Research Article

Callous-Unemotional Traits and Anti-Social Behavior among Adolescents: The Mediating Role of Self-Serving Cognitive Distortions

Arshia Saif [1]   Mamoona Ismail Loona [2]   Fanila Tanveer [3]

Check for updates

Abstract: *The present study aims to cross-sectionally investigate the relationship between callous-unemotional (CU) traits and anti-social behaviour (ASB), along with exploring the mediating role of self-serving cognitive distortions (SSCD) among adolescents. The study sample comprised 300 adolescents (14-19 years) who completed the following questionnaires, how I Think Questionnaire (Barriga et al., 2001), Inventory of Callous-Unemotional Traits (Frick, 2004) and Sub-types of Anti-social Behavior Scale (Burt & Donnellan, 2009). The study investigated the mediating role of SSCD in the relationship between CU traits and ASB. Current research also investigated age group (Early and Late Adolescents) and family system (Joint and Nuclear Family) differences in CU traits, SSCD and ASB among adolescents. For data analysis, t-test, ANOVA and mediation analysis were used. Findings showed that SSCD partially mediated the link between CU traits and ASB among adolescents. Results also showed that early adolescents scored high on CU traits, SSCD, and ASB compared to late adolescents. According to the results, there were no significant differences among students of the nuclear and joint family systems on CU traits, SSCD and ASB. Overall findings revealed the importance of understanding callous-unemotional traits and the role of self-serving distortions in addressing anti-social behavioural issues among adolescents.*

Key Words: Callous-Unemotional Traits, Anti-Social Behavior, Self-Serving Cognitive Distortions

Introduction

Every society sets some rules and regulations for its members, and every member is expected to follow them. Behaviours that show disregard for other people, lack of empathy, and breaking social norms are anti-social behaviours. Antisocial behaviours include hostile actions and overt or covert aggression towards others. These behaviours cause serious damage to society in many ways. All cultures have set their standards of suitable and proper behaviors, antisocial behavior violates that standards (DeWall et al., 2011). However, individual perception of anti-social behavior may varies in every society, this term is a wide construct that encompasses a wide range of behaviors.

Antisocial behaviors are capable of damaging person's academic record and social life, it can leads to emotional problems, social rejection by fellows, delinquency and increase chances of crimes in future. Antisocial behaviors can be predicted as the initial stages of delinquency (Moffitt, 1993). It leads to aggression towards others and violation of social norms (Kazdin & Buela-Casal, 1996), including behaviors that violate other's rights and security. Antisocial behaviors show stability over the period of time (Piquero et al., 2003), and several factors (both; genetic and environmental) leads to antisocial behaviors (Lopez &

---

[1] PhD Scholar, Department of Psychology (Female Campus), International Islamic University Islamabad, Pakistan.
✉ arshiasaif80@gmail.com

[2] Assistant Professor, Department of Psychology (Female Campus), International Islamic University Islamabad, Pakistan. ✉ mamoona.ismail@iiu.edu.pk

[3] 4th Year MBBS Student, Rawalpindi Medical University, Rawalpindi, Punjab, Pakistan.
✉ tanveer.fanila385@gmail.com

▪ **Corresponding Author:** Arshia Saif (✉ arshiasaif80@gmail.com)

Rodriguez-Arias, 2012), its demonstration is associated with a number of individual's factors (such as gender, age, or personality traits) (Pahlavan & Andreu, 2009).

Callousness is a behavioural trait that includes the absence of guilt and repentance of their wrongdoings; such individuals are not concerned about others. Uncaring traits represent behavioural traits in which a person doesn't care about the completion of his tasks and is uncaring of others' feelings. Unemotional traits depict the behaviour that includes the diminished manifestation of emotions. The research identified psychosocial correlates of callous-unemotional traits. Children identified with callous-unemotional traits have problems recognizing emotions because of defects in attending to signs of emotions in others (Billeci et al., 2019). The research was conducted by Essau et al. (2006) in order to investigate correlates of CU traits by using an inventory of callous-unemotional traits. Participants enrolled for the study were adolescents (community sample). Factor analysis showed that three aspects of behavior were measured by an inventory of callous-unemotional traits: callousness, uncaring and unemotional traits. Researchers enrolled participants (<19 years) to investigate, whether the patterns of adults psychopathy are same among youth or not. Study findings showed that participants scored higher on CU traits show decreased affective responsiveness, empathetic tendencies and prosocial behavior. Patterns of psychopathy are the same among adults and young participants. CU traits are linked to psychopathic tendencies in later life (Herpers et al., 2014).

Callous-unemotional behavior can be measured in early childhood (at 3 years of age) and longitudinal study showed cu traits in this age are linked to aggression specifically up to age of 10 years and behavior problems in early adolescence (Waller et al., 2015). Longitudinal twin studies were conducted by Fontaine et al. (2010). Their research findings suggested that elated levels of callous-unemotional traits significantly predicts adjustment related issues among early adolescents. They will show increased behavioral problems in middle childhood and these traits are related to conduct related problems during early adolescents. According to their research findings many children show unstable levels of CU traits and these traits represents high degree of flexibility across developmental trajectories.

A longitudinal study was carried out by Moran et al. (2009). Children first assessed at the age of 3. Parent and teacher rating scales were used to assess CU traits. They found that in this age cu traits mostly associated with child's hyperactivity and difficulty in processing emotional stimuli. They found that childhood's cu traits strongly associated with future psychiatric issues especially conduct related problems. Emotional processing is different among adolescents with antisocial behavioral issues who score high on cu traits than other adolescents with just antisocial behavior. Adolescents with high callous-unemotional traits showed difficulty in processing emotional stimuli (Loney et al., 2003).

Every individual perceives and interpret the situation on the basis of his own way of interpreting experiences. How he describes his and people's actions around him determines his cognitive patterns. An individual's belief system formed on the basis of his interpretation of world around him and his styles of attributing event (i.e. external/internal way of attribution). Sometimes these believes are not logical and results into irrational thoughts. These biased believes serves to justify person's actions (Ward et al., 2006).

Barriga et al. (2001) formulated the term "self-serving cognitive distortions". They define it as inaccurate and biased way of acquiring and interpreting experiences. They develop scale "How I Think Questionnaire (HIT-Q) to measure self-serving cognitive distortions reliably. Self-serving cognitive distortions are divided in the four categories. Four category topological model of self-serving cognitive distortions. Self-centerness (over-valuing one's own feelings and point of view), blaming others (attributing one's own unacceptable behavior and unlawful acts to someone else), Minimization/Mislabeling (viewing their antisocial behavior as mandatory to reach their goals) and Assuming the worst (believing that their unacceptable behavior cannot be improved).

Behavioral and conduct related problems are developed and maintained by a number of factors, among which cognitive distortion is one of main factor. Researchers compared gamblers and non-gamblers in a study, they enrolled male participants in that study. Researchers found that cognitive errors are associated with lack of concern to other's feelings, absence of remorse/guilt on effects of their criminal acts and lack of positive attitude towards authority as they belief that they should get privileges and special treatment

(Fatima et al., 2019). Research findings indicate strong association between use of SSCD and externalizing behaviors (for example aggression and deviant behavior) among adolescent male participants, whereas participants who scored higher on self-debasing cognitive distortions were more likely to show internalizing behaviors for example anxiety, depression, somatic symptoms (Barriga et al., 2008).

Longitudinal study found that moral disengagements mediates the link between early risk factors and antisocial behaviors (Hyde et al., 2010). Adolescents scored higher on moral disengagement questionnaire are more certainly to show elevated antisocial behaviors (Sijtsema et al., 2019).

Moral disengagement concept was central to Bandura's theory of social cognition that was given by him in 1986. Moral disengagement theory explains mechanisms through which an individual justify his unethical behavior, to keep himself away from self-criticism and feelings of loss. There are eight cognitive mechanisms explained in moral disengagement theory which are used to disconnect a person's moral/ethical standards from his actions (Bandura et al., 1996). Individual use strategies of moral disengagement to persuade themselves that they are exempted from society's moral principles within specific situation or context. For example, a person has moral standard that does not support any immoral act like theft, but he has taken a newspaper from a shop without their permission. He will justify his immoral act by using these techniques. Distortion of consequences include denying or reducing outcomes of his immoral behavior, to justify his actions. For example, moral distortion make him understand that taking newspaper without permission is not a big deal.

Diffusion of responsibility includes ascribing reprehensible behaviors to a group and thinking that whole group is answerable for unethical action. For example, he will think that he is not only one who did this, other people also take such minor things without permission. Advantageous comparison technique involve comparing his immortal behavior with even worst scenario, in order to justify his unethical conduct. For example this type of moral disengagement technique make him think that he took a minor thing instead of committing a big violating act. Displacement of responsibility technique involves a person's immoral actions are viewed as something coming from authorities dictates. For example he will think that their employees also take copies of newspaper so he could do that.

In Moral justification technique person's damaging behaviors are presented as socially and personally admissible and serves good reasons. For example in this type of moral disengagement technique a person will think that it is more important to stay updated about current affairs and being informed about national affairs is more valuable than paying for newspaper. Euphemistic Labeling technique include use of language which will represent their unethical conduct as morally neutral. For example when he has done with reading newspaper, he will leave it there, instead of taking it with him, in order to give impression that he just borrowed it for reading. He will say that "I just borrowed that newspaper". Dehumanization include viewing sufferer of their actions as sub-human object and lacking human qualities. By using this technique a person will think that the organization is huge unsympathetic firm, so they won't give attention to lost newspaper. By using Attribution of blame technique, he could think that this organization is too expensive, charge big amount for its products. In this way he will justify his stealing by using all these mechanisms. He will assure that he has done nothing wrong.

In recent studies cognitive process's role and personality traits in antisocial behaviour has been investigated, but studies in which all these factors are interlinked with each other received less empirical attention. In last few years due to increase in antisocial acts by adolescents, a noticeable interest has been given to topics related to anti-social behaviour among adolescents, in turn there is need arises to assess relationship of cognitive correlates and psychopathic traits related to it. Goal of recent research is to investigate the role self-serving cognitive bias and CU trait in determining the antisocial behaviour among adolescents and correlation among these variables.

Objectives
- To measure mediating link of self-serving cognitive distortions between Callous-Unemotional traits and antisocial behaviour among adolescents.
- To investigate differences of Callous-unemotional traits, self-serving cognitive distortions and antisocial behavior on demographic variables (Age and Family system).

▸ Hypotheses/ Research Question
▸ Self-serving cognitions mediates the link between Callous Unemotional traits, and antisocial behaviour among adolescents.
▸ Early adolescents (14-16) score significantly high on Callous-Unemotional traits, Self-Serving Cognitive Distortions and Anti-social behavior as compared to late adolescents (17-19).
▸ There are significant family system differences on Callous-Unemotional traits, Self-Serving Cognitive Distortions and Anti-social Behavior among adolescents.

Method
Sample and Design
Present study is based on cross-sectional survey method. Researchers approached 300 students (n=150 males, n=150 females) through purposive sampling having age range of 14-19 (M = 16.13, SD = 1.70). Participants who were studying in different private and government educational institutes of Islamabad and Rawalpindi were selected for study. Our study sample includes Educational level of most of participants was matric (f=148, %=49.3) whereas (f=115, %=38.3) enrolled in intermediate and (f=37, %12.3) enrolled in universities. Study data revealed that majority of our participants were enrolled in government institution (f=163, %=54.3), whereas (f=101, %=33.7) were enrolled in private educational institutes and (f=36, %=12) were enrolled in semi-government institutes. . The research data was collected from educational institutes of Islamabad and Rawalpindi including IMCB F-8/4, IMCG F10/2, IMCG F10/3, The Spirit Schools, Punjab College, The Educators, International Islamic School of Excellence, International Islamic University Islamabad and NUML University Rawalpindi campus.

Measures
Instruments
Demographic Sheet: The demographic sheet comprises of Age, Gender, Educational level (class), type of Educational Institute (Government/ Private), family system (Nuclear/ Joint), Percentage/CGPA (In Previous Semester), Social Economic Status, Drug Abuse, Alcohol use, Gambling, Psychological Illness in Participant, Psychological Illness in any Family Member, Previous Criminal Act (Beating/Picking someone, Deliberately destroy something, Deliberately putting actionable fire, Minor Stealing, Bullying, Robbing, none, others).

How I Think Questionnaire: 54 items questionnaire was developed by Barriga et al. in 2001, to measure cognitive distortions. Items are scored on a 6-point scale (ranging from 1 = strongly disagree to 6 = strongly agree). Items are divided into four cognitive sub-scales and four behavioral subscales. The questionnaire measures four categories of distortions: Self-centered, Blaming Others, Minimizing/Mislabeling and Assuming the Worst, which are also the subscales of the HIT. These sub-scales are measured by 39 items. These 39 items also classified into four behavioral referent sub-scales which are Opposition-Defiance, Physical Aggression, Lying and Stealing. Self-centeredness is measured by 9 items 3,7,10,22,28,37,42,52,54. Ten items measure sub-scale blaming others 6,11,21,25,26,36,39,44,46,50. Sub-scale Minimizing/mislabeling is measures by 9 items 5, 12, 14,17,19,30,33,40,47. Assuming the worst sub-scale is measure by 11 items 2,8, 15,18,23,29,32,35,43,49,53. Eight-item anomalous responding (AR) scale was also included in this questionnaire to identify disingenuous, incompetent, or otherwise suspect responding and seven items measure positive fillers. Anomalous responses are measure by 8 items 13,20,27,31,38,45,51 and positive fillers are measure by 7 items 1, 9, 16, 24,34,41,48. This scale has 0.89 Cronbach's Alpha, which shows good internal consistency. Self-serving cognitive distortions will be defined in terms of scores obtained on 'how I think questionnaire".

The Inventory of Callous-Unemotional Traits: The Inventory of Callous-Unemotional Traits (ICU) is a 24-item questionnaire designed by Frick (2004) to provide a comprehensive assessment of callous and unemotional traits. These traits have proven to be important for designating a distinct subgroup of antisocial and aggressive youth. The ICU has three subscales: Callousness, Uncaring, and Unemotional. Adolescent participants are asked to rate them on a 4-point scale: 0-Not true at all, 1-Somewhat true, 2-Very true and 3-Definitely true. This assessment can be applied to participants, ages 13-17 years old. Chronbach Alpha of inventory of Callous-Unemotional traits is .81, which shows acceptable internal

consistency (Deng et al., 2019). Callous-Unemotional Traits will be defined in terms of scores obtained on 'The Inventory of Callous-Unemotional Traits".

The Subtypes of Anti-social Behavior Questionnaire: Burt and Donnellan (2009) developed this questionnaire. It has three subscales which measures physical aggression, social aggression and rule breaking. This scale consists of 32-item measures subtypes of anti-social behaviour. STAB is 5 point likert scale. This questionnaire was developed as a brief measure that could reliably and validly assess each of the three major subtypes of antisocial behaviour. Internal consistency of this scale is .94, which shows it has very good reliability. Antisocial Behaviour will be defined in terms of scores obtained on 'The subtypes of Anti-social behavior Questionnaire".

Procedure

Ethical approval was obtained from Ethical Review Board, Department of Psychology, International Islamic University, Ethics Committee, along with head of the institutes. Inform consent was also obtained from the participants in order to ensure privacy and confidentially. Students were approached by researchers in educational institutes after getting approval of concerned authorities. Brief Introduction of research was given to respondents. They were told that this research data will only be used for research and academic purposes. Written informed consents were obtained from students. They were instructed to read all questions carefully and select most suitable answer according to them. Then data was collected by researchers and each and every ambiguity and confusion related to it was made clear.

Data Analysis

Data was analysed by using SPSS version 25. T-test and Mediation analysis was used to measure the differences of gender and family system on study variables and to investigate the relationship of CU traits and anti-social behaviour with relation to mediating role of SSCD respectively.

Results

Table 1

Mediating Effect of Self-Serving Cognitive Distortions (SSCD) in Relationship between Callous-unemotional Traits (CUT) and Anti-social Behavior (ASB) (N=300)

Variables	B	R²	P	T	95% of BCa CI
Direct and total effects					
SSCD regressed on CUT (a)	1.68	.23	.000	9.68	[0.67, 1.01]
ASB regressed on SSCD controlling CUT (b)	0.16	.33	.000	6.27	[.11, .22]
ASB regressed on CUT controlling SSCD (c)	0.84	.24	.000	9.86	[0.67, 1.01]
ASB regressed on CUT (c*)	0.56	.33	.000	6.06	[.37, .74]
	M	SE	95% BCa CI		
Bootstrapped result for Indirect effect	.28	.05	[.17, .40]		

Note: SSCD=Self-serving Cognitive Distortions, CUT=Callous-unemotional traits, ASB=Anti-social Behavior, BCa CI =Confidence Interval Limits, Bootstraped Sample=5000.

Table 1 displays the results of mediating role of Self-serving Cognitive Distortions (SSCD) in relationship between Callous-unemotional traits (CUT) and Anti-social Behavior (ASB). Value of callous-unemotional traits positively predicts anti-social behavior, b=0.84, t=9.86, p=.000, 95% of BCa Cl [0.67, 1.01] and explains 24% of its variation.

Callous-unemotional traits positively predicts self-serving cognitive distortions, b=1.68, t=9.68, p=.000, 95%of BCa Cl [1.34, 2.02]. Whilst controlling for the effect of Callous-unemotional traits on anti-social behaviour, self-serving cognitive distortions (the mediator) positively predicts anti-social behaviour, b = 0.16, t = 6.27, p < .001, 95% BCa CI [.11, .22].

The direct effect suggests that, whilst controlling for the effect of self-serving cognitive distortions on anti-social behaviour, the callous-unemotional traits has a significant positively relationship with antisocial behavior, b = 0.56, t = 6.06, p = .000, 95% BCa CI [.37, 74].The R^2 tells us that both callous-unemotional traits and self-serving cognitive distortions explain 33.42% of the variation in antisocial behavior.

The above table indicates that CIs do not cross zero, we can infer that all the indirect effects in our model are significant. However, our direct effect c' =0.56 [.37, .74] is albeit significant, as the confidence intervals do not cross zero, but is smaller than model's total effect i.e., c= .84, p<.000, [.67, 1.01]. Therefore, from above model we can infer a partial sequential mediation effect.

Table 2

Mean Standard Deviation and t–Value of Study Variables based on Age (N=300)

Variable	N	Early (14–16) (n=150) M(SD)	Lat(n=150)e (17–19) M(SD)	t(298)	P	95% CI LL	UL	Cohen's d
SSCD	300	190.57(36.41)	177.77(28.76)	3.37	.00	5.34	20.25	0.39
AW	300	34.61(12.84)	31.39(9.55)	2.46	.01	0.64	5.79	0.28
BO	300	35.37(11.66)	29.50(9.44)	4.79	.00	3.46	8.28	0.55
SC	300	30.12(10.64)	24.96(8.48)	4.64	.00	2.97	7.34	0.53
MM	300	29.59(8.98)	25.91(8.68)	3.61	.00	1.67	5.69	0.41
STAB	300	63.92(16.41)	56.91(15.84)	3.76	.00	3.34	10.67	0.43
PA	300	23.83(7.76)	20.51(7.00)	3.88	.00	1.63	4.99	0.44
SA	300	24.07(5.86)	21.08(6.41)	4.21	.00	1.59	4.39	0.48
RB	300	16.02(4.94)	15.32(5.24)	1.18	.23	−0.45	1.85	0.13
CU-T	300	31.26(10.01)	25.43(8.42)	5.44	.00	3.72	7.94	0.63
CA	300	9.77(5.65)	8.22(4.72)	2.56	.01	0.36	2.73	0.30
UC	300	11.00(5.03)	7.69(4.82)	5.81	.00	2.19	4.43	0.57
UE	300	9.54(3.72)	9.10(3.22)	1.10	.27	−0.34	1.23	0.12

Note: (AW=Assuming the worst, BO=Blaming others, SC=Self-centeredness, ML= Mislabeling/minimization, AR=Anomalous Responses, PF=Positive fillers, PA=Physical aggression, SA=Social aggression RB= Rule-breaking, CU–T= Callous-unemotional Traits, CA=Callousness, UC=Uncaring, UE=Unemotional).

Table 2 shows significance age group differences on self–serving cognitive distortions with t (298) =3.37, p<.05. Results shows that participants of age group 14-16 years (M=190.57, SD=36.41) reported significantly high level of SSCD as compared to participants of age group 17-19 years (M=177.77, SD=28.76), t(298)=3.37, p<.05. For subscales of self–serving cognitive distortions early adolescents scored significantly higher on assuming worst, blaming others, self-centeredness and mislabeling/minimization as compare to late adolescents (p < .01, .05).

Results also show that participants in age group of 14-16 years exhibited high scores on anti-social behavior (M=63.92, SD=16.41) as compared to participants in age group of 17-19 years (M=56.91, SD=15.84, t (298) = 3.76, p < .05. For sub-types of antisocial behavior early adolescents scored significantly higher on physical aggression and social aggression as compare to late adolescents (p < .01). Whereas on subscale rule-breaking there is no significant different among early and late adolescents (p > .05).

According to results age group 14-16 years (M=31.26, SD=10.01) reported significantly high level of callous-unemotional traits as compared to age group 17-19 years (M=25.43, SD=8.42), t (298) =5.45, p<.05. For subscales of callous-unemotional traits early adolescents scored significantly higher on callousness

and uncaring as compare to late adolescents (p < .01, .05). Whereas on subscale unemotional there is no significant different among early and late adolescents (p > .05).

Table 3

Mean Standard Deviation and t-Value of Study Variables based on Nuclear and Joint Family System (N=300).

Variable	N	Nuclear family (n=100) M(SD)	Joint Family (n=200) M(SD)	t(298)	P	95% CI LL	95% CI UL	Cohen's d
SSCD	300	184.50(34.40)	183.53(31.39)	.23	.81	−7.09	9.02	0.02
AW	300	32.96(11.59)	33.08(10.30)	−0.08	.16	−2.88	2.63	0.01
BO	300	32.48(11.36)	32.35(10.27)	0.09	.92	−2.52	2.78	0.01
SC	300	27.75(10.34)	27.13(9.14)	0.50	.92	−1.78	3.01	0.06
MM	300	27.72(9.22)	27.81(8.61)	−0.08	.93	−2.26	2.08	0.01
STAB	300	60.25(16.40)	60.75(16.73)	0.24	.80	−4.48	3.48	0.03
PA	300	21.98(7.43)	22.55(7.85)	0.61	.53	−2.39	1.25	0.07
SA	300	22.66(6.51)	22.42(5.91)	0.30	.76	−1.28	1.75	0.03
RB	300	15.62(4.88)	15.78(5.54)	0.26	.79	−1.39	1.06	0.03
CU-T	300	28.86(9.80)	27.32(9.40)	1.22	.18	−0.79	3.84	0.16
CA	300	9.89(5.90)	9.00(5.42)	1.25	.22	−0.50	2.27	0.15
UC	300	10.52(5.11)	9.10(4.94)	2.28	.02	0.19	2.63	0.28
UE	300	9.09(3.56)	9.75(3.26)	1.55	.13	−1.49	0.17	0.19

Note: (SSCD= Self-serving cognitive distortions, AW=Assuming the worst, BO=Blaming others, SC=Self-centeredness, ML= Mislabeling/minimization, STAB= Sub-types of antisocial behavior, PA=Physical aggression, SA=Social aggression RB= Rule-breaking, CU-T= Callous-unemotional Traits, CA=Callousness, UC=Uncaring, UE=Unemotional).

Table 3 shows no significance differences between participants of joint and nuclear family on self-serving cognitive distortions with t (298) = 0.23, p>.05. Results shows that participants of nuclear family system (M=184.50, SD=34.40) reported no significantly difference of self-serving cognitive distortions as compared to participants of joint family system (M=183.53, SD=31.39), t (298) = 3.37, p<.05. For subscales of self-serving cognitive distortions there is no significant difference between participants of joint and nuclear family system on assuming worst, blaming others, self-centeredness and mislabeling/minimization (p > .05).

Results also show that participants belongs to nuclear family system (M= 60.25, SD= 16.40) and joint family system (M=60.75, SD=16.73) do not report significant difference on anti-social behavior, t (298) = −0.24, p>.05. For sub-types of antisocial behavior there is no significant difference between participants of joint and nuclear family system on physical aggression, social aggression and rule-breaking (p > .05).

According to researches participants belongs to nuclear family system (M= 28.86, SD= 9.80) and joint family system (M=27.32, SD=9.40) do not report significant difference on callous-unemotional traits, t (298) = 1.22, p>.05. For subscales of callous-unemotional traits there is no significant difference between participants of joint and nuclear family system on callousness and unemotional (p > .05). Whereas adolescents belong to nuclear family system scored significantly high on subscale uncaring as compare to those who belong to joint family system (p < .05).

Discussion

The present research was conducted to investigate the role of callous-unemotional traits and self-serving cognitive distortions in determining anti-social behaviour among adolescents. It was assumed that callous-unemotional traits and self-serving cognitive distortions significantly predict anti-social behaviour among adolescents.

It was also hypothesized that early adolescents (14-16) score significantly high on CU traits, SSCD and Anti-social behavior as compared to late adolescents (17-19). To test this hypothesis t-test had been applied on the data. Analysis shows significance age group differences on CU traits, SSCD and anti-social

behavior. Results shows that participants of age group 14-16 years reported significantly high level of on CU traits, SSCD and anti-social behavior as compared to participants of age group 17-19 years. A research was conducted to investigate callous-unemotional traits in community sample of adolescents, researchers found that age group 15-16 scored high on inventory of CU traits as compare to 17-18 (Essau et al., 2006). Research findings suggest that adolescents of age 13 to 14 years show high level of physical aggression and repeatedly engage in physical fights as compare to 15-16 and 17-18 age groups.

Family system plays important role in determining our behaviours, researchers hypothesized that there are significant family system differences on Callous-Unemotional traits, Self-Serving Cognitive Distortions and Anti-social Behavior among adolescents. Finding indicated no significant difference found between students of nuclear and joint family system on callous-unemotional traits, self-serving cognitive distortions and anti-social behaviour.

It was hypothesized that SSCD mediates the link between callous Unemotional traits, and anti-social behaviour among adolescents. In order to test this hypothesis mediation analysis was carried out, finding reveals SSCD partially mediate the link between callous-unemotional traits and self-serving cognitive distortions. Van Leeuwen et al. conducted research in 2014. Researchers found significant indirect effects on CU traits and delinquency through SSCD.

Conclusion

Present study found that early adolescents score high on CU traits, SSCD and STAB. There are no significant differences between students of joint and nuclear family system on CU traits, anti-social behavior and SSCD. SSCD partially mediates the relation between CU traits and anti-social behavior.

References

Bandura, A., Barbaranelli, C., Caprara, G. V., & Pastorelli, C. (1996). Mechanisms of moral disengagement in the exercise of moral agency. *Journal of Personality and Social Psychology,* 71(2), 364–374. https://doi.org/10.1037/0022-3514.71.2.364

Barriga, A. Q., Gibbs, J. C., Potter, G. B., & Liau, A. (2001). *How I Think (HIT) questionnaire manual.* Research Press.

Barriga, A. Q., Hawkins, M. A., & Camelia, C. R. T. (2008). Specificity of cognitive distortions to antisocial behaviours. *Criminal Behaviour and Mental Health: CBMH*, 18(2), 104–116. https://doi.org/10.1002/cbm.683

Barriga, A. Q., Morrison, E. M., Liau, A. K., & Gibbs, J. C. (2001). Moral cognition: Explaining the gender difference in antisocial behavior. *Merrill-Palmer Quarterly (Wayne State University. Press)*, 47(4), 532–562. https://doi.org/10.1353/mpq.2001.0020

Billeci, L., Muratori, P., Calderoni, S., Chericoni, N., Levantini, V., & Milone, A. (2019). Emotional processing deficits in Italian children with Disruptive Behavior Dis-order: The role of callous unemotional traits. *Behav Res Ther*, 113, 32–38. https://doi.org/10.1016/j.brat.2018.12.011

Burt, S. A., & Donnellan, M. B. (2009). Development and validation of the Subtypes of An-tisocial Behavior Questionnaire. *Aggress Behav*, 35(5), 376–398. https://doi.org/10.1002/ab.20314

DeWall, C. N., Anderson, C. A., & Bushman, B. J. (2011). The general aggression model: Theoretical extensions to violence. *Psychology of Violence,* 1(3), 245–258. https://doi.org/10.1037/a0023842

Essau, C. A., Sasagawa, S., & Frick, P. J. (2006). Callous-unemotional traits in a community sample of adolescents. *Assessment*, 13(4), 454–469. https://doi.org/10.1177/1073191106287354

Fatima, S., Jamil, M., & Ardila, A. (2019). Cognitive control and criminogenic cognitions in south Asian gamblers. *Journal of Gambling Studies*, 35(2), 501–516. https://doi.org/10.1007/s10899-018-9805-8

Fontaine, N. M., Rijsdijk, F. V., Mccrory, E. J., & Viding, E. (2010). Etiology of different devel-opmental trajectories of callous-unemotional traits. *J Am Acad Child Adolesc Psychiatry*, 49(7), 656–664. https://doi.org/10.1016/j.jaac.2010.03.014

Frick, P. J. (2004). Inventory of callous–unemotional traits. *PLoS One.* https://psycnet.apa.org/doi/10.1037/t62639-000

Herpers, P. C. M., Scheepers, F. E., Bons, D. M. A., Buitelaar, J. K., & Rommelse, N. N. J. (2014). The cognitive and neural correlates of psychopathy and especially callous-unemotional traits in youths: a systematic review of the evidence. *Development and Psychopathology*, 26(1), 245–273. https://doi.org/10.1017/S0954579413000527

Hyde, L. W., Shaw, D. S., & Moilanen, K. L. (2010). Developmental precursors of moral dis-engagement and the role of moral disengagement in the development of anti-social behavior. *J Abnorm Child Psychol*, 38(2), 197–209. https://doi.org/10.1007/s10802-009-9358-5

Kazdin, A. E. (1987). Treatment of antisocial behavior in children: Current status and future directions. *Psychological Bulletin*, 102(2), 187–203. https://doi.org/10.1037/0033-2909.102.2.187

Loney, B. R., Frick, P. J., Clements, C. B., Ellis, M. L., & Kerlin, K. (2003). Callous-unemotional traits, impulsivity, and emotional processing in adolescents with antisocial behavior problems. *Journal of Clinical Child and Adolescent Psychology: The Official Journal for the Society of Clinical Child and Adolescent Psychology, American Psychological Association, Division 53*, 32(1), 66–80. https://doi.org/10.1207/S15374424JCCP3201_07

Lopez, S., & Rodriguez-Arias, J. L. (2012). Risk and protective factors for drug use and antisocial behavior in Spanish adolescents and young people. *Int J Psychol Res*, 5(3), 25–33. https://doi.org/10.21500/20112084.746

Moffitt, T. E. (1993). Adolescence-limited and life-course-persistent antisocial be-havior: A developmental taxonomy. *Psychol Rev*, 100(4), 674–701. https://doi.org/10.1037/0033-295X.100.4.674

Moran, P., Rowe, R., Flach, C., Briskman, J., Ford, T., Maughan, B., Scott, S., & Goodman, R. (2009). Predictive value of callous-unemotional traits in a large community sample. *Journal of the American Academy of Child and Adolescent Psychiatry*, 48(11), 1079–1084. https://doi.org/10.1097/CHI.0b013e3181b766ab

Pahlavan, F., & Andreu, J. (2009). Sex-specific effects of sociocultural changing on aggression: fact or artefact? *Journal of Organisational Transformation & Social Change*, *6*(2), 103–131. https://doi.org/10.1386/jots.6.2.103_1

Piquero, A. R., Farrington, D. P., & Blumstein, A. (2003). The criminal career paradigm. *Crime and Justice*, *30*, 359–506. https://doi.org/10.1086/652234

Sijtsema, J. J., Garofalo, C., Jansen, K., & Klimstra, T. A. (2019). Disengaging from evil: Longitudinal associations between the dark triad, moral disengagement, and antisocial behavior in adolescence. *Journal of Abnormal Child Psychology*, *47*(8), 1351–1365. https://doi.org/10.1007/s10802-019-00519-4

Waller, R., Hyde, L. W., Grabell, A. S., Alves, M. L., & Olson, S. L. (2015). Differential associa-tions of early callous-unemotional, oppositional, and ADHD behaviors: multi-ple domains within early-starting conduct problems? *J Child Psychol Psychia-Try*, *56*(6), 657–666. https://doi.org/10.1111/jcpp.12326

Ward, T., Gannon, T. A., & Keown, K. (2006). Beliefs, values, and action: The judgment model of cognitive distortions in sexual offenders. *Aggression and Violent Behavior*, *11*(4), 323–340. https://doi.org/10.1016/j.avb.2005.10.003