were carried out by using SPSS version 21 and AMOS version 21. The link between the

variables was investigated using Pearson-Product Moment correlation. Moderation of variables were studied using linear regression analysis through process macro by Andrew Hayes and AMOS version 21. An independent sample t-test was used to determine the mean difference between the sexes. The Body Image Guilt and Shame Scale underwent confirmatory factor analysis (CFA) only because it was translated for the current study.

**Body Image Guilt and Shame Scale-Urdu (BIGSS-U), Confirmatory Factor Analysis.** To assess fit of the model of the BIGSS (Urdu version) on the current sample, confirmatory factor analysis (CFA) was carried out using AMOS version 21. The BIGSS is divided into two subscales (i.e. Body Image Guilt and Body Image Shame). The model's acceptability was assessed using a number of goodness of fit indices, including the standardised root mean square residual (SRMR), comparative fit index (CFI), root mean square error of approximation (RMSEA), and chi-square divided by degrees of freedom ( $2/df$ ). According to Brown (2006), the  $2/df$  ratio had to be less than 2, the RMSEA had to be .08 or below, the CFI, GFI, and IFI had to be greater than .95, and the SRMR couldn't be higher than .10 (Brown, 2006)

**Table 2**

*CFA (Indices of Model Fit) for Body Image Guilt and Shame Scale-Urdu ( $n = 316$ )*

Model/ Modifications	$\chi^2(df)$	$\chi^2/df$	GFI	IFI	CFI	RMSEA	SRMR
M1	712.748(349) $p = .000$	2.042	.85	.79	.79	.059	.062
M2	602.133(298) $p = .000$	2.021	.86	.82	.81	.059	.061
M3	435.957(280) $p = .000$	1.557	.90	.91	.90	.043	.052

*Note.* M1= Default Model of CFA for (BIGSS); M2= Model 1 after deleting item 1a and 1b; M3= Model 2 after adding error covariance.

After conducting the analysis, the default model indicates a poor fit with the value of CFI, GFI, and IFI very less than .90. The factor loadings of item number 1b (representing guilt) is .15 (less than .40). Additionally, loadings of item number 1a (representing shame) is .29 (less than .40) at  $p = .000$ . To improve model, item number 1b and 1a are deleted in Model 2. Again the model represented a poor fit with values of GFI, IFI, and CFI less than .90.

The model was additionally modified by adding the covariance between the error terms (e3↔e4, e16↔e18, e17↔e19, e3↔e11, e24↔e26, e17↔e24, e4↔e13, e2↔e8, e25↔e27, e24↔e25, e9↔e12, e4↔e7, e16↔e17, e6↔e13, e18↔e24, e21↔e25, e20↔e21, e11↔e12). The model again is analyzed after adding the covariance and it showed a model fit with all values falling within the acceptable range in Model 3. Table 3 shows the factor loading of the scale.

**Table 3**

*Factor loadings for the Body Image Guilt and Shame Scale (Urdu Version) (n = 316)*

Shame		Guilt	
Item No.	Loadings	Item No.	Loadings
2b	.37	2a	.32
3a	.42	3b	.43
4b	.44	4a	.41
5a	.53	5b	.42
6b	.42	6a	.37
7b	.57	7a	.40
8b	.44	8a	.53
9a	.59	9b	.50
10b	.55	10a	.53
11b	.57	11a	.42
12b	.63	12a	.59
13a	.38	13b	.55
14a	.48	14b	.49

### Association among Body Image Guilt and Shame and Eating disorders.

The Pearson Product Moment Correlation 'r' was calculated to look at how the study's variables related to one another. The entire sample was analysed, as well as the boys and girls independently. (see Table, 4 and 5).

According to the results in Table 4, among adolescents, disordered eating behaviors is positively correlated with eating

withdrawal and overeating (indicating construct validity of the scale). Similarly, Positive correlations between body image guilt as well as shame and body image guilt and shame demonstrate the construct validity of the measure. According to the results, body image guilt is positively correlated with eating withdrawal. Additionally, body image shame is positively correlated with eating withdrawal and overeating.

**Table 4**

*Correlation Matrix across Body Image Guilt and Shame and eating disorders (N = 316)*

Sr.No.	Variables	1	2	3	4	5	6
1	<b>BIGS</b>	-	.92**	.91**	.20**	.15**	.16**
2	BIGS_BIG		-	.70**	.16**	.14*	.10
3	BIGS_BIS			-	.21**	.13*	.19**
4	<b>DEBs</b>				-	.79**	.74**
5	EW					-	.17**
6	OE						-
	<i>M</i>	74.10	38.39	35.70	35.02	18.86	16.15
	<i>SD</i>	18.06	9.89	9.70	8.78	5.95	5.90
	<i>α</i>	.88	.79	.80	.69	.69	.64

*Note.* BIGS = Body Image Guilt and Shame; BIGS\_BIG = Body Image Guilt; BIG\_BIS = Body Image Shame; DEBs = Disordered Eating Behaviors; EW = Eating Withdrawal; OE = Overeating. \* $p < .05$ . \*\* $p < .01$ .

This shows that as body image guilt increases, eating withdrawal also increases, or vice versa. Similarly, as body image shame increases, eating withdrawal and overeating also increases, or vice versa. Therefore, Hypothesis 1 stating a positive relationship

among body image guilt and shame and disordered eating behaviors in accepted.

In order to examine the results across gender, separate analysis was carried out for boys and girls (see Table 5).

**Table 5**

*Correlation Matrix across Body Image Guilt and Shame and Disordered Eating Behaviors across Gender*

Sr.No.	Variables	1	2	3	4
1	BIGS_BIG	-	.48**	.08	.02
2	BIGS_BIS	.81**	-	.22**	.22**
3	EW	.18*	.09	-	.26**
4	OE	.16*	.18*	.11	-

*Note.*  $n = 147$  for boys;  $n = 169$  for girls. BIGS\_BIG = Body Image Guilt; BIG\_BIS = Body Image Shame; EW = Eating Withdrawal; OE = Overeating. (\* $p < .05$ . \*\* $p < .01$ ).



Lower portion represents the correlations among girls, and upper representing the correlations among boys (see Table 5). According to the in Table 5, among boys, body image shame is positively correlated with disordered eating behaviors (overeating and eating withdrawal). This shows that as body image shame increases among boys, disordered eating behaviors also increases, or vice versa. Further results showed that among girls, there is a significant positive correlation among body image guilt and patterns of disordered eating (including overeating and eating withdrawal). This shows

that as body image guilt increases among girls, disordered eating behaviors also increases, or vice versa. Additionally, body image shame is significantly positively correlated with overeating among girls, indicating that as body image shame increases, overeating also increases, or vice versa.

### Gender Differences

In order to study the differences among male and female in respect to body image guilt and shame and disordered eating behaviors, *t*-test (independent sample) was used. Gender was split in two categories that is, girls (*n* = 169) and boys (*n* = 146).

**Table 6**  
*Mean, SD, and t-values across Gender on Study Variables*

Variable	Girls	Boys	<i>t</i> (313)	<i>p</i>	95% CI		Cohen's <i>d</i>
	( <i>n</i> = 169)	( <i>n</i> = 146)			LL	UL	
	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )					
<b>BIGS</b>							
BIS	36.95(10.41)	40.06(9.01)	2.81	.04	.93	5.28	0.31
BIG	34.67(10.75)	36.88(8.20)	2.02	.00	.06	4.35	.23
<b>DEB</b>							
EW	18.85(6.27)	18.86(5.60)	.01	.17	-1.31	1.33	-
OE	16.04(5.61)	16.25(5.35)	.34	.92	-1.00	1.43	-

*Note.* BIGS = Body Image Guilt and Shame; BIS = Body Image Shame; BIG = Body Image Guilt; DEB = Disordered Eating Behavior; EW = Eating Withdrawal; OE = Overeating.

The results in Table 6 show significant differences on body image guilt and body image shame, across gender. According to the results, boys experience more body image guilt and shame as compared to girls. According to Cohen's *d*, the effect size for body image shame is large, however, for body image guilt is small indicating that the difference between the two group is not very large. However, non-significant findings were found on disordered eating behaviors across gender. Therefore, Hypothesis 2 that girls experience higher levels of body image guilt and shame and disordered eating behaviors is rejected.

### Discussion

The goal of the current study was to investigate how disordered eating behaviours and guilt and shame related to body image. Additionally, the study sought to investigate

how gender affected the variables under investigation.

A significant positive correlation is founded by the results among disordered eating behaviors (overeating and eating drawout) and body image guilt and shame. This shows that with increase in disordered eating behaviors, body image guilt and shame also increases or vice versa. This is evident from the fact that there is a strong association of disordered eating and body image guilt and shame as indicated by the sexual objectification theory (Fredrickson & Roberts, 1997). Additionally, Adolescents who are overweight or unsatisfied with their weight are more likely to engage in risky behaviours such frequent dieting or extreme calorie restrictions, and eating disorders (Stang & Story, 2005). Hence, increase in body satisfaction would make adolescents less

prone towards disordered eating behaviors. According to sexual objectification theory, body surveillance promotes body shame and guilt, leading towards more disordered eating behaviors (Fredrickson & Roberts, 1997). Hence experience more body image guilt and shame leading towards disordered eating behaviors.

According to the results, among boys, body image shame and disordered eating pattern (eating with-draw and overeating) are positively associated with each other. Boys too face body image concerns during puberty. During puberty, boys are more expected to increase their body parts' size and want to have a masculine V-shaped physique with wide shoulders (McCabe & Riccardelli, 2004). Boys popularity is defined by athletic abilities (Coyl, 2009). During adolescence body dissatisfaction is endorsed usually due to associated physical changes with puberty (Abraham & O'Dea, 2001). Also, shape and weight dissatisfaction may results in activities that are unhealthy (Holland et al., 2014), and use of substance such as diet or diuretics medication and laxatives. Body image in itself is one of the potential predictor of disturbances related to eating (Cash & Pruzinsky, 2002). Cognitive development concurrently enables heightened capacities for social-comparison and self-evaluation. Adolescents during this period of self-focus and quick change are prone, particularly, to engage in negative self-evaluations, that is a shame-proneness characteristic (Rudolph et al., 2006). Hence the present study showed that boys during puberty also experiences body image concerns that needs a focused attention and more studies are needed to work on the body image concerns among boys of this age group.

Results further showed that among girls, body image guilt is significantly positively associated with disordered eating behaviors (overeating and eating withdrawal). Additionally, body image shame is significantly positively correlated with overeating among girls. Among adolescent girls, body image apprehensions become so prevalent that it has become a probable part of

puberty (Kater et al., 2002). Adolescent girls are extremely aware of their appearance and considerably invest emotional and cognitive resources in relation to physical body (Cash & Pruzinski, 2002). More and more adolescents for these reasons in order to alter body parts resort to cosmetic surgeries. These procedures as a choice are considered ,chiefly, when higher levels of body image guilt and shame is experienced by a person and employs the appearance-fixing technique to deal with their unhappiness. In high-developed civilizations, cosmetic surgery is seen as ordinary if the body's appearance and/or facial do not conform to the ideal criteria (Tyler, 2013). As demonstrated by Rudd and Lennon (2000), teens who engage in these behaviours are aware of the dangers they pose, but they choose to ignore them in order to uphold social standards of beauty. Additionally, because they believe that they are in control of their bodies, they may feel guilty if they don't follow their routine for managing their physical appearance (Rudd et al., 2000).

Furthermore, results showed nonsignificant differences across gender on disordered eating behaviors. This is evident form that fact that researches on eating and body issues of boys are sparse and studies have failed to identify eating problems among boys (see Gupta, 2011; Zehr et al., 2007). However, boys too undergo pubertal changes and they also experience eating issues (see Coyl, 2009; McCabe & Riccardelli, 2004). Hence, this finding highlights the fact that both boys and girls may be experiencing eating issues during puberty and not girls only suffer from disordered eating. Aadditionally, results showed that boys experience higher levels of body image guilt and shame as compared to girls. The outcome of the current study shows that boys too experience body image concerns during puberty (Gupta, 2011; Kaltiala-Heino et al., 2001; Zehr et al., 2007), hence, efforts should be made to enhance body satisfaction among boys too. Therefore, Hypothesis 2 that girls experience higher levels of body image guilt and shame and disordered eating patterns is rejected.

## **Constraints and suggestion**

Below is a list of the study's short comings and recommendations

In the present study, the impact of pubertal timings was not assessed, hence, it is recommended for the future studies to also consider this phenomenon to study its impact on body image.

1. Oxfam ensured that the arrangement of the data collection and the coordinator took the important consent from the authorities of the institute. In future, it is proposed to maintain confidentiality of the parents and teachers.
2. Due to the nature of the project, the data was extremely varied. Consequently, the sample should be cautiously chosen, and results could be different for more homogenous data.
3. Measures that were used were not indigenous in the present study, and were both translated into Urdu and strangely did not apply to the culture. Therefore, it is advisable to adopt indigenous approaches.
4. In the present study, although Oxfam arranged data collection but were reluctant to collect data from the university setup. Hence, in future better to bring data from universities as well for adolescents.
5. The data collection of the study was found to be cathartic for the participants regarding their body image matters and it was apparent that adolescents needed to talk about their body image issues. Hence, studies are needed to work on the body image of adolescents, especially, boys.

## **Implications of the study**

1. The present study will help people of various professions including care takers, teachers, and clinicians to effectively plan strategies for implementing educational opportunities for adolescents in order to educate them regarding their body image and eating patterns during pubertal phase.
2. Regarding with body image concerns, adolescent boys are reluctant often to

seek help from their mother and father. Hence, Parents need instruction on how to talk to their boys about these difficulties.

3. Boys are more dissatisfied with their bodies, therefore, they should be given counseling and awareness regarding the bodily changes taking place during puberty in order to prevent mental health issues.

## **Conclusion**

The current research concluded that there is a positive relationship among body image guilt and shame and disordered eating behaviors. Additionally, during puberty, body image concerns are heightened among both boys and girls. Among girls, body image guilt is positively linked with disordered eating behaviors. Among boys, body image shame is positively linked with disordered eating behaviors. Furthermore, boys experience higher levels of self body perception guilt and shame as contrast to girls. Hence, in conclusion boys equally, during puberty, experience body image concerns; however, they are ignored in the light of researches due to the sampling bias of including and considering only girls for studying body image and eating issues. Hence, further studies should also take boys in to account.

## **Declaration**

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### **Conflict of Interest**

The authors are well informed and declared no competing interests.

### **Acknowledgements**

Authors are very thankful to all the participants who have participated in study.

### **Availability of data and materials**

The datasets used and/or analyzed during the current study are available from the corresponding authors on reasonable request.

### **Ethical approval**

Formal permission was acquired from institutional Ethical board to conduct research.

### **Competing interest**

The authors declare to have no competing interests.

## References

- Abraham, S., & O'Dea, J. (2001). Body mass index, menarche, and perception of dieting among peri-pubertal adolescent females. *International Journal of Eating Disorders, 29*, 23–28.
- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text rev.). Washington, DC: American Psychiatric Association.
- Baumeister, R.F., Heatherton, T.F., & Tice, D.M. (1994). *Losing control: How and why people fail at self-regulation*. San Diego, CA: Academic Press.
- Baumeister, R. F., Kahn, J., & Tice, D. M. (2001). Obesity as a Self-Handicapping Strategy: Personality, Selective Attribution of Problems, and Weight Loss. *The Journal of Social Psychology, 130*(1), 12-123.
- Cash, T. F., & Pruzinsky, T. (2002). An Information Processing Perspective on Body Image, *Body Image. A Handbook of Theory, Research & Clinical Practice*, Guilford Press.
- Cooley, E., & Toray, T. (2001a). Disordered eating in college freshman women: A prospective study. *Journal of American College Health, 49*, 229–235.
- Cooley, E., & Toray, T. (2001b). Body image and personality predictors of eating disorder symptoms during the college years. *International Journal of Eating Disorders, 30*, 28–36.
- Coyl, D. D. (2009). Kids really are different these days. *Phi Delta Kappan, 405-407*.
- Davison, T. E., & McCabe, M. P. (2006). Adolescent body image and psychosocial functioning. *The Journal of Social Psychology, 146*(1), 15-30.
- Fredrickson, B. L., & Roberts, T. A. (1997). Objectification theory: Toward understanding women's lived experiences and mental health risks. *Psychology of Women Quarterly, 21*, 173.
- Fuchs, T. (2003). The Phenomenology of Shame, Guilt and the Body in Body Dysmorphic Disorder and Depression. *Journal of Phenomenological Psychology, 33*(2).
- Gaudineau, A., Ehlinger, V., & Vayssiere, C. (2010). Factors associated with early menarche: results from the French Health Behaviour in School-aged Children (HBSC) study. *BMC Public Health, 10*, 175.
- Ge, X., Conger, R. D., & Elder-Jr, G. H. (2001a). Pubertal transition, stressful life events, and the emergence of gender differences in adolescent depressive symptoms. *Developmental Psychology, 37*(3), 404.
- Gong, E. J., & Heald, F. P. (1994). Diet, nutrition and adolescence. *Modern nutrition in health and disease, 759-769*.
- Gupta, C. (2011). The relation between body image satisfaction and self-esteem to academic behaviour in adolescents and pre-adolescents.
- Holland, L. A., Brown, T. A., & Keel, P. K. (2014). Defining features of unhealthy exercise associated with disordered eating and eating disorder diagnosis, *Psychology of Sport and Exercise 15*, 116. doi:116e123 10.1016/j.psychsport.2013.10.005.
- Johnson, F., & Wardle, J. (2005). Dietary restraint, body dissatisfaction, and psychological distress: A prospective analysis. *Journal of Abnormal Psychology, 114*, 119–125.
- Kaltiala-Heino, R., Rimpela, M., Rissanen, A., & Rantanen, P. (2001). Early puberty and early sexual activity are associated with bulimic-type eating pathology in middle adolescence. *Journal of Adolescence Health, 28*, 346–352.
- Kater, K. J., Rohwer, J., & Londre, K., (2002). Evaluation of an upper elementary school program to prevent body image, eating, and weight concerns. *Journal of School Health, 72*(5), 199-204.
- McCabe, M. P., & Ricciardelli, L. A. (2004). Body image dissatisfaction among males across the lifespan: A review of past literature. *Journal of Psychosomatic Research, 56*(6), 675-685.

- Mills, R. S. L. (2005). Taking stock of the developmental literature on shame. *Developmental Review, 25*, 26–63.
- Muazam, A., & Khalid, R. (2011). Development and Validation of Disordered Eating Behavior Scale: Identification, Prevalence, and Difference with Clinically Diagnosed Eating Disorders. *Pakistan Journal of Psychological Research, 26*(2), 127-148.
- Naqvi, I., & Kamal, A. (2017). Eating attitudes and beliefs in food myths among adolescents. *National Institute of Psychology, QAU, Islamabad, Pakistan. Unpublished Thesis.*
- Philips, K.A. (2000). Personality disorders and traits in patients with body dysmorphic disorder. *Comprehensive Psychiatry, 41*, 229-236.
- Presnell, K., Bearman, S., & Stice, E. (2004). Risk factors for body dissatisfaction in adolescent boys and girls: A prospective study. *International Journal of Eating Disorders, 36*, 389–401.
- Rudd, N. M., & Lennon, S. J. (2000). Body image and appearance management behaviors in college women. *Clothing and Textiles Research Journal, 18*, 152. doi: 10.1177/0887302X0001800304.
- Rudolph, K. D., Hammen, C., & Daly, S. E. (2006). Mood disorders. In D. A. Wolfe & E. J. Mash (Eds.), *Behavioral and Emotional Disorders in Adolescents: Nature, Assessment, and Treatment*, 300–342. New York: Guilford Publications.
- Seidler, G. (2000). *In Others' Eyes: An Analysis of Shame*. International Universities Press.
- Smith, A. J. (2010). Body image, eating disorders, and self-esteem problems during adolescence. In M. H. Guindon (Ed.), *Self-esteem across the lifespan: Issues and Interventions*. New York, NY: Routledge.
- Stang, J., & Story, M. (2005). *Adolescent Growth and Development*. Guidelines for Adolescent Nutrition Services. [http://www.epi.umn.edu/let/pubs/adol\\_book.shtm](http://www.epi.umn.edu/let/pubs/adol_book.shtm)
- Stice, E. (2001). Risk factors for eating pathology: recent advances and future directions. *American Psychological Association, 51–73*.
- Stice, E., Presnell, K., & Spangler, D. (2002). Risk factors for binge eating onset in adolescent girls: A 2-year prospective investigation. *Health Psychology, 21*, 131–138.
- Tangney, J. P. (1996). Conceptual and Methodological Issues in the Assessment of Shame and Guilt. *Behavioural Research and Therapy, 34*, 741-754.
- Tangney, J. P., & Dearing, R. L. (2002). Measuring Shame and Guilt (pp. 207-239). New York: The Guilford Press.
- Thompson, T., Dinnel, D. L., & Dill, N. J. (2003). Development and validation of a Body Image Guilt and Shame Scale. *Personality and Individual Differences, 34*, 59-75.
- Tiggemann, M., & Lowes, J. (2002). Predictors of maternal control over children's eating behavior. *Appetite, 39*, 1–7.
- Tyler, M. (2013). "Thigh gap": New body obsession for teen girls?" *Eating Disorders Online*, March 25, 2013, accessed November 20, Retrieved from <http://www.eatingdisordersonline.com/news/general/thigh-gap-new-body-obsession-for-teengirls>
- U.S. Department of Health and Human Service (2004). *Older Adults and Mental Health*. In *Mental health: A Report of the Surgeon General*. Available at: <http://www.surgeongeneral.gov/library/mentalhealth/chapter5/sec1.html>
- Velez, B. L., Campos, I. D., & Moradi, B. (2015). Relations of sexual objectification and racist discrimination with Latina women's body image and mental health. *The Counseling Psychologist, 43*(6), 906–935. <https://doi.org/10.1177/0011000015591287>
- Van den Berg, P., Paxton, S. J., Keery, H., Wall, M., Guo, J., & Neumark-Sztainer, D. (2007). Body dissatisfaction and body comparison with media images in males and females. *Body Image, 4*, 257–268.

- Walter, J. L., & Burnaford, S. M. (2006). Developmental changes in adolescents' guilt and shame: The role of family climate and gender. *North American Journal of Psychology*, 8(1), 321–338.
- Wertheim, E. H., Koerner, J., & Paxton, S. J. (2001). Longitudinal predictors of restrictive eating and bulimic tendencies in three different age groups of adolescent girls. *Journal of Youth and Adolescence*, 30, 69–81.
- Wong, D. L., Wilson, D., & Whaley, L. F. (1995). Whaley & Wong's nursing care of infants and children, 5th edition.
- Zehr, J. L., Culbert, K. M., Sisk, C. L., & Klump, K. L. (2007). An association of early puberty with disordered eating and anxiety in a population of undergraduate women and men. *Journal of Hormonal Behavior*, 52, 427–435. PubMed:17707381

## Parental Psychological Control, Adolescent's Emotional Autonomy and its Relationship with Academic Resilience

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### Abstract

**Objectives:** Aim of this research was to examine the impact of parental psychological control on adolescent's emotional autonomy and its relationship with academic resilience.

**Method:** The sample comprised of 300 adolescents, data were collected from the districts of Attock, Rawalpindi and Islamabad. Age range of participants was 16 to 18 years ( $M_{age} = 16.50$ ,  $SD = 1.25$ ). Self-report measures including Psychological Control Scale (), Academic Resilience Scale () and Adolescents Emotional Autonomy Scale () were used to collect information from adolescents. Data were analyzed by using SPSS (Version-23).

**Results:** Results of the study revealed that parental psychological control has negative relationship with academic resilience. Results on mediation model indicated that academic resilience significantly partially mediates the association between parental psychological control and emotional autonomy among adolescents. There were no age-related differences among adolescents in parental psychological control, emotional autonomy and academic resilience.

**Conclusion:** Findings on levels of education indicated that academic resilience in relationship to parental psychological control needs studying among young people. Thus, current study has implications for clinical psychologists, practitioners and researchers who are inspired to increase confidence and personal autonomy among adolescents.

**Keywords:** Parental Psychological Control, Academic Resilience, Emotional Autonomy, Adolescents



## Introduction

Family is an integral part of the society that has impact on every individual's life and behavior. Family affects children in a number of ways including their psychological, physical and academic growth. There is a great connection between mental and physical health of a person and correct and balanced relationship with his family and parents (Zahedani, Rezaee, Yazdani, Bagheri, & Nabeiei, 2016). In a family environment, generally parents set in-house rules and structures that contribute towards development of identity and autonomy also serve as encouraging patterns for resilience characters (Smith, 1999). Leading from primary school to high school, parenting, family and personal characteristics sometimes favour risky behaviors which frequently lead to failures in schools. Thus, numerous variations and susceptibilities affect adolescents at this stage of life. Prominent risk factors are adolescence, school, teacher, family, and community influences that increase a young people's probability of developing, sustaining, or exacerbating social and mental health issues, which in effect decreases academic resiliency (Jones & Prinz, 2005). According to Zahedani et al. (2016), parenting and emotional autonomy may effect psychological development of adolescents. However, many adolescents overcome these risk factors and excel in the academic and social setting due to their reliance upon the strength of their resilience (Altaf et al, 2021; Waxman, Gray, & Padron, 2003).

### Parental Psychological Control

The degree to which parents seek to control the child's mental state or values is psychological influence, also called parental psychological control or psychological intrusiveness. For example, they may use the induction of guilt or make the child feel that they're not going to be loved unless they do what their parents want. The core of psychological control is that it attacks the child's self (Xu, Dai, Liu, & Deng, 2020).

McKinney, Donnelly, and Renk (2008) observed that any child who is unable to perform well in his or her studies often develop

low self-esteem, self-efficacy, and are at a greater difficulty in regulating their emotions. Beyers and Goossens (1999) said that these students may fail to realize their real potential. In academic they perform low and are more vulnerable to drop out of school. Bentley (2013) proposed that family factors may have a direct effect on children's social and emotional development. Another such risk factor is the low socio-economic status (SES) identified as a potential predictor of negative outcomes in a child's life.

Nonetheless, many teenagers have the potential to succeed through their lives, regardless of other adverse circumstances. Not only do many thrive, but they are still academically and socially successful. Thus, notion of resilience is characterized by the ability to thrive in difficult circumstances. The resilience theory tries to understand why certain students are doing well in their grades and thriving in their life given adverse environmental or social circumstances (Rogers, Buchanan, & Winchell, 2003).

### Emotional Autonomy

Zimmer-Gembeck, Collins, and Adams (2003) defined emotional autonomy as "a sense of parental individuation and loss of reliance on parents, and that means changing expectations and relationships with parents". It is suggested that psychological control and emotional autonomy processes can predict diverse consequences like psychological control may be predominantly predictive of illness and psychopathology, and that emotional autonomy would be particularly predictive of well-being.

Self-regulation as an ability to respond and react in long term interest in a person's favour. Self-regulation is a possible representative of the association between parental warmth, their participation and academic engagements of the children. Jacobson and Crockett (2000) used both self-report data and observational method to measure the correlation between involvements of parental warmth in school engagements. He concluded that psychologists should be mindful while dealing with the students suffering from such conditions which are directly related to student's mental absence or



less interest in studies as normally their struggles in education system has a direct link with parent-child relationship (McClelland & Cameron, 2011).

### **Academic Resilience**

Academic resilience is another development that was proposed by Martin (2013), closely linked to institutional resiliency. It is identified as the capacity to resolve the shortcomings, difficulties and problems that are part of daily academic life. It is realised as separate from academic flexibility, which instead relates to the ability to stunner major difficulties that threaten the development of student education. Martin (2013) provides proof that while buoyancy and resilience are linked, buoyancy better forecasts negative outcomes at low rates and resilience better predicts substantial negative consequences in line with the earlier buoyancy definition by Martin and Marsh (2008) as reflecting "everyday" academic resilience.

Waxman et al. (2003) stated that resilience denotes to influences and processes which reduce stress-related negative behaviors and result in adversity-related adaptive outcomes. They address the cost of resilience research to understand alterations between resilient and non-resilient students and to concentrate on adjustable causes to establish more successful instructional approaches. They claim that concentrating on behavioral adaptation and other features that can be modified to encourage adaptation will help to overcome the achievement gap between the effective students and those who are leading towards failure (Waxman et al., 2003).

Researchers suggested that academic resilience mediate hardship and achievement in university students. Hamill (2003) Prioritized self-efficacy while compared to resilience considerations, the capacity for creating resilience provides a central hypothesis for this analysis to examine academic self-efficacy as a mechanism that affects student responses to academic adversity. Resilience work has developed rapidly, particularly in developmental psychology, family psychology, counselling, recovery and clinical psychology (Kumpfer, 2002). Wang and Gordon (2012) suggested academic resilience

as an increased likelihood of success in school despite personality traits, conditions and experiences of environmental adversity.

### **Rationale of the Study**

Parenting has frequently remained the topic of interest for researchers during past several decades. In particular it is often studied as a phenomenon which has direct relationship with developmental outcomes for children. However, the existing literature is unable to build consensus on the parenting style elements which are likely to be most significant in context of adolescents' wellbeing. In addition, the relationship of various parenting styles with adolescent development such as academic resilience, social bonding and mental development as evident through various research studies are not effectively translated into policies.

This research study intends to focus upon three major areas related to adolescent development. First, keeping in view existing literature, present study will investigate the concept of psychological control and its connotation with emotional autonomy and academic resilience of adolescents. There is a greater need to probe the relationships between parental psychological control, adolescent's emotional autonomy, and academic resilience in the context of Pakistan. The existing body of literature does suggest that parent's attitude plays pivotal role in academic performance of their children. Therefore, this study will attempt to investigate the psychological control factors in the local settings that may have any relationship with the academic performance of adolescents.

Moreover, this study is an add-on to the existing body of literature on psychological control by parents on their children and its association with academic resilience of adolescents. It will explore the correlation between emotional independence of adolescents with psychological control attitude of their parents in which they have grown up. Further, the study will provide a strong foundation for policy maker and all the concerned stakeholders to revisit their policies and measures for promoting academic reliance in adolescents. It will provide a detailed insight on good academic performance as well as

prerequisites for the parents to cope with external and internal psychological factors that bar their children to grow their skills and perform well academically.

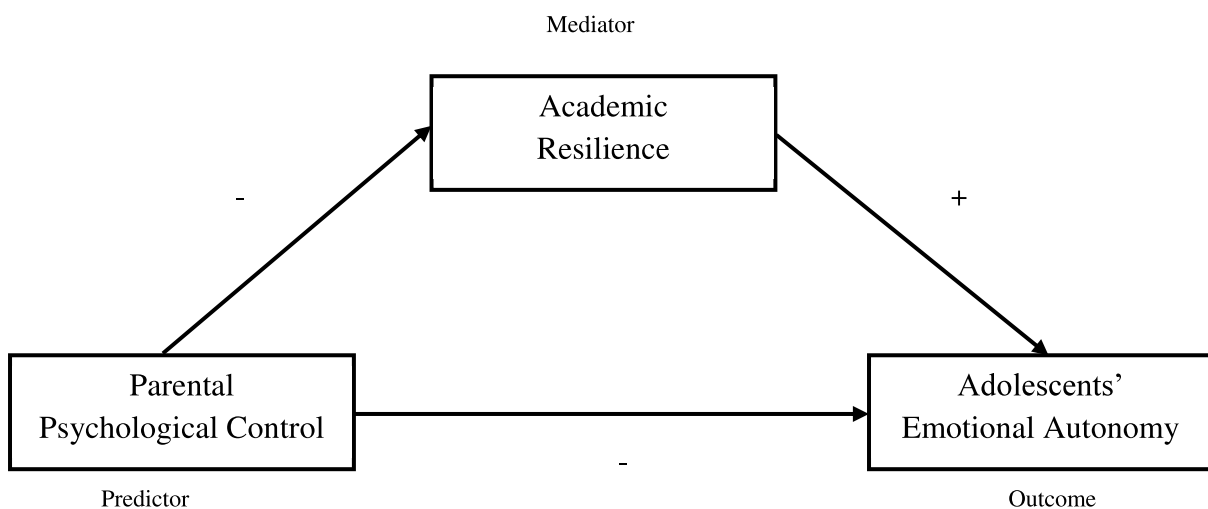
**Objectives**

1. To investigate the relationship between parental psychological control, academic resilience, and emotional autonomy in adolescents.
2. To examine the difference among individuals on the basis of gender, age, education and GPA/percentage.

**Hypotheses**

1. Parental psychological control has negative relationship with adolescents’ emotional autonomy resulting in poor academic performance.
2. Academic resilience acts as a mediator between parental psychological control and adolescents’ emotional autonomy.
3. Males are more resilient academically as compared to females.
4. There is a significant difference among individuals on the basis of gender, age, education and GPA.

**Conceptual framework**



**Methodology**

**Research Design**

In the current study the research design was cross sectional survey.

**Sample**

The sample comprised of adolescents (N = 300) including male adolescents (n = 150) and female adolescent (n = 150) in equal counterparts. The adolescents were studying in intermediate/A levels, B.A, BSc and BS from inter colleges and universities of the cities such as main district Attock, Rawalpindi and Islamabad. The age range of participants will be 16 to 18 years (M<sub>age</sub> = 16.50, SD = 1.25). Participant selection was done by using purposive sampling technique.

**Inclusion Criteria**

Adolescents were selected from general population who are studying in colleges and universities. Only undergraduate students were

studied and age ranges have be 16 to 18 years. For the collection of data only Attock, Rawalpindi and Islamabad were chosen.

**Exclusion Criteria**

Adolescents, who were not studying in formal academic institutions were excluded.

**Instruments**

**Academic Resilience Scale.**

The scale was developed by Cassidy (2016) was used. It is 30 items rating scale for measuring student’s academic resilience. It’s comprised of four subscales: cognitive effectiveness, self-efficacy, behavioural responses to adversity and self-regulating learning. Subscales scores can be used as standalone resilience indicators or they can be summed to create a total student’s academic resilience. There are three major factors loaded in these scales. Items: 11, 16, 2, 3, 13, 5, 4,

17,8, 30,10,9,15,1 measure Perseverance factor, items: 27, 22, 26, 24, 25, 21, 20, 29, 18 measure reflection and adaptive help seeking factor and negative effect and emotional response factors are measured on the items: 28, 7,12, 14, 9,6, 28. ARS has good internal consistency measured by the alpha Cronbach's coefficient that ranges from .76 to .83.

**Psychological Control Scale—Youth Self-Report (PCS-YSR)**

Psychological Control Scale For the assessment of psychological power. The scale was the only existing parent-child assessment instrument which includes a specific psychological control measure. The subscales include guilt induction, love withdrawal, and excessive pressure for change was part of the scale. The items are scored 1 = not like me, 2 = somewhat like me, and 3 = a lot like me (Barber, 1996). The scale has reliability of .72 to .86. Internal reliability also was good with Cronbach's alpha ranging from .80 to .83.

**Adolescents Emotional Autonomy Scale**

The scale was developed by Steinberg and Silverberg (1986) was used. It has 20 items and 5 points Likert scale from strongly agree to strongly disagree. The notation after each item give direction for relevant subscale

(I=individuation; D=parental de-idealization; N=no dependency on parents; P=perceives parents as people). Cronbach's alpha of the scale is .75. High score on the scale indicates greater emotional autonomy.

**Procedure**

Prior permission was taken from concerned authorities, students of schools and colleges were approached by the researcher. Before starting the study, a brief introductory session was taken with the participants and authorities for obtaining informed consent. Then the data was collected and all confusions regarding data collection were made clear. In addition, participants were asked to be truthful as they received the response, and they were praised for their help at the end.

**Results**

Findings show descriptive statistics and alpha reliability coefficients for parental psychological control, academic resilience and emotional autonomy among adolescents. Results show that data was normally distributed and therefore parametric statistics can be applied. Alpha reliability coefficients values revealed that all the scales and subscales have satisfactory level of alpha reliability (i.e.,  $\alpha > .70$ ).

**Table 1**

*Pearson Correlation for Parental Psychological Control, Academic Resilience and Emotional Autonomy among Adolescents (N = 300)*

Variables	1	2	3
Emotional Autonomy	--	-.09	.04
Academic Resilience		--	-.19**
Parental Psychological Control			--

\*\* $p < .01$

Table 1 shows Pearson correlation for parental psychological control, academic resilience and emotional autonomy among adolescents. Results indicate that parental psychological control has significantly negative relationship with academic resilience  $r = -.19, p < .01$ . whereas emotional autonomy is non significantly related to academic resilience. Therefore, first hypothesis “parental psychological control has negative relationship with adolescents’ emotional autonomy resulting in poor academic performance” was partially supported by the current findings.

**Table 2**

*Independent Sample t test to investigate Age Related Differences in Parental Psychological Control, Academic Resilience and Emotional Autonomy among Adolescents (N = 300)*

Variables	18 to 20 years (n = 198)		21 to 22 years (n = 102)		t	p	95% CI		Cohen's d
	M	SD	M	SD			LL	UL	
	Emotional Autonomy	2.49	.20	2.50			.28	.31	
Academic Resilience	3.66	.40	3.74	.34	1.58	.112	-.16	.01	.21
Parental Psychological Control	2.05	.18	2.04	.18	.27	.780	-.03	.05	.05

df=298

Table 2 shows independent sample t test to investigate age related differences in parental psychological control, academic resilience and emotional autonomy among adolescents. Results were non-significant on emotional autonomy  $t(298) = .75, p > .05$ , academic resilience  $t(298) = .11, p > .05$ , and parental psychological control  $t(298) = .78, p > .05$ .

**Table 3**

*One Way ANOVA to Investigate Differences on the Basis of Education Level in Parental Psychological Control, Academic Resilience and Emotional Autonomy among Adolescents (N = 300)*

Variables	Intermediate (n = 25)		BSc (n = 149)		BS (n = 126)		F	p
	M	SD	M	SD	M	SD		
	Emotional Autonomy	2.47	.21	2.48	.21	2.51		
Academic Resilience	3.92	.41	3.59	.35	3.77	.37	13.46	.000
Parental Psychological Control	1.91	.08	2.10	.17	2.00	.19	18.91	.000

Table 3 shows one way ANOVA to investigate differences on the basis of education level in parental psychological control, academic resilience and emotional autonomy among adolescents. Results show significant differences on the basis of education level in academic resilience [ $F(2, 297) = 13.46, p < .01$ ], and parental psychological control [ $F(2, 297) = 18.91, p < .01$ ]. Results were non-significant on emotional autonomy [ $F(2, 297) = .58, p > .05$ ].

**Table 4**

*Post Hoc Test (Gabriel Method) for investigating Multiple Comparisons with Respect to Education Level (N = 300)*

Dependent Variable	(I) your education	(J) your education	MD (I-J)	SE	P	95% CI	
						LL	UL
Academic Resilience	Inter	BSc	.33*	.08	.002	.15	.51
		BS	.15	.08	.121	-.02	.33
	BSc	Inter	-.33*	.08	.001	-.51	-.15
		BS	-.18*	.04	.000	-.28	-.07
	BS	Inter	-.15	.08	.123	-.33	.02
		BSc	.18*	.04	.000	.07	.28
Parental Psychological Control	Inter	BSc	-.19*	.03	.000	-.27	-.10
		BS	-.09*	.03	.021	-.18	-.00
	BSc	Inter	.19*	.03	.000	.10	.27
		BS	.09*	.02	.000	.04	.15
	BS	Inter	.09*	.03	.020	.00	.18
		BSc	-.09*	.02	.001	-.15	-.04

\* $p < .05$

Table 4 shows post hoc test for investigating multiple comparisons with respect to education level. Results show that in academic resilience there was significant difference between the scores of intermediate level and BSc ( $p = .05$ ), and in parental psychological control there was significant difference between the scores of BSc and intermediate level ( $p = .05$ ).

**Table 5**

*Independent Sample t test to investigate Gender Differences in Parental Psychological Control, Academic Resilience and Emotional Autonomy among Adolescents (N = 300)*

Variables	Males (n = 135)		Females (n = 165)		t	p	95% CI		Cohen 's d
	M	SD	M	SD			LL	UL	
Emotional Autonomy	2.51	.24	2.48	.21	1.05	.293	-.02	.08	.12
Academic Resilience	3.74	.38	3.67	.37	1.75	.081	-.00	.16	.20
Parental Psychological Control	2.02	.20	2.06	.16	2.08	.038	-.08	-.00	.24

df=298

Table 5 shows independent sample t test to investigate age related differences in parental psychological control, academic resilience and emotional autonomy among adolescents. Results show that males were significantly higher on parental psychological control  $t(298) = 2.08$ ,  $p < .05$ , as compared to the female participants. Results were non-significant on emotional autonomy  $t(298) = 1.05$ ,  $p > .05$ , academic resilience  $t(298) = 1.75$ ,  $p > .05$ .

**Table 6**

*By Using Process Method to Investigate the Mediating Role of Academic Resilience between Parental Psychological Control, and Emotional Autonomy among Adolescents (N = 300)*

	Academic Resilience		
	B [95% CI]	SE B	$\beta$
<b>Step I</b>			
Constant	2.37** [2.08, 2.66]	.14	
Parental Psychological Control	-.05* [-.08, -.20]	.11	-.04*
$R = .189, R^2 = .036, F(1, 298) = .67, p > .05$			
<b>Step II</b>			
Constant	2.02** [1.37, 2.66]	.32	
Parental Psychological Control	-.38** [-.61, -.15]	.11	-.18**
Emotional Autonomy	.13* [-.32, -.04]	.09	-.08*
$R = .20, R^2 = .043, F(1, 298) = 6.67, p < .001$			

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

Table 6 shows process analysis to investigate the mediating role of academic resilience between parental psychological control, and emotional autonomy among adolescents. In step-II the  $R^2$  value of .043 explained 4% variance in the outcome variable by the mediator academic resilience,  $F(1, 298) = 6.67$ ,  $p < .01$ . Results show that academic resilience ( $B = -.13$ ,  $p < .05$ ) significantly partially mediated the relationship between parental psychological control and emotional autonomy among adolescents.

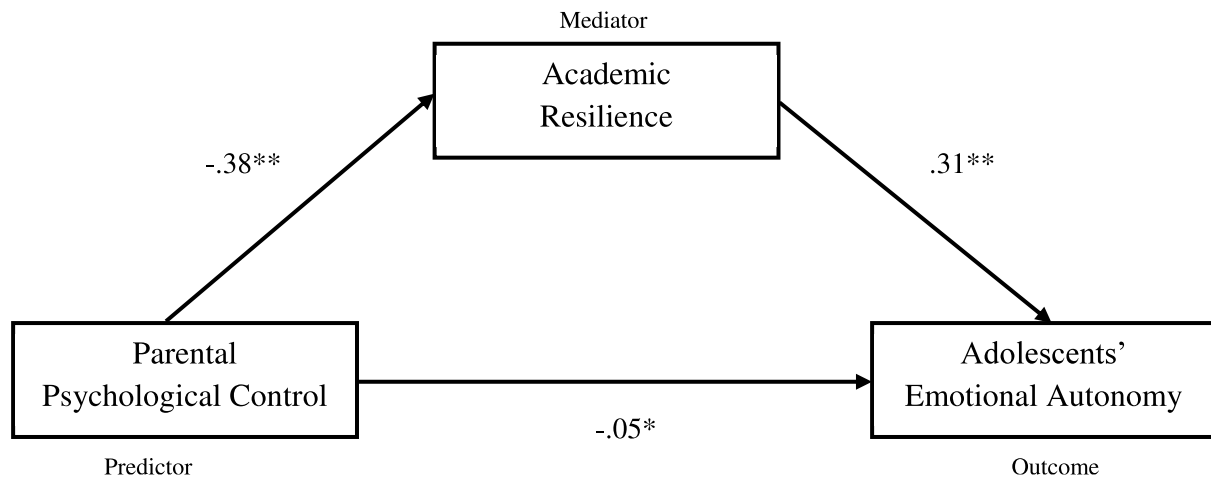


Figure 1. Figure is showing the direct effect of parental psychological control on adolescents' emotional autonomy ( $B = -.05, p < .05$ ) and an indirect effect of parental psychological control through academic resilience ( $B = -.38, p < .01$ ) on adolescents' emotional autonomy ( $B = .31, p < .01$ ).

**Table 7**

Multiple Regression Analysis to Investigate the Parental Psychological Control and Academic Resilience as Predictors and Emotional Autonomy as an Outcome Variable among Adolescents ( $N = 300$ )

Predictors	Emotional Autonomy		
	<i>B</i>	<i>SEB</i>	$\beta$
Model 1 (Constant)	2.35	.15	
Parental Psychological Control			
Guilt Induction	-.14	.53	-.11
Love Withdrawal	-.06	.07	-.18
Emotional Behavior	.09	.09	.21
Verbal Expression	.02	.07	.06
Invalid Feelings	.02	.10	.05
Personal Attack	.03	.10	.07
	.10	.09	.20
	$R = .29, R^2 = .089, F(7, 292) = 4.06, p < .001$		
Model 2 (Constant)	2.70	.24	
Parental Psychological Control			
Guilt Induction	-.21	.53	-.17
Love Withdrawal	-.05	.07	-.16
Emotional Behavior	.09	.09	.21
Verbal Expression	.02	.07	.06
Invalid Feelings	.03	.10	.06
Personal Attack	.03	.10	.06
Academic Resilience	.10	.09	.22
Perseverance	-.08	.21	-.14
Reflection and Adaptive Help Seeking	-.07	.04	-.13
Negative Effect and Emotional Response	-.01	.04	-.02
	.03	.02	.09
	$R = .32, R^2 = .108, F(7, 292) = 3.49, p < .001$		

Table 7 shows multiple regression analysis to investigate the parental psychological control and academic resilience as predictors and emotional autonomy as an outcome variable among adolescents. In model-2 the  $R^2$  value of .108 explained 10.8% variance in the outcome

variable by the predictors,  $F(7, 292) = 3.49, p < .01$ . Results show that parental psychological control, academic resilience and their subscales did not significantly predicted emotional autonomy among adolescents.

## Discussion

The 1<sup>st</sup> hypothesis “parental psychological control has significantly negative relationship with academic resilience among adolescents” was supported by the current findings. The current findings are in the line with many previous studies which revealed a negative impact of parental control on adolescent’s academic resilience and performance. As indicated by the current findings, parental mental control has been seen as unsafe for adolescent’s academic resilience and learning both in Western and Eastern societies. Parental psychological control may increase maladaptive academic performance, and versatile scholarly functioning is diminished by parental psychological control, proposing a progressively liquid, dynamic parents and adolescent’s collaboration over a period of time (Xu et al., 2020). The anticipated relations can be seen between parental psychological control and scholarly working of adolescents engaged in higher studies. Progressively urbanized adolescents had a higher propensity to see their parents as psychological more controlling, proposing an adjustment in culture with respect to the significance of individual emotional autonomy for increasingly urbanized youths (Xu et al., 2020).

The 2<sup>nd</sup> hypothesis “emotional autonomy will play a mediating role between parental psychological control and academic resilience among adolescents. Findings of the current study show that emotional autonomy significantly partially mediated the relationship between parental psychological control and academic resilience among adolescents. Concerning the role of parental psychological control, there exists research that highlights the significance of parental psychological control in the turn of events and adolescents’ emotional autonomy (Fletcher, Steinberg, & Williams - Wheeler, 2004; Jacobson & Crockett, 2000), it stays a sound measurement on account of its multifaceted nature as a build since, despite the fact that there is an accord about the negative relationship between parental psychological control and adolescents academic and behavioural problems (Fletcher et al., 2004),

the particular segments of parental psychological control that add to anticipating enthusiastic and emotional issues are frequently not satisfactory. In fact, results from various studies on the impacts of parental psychological control on adolescents are frequently opposing (Calafat, García, Juan, Becoña, & Fernández-Hermida, 2014). Adolescents whose guardians are tolerant and liberal present social issues less frequently than adolescents whose guardians utilize tyrant or submissive styles and academic resilience and emotional problems are common due to lack of emotional autonomy given by their authoritative parents (Calafat et al., 2014).

This decrease in emotional autonomy due to parental psychological control results in poor academic resilience. Parental psychological control is related with emotional problems (Silk, Morris, Kanaya, & Steinberg, 2003), the term indicates to control procedures utilized by guardians on their adolescents, for example, emotional blackmail, blame induction, overpowering burdens, or love withdrawal, and frequent use of negative strategies to minimize emotional autonomy of their children and adolescents (García & Gracia, 2014). In the end truth be told, guardians who do not show much autonomy practices will in general utilize psychological control techniques when adolescents act in manners that they do not like (Oliva, 2006). Mental control is traditionally been viewed as a pessimistic type of control in that it influences the adolescent inwardly, smothering their capacity to set up passionate connections with others, the improvement of their own character, and their self-rule (Barber, 2002). Previous studies on lack of emotional autonomy as an outcome of parental psychological control on their adolescents results in poor academic resilience such as it is decidedly associated with burdensome side effects including low confidence, poor emotional regulation, low academic self-efficacy, low academic self-concept, unable to manage personal and class room related challenges (Kunz Jennifer & Grych, 2013).

On investigating the age differences in emotional autonomy, academic resilience and parental psychological control among

adolescents the results were non-significant in the current study. Some previous studies also support our findings i.e. (Soenens & Vansteenkiste, 2010). Parental psychological control has negative impacts on both children and adolescents of any age however more it has more devastating effect on the growing children during developmental stage as it effects on child need for emotional autonomy (Soenens & Vansteenkiste, 2010). Same findings can be seen with respect to age differences in emotional autonomy as parental psychological control in the form of negative parenting also negatively impacts in the development of emotional regulation in all age groups (Cui, Morris, Criss, Houlberg, & Silk, 2014; Eisenberg, Spinrad, & Eggum, 2010). In the current findings age differences in academic resilience was also non-significant. The reason may be that in the current study there was very small age difference between the two groups of adolescents (i.e., 18 to 20 years, 21 to 22 years). Another reason may be that previous studies revealed that academic resilience is consistent throughout the increase in age (i.e., childhood to late adolescence) (Cosco, Howse, & Brayne, 2017).

Findings on gender show that males were higher on parental psychological control as compared to the female participants. However, results were non-significant on emotional autonomy and academic resilience. In the line with current findings, Rogers et al. (2003) investigated that girls are more likely than boys to respond with internalizing issues to psychologically mediated parenting. However, there is no little evidence of systematic gender differences in the psychological control experience, nor is there consistent evidence for a moderating role of gender, Soenens, Vansteenkiste, Luyten, Duriez, and Goossens (2005) further conducted a study to address this issue and found The girls experience parental psychological influence more often revolved around emotional closeness and separation problems while boys experience parental psychological influence most often revolved around success and accomplishment problems.

Finally, the results show that in academic resilience there was significant

difference between the scores of BSc and in parental psychological control there was significant difference between the scores on intermediate level. It was found that adolescents with intermediate level of education were significantly higher on academic resilience whereas adolescents with BSc level (i.e., 14 years of education) were significantly higher on parental psychological control. There is lack of literature available on the influence of adolescents' parental psychological control and resilience however some studies concentrated on the impact of parental education i.e., (Steinberg, 2001; Tamis-LeMonda, Briggs, McClowry, & Snow, 2009). Parental education has been found as important factor improved developmental consequences in adolescents and children (Steinberg, 2001; Tamis-LeMonda et al., 2009). Moreover, these differences may be due to some cultural values as in the context of Pakistan with a collectivistic culture, parents develop their hopes on their children who are elders or who have higher education level than children with less education or younger children (Steinberg, 2001).

#### **Limitations and Suggestions**

There are some limitations of the current study which should be improved in future research. First data was collected only from three cities of Pakistan (i.e., Attock, Rawalpindi, and Islamabad) which may limit the external validity and generalizability of the research findings. In future research it is suggested that data should also be collected from other cities and provinces of Pakistan to increase research generalizability. Secondly impact of some other negative and positive parental personality factors such as neuroticism, extroversion, agreeableness etc. on adolescents' emotional autonomy and academic resilience should also be investigated in future research to explore the comprehensive phenomenon of parental psychological control on adolescents.

#### **Conclusion**

Findings of the study revealed that parental psychological control has negative relationship with academic resilience among adolescents. Emotional autonomy mediated the relationship between parental psychological



control and academic resilience among adolescents. These findings suggest that parents need awareness and training that their parenting styles can have a substantial impact upon academic success and performance of their children. Besides parents need to focus more training their children to regulate their emotions autonomously so that they become more resilient and handle problems at their own.

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## References

- Altaf, S., Hassan, B., Khattak, A. Z., & Iqbal, N. (2021). Relationship of Parenting Styles with Decision-Making and Self-concept among Adolescents. *Foundation University Journal of Psychology*, 5(2), 74-85.
- Barber, B. K. (1996). Parental psychological control: Revisiting a neglected construct. *Child Development*, 67(6), 3296-3319.
- Barber, B. K. (2002). Reintroducing parental psychological control: Revisiting a Neglected Construct. In Parental psychological control: Revisiting a neglected construct *Child Development*, 67 (6), 3296-3319.
- Bentley, J. J. (2013). *Parental Involvement, Parent-Child Warmth and School Engagement as Mediated by Self-*

*Regulation*. Brigham Young University.

- Beyers, W., & Goossens, L. (1999). Emotional autonomy, psychosocial adjustment and parenting: Interactions, moderating and mediating effects. *Journal of Adolescence*, 22(6), 753-769.
- Calafat, A., García, F., Juan, M., Becoña, E., & Fernández-Hermida, J. R. (2014). Which parenting style is more protective against adolescent substance use? Evidence within the European context. *Drug and Alcohol Dependence*, 138, 185-192.
- Cassidy, S. (2016). The Academic Resilience Scale (ARS-30): A new multidimensional construct measure. *Frontiers in Psychology*, 7, 1787, 1-11.
- Cosco, T. D., Howse, K., & Brayne, C. (2017). Healthy ageing, resilience and wellbeing. *Epidemiology and Psychiatric Sciences*, 26(6), 579-583.
- Cui, L., Morris, A. S., Criss, M. M., Houltberg, B. J., & Silk, J. S. (2014). Parental psychological control and adolescent adjustment: The role of adolescent emotion regulation. *Parenting*, 14(1), 47-67.
- Eisenberg, N., Spinrad, T. L., & Eggum, N. D. (2010). Emotion-related self-regulation and its relation to children's maladjustment. *Annual Review of Clinical Psychology*, 6, 495-525.
- Fletcher, A. C., Steinberg, L., & Williams-Wheeler, M. (2004). Parental influences on adolescent problem behavior: Revisiting Stattin and Kerr. *Child Development*, 75(3), 781-796.
- García, F., & Gracia, E. (2014). *The Indulgent Parenting Style and Developmental Outcomes in South European and Latin American Countries*. In Selin, H. (eds) *Parenting Across Cultures. Science Across Cultures: The History of Non-Western Science*, vol 7. Springer, Dordrecht, 419-433.
- Hamill, S. K. (2003). Resilience and self-efficacy: The importance of efficacy beliefs and coping mechanisms in resilient adolescents. *Colgate*

- University Journal of the Sciences*, 35(1), 115-146.
- Jacobson, K. C., & Crockett, L. J. (2000). Parental monitoring and adolescent adjustment: An ecological perspective. *Journal of Research on Adolescence*, 10(1), 65-97.
- Jones, T. L., & Prinz, R. J. (2005). Potential roles of parental self-efficacy in parent and child adjustment: A review. *Clinical Psychology Review*, 25(3), 341-363.
- Kumpfer, K. L. (2002). Factors and processes contributing to resilience *Resilience and Development Positive Life Adaptations* (pp. 179-224): Springer.
- Kunz Jennifer, H., & Grych, J. H. (2013). Parental psychological control and autonomy granting: Distinctions and associations with child and family functioning. *Parenting*, 13(2), 77-94.
- McClelland, M. M., & Cameron, C. E. (2011). Self-regulation and academic achievement in elementary school children. *New directions for child and adolescent development*, (133), 29-44.
- Martin, A. J. (2013). Academic buoyancy and academic resilience: Exploring 'everyday' and 'classic' resilience in the face of academic adversity. *School Psychology International*, 34(5), 488-500.
- Martin, A. J., & Marsh, H. W. (2008). Academic buoyancy: Towards an understanding of students' everyday academic resilience. *Journal of School Psychology*, 46(1), 53-83.
- McKinney, C., Donnelly, R., & Renk, K. (2008). Perceived parenting, positive and negative perceptions of parents, and late adolescent emotional adjustment. *Child and Adolescent Mental Health*, 13(2), 66-73.
- Oliva, A. (2006). Relaciones familiares y desarrollo adolescente. *Anuario De Psicología*, 37(3), 209-223.
- Rogers, K. N., Buchanan, C. M., & Winchell, M. E. (2003). Psychological control during early adolescence: Links to adjustment in differing parent/adolescent dyads. *The Journal of Early Adolescence*, 23(4), 349-383.
- Silk, J. S., Morris, A. S., Kanaya, T., & Steinberg, L. (2003). Psychological control and autonomy granting: Opposite ends of a continuum or distinct constructs? *Journal of Research on Adolescence*, 13(1), 113-128.
- Smith, C. A. (1999). Family life pathfinders on the new electronic frontier. *Family Relations*, 48(1), 31-34.
- Soenens, B., & Vansteenkiste, M. (2010). A theoretical upgrade of the concept of parental psychological control: Proposing new insights on the basis of self-determination theory. *Developmental Review*, 30(1), 74-99.
- Soenens, B., Vansteenkiste, M., Luyten, P., Duriez, B., & Goossens, L. (2005). Maladaptive perfectionistic self-representations: The mediational link between psychological control and adjustment. *Personality and Individual Differences*, 38(2), 487-498.
- Steinberg, L. (2001). We know some things: Parent-adolescent relationships in retrospect and prospect. *Journal of Research on Adolescence*, 11(1), 1-19.
- Steinberg, L., & Silverberg, S. B. (1986). The vicissitudes of autonomy in early adolescence. *Child Development*, 841-851.
- Tamis-LeMonda, C. S., Briggs, R. D., McClowry, S. G., & Snow, D. L. (2009). Maternal control and sensitivity, child gender, and maternal education in relation to children's behavioral outcomes in African American families. *Journal of Applied Developmental Psychology*, 30(3), 321-331.
- Wang, M. C., & Gordon, E. W. (2012). *Educational resilience in inner-city America: Challenges and Prospects*: Routledge.
- Waxman, H. C., Gray, J. P., & Padron, Y. N. (2003). *Review of Research on Educational Resilience*. Research Report.

- Xu, X., Dai, D. Y., Liu, M., & Deng, C. (2020). Parental psychological control and academic functioning in Chinese high school students: A short-term longitudinal study. *British Journal of Developmental Psychology*, 38(1), 90-107.
- Zahedani, Z. Z., Rezaee, R., Yazdani, Z., Bagheri, S., & Nabeiei, P. (2016). The influence of parenting style on academic achievement and career path. *Journal of Advances in Medical Education & Professionalism*, 4(3), 130.
- Zimmer-Gembeck, M. J., & Collins, W. A. (2006). Autonomy development during adolescence. *Blackwell Handbook of Adolescence*, 174-204.

## Masculinity Ideologies of Adult Pakistani Men and Women

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### Abstract

**Background.** Masculinity related ideologies are rooted in most cultures and Pakistan is not different, however not much is known about these ideologies in recent times. This study investigated masculinity ideologies in adult men and women of Pakistan.

**Method.** In across-sectional design, a convenient sample of 268 men and 173 women ( $N = 441$ ) was taken that ranged in age from 19 to 51 ( $M = 29.21$ ,  $SD = 5.44$ ) years. We used Masculinity Ideologies Scale (Imtiaz & Kamal, 2023) that measures four aspects of masculinity including male privilege and power, traditional roles and responsibilities, avoiding effeminacy, and restricted emotionality as subscales.

**Results.** Results revealed that men endorsed significantly greater traditional masculinity ideologies than women and particularly significantly more male privilege and power and restricted emotionality than women; however, no significant differences were found for traditional roles and responsibilities and avoiding effeminacy across genders.

**Conclusion.** We discuss masculinity in a cultural context where patriarchy prevails, where male masculinity is held as a symbol of authority.

**Keywords.** Gender differences, masculinity ideologies, Pakistani adults, patriarchy



## Introduction

In various contexts, gender works as an important social category (Tahir et al., 2021); it works to evaluate others (Council of Europe, 2023) and guides development differentially as witnessed in a Pakistani culture (Ali et al., 2011). Gender is aligned with various possibilities, privileges, and power differentials, which are for some but not others (Council of Europe, 2023). This study focuses on differential ideologies about masculinity, which speculate about male gender role, seen from the lens of being a man or a woman.

Gender encapsulates many aspects of social perceptions, roles, and attitudes. Masculinity ideologies are internalizations men and women hold about culturally held ideals of masculinity (Pleck, 1995). Many a time, actions driven by a particular gender are taken as dysfunctional, for instance, when men display weak emotions. Social pressures strain them on occasions of going contrary to the culturally devised masculine script. Undergoing the socialization to learn about how men are expected to maneuver themselves, can be traumatic as well. This is how gender role strain paradigm serves to explain the three types of strain men experience in their gendered lives named as dysfunction, discrepancy, and trauma strain respectively (Levant, 1996; Pleck, 1995; Thompson & Bennet, 2017). The gender role strain paradigm (GRSP), a social constructionist view, was presented as an alternative to the gender role identity paradigm (GRIP). The GRIP adopted a trait based approach on masculinity, where possession of masculine characteristics was seen to be linked to one's biology and was considered highly desirable. However, within the GRSP the dominant position men hold and conforming to norms about masculinity is thought to be associated with the experience of strain (Pleck, 2017). Social constructionism denies the existence of biologically based single masculinity standard and argues that gender is based on many gender ideologies that are a function of social, psychological, political, and historical contexts (Thompson & Bennet, 2017). Grounded in a power structure, masculine ideology is based on how men are

socialized, behave, and live in a society (Levent, 1996; Pleck, 1995; Thompson & Bennet, 2017). This power structure is largely patriarchal world over, and Pakistani culture is no different; it reflects male domination in all affairs of social life (Tabassum, 2016). Existing research on gender issues in Pakistan has primarily focused on issues of women (Akram, & Yasmin, 2023; Hadi, 2017; Huda, & Kamal, 2022; Mujeeb, & Kamal, 2018; Zakar et al., 2016) and transgender individuals (Ahmed et al., 2014; Akhtar, & Bilour, 2020; Batool, et al., 2022; Bukhari, et al., 2016; Jami & Kamal, 2015; Raza & Jabeen, 2022) but issues surrounding men have been largely neglected (Ahmad, 2021). Gender issues centering on oppression of women include discrimination, violence, child marriages, and honor killings that relate to dominant social position of men (Tabassum, 2016). Building on this premise, issues of men need to be studied along with women. Turning the focus of research on men would help solve their own problems and in turn those being faced by women and children, who are affected negatively when men face problems (Levent, 1996). To do that masculinity ideology is a good area to start looking at gender based perceptions and possible problems they may cause directly affecting men and indirectly creating problem for women. This study explores about masculinity ideologies in adult men and women of Pakistan. We hypothesize that men will hold more traditional masculine ideologies on all four facets (male privilege and power, avoiding effeminacy, traditional roles and responsibilities, and restricted emotionality) than women.

## Method

### Sample

A convenient sample of 268 (58%) adult men and 173 women ( $N = 441$ ) was recruited with a minimum educational level of matriculation (Grade 10). Participants were required to be living in Pakistan for past five years and not lived outside Pakistan for more than 10 years. Age of the participants ranged from 19 to 51 years ( $M = 29.21$ ,  $SD = 5.44$ ) years, see Table 1 for other demographic characteristics.

Table 1  
*Demographic Profile of Study Participants (N = 441)*

Variable	<i>n</i>	%
Age (Years)		
19-30	256	58.05
31-51	185	41.95
Education (Years)		
10-12	11	2.5
13-16	265	60.2
17-18	138	31.4
Above 18	26	5.9
Marital Status		
Single	223	50.6
Married	214	48.5
Divorced	2	0.5
Province		
Punjab	260	59
Sindh	63	14.3
Baluchistan	39	8.8
Khyber Pakhtunkhwa	49	11.2
Gilgit-Baltistan	24	5.4a

### Assessment Measures

***Masculinity Ideologies Scale (MIS).*** Developed in Urdu language by Imtiaz and Kamal (2023). MIS measures masculinity ideologies in adult men and women with 31 items. Each item is measured on a 5-point Likert scale that ranges from strongly disagree(1) to strongly agree (5). Total score of the scale is calculated by taking sum of scores on all the items, which ranges from 31-155. High scores indicate endorsement of traditional masculinity ideologies. It includes four subscales Male Privilege and Power (MPP, Items: 5, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, and 26), Traditional Roles and Responsibilities (TRR, Items: 4, 6, 7, 8, 9, 10, 11, 12, 13, and 14), Avoiding Effeminacy (AE, Items: 27, 28, 29, 30, and 31) and Restrictive Emotionality (RE, items: 1, 2, and 3). This scale has been developed and validated by the authors of this study, where it was found to have pretty sound reliability. For overall MIS  $\alpha = .84$ ; for MPP  $\alpha = .89$ , for R&R  $\alpha = .86$ , for AE  $\alpha = .90$ , & for RE  $\alpha = .72$ . This scale had

been validated for Pakistani population, where it was indicated to be a valid scale after adding three modification indices ( $\chi = 817.74[425]$ , SRMR = .07, CFI = .91, NFI = .91, IFI = .92, RMSEA = .05; Imtiaz & Kamal, 2023).

### Procedure

Participants of the study were contacted at their educational institutions, work places, and home settings and briefed about the nature of study. They were then asked for their willingness to participate in the study with an understanding that their personal information and data would be kept anonymous and confidential; with a right to withdraw from the study anytime. We then gave participants a booklet; enclosing the consent form, a demographic sheet and MIS, and verbally instructed them how to complete them. They were told to ask us questions if there was something confusing in the scale or the demographic sheet. After completion participants were thanked for their cooperation and support and the data was further processed for analysis using SPSS, Version 23.

## Results

**Table 2**

*Descriptive Statistics, Reliabilities, Skewness and Kurtosis for Masculine Ideologies Scale (N = 441)*

Scale	<i>k</i>	$\alpha$	<i>M</i> ( <i>SD</i> )	Range		Skewness	Kurtosis	<i>r<sub>pb</sub></i>
				Potential	Actual			
MIS	31	.85	101.46 (16.94)	31-155	48-145	-.12	.43	-.18**
MPP	13	.88	30.15 (11.12)	13-65	13-65	.97	1.01	-.16**
TRR	10	.87	41.85 (7.55)	10-50	10-50	-1.70	2.17	-.03
AE	5	.92	20.96 (5.57)	5-25	5-25	-1.71	1.97	.001
RE	3	.72	8.50 (3.43)	3-15	3-15	-.25	-.93	-.32**

*Note.* MI = Masculine ideologies; MP = Male privilege and Power; TRR = Traditional Roles and responsibilities; AE = Avoiding effeminacy; RE = Restricted emotionality. *k* = number of items;  $\alpha$  = internal consistency, *r<sub>pb</sub>* = Point biserial correlation with gender; 0 = male participant, 1 = female participant.

Table 2 illustrates the descriptive statistics, reliability, skewness, and kurtosis for MIS and its subscales. Point biserial correlations between gender and masculinity ideologies are also indicated. Results illustrate scale and subscales had moderate to high reliabilities as all values are above .70. All scores on the scale and subscales were within the potential score range; and the data was normally distributed for MIS and RE; data for R&R and AE subscales was extremely negatively skewed (over -1). Data for MP, R&R and AE subscales were moderately and for MIS and RE extremely platykurtic (< 3). Average MIS score (*M* = 101.46) was higher than median (*M* = 93.00) for the composite range of the scale; average MP score (*M* = 30.15) was lower than the

median (*M* = 39.00) for the composite range of this subscale; average R&R score (*M* = 41.85) was higher than the median (*M* = 30.00) for the composite range of this subscale; average AE score (*M* = 20.96) was higher than the median (*M* = 15.00) for the composite range of this subscale; average RE score (*M* = 8.50) was higher than the median (*M* = 9.00) for the composite range of this subscale. Higher mean values for MIS, R&R and AE suggest that participants predominantly had traditional masculinity ideologies than MP and RE average score. Correlation values are indicates that men scored significantly greater than women on overall masculinity ideologies, male privilege and power, and restricted emotionality.

**Table 3**

*Differences in Perceptions about Masculinity in Men (n = 268) and Women (n = 173)*

Scales	Men		Women		<i>t</i>	<i>p</i>	<i>LL</i>	<i>UL</i>	<i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>					
MIS	103.92	16.17	97.65	17.44	-3.86	.000	-9.47	-3.08	.37
MPP	31.57	10.60	7.14	11.56	-3.39	.001	-5.74	-1.53	.33
TRR	42.01	7.78	41.60	7.18	-.56	.578	-1.86	1.04	.05
AE	20.96	5.11	20.97	6.23	.11	.991	-1.11	1.12	.01
RE	9.38	3.13	7.14	3.43	-7.06	.000	-2.86	-1.61	.68

*Note.* MIS = Masculine ideologies; MPP = Male privilege and power; TRR = Traditional roles and responsibilities; AE = Avoiding effeminacy; RE = Restricted emotionality; *d* = Cohen's *d*

Men ( $M = 103.92$ ,  $SD = 16.17$ ) had significantly ( $p < .000$ ,  $d = .37$ ) more traditional masculinity ideologies than women ( $M = 97.65$ ,  $SD = 17.44$ ) see Table 3. The reason for this difference is largely based on facets of MPP or male privilege and power, and RE or restricted emotionality, because men ( $M = 31.57$ ,  $SD = 10.60$ ) had significantly ( $p < .001$ ,  $d = .33$ ) more traditional male privilege and power-oriented ideologies than women ( $M = 27.94$ ,  $SD = 11.57$ ); and men ( $M = 9.38$ ,  $SD = 3.13$ ) had also held significantly ( $p < .000$ ,  $d = .68$ ) more traditional ideologies about restricted emotionality than women ( $M = 7.14$ ,  $SD = 3.43$ ). Men and women did not differ significantly for TRR or traditional roles and responsibilities and AE or avoiding effeminacy (see Table 3).

Authors think the reason for no difference can be associated with skewness and kurtosis of data as our data were highly platykurtic and had a negative tail for these constructs. Weaker normality of the data can be one of the reasons that true differences remain concealed and suffered type-II error in testing hypotheses. However, in order to address the normality issues of present data, log transformations were applied to the data in order to confirm that issues pertaining to skewness of data might not have influenced the study findings. Method guided by Field (2017) was applied to perform log transformations of data at hand, after log transformations it became evident that  $t$ -test did not yield results any different from the untransformed data. This adds to the certainty of findings reported in Table 3.

### **Discussion**

Adopting the notion of masculinity ideologies from the gender roles strain paradigm, this study was geared to explore the role of gender in molding masculinity ideologies among adult men and women of Pakistan. The hypothesis that men tend to portray more traditional masculinity ideologies than women, was partially supported. Male privilege and power or MPP and restricted emotionality or RE were significantly higher in men than women, which we believe was the reason for an overall increase in scores on masculinity

ideologies among men compared to women as depicted by both mean comparison and point biserial correlations (see table 2 and 3). These findings are in consonance with findings when gender differences were observed with US and Russian samples where men on the whole held more traditional masculinity ideologies than women (Levant et al., 2003). Masculinity ideologies about traditional roles and responsibilities or TRR and avoiding effeminacy or AE were not different between men and women. On the other hand, findings for no difference also highlight that traditional roles and responsibilities and avoiding effeminacy are well internalized aspects for both men and women.

Importantly, religions' role is predominant when it comes to traditional roles and responsibilities. Being front line responsibility taker, role of protector and provider as conceptualized in current research goes well with religion's commands (The Quran, n.d., 4:34) that can be considered an important reason for affirming to this particular ideology equally by men and women. Then avoidance of femininity as purported by literature (David & Brannon, 1976; Neilson et al., 2020; Thompson & Bennett, 2017) also stands firm in the minds of Pakistani men and women who believe that masculinity is about staying away from physical and behavioral attributes that are feminine in nature, as purported in current study. This is so because feminine aspects in men are thought to be a depiction of subordinate masculinity (Aurat Foundation, 2016) and men are harshly questioned on any such depictions (Haroon, 2021). The greatest evidence for avoiding effeminacy notion are its ties to one being intersex or Hijra on incidence of anything feminine in men that is well rooted in Pakistani culture (Channa & Tahir, 2020).

Then, differences in masculinity ideologies were significant on male privilege and power domain, where men have portrayed more traditional ideologies. It is conceptualized in terms of lent liberty, food and finances related privileges, and power endowed to men over women especially within domains of sexuality and finances. Within the Pakistani culture men have been



the recipient of preferential treatment whether it is the arrival of a baby boy, their food, clothing, education, or for that matter the choice of marital partner (Khan & Reza, 1998). This specialized treatment is thought to confer men with power and thus contributes to gender differentials within the social spheres. This lent power thus gives way to gender discriminatory practices (Ali et al., 2022). Power and privilege based ideologies thus are less favored by women.

Research from Pakistan also indicates about firm internalization of patriarchy (Ali et al., 2022; Salam, 2022). The associated enigma is that these interpretations are mistakenly thought to be derived from religion. Because of existing power differentials many women in Pakistan does not know about their rights (Ali et al., 2022) that rationalizes traditional stance put up by women. Thus, the existing patriarchy is sustained by keeping up the polarities between both sexes, authority of men is being retained through a complex interplay of economic, political, social, and religious processes and structures in Pakistan (Tabassum, 2016). Likewise, it has been said that there is more room for flexibility in gender roles within gender egalitarian contexts but situation is much rigid in an opposite context (Tahir et al., 2021). The world of technology though has created awareness about rights and status of women, specially the wave of feminism that has challenged the existing patriarchy (Riaz, 2020). Since women seem to be more informed by virtue of internet and social media forums, thus they have endorsed less traditional ideologies in a domain where men supersedes them. On a positive side, men are also in process of learning about the gender inequality (Salam, 2022). Likewise, it is important to mention that holding such ideologies might not be the choice of men in educated circles but the socialization practices propel men to attain privileges and exercise power.

The explored gender differences have also been found to be significant for restricted emotionality where again men are seen to hold more traditional ideologies. Importantly, this gender difference has indicated to have a large sized effect. Restricted emotionality is

conceptualized in terms of keeping the vulnerable emotions undisclosed and refraining from mourning or crying publically. Here, it can be witnessed that men's internalizations of abiding by the cultural norms of not revealing their emotions, sticking to a popular command encountered during upbringing of a male child, that is, 'men don't cry' (Hussain et al., 2015; Robertson & Shepard, 2008). Adding to this, previous research has documented that incidence of powerless emotions more among women and men are seen to display powerful emotions (Fischer et al., 2004). Keeping this in perspective, women who themselves show weak emotions have endorsed restricted emotionality in men to a lesser extent. The idea behind such expectations is that men should portray themselves as strong to qualify for the performance of assigned roles and responsibilities. This expectation is not there from women who are thought to be inherently weak (Hussain et al., 2015).

Bringing in perspective the gender role strain paradigm, traditional masculinity depictions are expected from men and they are charged more strongly for not fulfilling the devised expectations as compared to women (Pleck as cited in Levant & Powell, 2017; Khan & Reza, 1998; Salam, 2022). In view of this theoretical model, the normative standards serve to put strain in the minds of men to tune themselves according to these said expectations. As, mentioned earlier, that even if men want to stay away from prescribed model of masculinity they can't because of actual or implied pressure of culturally rooted masculinity ideologies.

### **Conclusion and Implications**

Study findings clue that in view of the strain put up by masculinity ideals of Pakistani culture, men hold more traditional ideologies about male privilege and power and restricted emotionality than women. Women being their partners in the social system have also endorsed traditional masculinity ideologies but less traditional for not being the actors themselves, and for that matter not the direct bearer of the strain. Therefore there is a need to create gender sensitization/awareness about the strain held by men so that socialization pattern can work to minimize the strain.

Education of actors themselves (men) is thus not sufficient rather different socialization agents including parents, teachers, books, and media have to join hands for collaborative efforts in the process.

### **Declaration**

#### **Conflict of interests**

The authors declare that there are no conflicts of interests.

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#### **Ethical approval and consent to participate**

Ethical protocols were strictly adhered while execution of this study and evaluation of ethical protocol was conducted by an institutional review committee. Consent form was thoroughly evaluated by research supervisor and data collection proceeded only for those participants who were willing to participate.

#### **Availability of data and materials**

Data that serves to support study findings is available with corresponding author and can be made available on request.

### **References**

- Ahmad, K. (2021). *Between saints and sinners: Understanding men* (1<sup>st</sup> ed). Sanjh Publications.
- Ahmed, U., Yasin, G., & Umair, A. (2014). Factors affecting the social exclusion of Eunuchs (Hijras) in Pakistan. *Mediterranean Journal of Social Sciences*, 5(23), 2277.
- Akhtar, M., & Bilour, N. (2020). State of mental health among transgender individuals in Pakistan: Psychological resilience and self-esteem. *Community Mental Health Journal*. 56, 626–634. <https://doi.org/10.1007/s10597-019-00522-5>
- Akram, N., & Yasmin, M. (2023). Sexual violence against women: Global interventions and an evidence from Pakistan. *Women's Studies International Forum*, 97, 102691. <https://doi.org/10.1016/j.wsif.2023.102691>
- Ali, T. S., Ali, S. S., Nadeem, S., Memon, Z., Soofi, S., Madhani, F., Karim, Y., Mohammad, S., & Bhutta, Z. A. (2022). Perpetuation of gender discrimination in Pakistani society: Results from a scoping review and qualitative study conducted in three provinces of Pakistan. *BioMed Central Women's Health*, 22, 540-561. <https://doi.org/10.1186/s12905-022-02011-6>
- Ali, T. S., Krantz, G., Gul, R., Asad, N., Johansson, E. & Mogren, I. (2011). Gender roles and their influence on life prospects for women in urban Karachi, Pakistan: A qualitative study. *Global Health Action*, 4, 74-48. 10.3402/gha.v4i0.7448
- Aurat Foundation (2016). Masculinity in Pakistan: A formative research study. *Gender Equity Program*. <http://af.org.pk/gep/images/GEP%20Gender%20Studies/Masculinity%20in%20Pakistan.pdf>
- Batool, I, Bakhtawer, S., Saher, N., & Batool, H. (2022). Psychological risk factors among transgender: The mediating role of body dissatisfaction between quality of life, suicidal ideation and social interaction anxiety: Psychological risk factors among transgender. *South Asian Journal of Social Sciences and Humanities*, 3(5), 54–69. <https://doi.org/10.48165/sajssh.2022.3505>
- Bukhari, S., Mushtaq, H., & Aurangzaib, S. (2016). Attitudes towards transgender: A study of gender and influencing factors. *Biannual Journal of Gender and Social Issues*, 15(2), 93-112.
- Channa, A. R., & Tahir, T., B. (2020). Be a man, do not cry like a woman: Analyzing gender dynamics in Pakistan. *Liberal Arts and Social Sciences International Journal*, 4(2), 361-371. <https://doi.org/10.47264/idea.lassij/4.2.28>
- Council of Europe. (2023). Gender Matters. Exploring gender and gender identity. <https://www.coe.int/en/web/gender->

- matters/exploring-gender-and-gender-identity
- David, D., & Brannon, R. (eds.). (1976). *The forty-nine percent majority: The male sex-role*. Addison-Wesley.
- Field, A. (2017). *Discovering statistics using SPSS*. SAGE.
- Fischer, A. H., Rodriguez Mosquera, P. M., van Vianen, A. E. M., & Manstead, A. S. R. (2004). Gender and culture differences in emotion. *Emotion, 4*(1), 87–94. <https://doi.org/10.1037/1528-3542.4.1.87>
- Hadi, A. (2017). Patriarchy and gender-based violence in Pakistan. *European Journal of Social Science Education and Research, 4*(4), 289-296.
- Haroon, M. A. (2021). *Construction of masculinity as provider and protector in Pakistani men* (Doctoral dissertation). Habib University, Pakistan.
- Huda, S., & Kamal, A. (2022). Assessing demographics-based differences in attitude toward honor killings. *Journal of Interpersonal Violence, 37*(5–6), NP3224–NP3241. <https://doi.org/10.1177/0886260520927499>
- Hussain, M., Naz, A., Khan, W., Daraz, U., & Khan, Q. (2015). Gender stereotyping in family: An institutionalized and normative mechanism in Pakhtunsociety of Pakistan. *SAGE Open, 5*(3), 1-11. [10.1177/2158244015595258](https://doi.org/10.1177/2158244015595258)
- Imtiaz., S., & Kamal, A. (2023). Masculinity Ideologies Scale: Development and Validation for Pakistani Context. *International Journal of Psychological and Behavioural Research, 3*(1), 19-48.
- Jami, H., & Kamal, A. (2015). Measuring attitudes toward Hijras in Pakistan: Gender and religiosity in perspective. *Pakistan Journal of Psychological Research, 30*(1), 151–181. <https://api.semanticscholar.org/CorpusID:56254829>
- Khan, M. M., & Reza, H. (1998). Gender differences in nonfatal suicidal behavior in Pakistan: Significance of sociocultural factors. *Suicide and Life-Threatening Behavior, 28*(1), 62-68. <https://onlinelibrary.wiley.com/doi/pdf/10.1111/j.1943-278X.1998.tb00626.x>
- Levant, R. F. (1996). The new psychology of men. *Professional psychology: Research and Practice, 27*(3), 259-265. <https://doi.org/10.1037/0735-7028.27.3.259>
- Levant, R. F., & Powell, W. A. (2017). The gender role strain paradigm. In R. F. Levant & Y. J. Wong (Eds.), *The psychology of men and masculinities* (p. 45–74). American Psychological Association.
- Levant, R. F., Cuthbert, A., Richmond, K., Sellers, A., Matveev, A., Mitina, O., Sokolovsky, M., & Heesacker, M. (2003). Masculinity ideology among Russian and US young men and women and its relationships to unhealthy lifestyles habits among young Russian men. *Psychology of Men & Masculinity, 4*(1), 26-36. [10.1037/1524-9220.4.1.26](https://doi.org/10.1037/1524-9220.4.1.26)
- Mujeeb, A., & Kamal, A. (2018). Interpersonal relationships, psychological effects, and coping strategies among acid burn female victims. *Pakistan Journal of Psychological Research, 33*(2), 575-590. <https://pjpr.scione.com/cms/abstract.php?id=150>
- Neilson, E. C., Singh, R. S., Harper, K. L., & Teng, E. J. (2020). Traditional masculinity ideology, posttraumatic stress disorder (PTSD) symptom severity, and treatment in service members and veterans: A systematic review. *Psychology of Men & Masculinities, 21*(4), 578–592. <https://doi.org/10.1037/men0000257>
- Pleck, J. H. (1995). The gender role strain paradigm: An update. In R. F. Levant & W. S. Pollack (Eds.), *A new psychology of men* (pp. 11–32). Basic Books.
- Pleck, J. H. (2017). A brief history of the psychology of men and masculinities. In R. F. Levant & Y. J. Wong (Eds.), *The psychology of men and masculinities* (p. xi–xxi). American Psychological Association.

- Raza, H., & Jabeen, D. S. (2022). Stigma and guilt among transgender women: Moderating role of coping strategies. *Journal of Professional & Applied Psychology*, 3(1), 29-42. <https://doi.org/10.52053/jpap.v3i1.86>
- Riaz, A. (2020, April 25). A force to be reckoned with: The Aurat marchers of Pakistan. *The Governance Post*. <https://www.thegovernancepost.org/2020/04/a-force-to-be-reckoned-with-the-aurat-marchers-of-pakistan/>
- Robertson, J. M., & Shepard, D. S. (2008). The psychological development of boys. In M. S. Kiselica, M. Englar-Carlson, & A. M. Horne (Eds.), *Counseling troubled boys: A guidebook for professionals* (pp. 3–29). Taylor & Francis Group.
- Salam, R. (2022). In a world where you can be anyone: An investigation into the gendered social practices of Pakistani Facebook users. *Gender Issues*, 39, 253–274. <https://link.springer.com/article/10.1007/s12147-021-09289-0>
- The Quran (M. Khattab, Trans.).(n.d.).The Quran Online.<https://quran.com/an-nisa/34>
- Tabassum, N. (2016). *Women in Pakistan*. Higher Education Commission (HEC), Pakistan.
- Tahir, M. W., Stormer, M., & Zafar, M. (2021). Changing gender role behaviors of south Asian men in different gender regimes: A comparative study of COVID-19 lockdown in Pakistan and Germany. *The Journal of Public Affairs*, 22(S1), e2797. <https://doi.org/10.1002/pa.2797>
- Thompson, E. H., Jr., & Bennett, K. M. (2017). Masculinity ideologies. In R. F. Levant & Y. J. Wong (Eds.), *The psychology of men and masculinities* (pp. 45–74). American Psychological Association.
- Zakar, R., Zakar, M. Z., & Abbas, S. (2016). Domestic violence against rural women in Pakistan: An issue of health and human rights. *Journal of Family Violence*, 31, 15-25. [10.1007/s10896-015-9742-6](https://doi.org/10.1007/s10896-015-9742-6)

## The Effectiveness of Differential Reinforcement and Least-to-Most Prompting in Reducing Non-compliance Behavior of Autistic Child

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### Abstract

**Background.** Children with Autism Spectrum Disorder (ASD) are at higher risk of exhibiting challenging behaviors, and assessing their underlying functions is imperative in developing an individualized treatment for them. The present study aims to evaluate the effectiveness of the Applied Behavioral Analysis (ABA) technique to reduce active non-compliance behavior of a 6-year-old girl diagnosed with ASD in a private Special Education school setting.

**Method.** The study was conducted in three different phases: (1) pre-intervention (baseline), (2) intervention, and (3) post-intervention phase, while using the partial interval recording method for collecting data. At baseline, the functional behavioral assessment (FBA) was employed to outline the function of active non-compliance behavior. During the intervention phase, the ABA technique of Differential reinforcement of low-rate behavior (DRL) and least-to-most prompting was implemented.

**Results.** The result indicated a reduction in the problem behavior from 88.82% (baseline) to 38.85% during the intervention phase. Active non-compliance was estimated at 63.16% in the post-intervention period, which is comparatively exhibited at a lower rate. Also, the FBA suggested that active non-compliance behavior was maintained by escape/avoidance from the instructions.

**Conclusion.** The study findings concludes that appropriate implementation of DRL arrangements and least-to-most prompting can effectively reduce non-compliant behaviors in ASD children. These data are further discussed, strategies to accommodate the child, and recommendations for future researches are also highlighted.

**Keyword.** Non-compliance, differential reinforcement, prompting, Applied behavior Analysis, Autism, Pakistan



## Introduction

Autism Spectrum Disorder (ASD) is a neurodevelopmental disability in which young children manifest multiple delays and unusual patterns in the social, emotional, communication, and behavioral domain. It is further characterized by social reciprocity, restricted interest, and repetitive behavior (American Psychiatric Association, 2013) that induce severe deficits in overall functioning at an early age. Likewise, ASD children are at greater risk to exhibit maladaptive and challenging behaviors, including disruption, elopement, tantrums, impulsivity, aggression, self-injury, and non-compliance with daily routine tasks/demands (Lecavalier, 2006). Such behaviors are detrimental to these children and others, are socially inappropriate, cause self-isolation, and interferes with the child's learning process and skill acquisition. Thus, behavior modification techniques are widely used to treat and bring requisite changes in behavioral and symptomatic issues. At most, interventions based on applied behavior analysis are found to be effective in reducing problem behaviors in autistic children (Beavers et al., 2013).

Accordingly, the present study focuses on the most common challenging behavior among ASD children, non-compliance. It can be defined as the refusal to follow directions, rules, or wishes of someone else, while it can be active (crying, screaming, and aggressive) or passive (ignoring) (Speaks, 2019). The child purposively non-comply and behave uncooperatively when provided with a task. The underlying reasons can be diverse, such as task difficulty level, fatigue, sensory issues, biological needs not being met, and lack of ability to process the incoming information. However, most of the time, non-compliance is associated with escaping from the task at hand. As described by Kalb and Loeber (2003), *non-compliance* is a form of defiance and disobedience, whereby a child performs anything other than what has been requested by an authority figure (parent/teacher). Autistic children (mild to severe range) were found to be less compliant and desire to escape during parent-child interactions (Lemanek et al., 1993) and with the tasks that

are prohibited by parents (Arbelle et al., 1994).

The assessment of the topography and function of the challenging behavior in ASD children is imperative in developing an individualized behavior intervention plan, implementing appropriate strategies, monitoring and evaluating treatment progress (Hong et al., 2018). In particular, the study conducted by Hong et al. (2018) highlighted that non-compliance behavior in 3216 children with autism, the most common function was escape.

There have been a variety of behavior interventions developed that are targeted to improve problem behavior in ASD children. It has been estimated that behavioral interventions are effective and bring more than 80% of reduction in problem behavior, while functional assessment substantially increases the likelihood of treatment success (Horner et al., 2002). Similarly, one of the studies indicated that implementing applied behavioral analysis program on ASD children can result in considerable alterations and improvements in maladaptive behavior, specifically progression in intellectual abilities, communication skills, and socialization (Makrygianni et al., 2018). Since non-compliance in ASD is linked with delays and escaping from task completion, appropriate use of reinforcement techniques is likely to increase the propensity of complying with the provided task. Moreover, simple commands/instructions to teach a new skill and making the correct response contingent to the reinforcement can also decrease the non-compliance behavior of autistic children.

In addition, positive reinforcements are effective to decrease non-compliance behavior maintained by escape conditions (Slocum & Vollmer, 2015). *Differential reinforcements* are intensively used to treat several problem behaviors and lowering their frequency, intensity, and duration by adding a desirable stimulus to the child's environment. One of the types is *Differential reinforcement of low rates (DRL)*, where a child is only reinforced when exhibiting the problem behavior less frequently than before. It has been suggested that ASD children demonstrate socially significant behavior, respond better under

DRL arrangements (Piper et al., 2020). In specific, DRL for non-compliance behavior has not been researched excessively, though the study indicates that it successfully minimizes the rate of problem behavior and depicts negative contingency strength between the target response and reinforcer (Bonner & Borrero, 2018). The DRL schedules include interval DRL and full-session DRL that are designed to maintain problem behaviors at an acceptable rate with contingent reinforcement. As proposed by Ferster and Skinner (1957), when using interval DRL, one is required to divide the session into intervals and reinforcing the behavior if it occurs less often per interval than it previously does. Since, children with ASD manifest a wide range of problem behavior, including non-compliance, such DRL schedules can effectively reduce its occurrence.

With deficits in communication and social skills in ASD children, appropriate cues and assistance to bring about the correct response for the given request are essential to teaching and learning procedures. Neitzel and Wolery (2009) define *prompting* as providing support that facilitates the use of specific skills. Since teaching a new skill to an autistic child is challenging, using prompts to deliver a special hint for a target behavior to occur may serve an important purpose. Further, avoidance of the task and not complying with the requests of the teacher are common among ASD children when the task is either difficult or beyond the level of understanding of the child. Therefore, prompting will help to decrease behaviors like non-compliance during teaching procedures. In that case, *least-to-most prompting* is used to teach various target skills and responses to children with ASD. It is a systematic way of teaching that begins with natural cues and subsequently leads to more intrusive prompts until the target behavior is exhibited (Ault & Griffen, 2013).

#### ***Aim of the study:***

The present study aims to determine the effectiveness of interval DRL schedules and least-to-most prompting during the teaching process to reduce active non-compliance behavior of a child with ASD.

#### ***Operational Definition of the target behavior:***

The target behavior for this study is *active non-compliance* that has been defined as:

*“Refusal to follow simple commands/instructions/requests and forcefully get out of the seat while engaging in screaming and crying behavior”.*

#### **Functional Behavioral Assessment**

The Functional Behavioral Assessment (FBA) is an information gathering method to identify functions that underlie problem behavior and serve to maintain them across wide range. It assists in creating a specific hypothesis regarding the functions of target behavior and developing intervention plan to reduce those behaviors. In case of XY, FBA was conducted to determine the functions that the active non-compliance behavior is serving for her. Based on that, Behavioral intervention plan was constructed that best suits with her need and decreasing the rate of non-complying behavior.

During baseline observation, it was found that she often resists to comply with the therapist’s instructions or request in the course of teaching procedures. She forcefully gets off from the seat even when the therapist asks her to sit and complete the given task first. It was also noticed that for the tasks that she finds uninteresting, repetitive, and challenging, she screams and/or cry excessively until the therapist let her escape (which usually happens after the problem behavior occur). She often pays less attention and not follow the directions during the activity which indicates that the problem behavior is about to occur. Moreover, she also gets fixated with the texture and shapes of activity material, such as animal puzzle (fish and bird). XY also displayed mouthing behavior (bubble blower, cup in the kitchen set, blocks) which often leads to non-compliance and avoidance of the task.

Her screaming and crying behavior followed by non-compliance with the therapists are exhibited at such high rates that lasts from few second to few minutes. However, letting her out of the seat and giving reinforcer calm her down. At most, the activities during teaching procedures in which XY showed non-compliance are: learning

fruits, colors, and animal names, shapes, swings and balance beam. Importantly, it was observed that active non-compliance is most likely to occur during speech and occupational therapy (ST & OT) session and least likely to occur during behavioral therapy (BT). Since, sensory activities are challenging for her and she fears to touch horse, she refuses to follow simple commands and screams to escape from the task.

Based on the information above, it can be suggested that modifying the tasks during teaching procedures, using least-to-most prompting, and using differential reinforcement to reduce the rate of non-compliance behavior at different intervals would be appropriate and effective.

## **Method**

### **Subject and Target Behavior**

The study subject is a six years old girl diagnosed with autism spectrum disorder. Her symptoms include lack of socialization skills, deficits in speech production, fixation, impulsivity, hypersensitivity, and lack of socio-emotional reciprocity. On the basis of her mother's and therapists' report, XY actively seeks to non-comply with the task at hand because of her need to escape and avoid that task. She forces herself onto the therapist, ST & OT in particular, to let herself out from the seat. Similarly, as observed during the baseline observation phase, the common problem behavior that occurred besides ASD symptomology, was non-compliance. She demonstrates lack of sitting tolerance and refusal to follow instructions given by therapist that leads to crying/screaming and off-seat behavior. For this purpose, active non-compliance was chosen as the target behavior with the aim to reduce its rate.

### **Acquiring of Consent**

The researcher obtained permission from the relevant authorities at Pakistan Centre for Autism (PCA). The Director of PCA approved the permission letter (provided and approved by researcher's educational institute) that outlined all of the procedures, requirements, and standard guidelines (SOPs in Covid-19) to carry out the research. A verbal informed consent from the subject's mother was also acquired by the authorities and all the related queries were carefully addressed.

### **Study Setting**

The present study was conducted at PCA, where the study subject was already under therapeutic services. For this study, all the arrangements and acquiring the permission to conduct the research was done beforehand. At PCA, children with disabilities receive therapeutic and individualized interventions required for improving socially significant behaviors, academics, cognitive abilities, speech, sensory issues, and other associated problems. There are separate therapy rooms designed to provide essential services to the children and engage them in various activities/tasks. Specifically, the rooms used for this study were behavioral therapy room, speech therapy room, and occupational therapy room. The days and timings for all the three phases of the study were consistent to avoid and control any intervening variables.

### **Phases of the Study**

The present study was conducted in three phases: Pre-intervention (baseline), Intervention, and post-intervention.

#### ***1. Pre-intervention phase***

During the baseline period, the behavior of XY was thoroughly observed for 1.5 hour to determine the rate and intensity of problems behaviors and identifying the target behavior that requires modification. It is imperative to evaluate the behavior prior to the introduction of treatment procedures.



The observation phase was continued for 8 days, whereby the initial three days were assigned to collect data on problem behaviors by using ABC chart (Antecedent-Behavior-Consequence). The rest of the five days were allocated to create a baseline for the target behavior that was chosen from ABC chart as shown in Table 1.

**Table 1. ABC (Antecedent – Behavior – Consequence) Chart Form**

Date	Activity	Antecedent	Behavior	Consequence	Function
3/5/2021	Learning fruits name	Therapist gives her banana and asked the name of the fruit	Scream and walk around the room	Therapist gives her time to walk around.	Escape avoidance
	Doing animal puzzle	Presenting a horse piece and asking to say the name	Screaming & refuses to say the name.	Therapist puts it away.	Escape avoidance
4/5/2021	Learning shapes	Giving different shapes to sort	Screaming & forces to escape from the task	Therapist let her go to take a walk around.	Escape avoidance
	Fruits name	Therapist teaching her fruits name	Screams and not follow the command	Therapist shows her the 'quiet card'	Escape avoidance
	Animal puzzle	Presenting a horse piece and asked her to hold it.	Screaming & throws it away	Therapist gives her back to touch it.	Escape avoidance
7/5/2021	Shape sorting	Therapist asked her sort the shapes	Screams & forcefully get out from the seat.	Therapist let her go and gave bubble blower.	Escape avoidance
	Laying on the mattress	Therapist asked her to stand and start the work	Screams and refuses to stand up	Therapist physically takes her to the seat.	Escape avoidance
	Learning colors	Therapist asked her to fix the color puzzle and say the name	Screams and get out from the seat and not comply with it.	Therapist took her to the ball pool	Escape avoidance

The time sampling recording method was used for the baseline. In specific, partial intervals of 10 minutes were made to indicate whether the target behavior occurred at any point per time intervals. Based on XY's active non-compliance behavior, if it is exhibited, the experimenter would mark plus (+) in the specified time interval. Likewise, if no single instance has occurred during an interval, the experimenter would mark minus (-) on the recording sheet. At the end of each observation day, the experimenter calculated the total incidences and percentage of the target behavior. It can be estimated by adding all the intervals in which the target behavior occurred, dividing it to the total time interval, and multiplying it by 100. The entire time for observation was 90 minutes with 10-minute interval, that makes a total of 9-time intervals per day. In addition to it, all of the reinforcers were identified and observed for which XY showed better responses to the current task.

Other than that, the psychological assessment of XY was also evaluated to

identify her overall functioning and behavioral deficits that can assist in developing a valuable intervention plan. The Vineland Adaptive Behavioral Scale-II suggests that she falls within mild deficits range for communication, socialization, and daily living skills, whereas moderately low for motor skills. According to the Childhood Autism Rating Scale (CARS), XY lie in Mild to Moderate Autistic range of Autism. Further, Portage Early Education Program (PEEP) indicates that her average developmental age is 1 year & 7 months.

## 2. Intervention phase

After creating a baseline that indicates an average occurrence of the target behavior, Intervention phase began to introduce the planned treatment procedure for the behavior modification. In this phase, the experimenter implemented the procedures that are effective in reducing active non-compliance behavior of XY.

One of the procedures that was employed to reduce the target behavior was

*Differential Reinforcement of Low rates behavior (DRL)*. Particularly, the schedule of Interval DRL was applied to provide reinforcements after every interval, if the behavior has occurred at low rates as compared to the previously. The whole session was divided in 10-minutes interval and the occurrence of target behavior was noted using the similar recording sheet, partial interval – time sampling method. For each interval that the behavior occurred at lower rate i.e., exhibiting sitting behavior and following the instructions, the child was reinforced with a short break, playing with preferable item, and social/verbal praise.

Apart from DRL, *least-to-most prompting* technique was implemented to increase the level of assistance when learning a challenging skill (one-piece puzzle, visual-perceptual activities, physical tasks, sorting & matching of fruits, animals and shapes, and fine motor enhancement tasks). The prompts began with natural cue and gradually moves up to partial or full physical support to complete the specific step of a task. However, the experimenter only provides the least-to-most intrusive prompts when the response is delayed or there is a behavioral indication that

the task is difficult to accomplish. Each step is also verbally reinforced (singing a poem/praise) to keep the sessions and activities engaging.

The modification of therapy environment was also done to evaluate the change in problem behavior and conducting the session in both, small and big room, to identify spatial difference as a distracting factor in maintaining the escape condition for the target behavior.

### 3. *Post Intervention phase*

The phase was similar to the pre-intervention phase, where the experimenter passively observed the behavior of XY when the intervention procedures were no longer provided. This phase was lasted for five days to indicate the overall effectiveness of treatment program and to identify the reduction in the rate of the problem behavior. In correspond to the previous phase, the recording method was also partial interval – time sampling method. The occurrence and non-occurrence of the target behavior was recorded for each specified interval and the estimated percentage was calculated after each day of post-intervention phase.

## Results

The data collected within each three phases of the study depicted following results:

### 1. *Pre-intervention phase*

The occurrence of active non-compliance behavior during this phase using time sampling method was calculated and shown in Table 2.

**Table 2.** *Findings of pre-intervention phase*

Days	$\frac{\text{Number of intervals the behavior occurred}}{\text{Total number of intervals}} \times 100$
1	88.8%
2	77.7%
3	88.8%
4	100%
5	88.8%
<b>Mean</b>	<b>88.82%</b>

It shows that the subject, on an average, was actively non-compliant for 88.82% of the total observation period.

The subject demonstrated active non-compliance behavior during most of the intervals in the baseline period as shown in Figure 1. Importantly, the function behind the target behavior was found to be escape and avoidance of the task at hand, while forcefully engaging in activities other than what has been asked of her. Also, the screaming/crying behavior in association with non-compliance of the provided instructions were solely targeted. However, sensory issues (ASD symptoms) that resemble the target behavior were ruled out and carefully observed to be marked

as minus (behavior not occurred). A major strength of the subject that was noticed was her receptive language skills, which indicated that she can understand simple commands and is able to follow it.

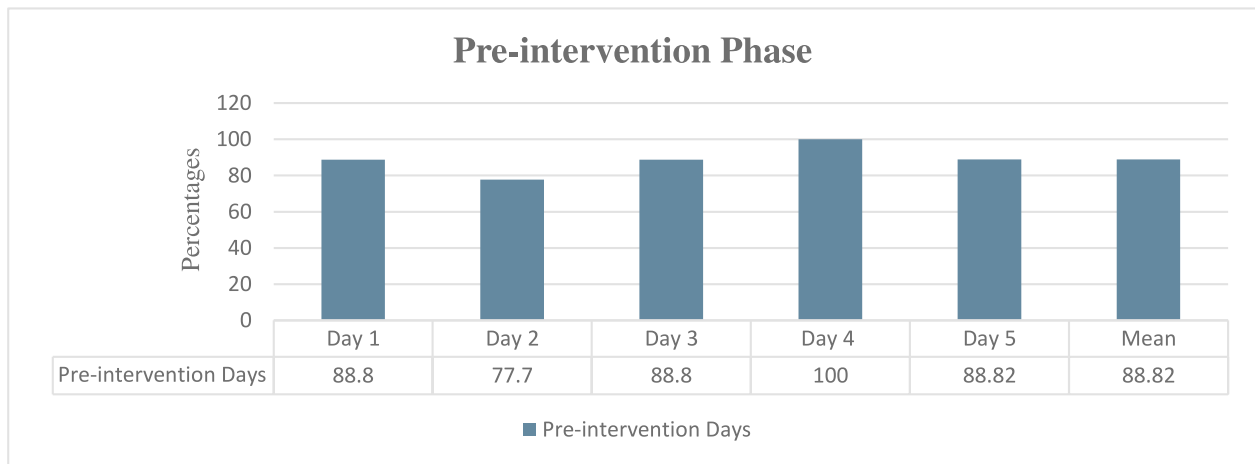


Figure 1. Graphical Representation of Observation in Pre-Intervention Phase

### 2. Intervention phase

The implementation of planned treatment provided following results shown in Table 3.

Table 3. Findings of Intervention Phase

Days	$\frac{\text{Number of intervals the behavior occurred}}{\text{Total number of intervals}} \times 100$
1	44.4%
2	33.3%
3	55.5%
4	44.4%
5	22.2%
6	33.3%
<b>Mean</b>	<b>38.85%</b>

The application of two treatment procedures, DRL and least-to-most prompting, produced a prominent reduction in the active non-compliance behavior of the subject. The mean of percentages signifies that the target behavior was exhibited for 38.85% of the total time.

Three sessions were conducted in a large-spaced room (Day 1, 3, & 4), whereas rest of the three sessions took place in small-spaced room (Day 2, 5, & 6). The percentage estimation of the target behavior is slightly high ( $\geq 44.4\%$ ) in spacious room, while the small room provided the estimation at  $\leq 33.3\%$  for the active non-compliance behavior.

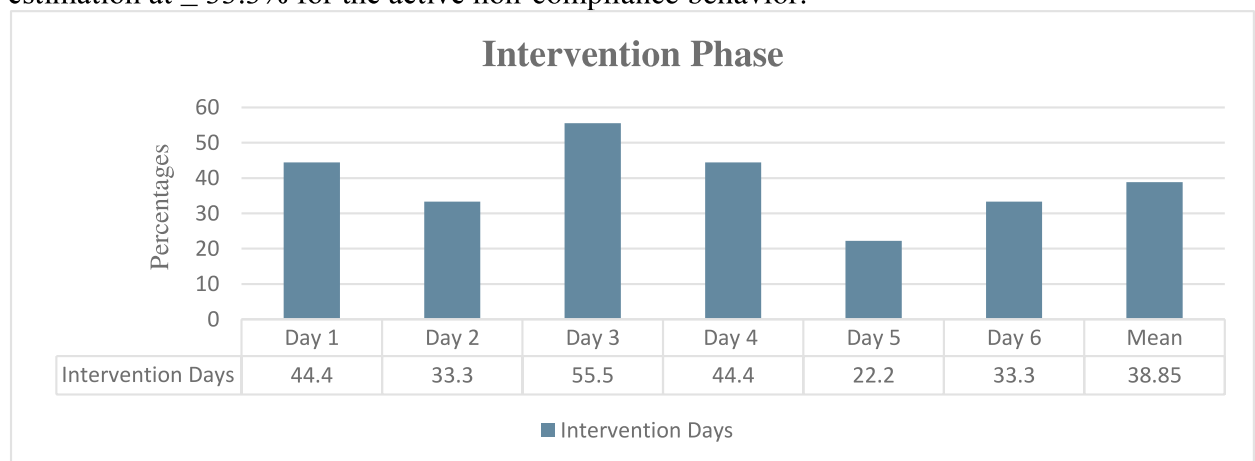


Figure 2. Graphical Representation of Observation in Intervention Phase

It also indicates that these interventions effectively lowered the rate of the overall occurrence of target behavior as depicted in Figure 2. It was also found that the subject responded to the instructions better when provided with the most-intrusive prompt, such as moving from gestural

to physical prompting. Similarly, associating the reinforcer with the completion of each step of a task along with prompting and short break after the occurrence of target behavior at low rate resulted in the enhanced learning and mastery of the skill.

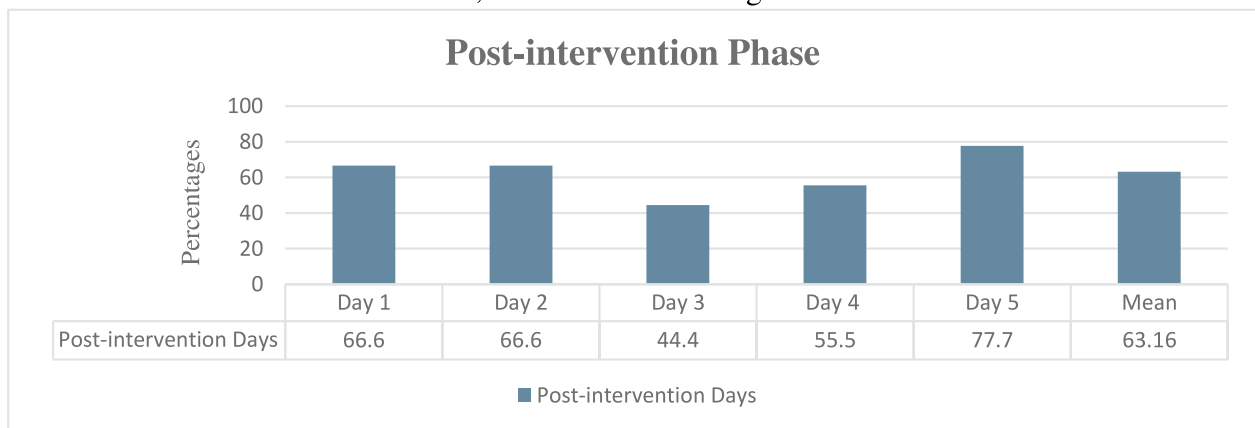
### 3. Post-intervention phase

The observed estimation of the occurrence of target behavior during this phase is summarized in Table 4.

**Table 4.** Findings of post-intervention phase

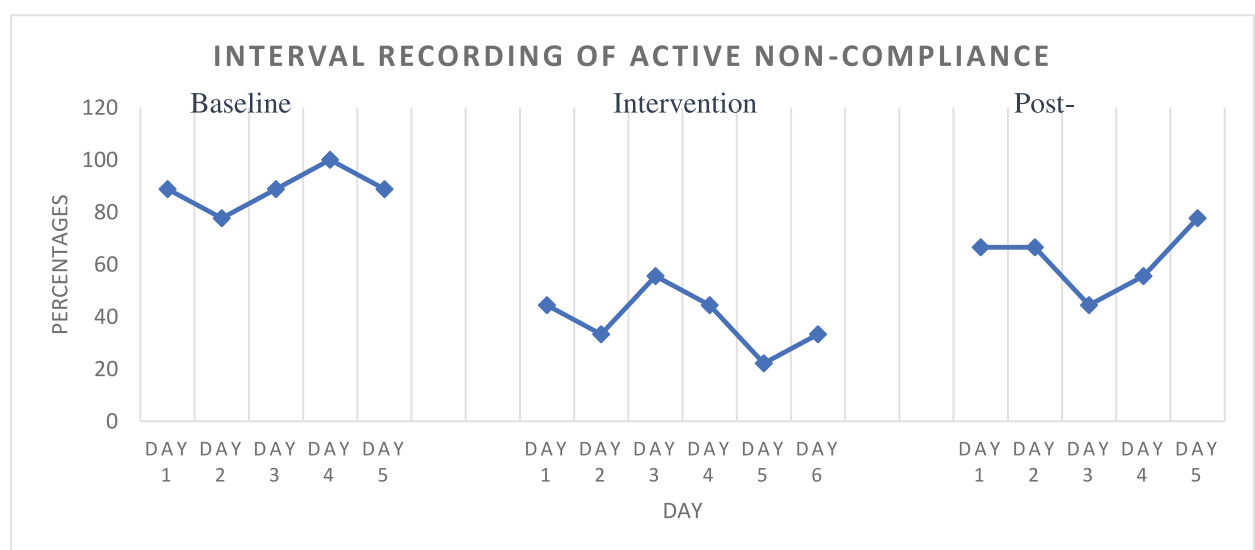
Days	$\frac{\text{Number of intervals the behavior occurred}}{\text{Total number of intervals}} \times 100$
1	66.6%
2	66.6%
3	44.4%
4	55.5%
5	77.7%
<b>Mean</b>	<b>63.16%</b>

It was revealed that the mean percentage of subject's active non-compliance behavior was 63.16% of the total observation time, also illustrated in Figure 3.



**Figure 3.** Graphical Representation of Observation in Post-Intervention Phase

It was appeared that the subject exhibited non-compliance behavior when the task was challenging and the prompts provided were least intrusive and the reinforcements were not readily provided to maintain and redirect her interest in the given task.



**Figure 4.** Graphical Representation of Overall Results

Figure 4. Indicates the variation observed in all three phases and that the treatment program effectively reduced the rate of active non-compliance behavior of the subject.

## Discussion

To determine the function of active non-compliance behavior of an ASD child, and implementing applied behavior analysis (ABA) techniques to reduce the problem behavior, while measuring the effectiveness of such procedures was the purpose of the present study. Due to the occurrence of the target behavior at such high rate, with no particular beginning and end, interval recording method was utilized. Likewise, the present investigation was carried out through a various teaching process and applying Differential Reinforcement of low rate (DRL) and least-to-most prompting to decrease the rate of active non-compliance behavior.

During the baseline, Functional Behavior Assessment (FBA) was conducted to identify the functions of problem behavior, whereby it suggested that the subject exclusively engaged in the non-compliance behavior to escape/avoid the learning task. Thus, the result illustrated that the non-compliance behavior of the subject was observed on a peak and was maintained by escape condition. There might have various reasons behind such problematic behavior, including overwhelming task demands, difficulty attending to long tasks, and distractions in the therapeutic environment (Luke, 2017). In the present case, the novelty of instructions provided, distractibility, and the level of understanding required to complete a challenging task found to be associated with non-compliance and escape behavior. The finding is also in line with other studies that indicated instructions as an antecedent variable can be modified to control problem behavior of ASD child maintained by escape from the instructional activities (Butler & Luiselli, 2007; Geiger et al., 2010; Hong et al., 2018). Nonetheless, most other studies infer that non-compliance among ASD children are significantly maintained by attention condition (Daoulatian, 2014; Rodriguez et al., 2010).

Besides, an important factor observed during baseline was the subject's capability to receive the simple incoming instructions that elicited a correct response, until the commands become too demanding to be followed or the novelty of the task increases.

Consequentially, the subject forces herself onto therapists (scream/cry) to escape from the task. In similar manner, Sigman et al. (1986) suggested that receptive language skills are limited in children with ASD to infer the meaning and understanding of indirect suggestions. Therefore, the instructions were kept basic and appropriate to the child's cognitive level during intervention phase.

The findings from the intervention phase clearly depicts the reduction in active non-compliance behavior of the subject, indicating the procedures of *DRL* and *least-to-most prompting* were efficacious to minimize the rate of occurrence. Also, the physical prompts resulted in a better response rate, while reinforcing the child on sitting behavior and complying with given task-related instructions lowered the exhibition of active non-compliance. The results are congruent with other studies that also demonstrated low rates of problem behavior, following the instructions, maintenance of responding, and generalization of response to the provided stimulus using DRL technique (Cuvo et al., 2010; Gadaire et al., 2017). Conversely, a study indicated that using differential reinforcement without prompting to elicit the response is a better approach to teach and enhance skill acquisition of children with autism (Karsten & Carr, 2009).

Similarly, during the implementation of treatment program, the therapy rooms were also modified and differences in the rate of occurrence corresponding to the space available were recorded. It was noticed that the subject was distracted from her work when someone move around the room and know the presence of mattress in the corner which she usually lay on after escaping from the task. Further, active non-compliance behavior was significantly higher in rooms that were bigger compared to the rooms which were only confined to two desks for teaching process. For this purpose, the subject found to be screaming and/or crying to escape from the ongoing activity. Consistent with this observation, research by Mostafa (2008) showed that visual distractions and larger space made available to autistic children are considerable opportunity to forcefully escape from the learning demands.

The fading of treatment procedures and observation of the target behavior occurred during post-intervention phase were slightly maintained to a lower rate as compared to baseline period. The results propound that DRL arrangements and most intrusive prompts found to be efficacious in the teaching process which led to the subject better learn the given task. In accordance with that, removal of DRL and using less intrusive prompts maintained the behavior at reduced rate. Although, the difference is not as much of a significance but the continuation of treatment program and generalization of responding to different setting can produce better outcome. It has been suggested that parental training program significantly reduces the non-compliance of children with behavioral issues (Kalb & Loeber, 2003). Also, consistency in the intervention approach used by the instructor across different context may yield desirable treatment outcome with improvements in socially appropriate behaviors (Finke et al., 2017).

Future research on evaluating different behavior modification technique for non-compliance behavior, using full-session DRL arrangements to assess its impact on the target behavior, and extending the current study in naturalistic environment with variations in tasks should be emphasized. Also, future work should also explore various assessment methods for analyzing the functions of non-compliance behavior and comparing it to the larger population of ASD children.

### **Conclusion**

Overall, the study findings depict potential information about the efficacious use of DRL arrangements and least-to-most-prompting for reducing aberrant behaviors in ASD children. These strategies are viable to optimize teaching processes and maintain desirable behaviors, specifically in settings where non-compliant behaviors are exhibited exceedingly. The results also signify the importance of generalizing such ABA interventions for modifying behaviors through reinforcement contingencies across various social contexts. Although the response to these arrangements and prompts can vary amongst ASD children, maintaining compliant behaviors could be achieved with appropriate

and continuous treatment procedures.

### **Limitations**

A few limitations of the present study were also considered. First, the days allotted to each of the three phases were insufficient to bring behavioral improvements in the subject to a greater extent. Although, the results depicted an alteration and reduction in non-compliance behavior of the subject but continuation of treatment for few more days and gradual fading of those procedures would have given better results in the post-intervention phase. Similarly, data recording during pre & post-intervention phase were also limited to five days, which is another drawback of the study. On contrary, observing for 10-15 days would have provided a better estimation of the subject's non-compliance behavior. Secondly, there was no opportunity to conduct follow up sessions with the subject. Thus, the maintenance of non-compliance behavior at lower rates was not addressed.

Notably, one more limitation is that the study was solely carried out in the therapy rooms at special education setting. Due to that, the observation of occurrence of the target behavior in the naturalistic environment and the rate at which it was reduced are less likely to be generalized and were not recorded. Third, the subject was only observed thrice a week that created gaps in recording the baseline, treatment provision, and post-observation. The continuation in the observation days and application of treatment procedures can produced a greater reduction in the problem behavior. Lastly, the interventions were performed by a new applied behavior analyst practitioner, due to which identifying an appropriate behavior modification technique and effectively implementing them appeared to be challenging.

### **Recommendation**

The adaptation of learning environment to prevent the subject from viable distractions and reduce problem behaviors is indispensable. Likewise, such environment can be created at home to enhance her strengths and improve her social, behavioral, and academic skills. Parental awareness and counseling are recommended to set realistic expectations for the child,

increase their understanding of child's behavioral issues, and engaging them in the development of individualized education plan (IEP) for the subject so that they can also monitor their child's progress over time. Further, accommodating the child in an organized and structured routine using visual schedules to increase her awareness regarding her environment is essential. Provision of instructions to evoke correct response, giving her extra time to respond, gradually decreasing prompt dependency, frequent breaks to regain energy and redirect her interest for the work, and giving her a choice board to simplify her decisions is recommended.

### **Declaration**

### **Funding**

No funding was available to conduct this study.

### **Conflict of Interest**

No conflict of interest to declare.

### **Acknowledgement**

I would like to acknowledge Pakistan Center for Autism for allowing me to conduct this study and providing me with all necessary support, equipment, and materials required for this study.

### **Availability of data and material**

Available on request.

### **Ethical Approval**

The study was approved the faculty/ Department of Institute of Professional Psychology, Bahria University Karachi Campus ethical review committee (NO. 1PP/BU/2e)

## **References**

- Arbelle, S., Sigman, M. D., & Kasari, C. (1994). Compliance with parental prohibition in autistic children. *Journal of Autism and Developmental Disorders*, 24(6), 693-702. <https://doi.org/https://doi.org/10.1007/bf02172280>
- American Psychiatric Association. (2013). *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.). American Psychiatric Association. <https://doi.org/10.1176/appi.books.9780890425596>
- Ault, M. J., & Griffen, A. K. (2013). Teaching with the system of least prompts: An easy method for monitoring progress. *Teaching Exceptional Children*, 45(3), 46-53. <https://doi.org/https://doi.org/10.1177/004005991304500305>
- Beavers, G. A., Iwata, B. A., & Lerman, D. C. (2013). Thirty years of research on the functional analysis of problem behavior. *Journal of Applied Behavior Analysis*, 46(1), 1-21.
- Bonner, A. C., & Borrero, J. C. (2018). Differential reinforcement of low rate schedules reduce severe problem behavior. *Behavior Modification*, 42(5), 747-764. <https://doi.org/https://doi.org/10.1177/0145445517731723>
- Butler, L. R., & Luiselli, J. K. (2007). Escape-maintained problem behavior in a child with autism: Antecedent functional analysis and intervention evaluation of noncontingent escape and instructional fading. *Journal of Positive Behavior Interventions*, 9(4), 195-202. <https://doi.org/https://doi.org/10.1177/10983007070090040201>
- Cuvo, A. J., Reagan, A. L., Ackerlund, J., Huckfeldt, R., & Kelly, C. (2010). Training children with autism spectrum disorders to be compliant with a physical exam. *Research in Autism Spectrum Disorders*, 4(2), 168-185. <https://doi.org/https://doi.org/10.1016/j.rasd.2009.09.001>
- Daoulatian, K. (2014). *Relation between Attention, Escape, and Noncompliance - ProQuest*. <https://www.proquest.com/openview/5fdb43d79e3971b398a509f7a7020d9e/1?pq-origsite=gscholar&cbl=18750>
- Ferster, C. B., & Skinner, B. F. (1957). Schedules of reinforcement.
- Finke, E. H., Davis, J. M., Benedict, M., Goga, L., Kelly, J., Palumbo, L., Peart, T., & Waters, S. (2017). Effects of a least-to-most prompting procedure on multisymbol message production in children with autism spectrum disorder who use augmentative and alternative communication. *American Journal of Speech-Language Pathology*, 26(1), 81-98. [https://doi.org/https://doi.org/10.1044/2016\\_ajslp-14-0187](https://doi.org/https://doi.org/10.1044/2016_ajslp-14-0187)

- Gadaire, D. M., Marshall, G., & Brissett, E. (2017). Differential reinforcement of low rate responding in social skills training. *Learning and Motivation, 60*, 34-40. <https://doi.org/https://doi.org/10.1016/j.lmot.2017.08.005>
- Geiger, K. B., Carr, J. E., & LeBlanc, L. A. (2010). Function-based treatments for escape-maintained problem behavior: A treatment-selection model for practicing behavior analysts. *Behavior Analysis in Practice, 3*(1), 22-32. <https://doi.org/https://doi.org/10.1007/bf03391755>
- Hong, E., Dixon, D. R., Stevens, E., Burns, C. O., & Linstead, E. (2018). Topography and function of challenging behaviors in individuals with autism spectrum disorder. *Advances in Neurodevelopmental Disorders, 2*(2), 206-215. <https://doi.org/https://doi.org/10.1007/s41252-018-0063-7>
- Horner, R. H., Carr, E. G., Strain, P. S., Todd, A. W., & Reed, H. K. (2002). Problem behavior interventions for young children with autism: A research synthesis. *Journal of Autism and Developmental Disorders, 32*(5), 423-446. <https://doi.org/https://doi.org/10.1023/a:1020593922901>
- Kalb, L. M., & Loeber, R. (2003). Child disobedience and noncompliance: A review. *Pediatrics, 111*(3), 641-652. <https://doi.org/https://doi.org/10.1542/peds.111.3.641>
- Karsten, A. M., & Carr, J. E. (2009). The effects of differential reinforcement of unprompted responding on the skill acquisition of children with autism. *Journal of Applied Behavior Analysis, 42*(2), 327-334. <https://doi.org/https://doi.org/10.1901/jaba.2009.42-327>
- Lecavalier, L. (2006). Behavioral and emotional problems in young people with pervasive developmental disorders: Relative prevalence, effects of subject characteristics, and empirical classification. *Journal of Autism and Developmental Disorders, 36*(8), 1101-1114.
- Lemanek, K. L., Stone, W. L., & Fishel, P. T. (1993). Parent-child interactions in handicapped preschoolers: The relation between parent behaviors and compliance. *Journal of Clinical Child Psychology, 22*(1), 68-77. [https://doi.org/https://doi.org/10.1207/s15374424jccp2201\\_7](https://doi.org/https://doi.org/10.1207/s15374424jccp2201_7)
- Luke, K. (2017). Strategies to Assist in Decreasing Escape Maintained Behaviours in Children With Autism Spectrum Disorder. *Electronic Theses, Projects, and Dissertations*. <https://scholarworks.lib.csusb.edu/etd/450/>
- Makrygianni, M. K., Gena, A., Katoudi, S., & Galanis, P. (2018). The effectiveness of applied behavior analytic interventions for children with Autism Spectrum Disorder: A meta-analytic study. *Research in Autism Spectrum Disorders, 51*, 18-31. <https://doi.org/https://doi.org/10.1016/j.rasd.2018.03.006>
- Mostafa, M. (2008). An architecture for autism: Concepts of design intervention for the autistic user. *International Journal of Architectural Research, 2*(1), 189-211.
- Neitzel, J., & Wolery, M. (2009). Steps for implementation: Least-to-most prompts. Chapel Hill, NC: National Professional Development Center on Autism Spectrum Disorders, Frank Porter Graham Child Development Institute, The University of North Carolina.
- Piper, A., Borrero, J. C., & Becraft, J. L. (2019). Differential reinforcement-of-low-rate procedures: A systematic replication with students with autism spectrum disorder. *Journal of Applied Behavior Analysis, 53*(2). <https://doi.org/10.1002/jaba.631>
- Rodriguez, N. M., Thompson, R. H., & Baynham, T. Y. (2010). Assessment of the relative effects of attention and escape on noncompliance. *Journal of Applied Behavior Analysis, 43*(1), 143-147. <https://doi.org/https://doi.org/10.1901/jaba.2010.43-143>
- Sigman, M., Mundy, P., Sherman, T., & Ungerer, J. (1986). Social interactions of autistic, mentally retarded and normal children and their caregivers. *Journal of Child Psychology and Psychiatry, 27*(5), 647-656.



Slocum, S. K., & Vollmer, T. R. (2015). A comparison of positive and negative reinforcement for compliance to treat problem behavior maintained by escape. *Journal of Applied Behavior Analysis*,

48(3), 563-574. <https://doi.org/10.1002/jaba.216>  
*Challenging Behaviors Tool Kit | Autism Speaks*. (2019). Autism Speaks. <https://www.autismspeaks.org/tool-kit/challenging-behaviors-tool-kit>

## Childhood Maltreatment and Behaviour Problems: Exploring the Mediating Role of Parental Attachment

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### Abstract

**Background.** Childhood maltreatment occurred to be the significant risk factor for development of number of adverse mental and many behavioural problems in adolescents. Seemingly, strong parental attachment provides a positive basis to overcome the harms of childhood maltreatment. The present study aimed to examine the mediating role of parental attachment between childhood maltreatment and behaviour problems.

**Method.** The study utilized the correlational research design and the data was collected through purposive and convenient sampling from adolescents ( $N = 200$ ) with the age range of 12-18 ( $M = 14.70$ ,  $SD = 1.74$ ) years.

**Results.** Significant positive association between childhood maltreatment and behaviour problems was observed. Non-significant association was found between the two subscales of parental attachment with all variables of the study except for the negative association of goal corrected partnership with childhood maltreatment and behaviour problems. Goal corrected partnership further mediated the association between childhood maltreatment and behaviour problems. The present study yielded the significance of goal corrected partnership (indicating child empathy with parents) in avoiding the adverse childhood experiences.

**Conclusion.** The findings of the present research could be beneficial both for theory building as well as for intervention-based programs. These findings could further be utilized to spread awareness among young adolescents to modify and minimize behaviour problems.

**Keywords.** Childhood maltreatment, childhood trauma, behavioural problems, parental attachment, secure attachment.



## Introduction

Childhood maltreatment is the traumatic experiences that occur during childhood and are stressful for individuals (Hepp et al., 2021; Rameckers et al., 2021). Childhood maltreatment is an umbrella term that encompasses various forms including variety of negative experiences such as emotional, physical, and sexual abuse, witnessing domestic violence, and parental discord (Rousson et al., 2020). Early age maltreatment is globally observed among the young adolescents. According to the meta-analysis report of childhood maltreatment, 18% of the population experienced physical abuse, 36% experienced emotional abuse, 26 % experienced sexual abuse (18% girls and 8% boys), and 20% reported other forms of maltreatment (Stoltenborgh et al., 2015). Childhood maltreatment proved to be a significant risk factor for the development of number of mental and physical health problems (de Ruiter et al., 2022; Liu, 2019), individuals with the experience of early life maltreatment are more likely to exhibit depression (Humphreys et al., 2020), anxiety (R. T. Liu, 2019), post-traumatic symptom disorder (PTSD) (Rameckers et al., 2021) and many neurological and physical health issues (Mehta et al., 2021). Apparently, the evidence is inclined with the well-documented relationship among childhood maltreatment and behaviour problems (Pandey et al., 2020; Su et al., 2022; Wang et al., 2019). Collectively, the afore mentioned information indicates that root to many complex mental disorders originates from early childhood, the sensitive period of development of a child. However, it is commonly observed that individual develop coping strategies to overcome the harms of these adverse experiences (Sheffler et al., 2019).

Coping strategies indicates the various behaviours that an individual adapts to overcome the unpleasant event (Anderson et al., 2022). Seemingly, attachment with close relationships is observed to be an effective strategy to overcome an unsettling event (Lahousen et al., 2019). Evidence revealed that adolescents often used attachment with a caregiver as a form of coping mechanism and tends to overcome the adverse experiences

(Bayrak et al., 2018; Spruit et al., 2020). This attachment ideology can be labelled as Parental Attachment, which can be elaborated as a deep and enduring relationship between a child and his/her caregiver in which a child seeks closeness and feels more secure in the presence of an attachment figure. The parental response to the child's needs called as Attachment Behaviours act as motivator for children in there coping period (Hernández-Alava & Popli, 2017). Attachment behaviour can be identified by specific symbols and behaviours from the children. For instance, seeking proximity to attachment figure or caregiver when sad or hurt (Rees, 2007).

Additionally, the attachment behavioural system provides a fundamental framework for understanding and coping of early life trauma and maltreatment (Cassidy et al., 2013). Bowlby also classified it as an *internal working model*. According to this model, the significance of close relationship of a child can not be underestimated, as the secure attachment (Ding et al., 2016). Secure attachment between caregiver and child has the potential to protect the child from the negative effects of childhood traumatic experiences in a child's life (Ding et al., 2016; Erozkhan, 2016; Ribera et al., 2022). A secure parental attachment significantly helps children to effectively regulate emotional arousal (Erozkhan, 2016). For instance, a child with a history of maltreatment would tend to turn towards a comforting person to calm down the negative or destructive thoughts instead of going barbaric or delinquent.

In accordance with the indigenous culture of Pakistan, family structure and role and responsibilities of every relationship is set with defined boundaries. Additionally, the family structure (joint or nuclear) of Pakistan develops even more clear understanding about the mechanism of coping (Zafar et al., 2022). According to a survey in Pakistan (2022), it is established that around 51.46% women are housewives and the availability of even a single parent develops a sense of security for a child and forms a strong communal bond to open-up when a child feels distressed (Thomas et al., 2017). These positive factors help to develop a fundamental framework for the present study and motivates to explore the

mediating role of parental attachment with childhood maltreatment and behaviour problems.

### **Hypotheses**

1. There will be a negative association between childhood trauma and parental attachment.
2. Childhood trauma will negatively predict behaviour problems of adolescents.
3. Parental attachment will mediate the relationship between childhood trauma and behaviour problems.

### **Method**

Using the purposive and convenient sampling technique the data was collected from different schools and colleges (both public and private) of Rawalpindi and Islamabad. Students from class six to twelve with an age range of 12-18 were selected for the study, and the total sample of  $N = 200$  was finalized. Total six schools and four colleges were approached through the letter for their participation in the study. The permission for data collection was granted from school authorities and parents through consent form. A complete set of instructions and purpose of the study was provided to the participants. In case of sensitive questions, participants were briefed and were assured that they can leave the study whenever they want if they consider questions not suitable. In case of any inconvenience caused by the questionnaire, the participants were facilitated with psychological resources to take professional help. Furthermore, the active team of psychologists were also working during the process of data collection for quick help and assessment in case of any discomfort to a student.

### **Assessment Measures**

**Adolescents Attachment Questionnaire.** This scale (West et al., 1998) was designed to measure the component features of parents-adolescents attachment of age 12-19 comprising a 5-point Likert scale (1 = *Strongly Disagree* to 5 = *Strongly Agree*). AAQ consists of eight items with three subscales. 1) *Anger Distress* indicates the negative affective response to the perceived unavailability of attachment figure. Higher

scores on this domain indicates that the child might be keeping an anger toward the attachment figure 2) *Availability* indicates the adolescent's confidence in the availability of the attachment figure. Higher score on this sub-scale indicates that child have a confidence in availability of the attachment figure. 3) *Goal-corrected Partnership* indicates the value to which a child feels sympathetic and have understanding regarding attachment figures. Higher scores on this domain indicates that child doesn't need to consider a need or feeling toward the attachment. The scale has a satisfactory alpha coefficient ( $\alpha$ ) of .62 to .80 (West et al., 1998).

**Childhood Trauma Questionnaire-Short Form.** This Scale (Bernstein et al., 2003) consist of 28-item designed to measure abuse and neglect on is a 5-poin Likert scale (1 = *Never True* to 5 = *Very Often True*) for 12 years and older children. CTQ-SF contains six subscales; three abuse (Emotional, Physical, and Sexual), two neglects (Emotional and Physical) and a Minimization/Denial subscale to check for extreme response bias. Each subscale has five items except minimization/denial with three items. The possible range of all scales is 5 to 25, the possible range of Minimization/Denial scale is 0-3, and the total score ranges from 5-125 with higher score indicating higher severity of childhood trauma and lower score indicating the less severity of trauma.

**Strength and Difficulty Questionnaire.** SDQ (Goodman & Cook, 2019) is a youth self-report used to measure behaviour and emotional functioning in adolescents through 3-point Likert scale (0 = *Never True* to 2 = *Certainly True*). It consists of 25 items including three subscales i.e., externalizing behaviour problem internalizing behaviour and Prosocial behaviour. The possible score ranges from 0-40 for behaviour problem. Higher scores will indicate higher level of behaviour problem (internalizing, externalizing and total behaviour problems) and lower scores will indicate lower level of behaviour problems (internalizing, externalizing and total behaviour problems). The scale has test-retest stability of .63 with the internal consistency coefficient ( $\alpha = .73$ )

(Goodman & Cook, 2019). However, pro-social behaviours were not used in the present study.

## Results

Overall, 200 adolescents participated in the study ( $n = 110$ ) male and ( $n = 90$ ) females. Most adolescents were studying in private schools (93%) and belonged to nuclear family system (52%). Larger population reported the history of maltreatment (63%) and a close proportion (58%) didn't want to answer this particular question. Additionally, 51.1% reported that they know someone with the same experiences. Lastly, parental attachment revealed that adolescents are more attached to their mothers (83%) as compared to their fathers.

The psychometric analysis revealed good to satisfactory ( $\alpha = .62- .90$ ) value Cronbach alpha reliabilities of scales and subscales of the study variables. Moreover, the findings revealed normal distribution of data. After psychometric properties, correlation and prediction analysis was carried out.

The findings of the Person Correlation Moment illustrated that first two sub scales of

attachment (anger distress and availability) showed non-significant association with all study variables, however, goal-corrected partnership revealed significant negative correlation with all study variable except for physical abuse and externalizing behaviour problems. Furthermore, childhood maltreatment revealed, significant and positive association with behaviour problems (internalizing, externalizing and total behaviour problems).

Overall, the correlation analysis between study variables revealed significant association between childhood maltreatment and behaviour problems (internalizing, externalizing, and total behaviour problems). However, the findings revealed that adolescent's attachment depicted non-significant association with its subs-scales except for goal-corrected partnership. Based on the current findings Linear Regression analysis was carried out to conduct hypothesis testing and for prediction and mediation analysis. The findings are further described in Table 1.

**Table 1**  
*Reliability and Correlation among subscales (N = 200)*

Variables	1	2	3	4	5	6	7	8	9	10	11
<b>Adolescents Attachment Questionnaire</b>											
1 Anger Distress	-	-	-	-	-	-	-	-	-	-	-
2 Availability	.41**	-	-	-	-	-	-	-	-	-	-
3 Goal Corrected Partnership	.09	-.03	-	-	-	-	-	-	-	-	-
<b>Childhood Trauma Questionnaire</b>											
4 Emotional Abuse	.04	.05	-.18**	-	-	-	-	-	-	-	-
5 Physical Abuse	.03	.12	-.05	.25**	-	-	-	-	-	-	-
6 Sexual Abuse	-.06	.01	-.24**	.61**	.14*	-	-	-	-	-	-
7 Emotional Neglect	-.02	-.09	-.18**	.47**	.17*	.53**	-	-	-	-	-
8 Physical Neglect	-.13	-.05	-.27**	.55**	.19*	.65**	.60**	-	-	-	-
9 Total Childhood Maltreatment	-.04	.02	-.24**	.77**	.58*	.76**	.72**	.78*	-	-	-
<b>Strength and Difficulty Questionnaire</b>											
10 Externalizing problems	.06	-.06	-.06	.23**	.05	.14	.11	.20*	.19*	-	-
11 Internalizing Problem	.02	-.05	-.20**	.22**	-.01	.26**	.18**	.28*	.24*	.31*	-
12 Total Behaviour Problems	.05	-.06	-.16*	.27**	.02	.25**	.18**	.29*	.26*	.81*	.81*

\* $p < .05$ . \*\* $p < .001$ .

The findings of regression analysis demonstrated that among the sub-scales of adolescent attachment, only two sub-scales (availability and goal-corrected partnership)

showed significant and negative prediction for behaviour problems. Availability showed 2% of the variance for internalizing behaviour problems and goal-corrected partnership

added 4% and 3% of the variance for internalizing and total behaviour problems. However, non-significant predict for externalizing behaviour problems was observed. Similarly, emotional abuse showed significant and positive prediction with 6%, 6%, and 8% of the variance for behaviour problems (internalizing, externalizing, and total behaviour problems). Sexual abuse further revealed significant and positive prediction for behaviour problems (internalizing, externalizing, and total behaviour problems) with the account of 6%, 6%, and 6% variance. Additionally, emotional

neglect revealed positive and significant prediction of internalizing and total behaviour problems with 6% and 3% variance accounted for this association. Whereas, physical neglect revealed positive and significant prediction with the variance of 6%, 4%, and 9% for behaviour problems (internalizing, externalizing, and total behaviour problems). Lastly, total childhood trauma also predicted behaviour problems significantly and positively with 6%, 4%, and 7% variance accounted for this association. The details of the finding are further elaborated in Table 2.

**Table 2**

*Linear Regression Analysis to Predict Internalizing, Externalizing and Total Behaviour problems from Childhood Trauma, and Adolescents Attachment (N = 200)*

		Outcome Variables														
Model	Predictor	Internalizing Behaviour Problems					Externalizing Behaviour Problems					Total Behaviour Problems				
		B	B	SE	R <sup>2</sup>	F	β	B	SE	R <sup>2</sup>	F	β	B	SE	R <sup>2</sup>	F
1	Constant	.20	10.41	1.02	.00	.19	.06	8.55	1.01	.004	.86	.05	18.95	1.65	.003	.67
	Anger Distress		.03	.09				.19	.10				.11	.15		
2	Constant	-	11.32	.97	.002	.46	-	10.23	.96	.00	.74	-	21.55	1.56	.01	.91
	Availability	.05	-.17**	.10			.06	-.08	.10			.17	-.14	.26		
3	Constant	-	13.98	1.18	.04	8.36**	-	10.5	1.19	.004	.84	-	24.48	1.92	.03	5.50*
	Goal-Corrected Partnership	.20	.38**	.10			.06	-.19	.10			.16	-.47*	.26		
4	Constant	.22	8.18	.89	.05	9.88**	.23	6.73	.67	.05	10.83*	.38	14.81	1.4	.08	16.18**
	Emotional Abuse		.29**	.06				.20*	.06				.41**	.10		
5	Constant	-	10.84	.81	.00	.04	.05	8.94	.80	.002	.56	.02	19.78	1.3	.00	.08
	Physical Abuse	.01	-.01	.05				.03	.04				.02	.07		
6	Constant		8.41	.67	.07	14.40**	.14	8.24	.78	.02	3.97*	.25	16.65	1.08	.06	12.86**
	Sexual Abuse	.26	.23**	.06				.12*	.06				.35**	.09		
7	Constant	.29	8.38	.95	.04	7.25*	.11	8.17	.95	.01	2.32	.18	16.35	1.52	.03	6.96*
	Emotional Neglect		.17*	.06				.09	.06				.26*	.09		
8	Constant	.28	7.64	.80	.08	16.79**	.20	7.25	.81	.04	8.57**	.30	14.88	1.28	.09	19.34**
	Physical Neglect		.25**	.06				.28**	.06				.42**	.09		
9	Constant	.24	6.96**	1.14	.06	11.53**	.19	6.43	1.14	.04	7.55*	.26	13.39	1.82	.07	14.79**
	Total Childhood Maltreatment		.16**	.02				.05*	.02				.10**	.03		

\* $p < .05$ . \*\* $p < .001$

Followed by the Linear Regression analysis, mediation analysis was carried out based on the results of correlation analysis. Keeping in mind: 1) significant association between independent variable and dependent variable, 2) significant association between independent variables and mediator, 3)

significant association between independent variable and dependent variable. Therefore, mediation analysis for physical abuse and externalizing behaviour problem was not carried out due to their non-significant association in correlation analysis.

**Table 3**

*Mediating Effect of Adolescents Attachment in Predicting Internalizing Behaviour Problems with Childhood Trauma and its Sub Scales (N = 200)*

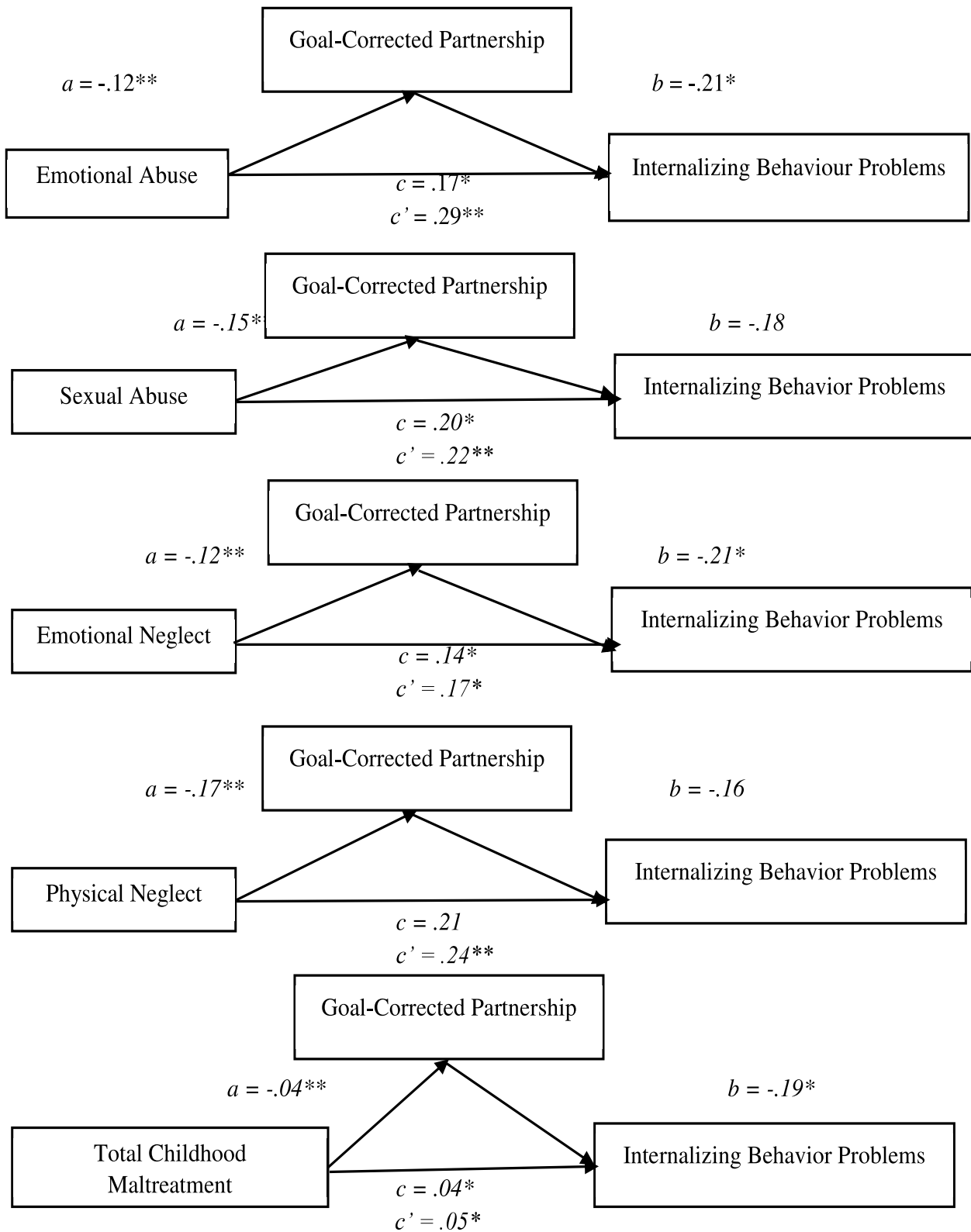
Model	Variable	Internalizing Behaviour Problem			
		Without Mediator	With Mediator	CI 95%	
		B	B	LL	UL
1	Constant	12.34	14.22	8.62	19.83
	Emotional Abuse	.29*	.27*	.04	.29
	Goal Corrected Partnership		-.21*	-.4	-.01
	R <sup>2</sup>	.06	.08		
	F	6.30*	5.76**		
2	Constant	12.56	14.19	8.78	19.6
	Sexual Abuse	.22**	.20**	.07	.32
	Goal Corrected Partnership		-.18	-.37	.01
	R <sup>2</sup>	.08	.09		
	F	8.61**	6.93**		
3	Constant	13.18	15.01	9.54	20.47
	Emotional Neglect	.17*	.14*	.02	.26
	Goal Corrected Partnership		-.21*	-.40	-.01
	R <sup>2</sup>	.05	.07		
	F	5.63*	5.31**		
4	Constant	11.99	13.52	8.04	18.99
	Physical Neglect	.24**	.21**	.09	.34
	Goal Corrected Partnership		-.16	-.35	.04
	R <sup>2</sup>	.09	.10		
	F	10.01**	7.57**		
5	Constant	10.92	12.94	6.92	18.47
	Total Childhood Maltreatment	.05**	.04*	.01	.18
	Goal Corrected Partnership		-.19*	-.38	.001
	R <sup>2</sup>	.17	.08		
	F	6.91**	5.94**		

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

The findings revealed partial mediation of goal-corrected partnership for childhood maltreatment (emotional abuse, emotional neglect, and total childhood maltreatment) and internalizing behaviour problems. The indirect effect projected that goal-corrected partnership significantly and negatively mediate internalizing behaviour problems through emotional abuse, emotional neglect, and total childhood maltreatment with 8%, 7%, and 8% of the variance accounted for

this association. However, goal-corrected partnership revealed non-significant mediation for sexual abuse, and physical neglect. The partial mediation is further explained in Figure 1.

Figure 1. Mediating Effect of Adolescents Attachment in Predicting Internalizing Behaviour Problems with Childhood Trauma and its Sub Scales





**Table 4**

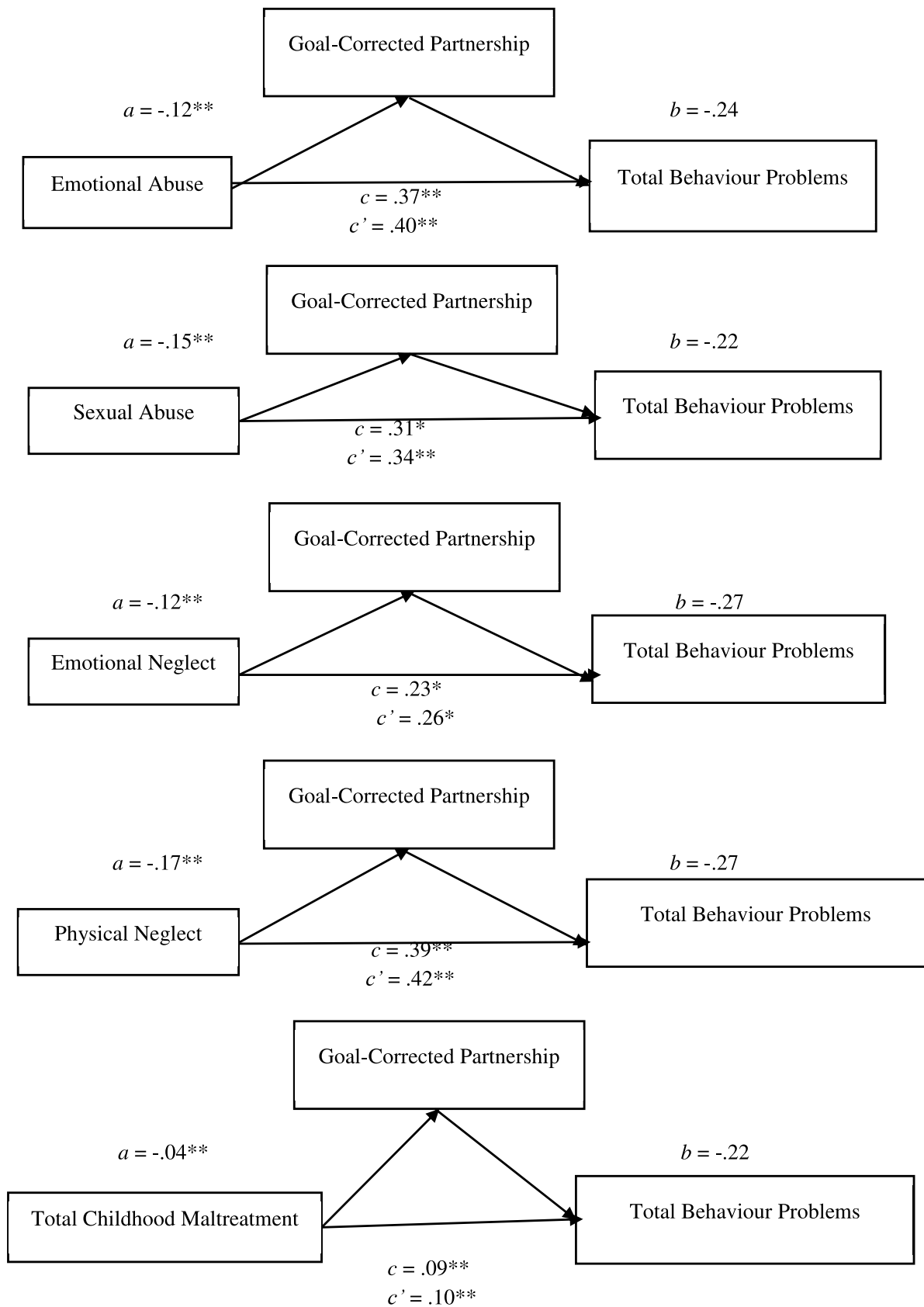
*Mediating effect of Adolescents Attachment in predicting Total Behaviour Problems through Childhood Trauma and its subscales (N = 200)*

Model	Variable	Total Behaviour Problem			
		Without Mediator	With Mediator	CI 95%	
		B	B	LL	UL
1	Constant	19.53	21.67	12.71	30.64
	Emotional Abuse	.40**	.37**	.27	.57
	Goal Corrected Partnership		-.24	-.55	.07
	$R^2$	.08	.09		
	$F$	8.76**	6.64**		
2	Constant	21.58	23.59	14.8	32.39
	Sexual Abuse	.34**	.31*	.11	.51
	Goal Corrected Partnership		-.22	-.54	.09
	$R^2$	.06	.07		
	$F$	7.16**	5.45**		
3	Constant	22.48	24.82	15.94	33.69
	Emotional Neglect	.26*	.23*	.03	.43
	Goal Corrected Partnership		-.27	-.58	.05
	$R^2$	.04	.06		
	$F$	4.61*	4.02*		
4	Constant	20.04	21.64	12.82	30.46
	Physical Neglect	.42**	.39**	.19	.58
	Goal Corrected Partnership		-.27	-.48	.15
	$R^2$	.09	.10		
	$F$	10.53**	7.38**		
5	Constant	17.61	19.9	10.22	29.57
	Total Childhood Trauma	.10**	.09**	.04	.14
	Goal Corrected Partnership		-.22	-.53	.09
	$R^2$	.07	.08		
	$F$	7.88**	5.92**		

\* $p < .05$ . \*\* $p < .001$ .

The findings demonstrated non-significant mediation for childhood maltreatment (emotional, sexual abuse, and emotional, physical neglect) and total behaviour problems. The findings are further described in detail in Figure 2.

Figure 2. Mediating Effect of Adolescents Attachment in Predicting Total Behaviour Problems with Childhood Trauma and its Sub Scale



## Discussion

The study established satisfactory reliabilities of all the scales and sub scales of study variables ( $\alpha = .62 - .90$ ). The study aimed to examine the mediation role of parental attachment for association between childhood maltreatment and behaviour problem in adolescents. The findings demonstrated the positive association of childhood maltreatment and behaviour problems and significant negative association of only one sub scale of adolescent attachment (goal-corrected partnership) with the proposed association. Additionally, the partial mediation of goal-corrected partnership was observed between childhood maltreatment and internalizing behaviour problems and non-significant mediation for total behaviour problems and childhood maltreatment.

The results of the Person Product Moment Correlation revealed the significant positive association between childhood maltreatment and behaviour problems, except for the non-significant association of physical abuse (sub scale of childhood trauma questionnaire) and externalizing behaviour problems (sub scale of strength and difficulty questionnaire). The results are in lined with the previous finding (Wang et al., 2019) elucidating the impact of childhood maltreatment on the behaviour of the adolescents. However, the non-significant findings could be further explained in Pakistani cultural context, the ideology of disciplining a child is mingled with the idea of supremacy (Bibi et al., 2022; Siddiqui et al., 2018). The unnecessary use of force and harsh voice of tone is considered the appropriate way of disciplining a child (Choi et al., 2013). The common practice of strict and aggressive behaviour for teaching and parenting develops a confusion and commonality in a child's brain that they cannot consider or differentiate abuse from the parenting.

Moreover, the non-significant findings of externalizing behaviour problems are also in lined with the previous literature (Elam et al., 2022; Kretschmer et al., 2022) describing that externalizing behaviour problems are not entirely stimuli induced. Additionally, the findings could be explained in indigenous accept of Pakistan. As explained earlier, strict

parenting not only confuses a child but also give birth to the development of passiveness in a child's mind (Sarwar, 2016). The strict parenting or aggressive environment of home or school tends to suppress their ability to express their aggression or to be bold in a common environment (Goodman & Cook, 2019).

Additionally, the non-significant association of subscales of adolescent attachment with all variables except the significant association of goal-corrected partnership with childhood trauma and behaviour problems was observed. The findings contradict with the existing literature (Frosch et al., 2021; Lai & Carr, 2018) explaining that a child's mind consider parental figure as an ultimate source of comfort and love. However, evidence (B. Liu et al., 2022) suggested that aggression faced by a child from a parental figure or caregiver enforces a child to develop aggression towards them. The strict parenting or ignited environment at home could lead to the disconnection between a child and parent that initiate a negative emotion in a child (Sarwar, 2016; Xing et al., 2017). As it is established that children learn what they see, the constant exposure to aggressiveness give rise to the negative and unstable emotions in a child that ultimately effects a child's relationship with their parents as well (Ogundele, 2018).

Similarly, the passiveness in a child's behaviour also subdues the child from seeking the affection and tends to develop a distance between them and their parents. Availability of parental figure reduces the chances of development of behaviour problems in children (Goldberg & Carlson, 2014). Whereas the findings provided a complete another perspective that explains the inability of parental availability in reducing or coping with the harms of maltreatment. The findings could be explained by the fact that partially, parental availability is the main source of their maltreatment (neglect and strict parenting). Another explanation could be the desire to be independent with the growing age diminished the need of parental guidance and availability. The illuminated world of independence and the pubertal change in a child fills the place of

parental affection and following belief system could be the cause of non-significant findings.

However, in contrast to the two subscales of adolescent attachment, goal corrected partnership that explains the empathic feelings of a child towards a children revealed a significant negative association. The findings are in lined with the previous study (Kirby, 2019) explaining that empathetic feelings towards parents could reduce or heal the impacts of maltreatment and prevents the involvement in behaviour problems. However, the non-significant findings of physical abuse could be explained with reference to the Pakistani culture, As discussed earlier physical battering or neglect, considered as part of child rearing have a great impact on child's cognition and it reduces the empathetic feeling of children towards a parental figure (Ubaidi, 2017). Non-significant association of externalizing behaviour problems with empathy towards parents is also demonstrated in literature (Goldberg & Carlson, 2014; Paz et al., 2021).

Based on the correlation analysis, prediction analysis was carried out. The findings revealed that childhood trauma significantly and positively predict behaviour problems (internalizing, externalizing, and total behaviour problems). However, adolescent's attachment revealed non-significant prediction for behaviour problems (internalizing, externalizing, and total behaviour problems) except for the significant negative prediction of internalizing behaviour problems. The findings also supported the already mentioned indigenous explanations.

Furthermore, mediation analysis was also carried out to examine the mediating role of adolescent's attachment between childhood maltreatment and behaviour problems (internalizing and total behaviour problems). The findings revealed significant negative and partial mediation of goal-corrected partnership between childhood maltreatment (emotional abuse, emotional neglect, and total childhood maltreatment) and internalizing behaviour problems (see Table 3). However, total behaviour problems revealed non-significant mediation (see Table 4). The present findings could be explained as total behaviour problems is the total score of internalizing and

externalizing behaviour problems so the existing of non-significant mediation could be the result of externalizing behaviour problems. Moreover, the non-significant findings could be explained through correlation results and Pakistani ideology of parenting.

**Conclusion and Implications.** The present study yielded the significance of goal corrected partnership (indicating child empathy with parents) in avoiding the adverse childhood experiences. The findings of the present research could be beneficial in both intervention-based programs as well as in theory building. The findings could further be utilized for the awareness among young adolescents to modify and reducing behaviour problems. The findings could promote the counsellors to explain the effectiveness of parental attachment in a child's life and could further use parental attachment in different counselling sessions and family therapies to provide a sense of support to young adolescent and make them realize that they can count on their relationship while going through drastic changes / events in their life. The present study further helps filling the literature gap and lack of knowledge regarding the uprising of maltreatment and behaviour problems in Pakistani society and help provide a baseline for future studies to explore the causes and beneficial helping programs.

Although the study results were generally consistent with previous literature, the study is not free of limitations. Future studies can focus on following potential limitations and fill the loop-holes in previous literature. The data was taken from only two cities so, the findings could not be generalized nationwide. The increase in data could differentiate the findings. Secondly, only parental attachment was examined in the present study, attachment with their relationships could provide different findings and provide better coping strategy. Considering these, the present study could form a baseline for better future studies.

The present research was carried out with the focus to understand the association between childhood maltreatment and behaviour problems and to examine the mediating role of parental attachment between childhood maltreatment and behaviour

problems in adolescents. The current study not just provides an insight about the harming impacts of childhood maltreatment but also provides a better opportunity to understand the parent-child attachment in a clear manner. The present study could help in the development of better society for the children and their bright future.

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### **Conflict of interest**

The authors are well informed and declared no competing interests.

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### **Ethical Approval**

Formal ethical approval was taken from institutional ethical board to conduct this research.

### **Competing interest**

The authors declare to have no competing interests.

## **References**

- Anderson, G. S., Ricciardelli, R., Tam-Seto, L., Giwa, S., & Carleton, R. N. (2022). Self-Reported Coping Strategies for Managing Work-Related Stress among Public Safety Personnel. *International Journal of Environmental Research and Public Health*, *19*(4), 2355. <https://doi.org/10.3390/ijerph19042355>
- Bayrak, R., Güler, M., & Şahin, N. H. (2018). The mediating role of self-concept and coping strategies on the relationship between attachment styles and perceived stress. *Europe's Journal of Psychology*, *14*(4), 897–913. <https://doi.org/10.5964/ejop.v14i4.1508>
- Bernstein, D. P., Stein, J. A., Newcomb, M. D., Walker, E., Pogge, D., Ahluvalia, T., Stokes, J., Handelsman, L., Medrano, M., Desmond, D., & Zule, W. (2003). Development and validation of a brief screening version of the Childhood Trauma Questionnaire. *Child Abuse & Neglect*, *27*(2), 169–190. [https://doi.org/10.1016/S0145-2134\(02\)00541-0](https://doi.org/10.1016/S0145-2134(02)00541-0)
- Bibi, A., Hayat, R., Hayat, N., Zulfiqar, S., Shafique, N., & Khalid, M. A. (2022). Impact of Parenting Styles on Psychological Flexibility Among Adolescents of Pakistan: A Cross-Sectional Study. *Child and Adolescent Social Work Journal*, *39*(3), 313–322. <https://doi.org/10.1007/s10560-021-00754-z>
- Cassidy, J., Jones, J. D., & Shaver, P. R. (2013). Contributions of attachment theory and research: A framework for future research, translation, and policy. *Development and Psychopathology*, *25*(4pt2), 1415–1434. <https://doi.org/10.1017/S0954579413000692>
- Choi, Y., Kim, Y. S., Kim, S. Y., & Park, I. J. K. (2013). Is Asian American parenting controlling and harsh? Empirical testing of relationships between Korean American and Western parenting measures. *Asian American Journal of Psychology*, *4*(1), 19–29. <https://doi.org/10.1037/a0031220>
- de Ruiter, C., Burghart, M., de Silva, R., Griesbeck Garcia, S., Mian, U., Walshe, E., & Zouharova, V. (2022). A meta-analysis of childhood maltreatment in relation to psychopathic traits. *PLOS ONE*, *17*(8), e0272704. <https://doi.org/10.1371/journal.pone.0272704>
- Ding, F., Zhang, D., & Cheng, G. (2016). The Effect of Secure Attachment State and Infant Facial Expressions on Childless Adults' Parental Motivation. *Frontiers in Psychology*, *7*. <https://doi.org/10.3389/fpsyg.2016.01237>
- Elam, K. K., Bountress, K. E., Ha, T., Shaw, D. S., Wilson, M. N., Aliev, F., Dick, D. M., & Lemery-Chalfant, K. (2022). Developmental genetic effects on externalizing behavior and alcohol use: Examination across two longitudinal samples. *Development and Psychopathology*, 1–10. <https://doi.org/10.1017/S0954579422000980>
- Erozkan, A. (2016). The Link between Types of Attachment and Childhood Trauma. *Universal Journal of Educational Research*, *4*(5), 1071–1079. <https://doi.org/10.13189/ujer.2016.040517>
- Frosch, C. A., Schoppe-Sullivan, S. J., & O'Banion, D. D. (2021). Parenting and Child Development: A Relational Health Perspective. *American Journal of Lifestyle Medicine*, *15*(1), 45–59. <https://doi.org/10.1177/1559827619849028>
- Goldberg, J. S., & Carlson, M. J. (2014). Parents' Relationship Quality and Children's Behavior in Stable Married and Cohabiting Families. *Journal of Marriage and Family*, *76*(4), 762–777. <https://doi.org/10.1111/jomf.12120>

- Goodman, J. F., & Cook, B. I. (2019). Shaming school children: A violation of fundamental rights? *Theory and Research in Education*, 17(1), 62–81. <https://doi.org/10.1177/1477878518817377>
- Hepp, J., Schmitz, S. E., Urbild, J., Zauner, K., & Niedtfeld, I. (2021). Childhood maltreatment is associated with distrust and negatively biased emotion processing. *Borderline Personality Disorder and Emotion Dysregulation*, 8(1), 5. <https://doi.org/10.1186/s40479-020-00143-5>
- Hernández-Alava, M., & Popli, G. (2017). Children's Development and Parental Input: Evidence From the UK Millennium Cohort Study. *Demography*, 54(2), 485–511. <https://doi.org/10.1007/s13524-017-0554-6>
- Humphreys, K. L., LeMoult, J., Wear, J. G., Piersiak, H. A., Lee, A., & Gotlib, I. H. (2020). Child maltreatment and depression: A meta-analysis of studies using the Childhood Trauma Questionnaire. *Child Abuse & Neglect*, 102, 104361. <https://doi.org/10.1016/j.chiabu.2020.104361>
- Kirby, J. N. (2019). Nurturing Family Environments for Children: Compassion-Focused Parenting as a Form of Parenting Intervention. *Education Sciences*, 10(1), 3. <https://doi.org/10.3390/educsci10010003>
- Kretschmer, T., Vrijen, C., Nolte, I. M., Wertz, J., & Hartman, C. A. (2022). Gene–environment interplay in externalizing behavior from childhood through adulthood. *Journal of Child Psychology and Psychiatry*, 63(10), 1206–1213. <https://doi.org/10.1111/jcpp.13652>
- Lahousen, T., Unterrainer, H. F., & Kapfhammer, H.-P. (2019). Psychobiology of Attachment and Trauma—Some General Remarks From a Clinical Perspective. *Frontiers in Psychiatry*, 10. <https://doi.org/10.3389/fpsy.2019.00914>
- Lai, Y.-H., & Carr, S. (2018). A Critical Exploration of Child-Parent Attachment as a Contextual Construct. *Behavioral Sciences*, 8(12), 112. <https://doi.org/10.3390/bs8120112>
- Liu, B., Yang, Y., Geng, J., Cai, T., Zhu, M., Chen, T., & Xiang, J. (2022). Harsh Parenting and Children's Aggressive Behavior: A Moderated Mediation Model. *International Journal of Environmental Research and Public Health*, 19(4), 2403. <https://doi.org/10.3390/ijerph19042403>
- Liu, R. T. (2019). Childhood Maltreatment and Impulsivity: A Meta-Analysis and Recommendations for Future Study. *Journal of Abnormal Child Psychology*, 47(2), 221–243. <https://doi.org/10.1007/s10802-018-0445-3>
- Ogundele, M. O. (2018). Behavioural and emotional disorders in childhood: A brief overview for paediatricians. *World Journal of Clinical Pediatrics*, 7(1), 9–26. <https://doi.org/10.5409/wjcp.v7.i1.9>
- Pandey, R., Gupta, S., Upadhyay, A., Gupta, R. P., Shukla, M., Mishra, R. C., Arya, Y. K., Singh, T., Niraula, S., Lau, J. Y. F., & Kumari, V. (2020). Childhood maltreatment and its mental health consequences among Indian adolescents with a history of child work. *Australian & New Zealand Journal of Psychiatry*, 54(5), 496–508. <https://doi.org/10.1177/0004867420909524>
- Paz, Y., Orlitsky, T., Roth-Hanania, R., Zahn-Waxler, C., & Davidov, M. (2021). Predicting externalizing behavior in toddlerhood from early individual differences in empathy. *Journal of Child Psychology and Psychiatry*, 62(1), 66–74. <https://doi.org/10.1111/jcpp.13247>
- Rameckers, S. A., van Emmerik, A. A. P., Bachrach, N., Lee, C. W., Morina, N., & Arntz, A. (2021). The impact of childhood maltreatment on the severity of childhood-related posttraumatic stress disorder in adults. *Child Abuse & Neglect*, 120, 105208. <https://doi.org/10.1016/j.chiabu.2021.105208>
- Rees, C. (2007). <B>Essay</B> – Childhood attachment. *British Journal of General Practice*, 57(544), 920–922. <https://doi.org/10.3399/096016407782317955>
- Ribera, L. B., Longobardi, C., Prino, L. E., & Fabris, M. A. (2022). Secure Attachment to Mother and Children's Psychological Adjustment: The Mediating Role of Pet Attachment. *Anthrozoös*, 1–15. <https://doi.org/10.1080/08927936.2022.2109291>
- Rousson, A. N., Fleming, C. B., & Herrenkohl, T. I. (2020). Childhood maltreatment and later stressful life events as predictors of depression: A test of the stress sensitization hypothesis. *Psychology of Violence*, 10(5), 493–500. <https://doi.org/10.1037/vio0000303>
- Sarwar, S. (2016). Influence of Parenting Style on Children's Behaviour. *Journal of Education and Educational Development*, 3(2), 222. <https://doi.org/10.22555/joed.v3i2.1036>
- Sheffler, J. L., Piazza, J. R., Quinn, J. M., Sachs-Ericsson, N. J., & Stanley, I. H. (2019). Adverse childhood experiences and coping strategies: identifying pathways to resiliency

- in adulthood. *Anxiety, Stress, & Coping*, 32(5), 594–609. <https://doi.org/10.1080/10615806.2019.1638699>
- Siddiqui, S., Saleem, M. F., & Kazmi, A. B. (2018). Drifts of Parenting Styles and Rage Among Juveniles: A Research Study of Pakistani Families Residing in Pakistan and Abroad. *The Family Journal*, 106648071881132. <https://doi.org/10.1177/1066480718811325>
- Spruit, A., Goos, L., Weenink, N., Rodenburg, R., Niemeyer, H., Stams, G. J., & Colonnaesi, C. (2020). The Relation Between Attachment and Depression in Children and Adolescents: A Multilevel Meta-Analysis. *Clinical Child and Family Psychology Review*, 23(1), 54–69. <https://doi.org/10.1007/s10567-019-00299-9>
- Stoltenborgh, M., Bakermans-Kranenburg, M. J., Alink, L. R. A., & van IJzendoorn, M. H. (2015). The Prevalence of Child Maltreatment across the Globe: Review of a Series of Meta-Analyses. *Child Abuse Review*, 24(1), 37–50. <https://doi.org/10.1002/car.2353>
- Su, Y., Meng, X., Yang, G., & D'Arcy, C. (2022). The relationship between childhood maltreatment and mental health problems: coping strategies and social support act as mediators. *BMC Psychiatry*, 22(1), 359. <https://doi.org/10.1186/s12888-022-04001-2>
- Thomas, P. A., Liu, H., & Umberson, D. (2017). Family Relationships and Well-Being. *Innovation in Aging*, 1(3). <https://doi.org/10.1093/geroni/igx025>
- Ubaidi, B. A. al. (2017). Cost of Growing up in Dysfunctional Family. *Journal of Family Medicine and Disease Prevention*, 3(3). <https://doi.org/10.23937/2469-5793/1510059>
- Wang, Z.-Y., Hu, M., Yu, T.-L., & Yang, J. (2019). The Relationship between Childhood Maltreatment and Risky Sexual Behaviors: A Meta-Analysis. *International Journal of Environmental Research and Public Health*, 16(19), 3666. <https://doi.org/10.3390/ijerph16193666>
- West, M., Rose, M. S., Spreng, S., Sheldon-Keller, A., & Adam, K. (1998). Adolescent Attachment Questionnaire: A Brief Assessment of Attachment in Adolescence. *Journal of Youth and Adolescence*, 27(5), 661–673. <https://doi.org/10.1023/A:1022891225542>
- Xing, X., Zhang, H., Shao, S., & Wang, M. (2017). Child Negative Emotionality and Parental Harsh Discipline in Chinese Preschoolers: The Different Mediating Roles of Maternal and Paternal Anxiety. *Frontiers in Psychology*, 8. <https://doi.org/10.3389/fpsyg.2017.00339>
- Zafar, N., Naeem, M., Zehra, A., Muhammad, T., Sarfraz, M., Hamid, H., Enam, K., Moaz, M., Shah, B., Ishaque, S., & Muhammad, N. (2022). Parenting practices, stressors and parental concerns during COVID-19 in Pakistan. *Child Abuse & Neglect*, 130, 105393. <https://doi.org/10.1016/j.chiabu.2021.105393>

## Gender Disparity in Barriers Perceived Among Pre-Engineering Students at FSc. Level

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### Abstract

**Background.** High attrition rate is prevalent in engineering field due to lack of interest and academic dissatisfaction among students which may be due to a number of barriers perceived by them in pursuing engineering during course of their education. Therefore, the major objectives for this research were to identify those perceived barriers, develop an indigenous valid and reliable measure for identifying perceived barriers in pursuing pre-engineering, to quantify the most encountered barrier, and establishing impact of perceived barriers on academic satisfaction. Present research was accomplished in two phases.

**Method.** A 27 items Perceived Barriers in Pursuing Engineering Scale was developed by utilizing empirical approach in item generation based upon focus group discussions of students who had done pre-engineering in high secondary school (HSS) and studying currently in engineering (7 FGDs) and non-engineering field (5 FGDs) at undergraduate level and interviews of teachers ( $N = 7$ ) teaching in pre-engineering level followed by evaluation of 10 Subject Matter Experts. Exploratory factor analysis on sample of students studying at pre-engineering HSS level ( $N = 324$ ) resulted in unidimensional scale.

**Results.** Most frequently faced barriers by participants were computed by using Chi Square on each item with gender. Male students reported significantly higher scores on barriers than female students.

**Conclusion.** This research has important implications for stakeholders seeking to rectify low enrollment rates in engineering.

**Keywords.** Perceived barriers, pre-Engineering, gender, exploratory factor analysis, scale development.





## Introduction

From productivity to increasing efficiency, from saving lives to feeding people affectively, the modern world and the lives of an exponentially growing population are increasingly dependent on the field of engineering and technology. Science, Technology, Engineering, and Mathematics (STEM) fields are crucial for developing industries that increase global competitiveness and usher in prosperity (Kayan-Fadlelmula et al., 2022), therefore, countries invest in STEM education to prepare students for careers in these fields.

In spite of the importance of STEM studies, students often show a lack of persistence, and interest in these fields. STEM enrolments are low, dropouts are high, and the general STEM pipeline of students has been highlighted as an issue that needs to be addressed (Estrada et al., 2018). There is need to identify whether gender is affecting students' decision to opt for engineering.

### **Career Decision Making About Engineering**

The situation is especially worrisome in Pakistan when it comes to engineering because even though Pakistan has number of engineering universities, but trained engineers lack practical approach needed to solve real problems. The barriers and deficits need to be traced back from where the engineering education starts, that is the pre-engineering at high school level where the critical decision making for opting a career is made (Afsar & Jami, 2020).

Career decision making and a choice of subject is the greatest challenge for all individuals' men or women. This difficulty is compounded by the fact that these choices have to be made as early as possible. Especially in Pakistan's educational system, students have to opt for the combination of pre-engineering subjects in grade 11 if they want to pursue careers in engineering. This choice of a career or field is a crucial moment in a students' life since wrong decisions can become one of the major life-long regrets. Research and valuable assessments have been suggested to identify the factors influencing

the students opting engineering as education and career (Kayan- Fadlelmula et al., 2022).

The dilemma of how, when, and by whom to guide, teach and explore the technological fields and prepare the students at school level for technological domains has not yet been solved although efforts have been made in identifying the factors affecting STEM fields (Nurtanto et al., 2020). Consistent relation of barriers with gender and contextual support have been examined.

Social Cognitive Career Theory (SCCT) provides different ways to identify career choices, interest, success achievement as well as academic and occupational satisfaction but gender is held really important in all these prospects. Career decision making is a reciprocal process where the person and the environment reciprocate the influence. It is considered crucial as there are number of factors involved. Taking a decision, future orientation, the persistence in that career, the journey they will experience, and the feedback they receive from significant others are all important. Number of factors are considered to be important students have to compromise their personal interest as posited by SCCT due to contextual factors like support from significant others, perceived barriers, and gender disparity etc. This theory identifies barriers as one of the important reasons for failure and dissatisfaction in academia (Turner et al., 2019). It is pertinent to understand the gender role in this perspective as engineering is considered a more masculine field and less number of females enroll in this discipline.

### **Barriers faced by Engineering Students**

The high attrition rate and the lack of interest is mostly attributed to the factors such as barriers or hindrances in the course of engineering education, traced back to pre-engineering and that is mostly influenced by specific gender (Lent & Brown, 2008).

Barriers are those events or circumstances related to the individual or the environment which makes advancement challenging. So, barriers include the intrapersonal or environmental factors that causes hindrance to any progress (referring to

the context). Specifically, for the engineering students, hurdles and problems faced by the individual in pursuit of engineering is known as barriers (Lent et al., 2008).

Researchers have identified different barriers in the engineering education and suggests the minimizing of such factors. One such study indicated that students face hurdles and problems in persuasion of engineering (Sørensen et al., 2018). In another evidence, teachers' lack of qualification may lead to low quality teaching of the dynamics of such important fields (Xu & Li, 2021).

The nature of barriers faced by students deserves a closer look. The secondary school (K-12), which is an equivalent of the FSc level education in Pakistan, plays a major role in producing potentiated engineers. The baseline has to be strong as it serves as a foundation for strong and refined career aspirants who could be role models for the next generation as well. To achieve this goal there is a need to focus on the basic concepts of engineering and mathematics which is said to be a major lacking at pre-engineering level. The high attrition rate, lower persistence and under-representation of females can also be attributed to the lack of basic information and conceptual clarity of the students.

Polastri and Alberts (2014) in their research revealed that lack of mathematical skills is a major reason of attrition in engineering in US and suggested a revision in the curriculum in engineering education to incorporate the necessary requirements in the curriculum.

The role of barriers is considered by many theorists for career and educational developmental studies and research on perceived barriers has increased noticeably in past decades. Swanson et al. (1996) have suggested that inquiry on barriers has been beset by two major problems, lack of theoretical foundation of the barriers scale, particular measure need to be devised to specifically achieve objective in a contextual setting. Considering the suggestion from Swanson et al. (1996), it was decided to develop a scale that is relatively nomothetic for the particular participants and can focus

on the barriers they are facing as a whole in that educational tenure.

### **Role of Gender**

Gender is widely reported in the literature to be an important attribute in considering engineering related studies as it is more identified as a masculine field. The stereotypic threat to female students undermines their attitudes and performances in STEM related subjects and losing the interest in the said fields. Flores et al. (2020) conducted a study on the effect of perceived barriers and other factors in a longitudinal study on 226 boys and 116 girls from engineering where he did not identify the gender role in perceived barriers and suggested that it should be studied. Gender differences has been reported throughout the literature specially in engineering related field and overall STEM education. Although females are under-represented in the engineering field, the reason for which was lower self-efficacy of the females. Therefore, role of gender in perceiving barriers in pursuing engineering at high secondary school level will also be explored.

### **Rationale of the Study**

Although Lent et al. (2001) explained that barriers are subjectively experienced and every person has a different interpretation of barriers. Some students face more barriers than others and succeed more as they are satisfied with the progress they make over time and some with a few hindrances cannot proceed further. But as the educational degree gets harder, the number of barriers are perceived more which leads to dissatisfaction of the students in their educational career. So they suggested to consider multiple factors such as financial constraints, gender differences, peer influence and parental behaviors for analyzing barriers. This suggest the need to develop an instrument that will cater the subjective experience of the students.

To study the barriers faced by the students of FSc., no suitable existing scale was found so there was a need for a measure would be developed that can serve our purpose. Barriers scale for Bachelor's students was available but that was not

serving the purpose appropriately. The scale of barriers was developed by the researcher taking the idea from the 18-items scale by Lent et al. (2001).

The researchers intended to use the original scale by Lent et al. (2001) but it was mainly based on bachelors' students which was not valid for FSc. students. Moreover, no available scale could adequately capture the construct that the present research was considering so adaptation was not an option. So, in order to measure the barriers faced by the FSc. pre-engineering students in the Pakistani culture, a decision for development of the scale was taken to study and explore the objectives of the study in a valid and reliable way.

Therefore, the present aim to develop an indigenous instrument for assessing perceived barriers faced by male and female students in pursuing pre-engineering. The method adopted for the present study has been discussed next.

### Objectives

The main objectives to be achieved in the study are to:

1. Develop a valid and reliable scale for measuring perceived barriers in pursuing engineering among HSS students studying in pre-engineering.
2. To examine the role of gender in perceived barriers among pre-engineering HSS students.

### Hypotheses

1. Girls will perceive more barriers in pursuing engineering as field of study at pre-engineering HSS level than boys.

## Method

Development and validation of the Perceived Barriers in Pursuing Engineering Scale was achieved in two phases employing empirical approach (Lent et al., 2001) including: Phase I was scale development and Phase II was validation of the Scale.

### Phase 1: Development of Perceived Barriers in Pursuing Engineering Scale

Scale development was carried out in different steps:

Step 1. Focus group discussions (FGDs) and interviews

Step 2. Generation of items through content analysis

Step 3. Selection of items

Step 4. Establishing content validity

#### Step 1. Focus Group Discussions (FGDs) and Interviews

**Sample.** This study is part of PhD study of first author. The scale was developed using data from qualitative part of PhD study (already published elsewhere, Afsar & Jami, 2020). Participants included students who had done pre-engineering in HSS were included and they were currently enrolled in engineering (7 FGDs) and non-engineering (5 FGDs) fields at undergraduate level. They were students of 1<sup>st</sup> and 2<sup>nd</sup> semesters of BS and BE (for details of sample See Afsar & Jami, 2020). Beside this, interviews of six teachers currently teaching in pre-engineering level were included in the sample (for details of sample See Afsar & Jami 2022). Purposive sampling technique was used in recruiting participants of this phase.

**Table 1**

*Demographic Characteristics of the Sample*

Sample	Engineering Students' (N = 7) FGDs	Non-Engineering Students' (N = 5) FGDs	Teachers' (N = 7) Interviews
Course	Undergraduate	Undergraduate	Teaching at Pre-engineering
Gender			
Male	35	26	4
Female	9	4	3
Age	19-23 years	20-24 years	Not specified
City	Islamabad & Rawalpindi	Islamabad & Rawalpindi	Islamabad

**FGD and interview guide.** FGD guide (29 total, 41 probing questions) and interview guide (16 total, 19 probing questions) were formulated in the light of current literature to explore students' experiences in pre-engineering HSS in retrospect. For example, "What should be the personality trait of a person who wants to pursue engineering? What are the factors that lead students for high/low academic achievement? What is the most difficult decision of your life?". The probing question for this main question was, "Why do you believe it was a difficult decision?" etc. Students were asked about barriers they faced in pursuing engineering later at undergraduate level as some were able to pursue and were studying in BE while others left engineering in undergraduate level and opted social sciences. This helped to pinpoint barriers effectively. Teachers were asked what factors they think act as barriers for HSS in pursuing engineering in higher education level. It included 28 total and 41 probing questions formulated in what, why, and how format to make respondent respond in detail which covered the domains of personality, interest, attitude, aptitude, achievement, motivation, self-efficacy, social support, values, barriers, satisfaction, burnout and barriers.

**Procedure.** Permission was taken from the Federal Education Directorate and the heads of each educational institute to conduct interviews with the teachers in college premises. Interview guide and purpose of the study were shared with the heads of the institutes and respective teachers to seek their consent. The same procedure was followed for accessing students in university settings to conduct FGDs. After informing all about the objectives of the study, promise to maintain confidentiality and anonymity of their responses, interviews and FGDs were conducted and audio-recorded with their permission. In FGDs, a trained MPhil scholar facilitated in conducting FGDs. It took 35 min. to 1 hour 20 min. to conduct each interview and FGD. Later, audio-recorded data was transcribed and content analysis was carried out.

### ***Step 2: Generation of Items***

For measuring the barriers faced by the students at pre-engineering HSS to pursue engineering later, 36 items were developed initially from the content analysis of FGDs and interviews. These were barriers that were commonly appearing in both types of FGDs and interviews (for example, parental influence in subject choices, lack of support, content and curriculum related barriers, institutional barriers etc.).

### ***Step 3: Selection of Items***

The item pool was evaluated in a committee comprising of six teachers teaching at pre-engineering level. According to them, some items were more appropriate for bachelor's level instead of pre-engineering level so those items were excluded from the initial form of the Scale. For example, the item "semester system was not compatible with the annual system of the intermediate level of education" was removed.

The scale, subsequently, was comprising of 27 quantitative items with an additional item 28 included to explore "other barriers" to identify barriers faced by the students that might have been overlooked. The scale was designed to be a 5-point Likert scale with instructions "Here we are interested in knowing how much suffering each barrier or problem that you are probably facing in pursuing pre-engineering". The response options included: *Very little/Not at all* coded as 1, *A little* as 2, *Moderately* as 3, *Quite a bit* as 4, and *Extremely* as 5. High score would present more barriers faced in pursuing engineering as field while studying at pre-engineering HSS. The instructions given were, "Here we are interested in knowing how much suffering in each barrier or problem you are probably facing in pursuing pre-engineering".

### ***Step 4: Establishing Content Validity***

Content validity was established. Subject Matter Experts (who were teaching at high school level to pre-engineering students; N = 6) were approached and objectives were clearly defined. They were requested to select items carefully on the basis of construct

relevance, clarity, and representativeness. Modifications were suggested in the initial item pool in items 1, 2, 9, and 12 including rephrasing and completion of statement/words to convey the concept meaningfully, which were done in the final scale set (See Appendix R). The formula of content validity ratio used for determining the validity was

$$CVR = (N_e - N/2)/(N/2)$$

Where  $N_e$  is the number of panelists indicating an item as "essential" and  $N$  is the total number of panelists. The numeric value of content validity ratio was determined by Lawshe Table (Lawshe, 1975). The recommended cut-off scores from six to eight experts was at least .83 (Lynn, 1986). The content validity for the scale for majority of

items was 1. However, since the CVR for 9 were related to annual and semester system, choice of institutes, gender stereotypes, gender differences attitude, selection in university, poor writing, domestic issues, and boarding and emotional dependency on parents were below .83, they were discarded from the scale. Phase 2. Validation of the Scale

### Sample

Purposive sampling technique was used to recruit 324 students studying in 1<sup>st</sup> year and second year of pre-engineering HSS from public and private colleges of Islamabad, Rawalpindi, and Sargodha. Descriptive of the sample characteristics is given in Table 2.

**Table 2**

*Frequencies and Percentages on Demographic Variables of the Sample (N = 324)*

Categories	n (%)	Categories	n (%)	Categories	n (%)
Age		Engineering chosen by Self	245 (75.6)	Residence	
15-16	55 (16.9)	By Parents	61 (18.8)	Hostelite	17 (5.2)
17-18	244 (75.5)	Both	1 (.3)	Day Scholar	225 (69.4)
19-20	25 (1.7)	By Others	15 (4.6)	Other	82 (25.3)
Gender		Sought career counseling		Birth Order	
Male	201 (62)	Yes	153 (47.2)	1 <sup>st</sup>	104 (32.1)
Female	123 (38)	No	152 (46.9)	2 <sup>nd</sup>	91 (28.1)
Type of College		General Guidance	19 (5.9)	Only Child	96 (29.6)
Private	55 (17)			Other	32 (9.9)
Public	263 (82)				

A good sample size was achieved to run factor analysis.

### Assessment Measures

Following scales were administered along demographic sheet.

***Perceived Barriers in Pursuing Engineering Scale.*** This was developed in Phase 1 of the current study. Barriers are defined as the hindrances and obstacles that are faced by pre-engineering HSS students to pursue engineering as their career or field of study. It has 27 items with 5-point Likert scale on the degree of occurrence where 1 shows *very slightly* and 5 shows *extremely*. The scale had no reverse scored items. The potential range is 27 to 135. High score represents high barriers in pursuing pre-engineering at pre-engineering level.

Procedure. Permission was taken from Federal Education Directorate to collect data from the respective colleges offering pre-engineering at HSS level. Official permission letter from Federal Education Directorate and questionnaires along demographic sheet were shown to head of the colleges to seek their consent to collect data from students studying in pre-engineering HSS. They appointed teachers to facilitate in data collection in classroom setting. Informed consent was obtained from willing participants after sharing objective of the study, right to withdraw, ensuring confidentiality and anonymity of information provided by them. Data was entered into SPSS 22 and analysis was done.

## Results

To establish psychometric properties of the Perceived Barriers in Pursuing Engineering Scale, reliability was established through Cronbach alpha; construct validity was established through item-tototal correlations, Exploratory Factor Analysis (EFA). As secondary objective role of gender in perceived barriers was explored on three response levels.

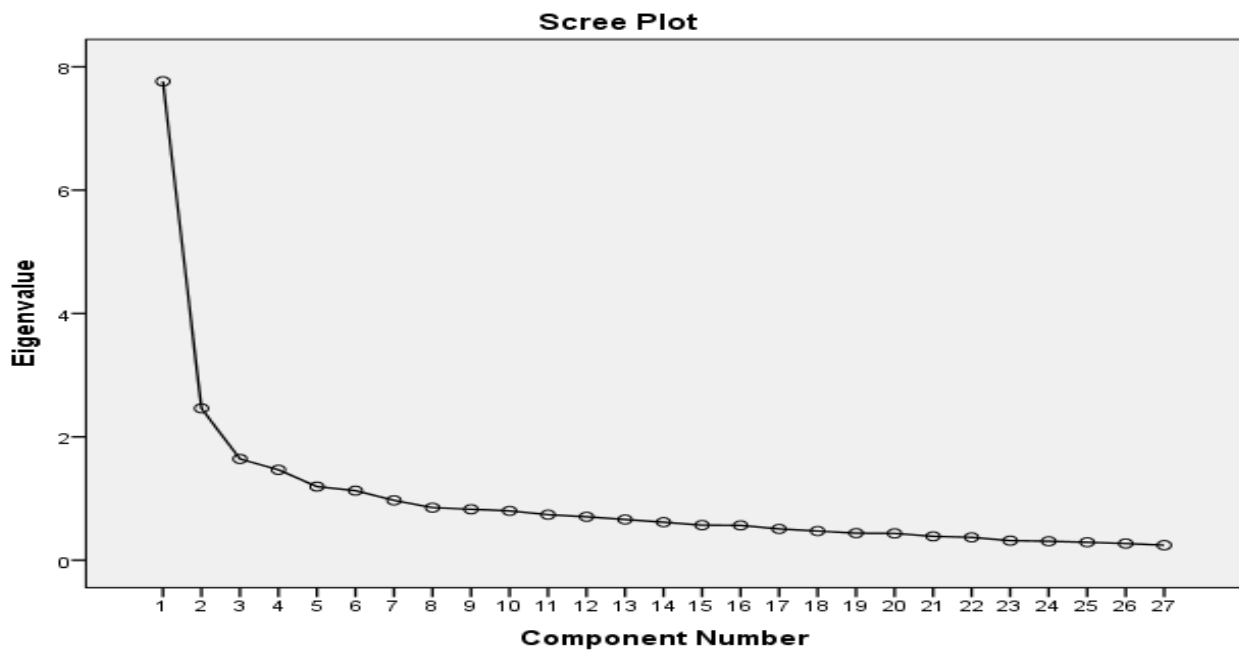
### Construct Validity

To determine internal consistency and homogeneity of Perceived Barriers in Pursuing Engineering Scale in measuring the construct, item-to-total correlations is computed for all items. Item-to-total correlations range is .35 - .61 at  $p < .01$  for items 1 to 9 and 25, respectively. All items

are significantly positively correlated with total score on the Scale. Principal Component Analysis using Oblique (oblimin) rotation for EFA was used to give structure to the scale and reduce number of the items further (Sürücü et al., 2022). The Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy, indicating the adequacy of sample and appropriateness of the data for factor analysis is .88. The closer the value of Bartlett's Test of Sphericity is significant,  $\chi^2 (n = 324) = 3236.65 (p < .05)$ , which indicates data's suitability for factor analysis. EFA was run by employing 2, 3, and 4 factor solutions. Each time achieved factor structures were not giving any meaningful picture of the all factors to retain these. Scree plot is given in Figure 1.

**Figure 1**

Scree plot for Barriers in Pursuing Pre-Engineering Scale.



Finally, unidimensionality of the Scale was checked and Scale was found to be unidimensional as all items loaded on one factor with minimum factor loading of .30. As data was more than 10 times greater than total number of items, therefore .30 is taken to be a fair criterion for retaining items (See Goretzko et al., 2021). All items have .30 and more (See Table 3).

Table 3 shows the factor loadings on single factor and its Eigen value, percentage of variance and accumulative variance.

**Table 3**

*Factor Loadings, Eigen Values, and Percentage of Variance on Single Factor of Perceived Barriers in Pursuing Engineering Scale (N= 324)*

Items	Factor Loadings	Items	Factor Loadings
Barr1	.30	Barr14	.56
Barr2	.42	Barr15	.54
Barr3	.46	Barr16	.57
Barr4	.54	Barr17	.54
Barr5	.51	Barr18	.58
Barr6	.48	Barr19	.57
Barr7	.56	Barr20	.53
Barr8	.61	Barr21	.50
Barr9	.62	Barr22	.56
Barr10	.51	Barr23	.50
Barr11	.50	Barr24	.57
Barr12	.59	Barr25	.62
Barr13	.57	Barr26	.54
Eigen Value	7.76	Barr27	.52
Percentage of variance Explained	28.75		

### Reliabilities

Cronbach alpha reliability of Perceived Barriers in Pursuing Engineering Scale is .90 with  $M = 77.29$  and  $SD = 20.47$ . The reliability is above .80 which indicates high internal consistency of the score of scale (Schrepp, 2020).

### Comparing Means (t-Test-Equal Variance Not Assumed)

Mean comparison of male and female students across barriers was established. The participants in each group was different so the readings considered in analysis was from the equal variance not assumed which is the same as Welch's t-test meant for unequal group mean comparison. The analysis reveals that boys perceive more barriers ( $M = 79.45$ ,  $SD = 20.78$ ) as compared to girls ( $M = 74.00$ ,  $SD = 19.38$ ) which is significant ( $t = 8.92$ ,  $p$

$< .05$ ), 95% CI [.96-9.94] with a smaller effect size (.27).

### Chi-square Analysis

Pearson chi-square test was conducted to examine the association between gender and response options for each item of the Perceived Barriers in Pursuing Engineering Scale. Male and female students were compared along the three response options: Low, Moderate, and High. The responses were merged for better understanding of the responses in terms of highly experienced to low experiences that is responses on *Very little/Not at all* and *A little* were merged as Low (perceived barriers); Moderate level of barrier was maintained as it is; while responses on *Quite a bit* and *Extremely* in the Scale were merged as High (perceived barriers). The obtained differences have been presented in Table 4

**Table 4**

*Frequencies and Chi-Square Results for Perceived Barriers in Pursuing Pre-Engineering and Gender (N = 324)*

Item		Response						$\chi^2 (2)$	$\phi$	
		Low		Moderate		High				
		n	%	n	%	n	%			
1	Lack of supervision from the family	Male	<b>106</b>	52.7	36	17.9	59	29.3	13.49**	.20**
	Female	40	32.5	26	21.1	<b>57</b>	46.6			
2	Family pressures for certain field at the time of admission	Male	<b>107</b>	53.2	33	16.5	61	30.3	6.49*	.14*
	Female	<b>80</b>	65.04	21	17.1	22	17.8			
3	Lack of support from Family	Male	91	45.3	21	10.4	89	44.3	5.76	.13
	Female	72	58.5	11	8.9	40	32.5			
4	Lack of support from the teachers	Male	81	40.3	45	22.4	75	37.3	11.78**	.19**
	Female	<b>70</b>	56.9	12	9.7	41	33.3			
5	Lack of support from friends	Male	81	40.3	38	18.9	82	40.7	13.11**	.20*
	Female	<b>75</b>	60.9	16	7.9	32	26.01			
6	Lack of rules ensuring punctuality	Male	71	35.3	56	27.8	74	36.8	13.65**	.21**
	Female	<b>66</b>	53.6	33	26.8	24	19.5			
7	Ineffective teaching methods	Male	77	38.3	45	22.4	79	39.3	10.63**	.18**
	Female	<b>68</b>	55.3	26	21.2	29	23.6			
8	Lack or teacher's training	Male	81	40.2	34	16.9	86	42.7	11.11**	.19**
	Female	<b>73</b>	59.3	14	11.3	36	29.2			
9	Course content not covered completely by the teachers	Male	103	51.24	39	19.40	59	29.35	6.19*	.14*
	Female	<b>74</b>	60.2	28	22.7	21	17.1			
10	Poor time management by the teachers for covering course content	Male	100	49.8	38	18.9	63	31.3	4.68	.12
	Female	<b>71</b>	57.7	27	21.9	25	20.3			
11	Favoritism by the teachers	Male	70	34.8	59	29.3	72	35.8	3.89	.11
	Female	48	39.02	24	19.5	<b>51</b>	41.5			
12	Rote memorization/cramming system (no conceptual understanding)	Male	86	42.8	53	26.4	62	30.8	3.81	.11
	Female	<b>61</b>	49.6	21	17.1	41	33.3			
13	Curriculum not meeting the requirement of the field	Male	74	36.8	61	30.3	66	32.8	2.59	.09
	Female	<b>56</b>	45.5	30	24.4	37	30.1			
14	Less creativity, more spoon feeding	Male	<b>69</b>	34.3	49	24.4	<b>83</b>	41.3	12.41**	.19**
	Female	66	53.6	25	20.3	32	26.01			



15	Admission criteria at universities flawed	Male	64	25.8	44	21.8	<b>93</b>	46.2	1.08	.06
		Female	45	36.6	28	22.8	50	40.6		
16	Poor equipment/Lack of practical facility in schools/colleges	Male	87	43.3	40	19.9	74	36.8	1.18	.06
		Female	<b>58</b>	47.1	27	21.9	38	30.8		
17	Lack of ability for achieving high in pre-engineering	Male	73	36.3	45	22.4	83	41.2	10.14**	.18**
		Female	<b>62</b>	50.4	31	25.2	30	24.4		
18	Lack of career counseling in school/colleges	Male	77	38.3	43	21.4	81	40.3	6.42*	.14*
		Female	<b>64</b>	52.03	17	13.8	42	34.1		
19	Lack of interest of the students in field/subject	Male	69	34.3	44	35.8	<b>88</b>	43.7	7.24*	.15*
		Female	57	28.3	30	24.4	36	29.3		
20	Lack of scope of field	Male	84	41.8	46	22.9	71	35.3	1.02	.06
		Female	<b>54</b>	43.9	32	26.01	37	30.1		
21	Lack of information/awareness about field of engineering among students	Male	78	38.8	43	21.4	80	39.8	2.31	.08
		Female	<b>58</b>	47.1	21	17.1	44	35.8		
22	Poor time management of the students	Male	72	35.8	48	23.9	81	40.2	1.22	.06
		Female	48	39.0	23	18.7	<b>52</b>	42.3		
23	Involvement/participation of students in non-academic activities	Male	<b>85</b>	42.3	46	22.9	70	34.8	2.66	.09
		Female	42	34.1	28	22.7	<b>53</b>	43.1		
24	Financial constraints	Male	63	31.3	72	35.8	66	32.8	12.32**	.19**
		Female	<b>60</b>	48.8	25	20.3	38	30.8		
25	Lack of confidence in one's abilities	Male	69	34.3	47	23.3	<b>83</b>	41.3	3.26	.10
		Female	49	39.8	35	28.4	39	31.7		
26	Overcrowded class	Male	78	38.8	45	22.4	76	37.8	7.95*	.16*
		Female	42	34.1	16	13.0	<b>65</b>	52.8		
27	Distracting class fellows	Male	78	38.8	41	20.4	82	40.8	4.15	.13
		Female	41	33.3	18	14.6	<b>64</b>	52.0		

\*  $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$

Chi-square tests of independence revealed a significant association of gender and the first item with a very strong effect size. The pattern of the data indicated that the highest number of male students reported lack of supervision by parents to be the least encountered barrier by them, whereas, most

female students indicated this to be a common barrier.

Another significance association for gender was observed in item 2 with moderate effect size. The highest proportion of male and female students reported least experience with the barrier of family pressures for certain field at the time of admission. The percentage of

female students reporting low encounter with this barrier surpassed the percentage of male students.

Item 3, item 4, item 5 representing the barriers of lack of support from family, lack of support from teachers, and lack of support from friends, respectively, also possessed significant associations with gender. All these associations possessed moderate to high effect sizes as per phi-coefficients. Data suggests that the highest number of female students reported least encounter with all three of these barriers as compared to male students.

Item 6 representing the barrier, lack of rules ensuring punctuality, was another item possessing a significant association with gender with a very strong effect size. It was chosen as a least encountered barrier by the highest percentage of female students.

Coming to teacher related barriers, majority of female students chose item 7 that was ineffective teaching methods and lack of teacher's training as a least encountered barrier in comparison to male students. The majority of both the male and female students agreed that course content not covered completely by the teachers (item 9) was a least encountered barrier. Effect sizes of all these associations ranged from strong to very strong.

Gender was also associated with some environment related barriers. Female students expressed least encounter with the following barriers: less creativity, more spoon feeding (item 14) and lack of career counseling in school/colleges (item 18). Moderate to strong effect sizes were reported for these associations. However, overcrowded class (item 26) was the most encountered barrier by the majority of female students. This association had a strong effect size.

Some personal barriers that were associated with gender were represented by item 17, item 19, and item 24. Majority of female students reported least encounter with the barrier, lack of ability for achieving high in pre-engineering and financial constraints. As for the male students, their majority indicated most encounter with lack of interest of the students in field/subject. Strong to very strong effect sizes were reported for these relations.

In conclusion, large percentage of female respondents perceived less barriers than male counterparts. Male students specifically reported lack of supervision by parents to be a least encountered barrier. Whereas, female students reported least encounter with the following barriers: the barrier of family pressures for certain field at the time of admission, of lack of support from family, lack of support from teachers, lack of support from friends, lack of rules ensuring punctuality, ineffective teaching methods, lack of teacher's training, ineffective teaching methods, lack of teacher's training, less creativity, more spoon feeding, lack of career counseling in school/colleges, lack of ability for achieving high in pre-engineering, and financial constraints. Most encountered barrier by female student was lack of supervision by parents and overcrowded class. Whereas, the only barrier encountered by most male students was lack of interest of the students in field/subject.

## **Discussion**

Adolescent's stage is the most intense, instable, confused and difficult period of a person's life. He undergoes different hormonal changes which makes it difficult for him to endure minor stressors (Schweizer et al., 2020). They need support from the close circle and significant others to excel in their education and career.

In a developing country, like Pakistan the education system for engineering studies may not be as effective for satisfaction of the students and that may cause emotional distress, dissatisfaction, other negative emotions which may serve as major barriers in their education (Khan & Abid, 2021).

Students may not be interested in STEM fields but parents and significant others' influence the decision of a person pursuing education at FSc. Level for both males and females (Fisher et al., 2022) which may again be the reason for perceiving barriers in their education.

Gender biases/stereotyping (underrepresentation of females) is one of the main factor of interest for researchers in STEM related fields (Miner et al., 2019) for that matter the females might perceive more barriers in engineering education. This

stereotypic threat to females undermined the attitudes and performances in STEM related subjects and losing the interest in the said fields.

Barriers related scales were available in the literature whose reliabilities and other psychometric properties were established (e.g., Hong et al., 2014 etc.) but they were used for different context for instance, in career persuasion, for physical disability, employment etc. or were validated for women, social sciences or general in nature. Hence, a need for developing an indigenous, contextual scale was observed and developed through rigorous literature search and FGD's with the concerned potential participants of the study.

FGDs are the most effective way for sequential exploratory research design for scale development (Cornely et al., 2022) hence, FGD's were conducted for the development of the Perceived Barrier Scale for Pursuing Engineering at FSc level.

FGDs were conducted with groups of students from Engineering in retrospection because they went through it and they better understand what lacking they felt in the previous year. Such experiences are recommended in the researches claiming that it provides fruitful information and side-by-side analysis of the previous and current scenarios than the current experience shared only (Lee et al., 2021). The students were from engineering so their perception of barriers was vast and they reported some barriers which were not related to the pre-engineering students. So, the scales were reviewed by pre-engineering teachers to select the most appropriate for pre-engineering students (at FSc level).

Barriers related to parents, teachers, students, academic administration, personal and financial etc. were reported. These barriers are also identified by previous researchers (e.g., Liebech-Lien, 2021 etc.).

The identified and reviewed items by the teachers and experts were then compiled in the form of a 27 item scale with 5 response options and was administered on the FSc students for the validation purpose on 324 participants from pre-engineering. Factor analysis was done using Principal

Component Analysis. Exploratory factor analysis was run first to identify the factor structure and currently, Oblique rotation using Direct Oblimin method with Principal Component Analysis for the extraction of meaningful factors in the scale was used (Bugajski et al., 2019), which is better in social sciences as latent variables cannot be uncorrelated and are correlated to some extent. Principle Component Analysis is widely used though it is not a factor analysis technique in true sense. It is a data reduction technique (Bandalos & Finney, 2018). Other researchers have also used the same method for factors extraction through EFA (see Taherdoost et al., 2022). Initially 4 factors were extracted and expert reviews suggested 3 factors as some items were representatives of the three extracted factors. So, a 3 factor extraction was performed and the values were all intact and extractions were meaningful statistically.

A review committee was again involved as the factors were not theoretically intact with the factors they were loading on. So, factors were extracted limiting to 2-factors, then 5-factors then EFA was performed not limiting the factors and it was observed that the loadings are majorly on one factor indicating the unidimensionality of the scale. Hence, a unidimensional scale was finally retained keeping in view the theoretical coherence of the scale.

The barriers were related to support issues from the significant others and the incompetence of the teaching faculty. These barriers identified in the scale were also identified in the previous literature as the major contributors to the satisfaction, persuasion and satisfaction of the students (e.g., Kaimara et al., 2021). Some of the items were related to the academic support, the content, academic system, facilities at the laboratory and supervision from the academia. These issues had an evidence in previous literature too with the pre-engineering level (see Afsar & Jami, 2020). Some items were related to different aspects including many of the personal factors like ability, time management, competence etc. Personal factors were also revealed in the previous literature (e.g., Afsar & Jami, 2020).

As explained earlier, there were a lot of different barriers identified from the FGDs and the literature search but all of them were rated differently in the quantitative part of the study. Some of the factors were agreed to more than the others as explained in Table 4 in result section. The reason for the under-representation of certain barriers may be that the students may not be realizing that these hindrances are bothering their educational career, they may not be regularly attending their institutes as the punctuality rules were not implied which was confirmed from the teachers and administrators as well but in the quantitative study it was not highlighted.

The other reasons may be that they have joined academies or tuitions where the content is covered, their teachers put a lot of efforts to make them understand the concepts so they did not mention these issues in their pre-engineering level. The lack of awareness may also be the reason. Because this is the major discrepancy in the qualitative and quantitative study of the same research and also from the previous literature.

The perception of barriers is different as the participants differ. It is advisable to administer this scale on various data to see how the perception of barriers changes from one group to another as it changed from qualitative phase to the validation phase in the same research findings.

Literature suggested that teachers' lack of qualification may lead to low quality teaching method in teaching the dynamics of such important fields (Ritz & Fan, 2015) which was also in the result of focus group discussion but then this aspect was minimally reported in the data sets.

The dilemma of how, when, and by whom to guide, teach and explore the technological fields and prepare the students at school level for technological domains has not yet been solved. Although efforts have been made in identifying the factors affecting interest in STEM fields. The same was concluded in the present study and the interest factor was more prominent to be lacking in the students and specially the information about the field which was common in both phases (qualitative and validation study).

The reliability of the scale ( $N = 324$ ) was above .80 which is very satisfactory and the item total correlations ranges from  $r = .35$  to  $r = .61$  ( $p < 0.01$ ). So, the items were all positively significant.

Gender differences has been reported throughout the literature specially in engineering related field and overall STEM education. Although females are underrepresented in the engineering field, the reason for which was lower self-efficacy of the females.

Our study revealed that females perceive less barriers than males in engineering education. Which implies that the self-efficacy is their main barrier not the course of persuasion in engineering fields. These results were significant. This was not assumed in the study. There might be various reasons for perceiving lower barriers by girls than boys. This may be due to societal expectations the Pakistani educational system (Kanwal, 2023), parental guidance (Manzano-Sanchez et al., 2019), cultural factors (Yasmin, 2020), role models (González-Pérez, et al., 2020), shifting gender dynamics (Block et al., 2019), advocacy for gender equality (Nash et al., 2021), the intersectionality of gender with other variables such as socioeconomic status, race, and cultural background (Tao & Leggon, 2021).

The Pakistani educational system's curriculum (Yasmin et al., 2020), instructional approaches, and vocational counseling (Kanwal, 2023) may inadvertently discourage male students from pursuing a career in engineering. Parents' expectations (Rasool et al., 2020) and encouragement (Hussain et al., 2020) play a significant role in shaping a child's career choices. Cultural factors, such as Pakistan's diverse nation, also play a role in shaping perceptions of barriers. The presence of male engineering role models may result in boys perceiving increased barriers. The global trend towards gender equality has the potential to increase the perception of barriers among boys, as they may experience heightened pressure to excel in traditional male-dominated fields.

The data of females versus males were highly different so it was suggested to

use the values of equal variance not assumed in the t-test result table or use Welch test in one-way ANOVA which gives the same results (Cavus & Yazici, 2020). So, we applied *t*-test and considered values for equal variance not assumed.

In summary, the results indicate that boys exhibit a greater perception of barriers hindering their pursuit of engineering compared to girls. These findings challenge prevailing assumptions in this field. The findings presented in this study present a valuable opportunity to further investigate the fundamental factors that contribute to these perceptions, as well as to formulate effective strategies aimed at promoting increased inclusivity and equality in STEM disciplines, irrespective of gender. Additional investigation regarding this subject matter can contribute to a deeper understanding of the intricate dynamics involved.

#### **Limitations and Suggestions**

Scales for barriers were already available in the literature but contextually developed indigenous scale was much needed for the pre-engineering students specifically. The most important suggestion is to use this scale with pre-engineering students and do the confirmatory factor analysis on acquired data for future confirmation of the scale to be used effectively.

Use of variable (barrier) is suggested to be used with other variables to check the relationships, gender differences and other influences of barrier on other important variables.

The barriers perceived may be different in groups having different achievement levels so it is also suggestable to use the scale on high and low achievers to know the exact differences among the groups. At FSc Level there are two years of education (i.e., first year and second year) and their perceived barriers may also differ.

The students who studied from the same school over a few years and the fresh students coming/migrated from other schools or colleges may perceive barriers differently. So, this aspect can also be covered which will provide more clarity to the scenarios in terms of barriers perceived.

Cross-cultural evidences may also be helpful in understanding the differences prevailing in perception of barriers. So, it is highly recommended to be used in different cultures to know the cultural variation with in the country as well as across the country.

#### **Implications**

Barriers are among the most important consideration in engineering related fields and it vary across fields, level of education, career paths, areas of specialization, disabilities, minorities, geographical location and many more. So, developing a scale that covers a specific educational level and targeting a specific group of students will be very effective in understanding point of views of the students and stakeholders. Also, it may help future researchers to identify barriers using this scale and find out what particular results they get.

For the stakeholders it will be very important to identify the highest reported barriers and bring them down to the optimal level to help students succeed in their field and score better grades in their educational career.

Every country around the world is in dismay because of the scarcity of effective engineers in the world. This a very drastic situation for the technological era and needs to be rectified effectively. This research may help them understand at least the commonly perceived barriers in the engineering education.

The government can help in schemes and opportunities for the teacher's training, availability of the effective resources, personality grooming, awareness campaigns and information dissemination among the potential engineers which were identified to be the major barriers perceived.

Counseling of the parents and students may be helpful as suggested by this research and it can overcome many indifferences among the parents and teachers.

Pakistan is a developing country, we need to compete with the increasing standards and demands of the world and progress in the technology for which engineering education will play the most important role. Facing barriers may hinder

and retard the growth of this field and thinking abilities of the students too. They will be directing their efforts in overcoming the barriers instead of excelling in the field which could be very unfortunate for the future of Pakistan as well as the future of technological growth.

### **Conclusion**

From the present study, we conclude that Perceived Barriers in Pursuing Pre-Engineering Scale is a valid and reliable measure to identify barriers in the pre-engineering students. We can also conclude that barriers perceived are different in male and female students studying at pre-engineering level.

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#### **Conflict of Interest.**

The authors did not declare any conflicts of interest.

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#### **Availability of data and materials.**

Information about dataset and analyses for present study is available from corresponding authors.

#### **Ethical.**

Research was approved by the institutional ethical board.

#### **Competing interests.**

The authors did not declare any competing interests.

## **References**

- Afsar, F., & Jami, H. (2020). Psychosocial Factors Involved in Opting Engineering as Career: Qualitative Analysis. *Bahria Journal of Professional Psychology*, 19(2), 12-47.
- Afsar, F., & Jami, H. (2022). Role of Teachers in Transferring Knowledge and Awareness in Pre-Engineering Students: Qualitative Analysis. *Psychology and Education Journal*, 59(2).
- Bandalos, D. L., & Finney, S. J. (2018). Factor analysis: Exploratory and confirmatory. In *The Reviewer's Guide to Quantitative Methods in the Social Sciences* (pp. 98-122). Routledge.
- Block, K., Croft, A., De Souza, L., & Schmader, T. (2019). Do people care if men don't care about caring? The asymmetry in support for changing gender roles. *Journal of Experimental Social Psychology*, 83, 112-131.
- Bugajski, A., Frazier, S. K., Moser, D. K., Lennie, T. A., & Chung, M. (2019). Psychometric testing of the multidimensional scale of perceived social support in patients with comorbid COPD and heart failure. *Heart & Lung*, 48(3), 193-197.
- Cavus, M., & Yazici, B. (2020). Testing the equality of normal distributed and independent groups' means under unequal variances by doex package. *R J.*, 12(2), 134.
- Cornely, R. M., Subramanya, V., Owen, A., McGee, R. E., & Kulshreshtha, A. (2022). A mixed-methods approach to understanding the perspectives, experiences, and attitudes of a culturally tailored cognitive behavioral therapy/motivational interviewing intervention for African American patients with type 2 diabetes: a randomized parallel design pilot study. *Pilot and Feasibility Studies*, 8(1), 1-18.
- Estrada, M., Hernandez, P. R., & Schultz, P. W. (2018). A longitudinal study of how quality mentorship and research experience integrate underrepresented minorities into STEM careers. *CBE—Life Sciences Education*, 17(1), 9. <https://doi.org/10.1187/cbe.17-04-0066>
- Fisher, K. M., Shannon-Baker, P., Greer, K., & Serianni, B. (2022). Perspectives of Students with Disabilities and Their Parents on Influences and Barriers to Joining and Staying in Extracurricular STEM Activities. *The Journal of Special Education*, 56(2), 110-120.
- Flores, L. Y., Atilano, R., Suh, H. N., & Navarro, R. L. (2020). A latent

- growth modeling analysis of the effects of perceived supports, perceived barriers, and coping efficacy on Latina/o engineering students' life satisfaction. *Journal of Career Development*, 47(1), 29-43.
- González-Pérez, S., Mateos de Cabo, R., & Sáinz, M. (2020). Girls in STEM: Is it a female role-model thing?. *Frontiers in Psychology*, 11, 2204.
- Goretzko, D., Pham, T. T. H., & Bühner, M. (2021). Exploratory factor analysis: Current use, methodological developments and recommendations for good practice. *Current Psychology*, 40, 3510-3521.
- Hong, P. Y. P., Polanin, J. R., Key, W., & Choi, S. (2014). Development of the perceived employment barrier scale (PEBS): Measuring psychological self-sufficiency. *Journal of Community Psychology*, 42(6), 689-706.
- Hussain, B., Zulfiqar, A., & Ullah, S. (2020). Barriers to female education from diverse perspectives: A case study of rural areas of Pakistan. *Pakistan Journal of Social Sciences*, 40(1), 577-590.
- Kaimara, P., Fokides, E., Oikonomou, A., & Deliyannis, I. (2021). Potential barriers to the implementation of digital game-based learning in the classroom: Pre-service teachers' views. *Technology, Knowledge and Learning*, 26(4), 825-844.
- Kanwal, A. (2023). Challenges to Career Counseling in Pakistan: Implication for Career Pathway. *Pakistan Languages and Humanities Review*, 7(2), 806-819.
- Kayan-Fadlelmula, F., Sellami, A., Abdelkader, N., & Umer, S. (2022). A systematic review of STEM education research in the GCC countries: Trends, gaps and barriers. *International Journal of STEM Education*, 9(1), 1-24.
- Khan, Z. H., & Abid, M. I. (2021). Distance learning in engineering education: Challenges and opportunities during COVID-19 pandemic crisis in Pakistan. *The International Journal of Electrical Engineering & Education*, 0020720920988493.
- Lawshe, C. H. (1975). A quantitative approach to content validity. *Personnel Psychology*, 28(4), 563-575. <https://doi.org/10.1111/j.1744-6570.1975.tb01393.x>
- Lee, W. C., Knight, D. B., & Cardella, M. E. (2021). Promoting Equity by Scaling Up Summer Engineering Experiences: A Retrospective Reflection on Tensions and Tradeoffs. *Journal of Pre-College Engineering Education Research (J-PEER)*, 11(1), 8.
- Lent, R. W., Brown, S. D., Brenner, B., Chopra, S. B., Davis, T., Talleyrand, R., & Suthakaran, V. (2001). The role of contextual supports and barriers in the choice of math/science educational options: A test of social cognitive hypotheses. *Journal of Counseling Psychology*, 48(4), 474.
- Liebeck-Lien, B. (2021). Teacher teams—A support or a barrier to practicing cooperative learning? *Teaching and Teacher Education*, 106, 103453.
- Lynn, M. R. (1986). Determination and quantification of content validity. *Nursing Research*, 35, 382-385. <https://doi.org/10.1097/00006199-198611000-00017>
- Manzano-Sanchez, H., Matarrita-Cascante, D., & Outley, C. (2019). Barriers and supports to college aspiration among Latinx high school students. *Journal of Youth Development*, 14(2), 25-45.
- Miner, K. N., January, S. C., Dray, K. K., & Carter-Sowell, A. R. (2019). Is it always this cold? Chilly interpersonal climates as a barrier to the well-being of early-career women faculty in STEM. *Equality, Diversity and Inclusion: An International Journal*, 38(2), 226-245.
- Nash, M., Grant, R., Moore, R., & Winzenberg, T. (2021). Male allyship in institutional STEM gender equity initiatives. *Plos One*, 16(3), e0248373.

- Nurtanto, M., Sudira, P., Kholifah, N., Samsudin, A., & Warju, W. (2020). Vocational Teachers' Perceptions and Perspectives in the Implementation of STEM Learning in the 21st Century. *Online Submission*, 9(4), 1675-1680.
- Polastri, P., & Alberts, T. E. (2014, March). Developing a globalized and sustainable mindset in 21st century engineering students. In *IDEAS*. 18, 83-92).
- Rasool, S., & Zhang, J. (2020). Bangladeshi, Indian, and Pakistani parents' perceptions of their children's academic achievement in Southwest Florida. *American Journal of Qualitative Research*, 4(3), 146-160.
- Ritz, J. M., & Fan, S. C. (2015). STEM and technology education: International state-of-the-art. *International Journal of Technology & Design Education*, 25(4), 429-451. <https://doi.org/10.1007/s10798-014-9290-z>
- Schrepp, M. (2020). On the Usage of Cronbach's Alpha to Measure Reliability of UX Scales. *Journal of Usability Studies*, 15(4).
- Schweizer, S., Gotlib, I. H., & Blakemore, S. J. (2020). The role of affective control in emotion regulation during adolescence. *Emotion*, 20(1), 80.
- Sørensen, K. H., Lagesen, V. A., & Højem, T. S. M. (2018). Articulations of mundane transition work among consulting engineers. *Environmental Innovation and Societal Transitions*, 28, 70-78.
- Sürücü, L., Yikilmaz, İ., & Maslakçı, A. (2022). Exploratory Factor Analysis (EFA) in quantitative researches and practical considerations. *Center for Open Science*. <https://econpapers.repec.org/paper/osfosfxxx/fgd4e.htm>.
- Taherdoost, H. A. M. E. D., Sahibuddin, S. H. A. M. S. U. L., & Jalaliyoon, N. E. D. A. (2022). Exploratory factor analysis; concepts and theory. *Advances in Applied and Pure Mathematics*, 27, 375-382.
- Tao, Y., & Leggon, C. (2021). African American women in engineering: Intersectionality as a pathway to social justice. *Social Justice and Education in the 21st Century: Research from South Africa and the United States*, 241-272.
- Turner, S. L., Joeng, J. R., Sims, M. D., Dade, S. N., & Reid, M. F. (2019). SES, gender, and STEM career interests, goals, and actions: A test of SCCT. *Journal of Career Assessment*, 27(1), 134-150.
- Xu, B., & Li, N. (2021, February). Research on the application of computer technology in the construction and management of "double qualification" teachers in undergraduate colleges and universities under the background of combination of production and education. In *Journal of Physics: Conference Series* (Vol. 1744, No. 3, p. 032044). IOP Publishing.
- Yasmin, M., Naseem, F., & Abas, N. (2020). Constraints to developing learner autonomy in Pakistan: university lecturers' perspectives. *Educational Research for Policy and Practice*, 19 (2), 125-142.



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