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FACTOR STRUCTURE OF REACTIVE-PROACTIVE AGGRESSION IN UNDERGRADUATE STUDENTS, GENDER DIFFERENCES AND ITS ASSOCIATION WITH PSYCHOPATHY

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Abstract
The aim of the present study was to investigate the factor structure of Reactive-Proactive Aggression Questionnaire (RPQ), applicability of two factor model across the gender and it association with psychopathy. Sample of the current study was consisted of 600 undergraduate students (300 male and 300 female) aged between 17 and 25 years. Data was collected by using cross-sectional method. Structural Equation Modeling (SEM) techniques were utilized to assess the data. For this purpose, five latent variables were identified: reactive aggression, proactive aggression, egocentricity, callousness and antisocial traits of psychopathy. Results of the current study overall supported the two-factor model of the RPQ and applicability of the same model across the gender. Furthermore, sub scales of RPQ evidenced differential correlates with psychopathy. Proactive aggression was significantly positively associated, whereas reactive aggression was significantly negatively related with the callousness. Reactive aggression was significantly positively associated with antisocial factor. Furthermore, results revealed that both reactive and proactive aggressions were also associated with egocentricity however; this relationship was stronger for later variable. Empirical findings confirmed the prevalence of reactive and proactive aggression and its association with psychopathy among undergraduate students and suggested that there is utmost need to modify these traits by counselling because both are responsible for the development of psychopathic traits that subsequently leads towards the criminal and violent behavior.

Keywords: Antisocial Traits; Callousness; Egocentricity; Proactive Aggression; Reactive Aggression

Introduction

Over many past years, different concepts of aggression have been proposed (Parrott & Giancola, 2007). According to one of the most recent concepts put forth by the researchers that aggression manifest in different ways (Dinić, & Raine, 2019). Anderson and Bushman (2002) also defined aggression as any behaviour directed towards others with the aim of causing harm to them.

Aggression is described by Singh and colleagues (2014) as an individual's response that delivers something unpleasant to another individual. The definition of aggression proposed by Shaw et al. (2000) characterizes aggression as an action aimed to deliberately harm others.

Jung et al. (2017) suggested that aggression is multidimensional construct. A wealth of researches has described the several forms of aggression. Aggression may be physical (e.g., slapping) or verbal (e.g., shouting abuse). It may be overt (e.g., retailing directly against a co-worker) or indirect (e.g., spreading rumors about a co-worker behind their back) to cause reputational damage. In response to provocation, aggression can be impulsive, elicited by frustration (known as reactive aggression), or it can be premeditated, less emotional, and used as a way to achieve some other goal (known as proactive aggression). Physically extreme aggression is known as violence (e.g., aggravated assault and homicide). Despite their different surface characteristics, these definitions of aggression all adhere to the concept of aggression as an action, intended to cause harm to someone who is motivated to avoid that harm (Berkowitz, 1993; Baron & Richardson, 1994; Geen, 2001; Anderson & Bushman, 2002).

It is suggested that reactively aggressive people exhibit emotional and uncontrollable hostility in reaction to perceived physical or verbal abuse from others. On the other hand, individuals who are proactive in their aggression are able to control their emotions and offensive actions to achieve their objectives (Dodge, 1997; Meloy, 1988). As previously explained that reactive aggression encompasses a broader term as impulsive aggression therefore, it is suggested that impulsivity is a core characteristic of reactive aggression (Chase et al., 2001; Kempes et al., 2005).

The Social Learning Theory of Aggression by Bandura (1973) suggests that environmental features are important in the development of aggressive behavioral responses and their performance and retention. Aggressive behavior can be learned by watching someone else who acts aggressively or by imitating that person's actions. Imitation is not only sufficient to acquire the aggressive behavior. Reward and punishment are also important factors that play a vital role in retaining and diminishing aggressive behavior. Reinforcement of aggression can retain and increase the risk of aggressive behaviour whiles punishment can play a role in diminishing such behavior.

Berkowitz (1993) proposed a Cognitive Neo-Associationist (CNA) model which explains that some aggressive behaviors occur automatically, emotionally, and through conditioned association with other stimuli. He also proposed that they can occur without “processing,” that is, without meaning. The model suggests that the person immediately experiences negative effects if an aversive stimulus is encountered. This negative effect would trigger a number of lower-order associations, leading to the triggering of aggression-related ('fight ') and escape-related ('flight') tendencies. These tendencies comprise aggression and escape-related motor responses, physiological reactions, emotions, and memories. It is possible to think of these two tendencies as associational networks. Once one element of the network is activated (e.g., motor responses), the other components are activated in a real way. If aggression-related tendencies are more substantial due to the conscious and preconscious knowledge of these aggression-related reactions, they will experience rudimentary anger. Likewise, if escape-related tendencies are stronger, preconscious and conscious awareness of these escape-related reactions will result in a rudimentary experience of fear. Berkowitz (1993) observes that his theory resembles the James-Lange theory of emotion in some way which suggested that emotions occur as a result of individual psychological reactions. For example when a person sees external stimuli he reacts physically.

Literature reviews and observational studies suggest that people are more likely to be aggressive in response to provocations, such as physical assault or verbal insult (e.g., Carlson & Miller, 1988). According to scientific formulations people are more likely to be aggressive in provoking situations than in neutral and non-provoking situations (e.g., Geen, 2001). In this context, provocation are those actions that has the power to cause the victim to respond aggressively both physically and verbally, at least in part when the victim considers the provoking situation to be deliberate. Provocation may be viewed as either an attack, in which the person is physically assaulted, verbally harassed, or as frustration, in which the individual is discouraged from accomplishing the task (Geen, 2001).

Reactive aggressive behavior is a concept that is implemented in response to provocation, such as an assault or an insult, and it is manifested in both self-defensive and angry acts. Reactive aggression is

characterized by a desire for revenge and is accompanied by displacement of anger through actions (Hubbard et al., 2001). Individuals with reactive aggression exhibit emotional and uncontrolled aggression if they experienced physical or verbal damage (Dodge, 1997; Meloy, 1988). In response to a perceived danger or provocation, reactive aggressive action is displayed. In general, this behavior is impulsive and usually occurs with aggressive facial expressions and a strong negative effect (Dodge & Coie 1987). Reactive aggression is a violent reaction, perhaps in response to frustration (Berkowitz, 1993). Dodge and Coie (1987) found that in assessing a peer's motives, reactive aggression (either witnessed or graded by the teacher) was correlated with a hostile attribution bias. Reactive aggression has been consistently connected to a negative peer status considering the aversive nature of reactive aggression (Dodge & Coie, 1987; Price & Dodge, 1989).

Proactive aggression refers to the concept that is initiated without apparent provocation, as seen in bullying behavior. Such behavior is not evoked by anger, hostility, or the need to protect oneself but by other reasons relating to the acquisition of goods, the assertion of authority, the approval of reference groups, and other such goals. Proactive aggression is a goal-oriented behavior or aggression used to achieve something by force or threats (Hubbard et al., 2001). Many with proactive aggression do not exhibit aggressive behavior by their emotions. To achieve the desired goal, they use purposeful and regulated actions (Dodge, 1997; Meloy, 1988).

Proactive aggression is associated with classroom disturbance, but it is often linked favorably with leadership and a sense of humor. Dodge and Coie (1987) suggested that it is not only related to negative aspects; on the other hand, but proactive aggression is also defined as unprovoked, intentional, goal-directed behavior used for intimidation.

Various factor-analytic and meta-analytic analyses have shown that both reactive and proactive factors are distinct but may co-vary to some extent within an individual (Polman et al., 2007; Poulin & Boivin, 2000; Raine et al., 2006; Salmivalli & Nieminen, 2002).

Gender Differences

According to research on gender differences, men are more likely than women to participate in overt physical aggression (Eagly & Steffen, 1986). In verbal aggression, males and females have statistically comparable results (Bettencourt & Miller, 1996). Furthermore, while men are more likely to engage in overt aggression, women tend to display indirect aggression (Baron & Richardson, 1994; Crick, 1995). Fung et al. (2009) reported that boys are more proactively aggressive than girls whiles no difference has been found between boys and girls on reactive aggression.

Connor et al. (2003) had investigated gender differences in reactive and proactive aggression in a sample of 323 clinically referred children and adolescents (68 females and 255 males). The study concluded a high rate of aggression in both males and females. Impulsive/antisocial behaviors were correlated with male reactive aggression. Contrary to that, female proactive aggression was correlated with early age of traumatic stress and a low verbal IQ level. Overall they did not find any gender differences on reactive and proactive aggression.

Raine et al. (2006) examined the factor structure of reactive-proactive aggression and their correlates. Confirmatory factor analysis exhibited a better fit for two-factor model of reactive-proactive aggression. They found that proactive aggression was associated to psychopathy, callousness, delinquency and serious crime. Reactive aggression was associated with impulsivity, lack of making close friends, and social anxiety. Socioeconomic differences were also studied among the sample with reactive and proactive aggression, and results revealed that boys who were belonging to low socioeconomic status (SES) scored high on the proactive subscale but not on the reactive subscale.

Psychopathy

The word "Psychopathic state" was clarified by Poythress and Hall, (2011) and divided into three groups. The first psychopathy type is primarily known as impulsive. The second types of

psychopaths are submissive and imaginative, and artistic are the third types of psychopaths. Lockwood et al. (2013) suggested that psychopathy has been characterized as a personality disorder associated with many social and behavioral problems. Diagnosing individuals with psychopathic characteristics is relatively complicated (Coid et al., 2009).

Psychopathy is made up of three components: an interpersonal component, effective component, and a component of behavior. An interpersonal element supported by grandiose-manipulative characteristics: characterized by superficial charm, egocentricity and glibness. Callous-unemotional characteristics are effective component: characterized by lack of guilt, low empathy, and short-lived feelings. Impulsive characteristics are a behavioral component: characterized by risk-taking behavior, boredom disposition, irresponsibility, and antisocial behavior (Shagufta, 2018).

Psychopaths exhibit certain aspects of antisocial personality disorder; however, recent research has shown that psychopathic traits are also present in the general population (Rogstad, & Rogers, 2008). Without feelings of remorse, psychopaths exploit others and use others for their benefit. They breach social rules and legislation (Crego & Widiger, 2014). However, due to the lack of diagnostic criteria, it is difficult to identify the central definition of psychopathy, and the condition's diagnosis is also not straightforward. The fundamental definition of psychopathy is still being discussed by scholars and experts (Buzina, 2012).

Brinkley et al. (2008) stressed three factors of the Levenson Self Report Psychopathy Scale (LSRPS; Levenson et al., 1995) (egocentric, antisocial, and callous) than two factors.

Psychopathy has been defined by Sellbom (2011) as a personality disorder and emphasized on three factor model of psychopathy (behavioral, interpersonal, and affective traits). Psychopaths have traits such as impulsivity, hardheartedness, and lack of conscience (Silver et al., 1999).

Shagufta (2018) found three factors model (Egocentricity, Callousness and Antisocial traits) of Levenson's Self-Report Psychopathy Scale-Revised Urdu Version (LSRPS-RUV) as more applicable than two-factor model. Several studies have shown that psychopathy is a multidimensional construct (Brinkley et al., 2008; Sellbom, 2011; Shagufta, 2018) and emphasized that psychopathy can be best conceptualized by using three factors model than two factors model.

Psychopathy and Criminal Behaviour

The relation between psychopathy and criminal activities is crucial to understand. 25% of incarcerated people in the United States and 4% of corporate CEOs are reported to be psychopaths. The study's statistical results showed a link between psychopathy and crime (Cooper, 2012; Theodorakis, 2013). Not all psychopaths are criminals, but most of them are involved in crimes such as robbery, child abuse, rape, and murders (Dil & Kazmi, 2016).

It is assumed that psychopaths make up 1% of the general population, and psychopaths commit 50% of all serious crimes (Bonogofsky, 2007). Previous studies have shown that psychopathic offenders are more violent than non-psychopaths offenders. High psychopathic traits are associated with violent crime involvement at an early age (Bonogofsky, 2007). Literature indicates that psychologists are also interested in investigating the role of psychopathy in criminal behavior to prevent crime (Arrigo& Shipley, 2001; Bonogofsky, 2007).

Williams et al. (2003) discovered that psychopathy is linked to antisocial and impulsive behavior and indicated that high scores on psychopathy scale indicate cunning and manipulative behavior. Psychopathic behavior was identified as the best predictor of antisocial as well as criminal behavior (Hare & Neumann, 2005).

Psychopaths have traits such as impulsivity, hardheartedness, and lack of conscience (Silver et al., 1999). These features revealed a correlation between violent crime and psychopathy (Theodorakis, 2013).

Shagufta (2020) conducted study on adult criminal inmates (N=342) located in the different prisons o Khyber Pakhtunkhwa (KP). Study revealed that psychopathic offenders were involved in more violent crimes than non-psychopath offenders.

Relationship between Reactive- Proactive Aggression and Psychopathy

The relationship between Reactive-Proactive Aggression and psychopathy has been examined in several studies (Cima & Raine, 2009; Swogger et al., 2010). Previous researchers have found a significant relationship between reactive-proactive aggression and psychopathy (Cima & Raine, 2009; Swogger et al., 2010).

Researchers indicated that psychopaths with reactive aggression show thrill seeking, impulsiveness, and antisocial behavior (Cima & Raine, 2009) whiles those psychopaths who exhibited callous behaviour were high on proactive aggression (Cornell et al., 1996).

Most findings suggest that psychopaths exhibit proactive aggression rather than reactive aggression (Cima et al., 2013; Woodworth & Porter, 2002).

Reactive-proactive aggression in particular, tends to be differentially correlated with psychopathic characteristics. Several experimental studies shows that reactive aggression is correlated with narcissistic disorder (Bushman & Baumeister, 1998) whiles studies in clinical setting indicated that people with proactive aggression have high psychopathic characteristics such as manipulative behaviour, grandiosity, and callousness (Woodworth & Porter, 2002). Despite the robustness of the results described, there is an overlap between reactive and proactive aggression.

Cornell et al. (1996) differentiate proactive aggressive criminals from non-proactive offenders on the basis of psychopathic traits. They found that those criminals who were high on proactive aggression displayed pathological lies, tampering activity, lack of empathy, parasitic lifestyle, irresponsibility and superficial charm.

Patrick (2001) indicated that children who exhibit proactive aggression during their childhood were more vulnerable to psychopathic actions than children who display reactive aggression. According to previous researchers' viewpoint, proactive aggression during adolescence eventually leads to conduct problem, juvenile delinquency, and criminal behavior during adulthood.

Similarly, Woodworth and Porter (2002) found in a survey of 125 murder perpetrators, that 93.3 % of the murderers were psychopaths with proactive aggression while only 48.4% of murders were found non-psychopaths

In both adults and teenagers, high proactive aggression scores have been shown to correlate with a higher prevalence of psychopathic behaviors (Cornell et al., 1996; Raine et al., 2006; Woodworth & Porter, 2002).

Stanford et al. (2003) found proactive aggression among clinically referred subjects. They further suggested that they learned more verbal aggression, physical abuse, bullying, psychoticism, and neuroticism. Evidence for reactive aggressors with increased psychopathy is also present.

In a study of non-referred children, Frick et al. (2003) found that children with callous traits were more likely exhibited higher levels of proactive aggression whiles children without callous characteristics displayed reactive aggression.

Kruh et al. (2005) found that young adults with history of proactive aggression had higher psychopathy score than those who only had a history of reactive aggression.

Patrick (2006) defined psychopaths as less empathetic, more callouses, impulsive, manipulative, and exhibit increased tendency to commit violent criminal acts. Several studies have demonstrated that psychopathic criminals are more likely to engage in proactive aggression, while non-psychopathic aggressive criminals who exhibit reactive aggression.

Reidy et al. (2007) conducted a study in laboratory and from the result it was concluded that proactive aggression was uniquely related to the interpersonal/affective factor of psychopathy; in contrast, reactive aggression was associated both with interpersonal/ affective factor and the impulsive/antisocial factor.

Furthermore, psychopathy scores were found to be significantly associated with the amount of proactive aggression of an individual (Flight & Forth, 2007). Results reported that proactive aggression is evident in youth with psychopathic traits. However, it should be emphasized that psychopathy scores were also associated with increased reactive aggression.

In adolescent offenders, the interpersonal/affective factor such as superficial charm, manipulativeness, pathological lying; lack of guilt, callousness and egocentricity were associated with an increased likelihood of proactive aggression but no association was shown with the antisocial factor of psychopathy (Flight & Forth, 2007).

Fanti et al. (2009) found bullying behaviour among those children who were high on callousness which is an essential core component of psychopathy. Moreover, individuals who were high on callousness were more likely displaying proactive than reactive aggression.

Cima and Raine (2009) found that reactive aggression was linked to psychopath's aspects of fearlessness or low empathy. From the study it was concluded that those with psychopathic traits were more prone towards reactive aggression.

Reidy and Lilienfeld (2011) in their study examined the association between reactive aggression and psychopathy. They found connection between psychopathy and proactive aggression while its link to reactive aggression remains unclear.

Bozsik et al. (2013) in his studies discovered a relation between reactive-proactive aggression and psychopathic factors. A total of 223 students from primary and secondary schools were included in the study (girls, n=106, 14 years old; boys, n=117, 13 years old). The reactive-proactive aggression questionnaire was used to determine the aggressive behaviour. The list of callous-unemotional characteristics was used to determine callous/unemotional traits. According to the findings, reactive aggression was more prevalent than proactive aggression. Results further showed that callous/unemotional personality characteristics were linked to proactive aggression both in men and women, than reactive aggressive.

Perenc and Radochonski (2013) conducted a research to assess a link between aggression and psychopathic traits in adolescents. The survey includes 9,415 students from grades one to grade three (4,808 boys and 4607 girls). Results showed that there was significant correlation between aggression and psychopathic traits. Reactive-proactive aggression was positively and significantly associated with psychopathic trait. The strongest association was found between antisocial factor of psychopathy and proactive aggression. Further results shows that callous-unemotional features was correlated with both reactive-proactive aggression.

Blais et al. (2014) investigated the association between reactive-proactive aggression and psychopathy. There were 8,753 people recruited for the study. According to findings both reactive-proactive aggression were shown to have strong association with psychopathy. It was concluded from the results that proactive aggression was associated with interpersonal factors whiles reactive aggression was lined to impulsive/antisocial traits.

Thomson and Centifanti, (2018) suggested that there is a clear link between reactive and proactive aggression, indicating that the individual's tendency to display one type of aggression goes hand in hand with the propensity to show the other form of aggression as well. One strong predictor of both forms of aggression, as well as of their co-occurrence, is psychopathy.

Jambroes and his colleagues (2018) administered a study to find out the relationship between reactive-proactive aggression and three dimensions of psychopathy (egocentricity, callousness and impulsive/antisocial factor). A total of 159 teenagers were recruited to participate in the study. Findings indicated that callous traits were linked to proactive aggression. Contrary to that both reactive-proactive aggression was linked to impulsive/antisocial traits.

Preston and Anestis (2020) in a study of 368 undergraduate students indicates correlation between reactive and self-centered impulsiveness characteristics of psychopathy but no correlation was found with proactive aggression. However, callous-affective factor of psychopathy had no correlations with proactive aggression while negative association with reactive aggression.

Lewis et al. (2019) in his study examined the association between reactive-proactive aggression and psychopathy. It was hypothesized that higher levels of psychopathy would be correlated with higher levels of reactive and proactive aggression, and that the interaction would be moderated by emotion. Emotion control issues will be linked to higher levels of reactive and proactive aggression, and proactive aggression would be characterized by a lack of emotion. According to the findings

emotional regulation difficulties were found among the relationship between psychopathy and reactive aggression, while stronger emotional detachment mediated the relationship between psychopathy and proactive aggression.

The above review of the literature suggests that there may be theoretical overlap between reactive and proactive aggression and the sub domains of psychopathy (e.g., callous traits, narcissism, and impulsivity). Proactive aggression, for example, focuses on personal gain, which often results in a disregard for the feelings and rights of others—a hallmark of callous traits. Furthermore, empirical research suggests that reactive aggression is related to some of the same behavioral outcomes as callous traits (e.g., delinquency/violent acts; Raine et al., 2006). There is a significant relation between proactive aggression and callous traits among incarcerated youth, with higher levels of proactive aggression predicting more callous traits (Marsee & Frick, 2007). Nevertheless, these findings are not conclusive; others have reported statistically non-significant relations between proactive aggressions and callous within a sample of moderately aggressive children (Barry et al., 2007).

Current Study

Proactive and reactive aggression, while different in function, might be related to psychopathy symptoms and thus can further increase the likelihood of negative outcomes. Psychopathy is characterized as a continuing pattern of callousness, lack of empathy and impulsive behavior (Hare et al., 1991). In children and adults, these traits are associated with persistent and severe antisocial behavior. For example, psychopathy is associated with more violent crimes and a broader range of offences in adult populations. Likewise, children and adolescents with psychopathic symptoms appear to exhibit severe violent behavior (Pardini, 2006). Recent research indicates that psychopathy is a multidimensional construct that encompasses various domains of personality and behavioral features, with distinct risk factors (Lynam et al., 2008). Therefore, the aim of the study is two folded. First, to assess the factor structure of reactive-proactive aggression questionnaire and evaluate the applicability of two factors model both in male and female undergraduate students. Second is to find out the role of proactive-reactive aggression in the development of psychopathy.

Method

Participants

Data was collected from six hundred (N=600) Undergraduate students. The sample was consisted of three hundred male (n=300) and three hundred female (n=300) students. Results revealed that 87.5% respondents were belonging to middle class, 12.0% percent from lower class and only 0.5% from upper class. Most of the respondents (89.2%) were having both parents, whiles 9.3 % were belonging to single parent family and only 1.5% had no parents.

Demographics Sheet

The demographic sheet was used to collect information related to age, gender, family, and socioeconomic status.

Measures:

The Reactive-Proactive Aggression Questionnaire *(Raine et al., 2006)*

The Reactive-Proactive Aggression Questionnaire is a 23-item scale. It is a self-administered questionnaire aimed to measure reactive and proactive aggression. The subscale of reactive aggression is underpinned by 11 items (Q1, Q3, Q5, Q7, Q8, Q11, Q13, Q14, Q16, Q19, and Q22). The remaining 12 items measure proactive Aggression (Q2, Q4, Q6, Q9, Q10, Q12, Q15, Q17, Q18, Q20, Q21, and Q23).It is a 3 point Likert scale (0=never, 1=sometime, 2=often).The Cronbach's alpha of total scale is α=.90, reactive subscale α=.81 and of proactive subscale α=.84.

Levenson's Self-Report Psychopathy Scale-Revised Urdu Version *(LSRPS-RUV; Shagufta, 2018)*

Levenson's Self-Report Psychopathy Scale-Revised Urdu Version (LSRPS- RUV) consisting of 19 items were used in the present study to measure psychopathy. It is a self-report questionnaire developed to measure three factors comprising egocentric, callous, and antisocial. The original scale was developed by Levenson's and his colleagues (1995) consisted of 26 items. It is a five-point Likert scale, 5= strongly agree, 4= agree, 3=sometime, 2= disagree, 1= strongly disagree. A high score on LSRPS-RUV indicated the prevalence of psychopathic traits. Five items are reversely scored to control response biases (1=strongly agree to 5= strongly disagree). Cronbach's alpha reliability for egocentric is *a*=.83, for callous *a*=.63, and for antisocial *a*=.79 (Brinkley et al 2008). Comparatively, the Cronbach's Alpha for Levenson's Self-Report Psychopathy Scale-Revised Urdu Version is high: total scale 0.94, egocentricity, 0.97, callous factor, 0.93, and for antisocial factor is 0.96.

Procedure

Approval for this research was taken from Advance Study Review Board (ASRB) of the university. Different universities in Peshawar were visited for data collection. Permission was taken from the authority figure of the concerned institutes. Consent was taken from the participants. The researcher gave a brief introduction about the project explained the purpose of the study, and explained the protection of human subjects. Participants were assured that data would be kept confidential and will be used only for research purposes, and nobody can access their data except the researcher. Subjects were allowed to quit the study at any point, and their participation was voluntary. Data was collected through a random sampling technique. A booklet consisted of Reactive-Proactive Aggression Questionnaire (RPQ; Raine et al., 2006) and Levenson Self Report Psychopathy Scale-Revised Urdu Version (LSRPS-RUV; Shagufta,2018) along with demographic was provided to the participants. Data was collected from the students in their classroom within 20-25 minutes. After distributing the questionnaire, the students were asked to read each question carefully and respond to all items without missing single one.

Results

Table 1 *Mean, Standard Deviation, Range, and Cronbach's Alpha*

Variable	*M*	SD	Range	Cronbach's Alpha
Reactive Aggression	9.40	5.84	0-22	.90
Proactive Aggression	6.83	6.81	0-34	.91
Egocentricity (EC)	35.01	12.18	10-50	.89
Callous (CA)	17.63	3.46	4-20	.72
Antisocial (AS)	15.25	6.12	5-25	.82

Table 1 indicates Descriptive Statistics, Mean, Standard Deviation, Range, and Cronbach's Alpha reliability (Cronbach, 1951) of Reactive-Proactive Aggression Questionnaire (RPQ) and Levenson's Self-Report Psychopathy Scale-Revised Urdu Version (LSPS-RUV). Results showed existence of reactive and proactive aggression, high levels of Egocentricity whiles comparatively low level of Callousness and Antisocial traits among university students. The traditional method of internal consistency has been used to assess the reliability of subscales of LSPRS-RUV. Present results showed high reliability for Egocentricity *(α* = .89), Antisocial factor *(α* = .82) and Callous subscale *(α*= .72). Present results also indicated that Reactive Aggression (*α*= .90*)* and Proactive Aggression (*α*= .91*)* are highly reliable scale among undergraduate University students.

Figure 1 *One-Factor Model of Reactive-Proactive Aggression*

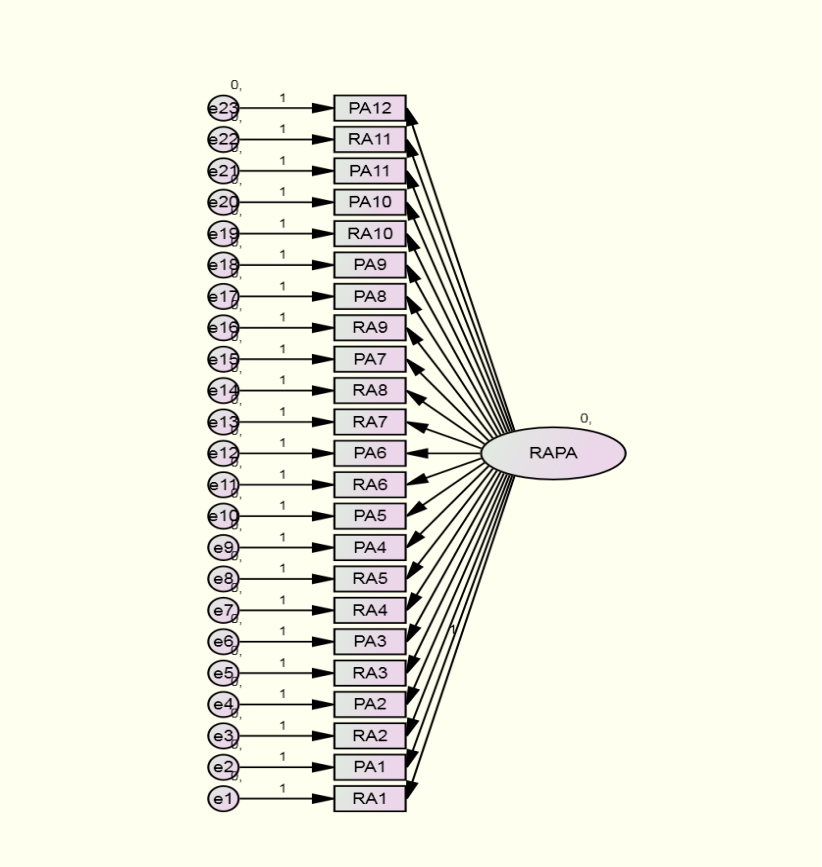

Figure 2 *Two-Factor Model of Reactive Proactive Aggression*

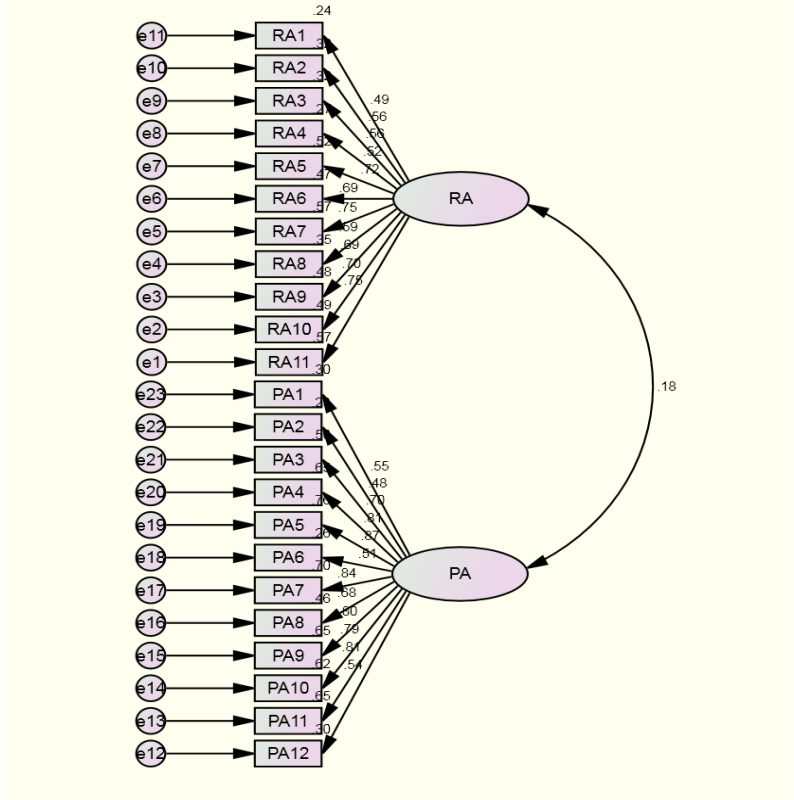

Table 2

Models	χ^2	*df*	CFI	TLI	(90%CI)	RMSEA	SRMR	AIC
1Factor Model	3023.9***	230	.59	.55	(.13/.14)	.14	.10	3115.91
2 Factor Model	833.8***	229	.91	.90	(.06/.07)	.06	.07	973.883

Two-Factor model of Reactive-Proactive Aggression Questionnaire

Result indicates that all indices showed improvement in the two-factor model. Even though chi-squared is statistically significant but Tanaka (1987) suggested, that model shouldn't be rejected on the basis of significant chi-square because big sample sizes amplify the power of the test. In addition, the CFI= .91, TLI= .90, RMSEA= .06 and SRMR= .07 indicates adequate fit of data to the model. The AIC value (973.883) also indicates that the two-factor model is adequate fit to the data than alternative model.

Figure 3 *Two-factor Model of PRQ Female Data*

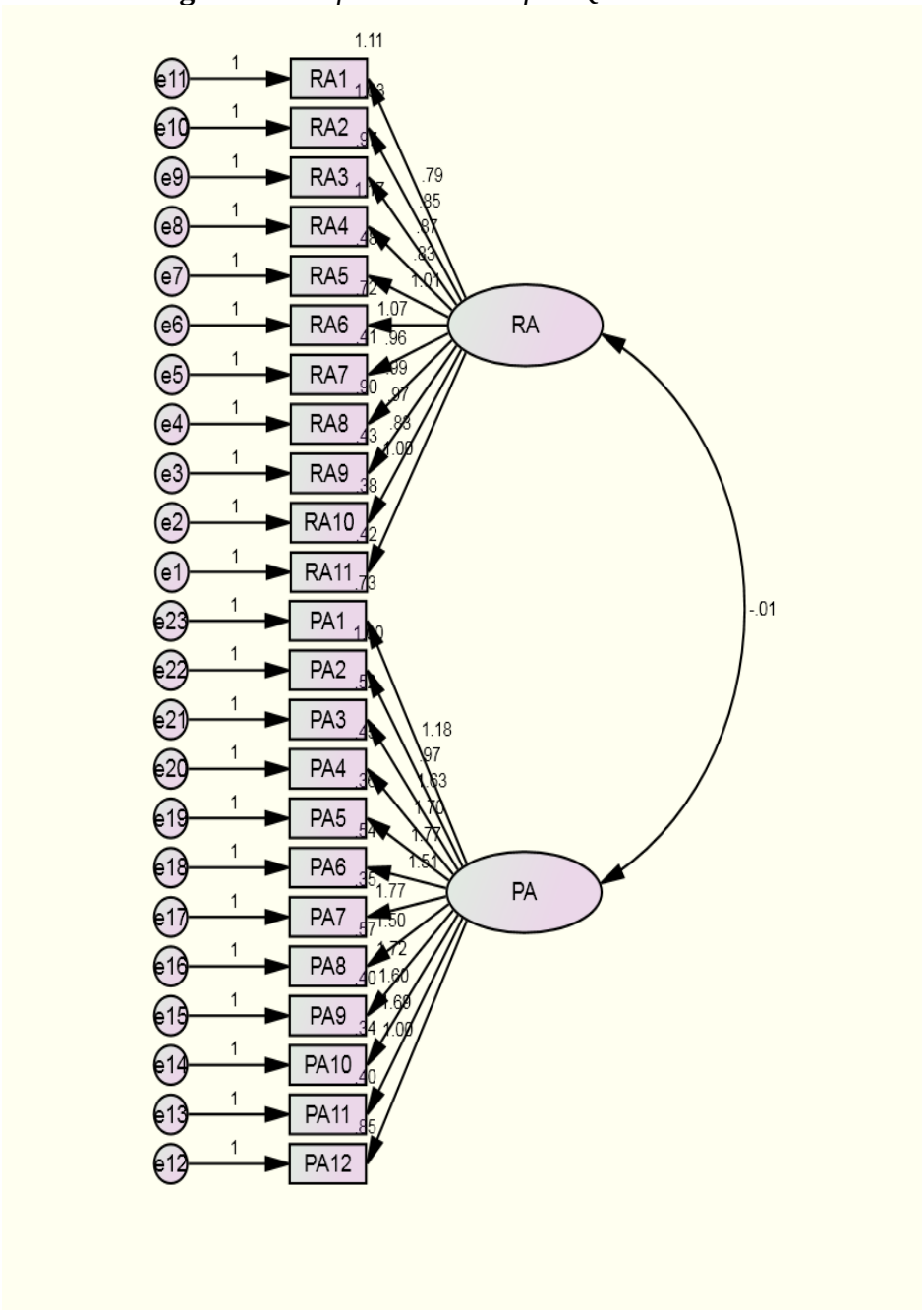

Figure 4 *Two-Factor Model for Male data*

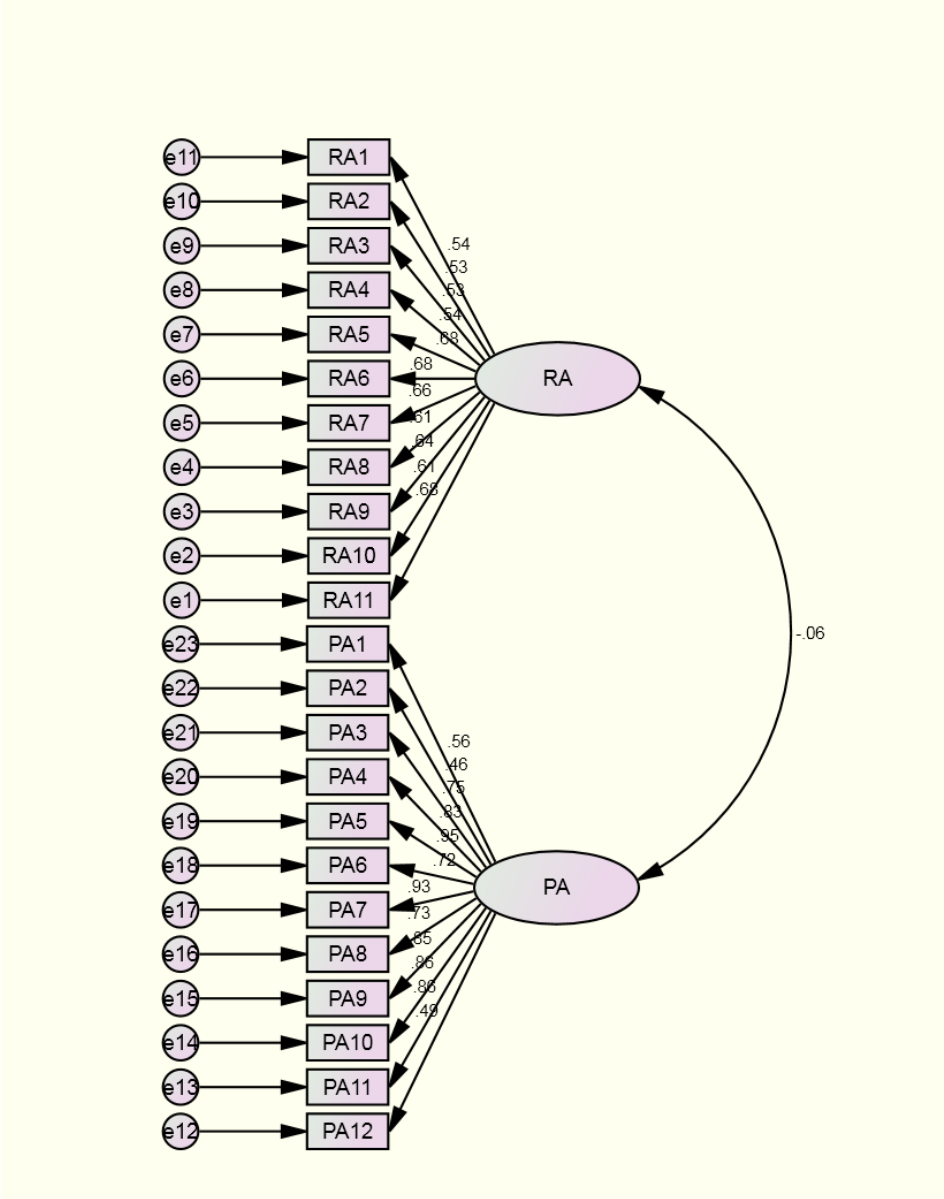

Table 3 *Fit Indices of Two-factor Model in Female and Male Sample Separately.*

Models	χ^2	***Df***	**CFI**	**TLI**	**(90%CI)**	**RMSEA**	**SRMR**	**AIC**
2 Factors Model (Female)	581.1***	229	.91	.91	(.06/.07)	.07	.08	721.19
2 Factor Mode (Male)	578.8***	229	.92	.91	(.06/.07)	.06	.07	718.80

Application of Two-Factor Model of Reactive-Proactive Aggression Questionnaire both in Female and Male

Result indicates that two-factor model of RPQ adequately fit to both female and male sample separately. Even though chi-squared is statistically significant, as Tanaka (1987) suggested, that model cannot be rejected on the basis of significant chi-square because big sample sizes amplify the power of the test. CFI= .91, TLI= .91, RMSEA= .07, SRMR= .08 and AIC= 721.191 indicates that data is indicate adequately fit to the model. Furthermore, fit indices (CFI= .92, TLI= .91, RMSEA= .06, SRMR= .07 and AIC= 718.804) related to the model proposed for male students also shows better fit of the data. Results revealed that two-factor model is more adequately fit across the gender

Figure 5 *Full SEM Model for Relationship between Reactive-Proactive Aggression Questionnaire and Three Factors of Psychopathy*

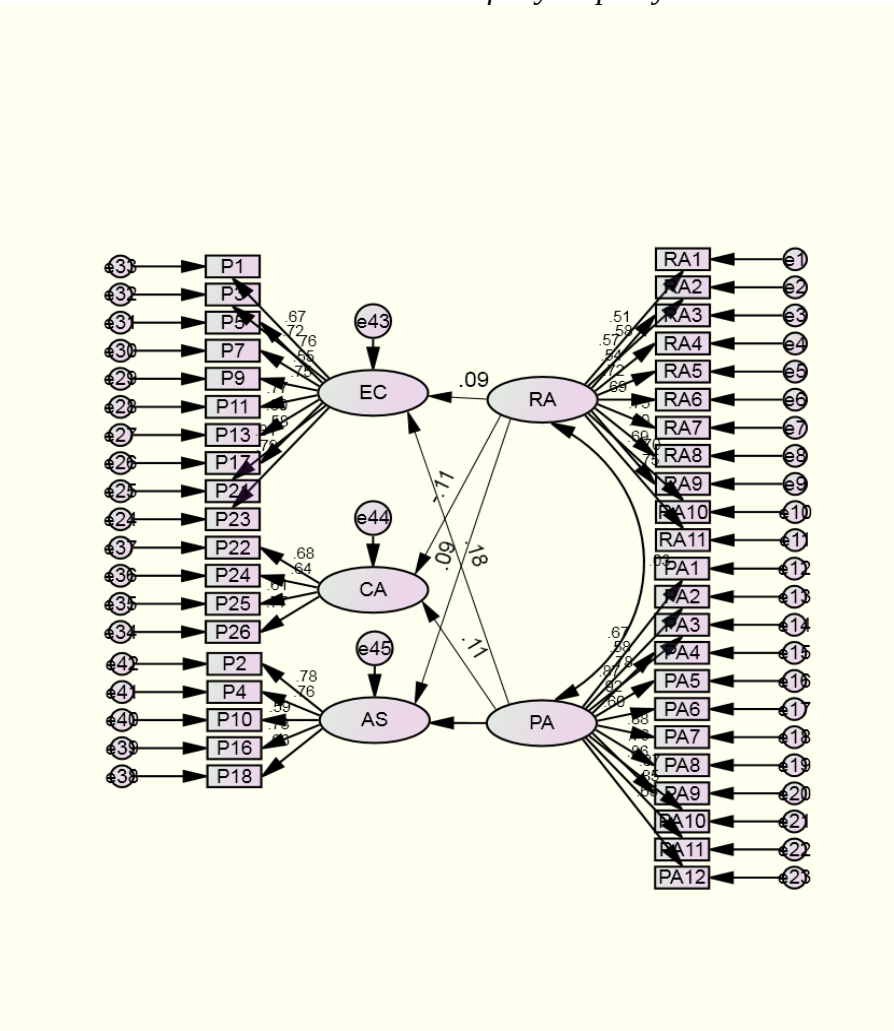

Table *Full SEM Model with Factor Loadings indicating Relationship between Reactive-Proactive Aggression and Three Subfactors of Psychopathy*

Measurement model		**B**	***β***	***SE***
Reactive Aggression				
1.	Yelled at others when they have annoyed you	1.0	.49***	.00
2.	Reacted angrily when provoked by others	1.2	.56***	.12
3.	Gotten angry when frustrated	1.3	.56***	.12
4.	Felt better after hitting or yelling at someone	1.1	.52***	.11
5.	Had temper tantrums	1.6	.72***	.14
6.	Damaged things because you felt mad	1.6	.69***	.14
7.	Become angry or mad when you don't get your way	1.7	.75***	.14
8.	Gotten angry or mad when you lost a game	1.3	.60***	.13
9.	Gotten angry when other threatened you	1.5	.70***	.14
10.	Felt better after hitting or yelling at someone	1.5	.70***	.13
11.	Gotten angry or mad or hit others when teased	1.7	.75***	.14
Proactive Aggression				
1.	Had fight with others to show who was on top	1.0	.55***	.00
2.	Taken things from other students	.86	.48***	.08
3.	Vandalized something for fun	1.3	.70***	.08
4.	Had a gang fight to be cool	1.4	.81***	.09

5.	Hurt other to win a game	1.4	.87***	.01
6.	Used physical force to get others to do what you want	1.4	.51***	.12
7.	Used force to obtain money of things from others	1.4	.84***	.09
8.	Threatened and bullied someone	1.2	.68***	.09
9.	Made obscene phone calls for fun	1.3	.80***	.09
10.	Gotten others to gang up on someone else	1.3	.79***	.09
11.	Carried a weapon to use in a fight	1.4	.81***	.09
12.	Yelled at others so they would do things for you	1.0	.55***	.08
Structural Model				
Reactive Aggression ➔ Egocentricity		.02	**0.11***	.01
Reactive Aggression ➔Callous		-.04	**-0.11***	.02
Reactive Aggression ➔ Antisocial		.03	**0.10***	.01
Proactive Aggression ➔ Egocentricity		.04	**0.16*****	.01
Proactive Aggression ➔ Callous		-.06	**-0.10***	.02
Proactive Aggression ➔ Antisocial Traits		.02	0.06	.01

Note: Note: χ^2 (812) =1785.6p < .001; CFI = .92; TLI = .92; RMSEA = .04; RSMRS = .05

SEM Model exhibiting Factor loadings and Relationship among two factors of Reactive-Proactive Aggression Questionnaire and Three Factors of Psychopathy

Result shows the standardized and unstandardized factor loading with standard error for both: measurement level and structural level. According to Hair et al. (1998), CFA standardized factor loading should be .6 or higher because this indicates that approximately half of the variance in the observed variable is explained by latent variable, however, .40 is acceptable. Present results are in line with Hair et al. (1998) suggestion. The structural level analysis suggested that Proactive Aggression was significantly positively associated with both Egocentricity (β= 0.18, p < .001) and Callous (β = 0.11, p < .01) however, Reactive Aggression was significantly negatively associated with Callous (β= -.11, p < .01). Reactive Aggression was significantly positively associated with both Egocentricity (β= 0.9, p < .01) and Antisocial factor (β= 0.09, p < .01). However, the relationship between Proactive Aggression and Egocentricity was stronger than with Reactive Aggression.

Discussion

Structural Equation Model (SEM) techniques were utilized the factor structure of PRQ and relationship between two-factor of RPQ and three latent factors of LSRPS-RUV. SEM is very flexible technique to assess the confirmatory factor analysis and relationship between latent variables at the same time.

In the present study, Cronbach Alpha for reactive aggression is .90 and for proactive aggression it is .91 which suggested that both subscales are highly reliable. Results are consistent with the previous study conducted by Baş and Yurdabakan, (2012) who reported high Cronbach alpha for both reactive aggression (a= .84) and for proactive aggression (a= .86).

The three factors of LSRPS-RUV possessed good reliability (Egocentricity .89, Callousness .72 and Antisocial .82 that is similar with the previous study conducted by Shagufta (2018) who reported high reliability for three factors of LSRPS-RUV: Egocentricity .97, Callousness .93 and Antisocial factor .96.

Results are also similar with the study of Brinkley et al. (2008) who found high reliability for Egocentricity .82. However, they reported comparatively low reliability for Callousness .69 and Antisocial factor .63. Furthermore, the reliability of the present study is also consistent with the study conducted by Sellbom (2011) who found good reliability for egocentricity (.83). However, reliability for callousness and antisocial factor were less than the current study (.61, and .62). Fit indices suggested that two-factor model is more adequately fit to the data than one-factor model of RPQ. The present study is consistent with the study conducted by Baş and Yurdabakan, (2012) who

found two-factor model adequately fit to their data as compared to one-factor model. Additionally the present study findings were also supported by the study conducted by Barker et al. (2010).
Raine et al. (2006) also examined factor structure of RPQ and their correlates. Confirmatory factor analysis exhibited better fit for two-factor model of RPQ than one-factor model.
Pulkkinen (1996) and Vitero et al. (1998) administered a study on reactive and proactive aggression and have found that two-factor model was better fit to the data as compared to one-factor model.. Similarly, another study supported the results of the current study by finding two-factor model of RPQ more appropriate than unidirectional model (Dodge & Coie 1987).
Current results also revealed that the two-factor model of reactive-proactive aggression questionnaire is same in male and female sample. Baş and Yurdabakan, (2012) also found applicability of two- factor structure of RPQ across the gender.
The present study findings were consistent with the study of Reidy et al., (2007) who found significant association among reactive aggression and psychopathic factors like impulsivity, antagonism, and negative emotional style. Additionally, present study was also supported by the study conducted by Cima and Raine (2009) who found reactive aggression was linked to antisocial, thrill seeking and impulsive behaviour.
Furthermore, Connor et al. (2003) found high reactive aggression both in clinically referred male and female. They further found high relationship between reactive aggression and impulsive behavior among male than female participants.
Similarly, present results are in line with the findings of Garofalo and Neumann (2018) who found that impulsive actions due to the arousal of negative emotions give rise to reactive aggression.
Current results are also indicated significant positive association between proactive-aggression and callousness. Results were supported by the study conducted by Bozsik et al. (2013) who found positive association among proactive aggression and callousness. Study administered by Jambroes and his colleagues (2018) also found association between proactive aggression and callousness among adolescents.
Cornell et al. (1996) found correlation between proactive aggression with psychopathic characteristics such as manipulative, grandiosity and callousness.
In the present study, a significant negative relationship has been found between reactive aggression and callousness. Additionally, both proactive and reactive-proactive aggressions were associated with egocentricity; however relationship between proactive aggression and egocentricity was stronger than with reactive aggression. Furthermore these findings can contribute to the existing literature related to reactive-proactive aggression and psychopathy.

Conclusion

Present study examined the factor structure of RPQ, gender differences and relationship between reactive-proactive aggression and psychopathy. Previous studies focused unidimensional model of RPQ and found aggression as a single factor than two-factor model. However, Raine and his colleagues (2006) found differential nature of aggression and make distinction between reactive aggression and proactive aggression. Similarly, present results found two-factor model as more appropriate than one-factor model. Study further revealed that two-factor model is same across the gender.
Previous studies found that proactive adolescents were more psychopaths, more violent and belonging to poor social background whiles reactive adolescents were more impulsive and antisocial (Raine et al., 2006). Current results revealed similar results that those students who were high on a reactive aggression exhibited more antisocial traits of psychopathy.
Similar to previous studies, current study found that those students who were high on proactive aggression were showing high levels of callousness. Previous studies conducted by Jambroes et al. (2018) and Bozsik et al. (2013) found positive association between proactive aggression and callous factor. Previous studies were conducted on school children and teenager whereas the present study

assessed university students. Further study is warranted to examine this relationship among school children as well.

Study revealed that those students who were high on egocentricity exhibited both reactive and proactive aggressions however; they were higher on later one. Furthermore, results showed negative association between reactive aggression and callous factor. These results are innovative and provide further explanation of the relationship between reactive-proactive aggression and psychopathy.

Limitations and Suggestions

Present study has a valuable contribution but some limitations as well. First limitation is due to self-report method which was used to collect the data because self-report measures can over and under estimate the responses. Secondly, current study was conducted on university students future study should include school children to make vivid picture of this relationship. Moreover, future studies warranted with diverse sample including general, clinical, and incarcerated population.

Current study found relationship between reactive-proactive aggression and traits of psychopathy therefore; it is utmost need to provide counseling to all those students who exhibited reactive-proactive aggression to help them to modify their behaviour.

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