INTERNATIONAL JOURNAL OF CURRENT MEDICAL AND PHARMACEUTICAL RESEARCH

IJCMPR

Available Online at http://www.journalcmpr.com

RESEARCH ARTICLE

ANGER ASSESSMENT AMONG HIGH SCHOOL CHILDREN

Alaka Mani TL[1]*., Sharma MK[2]., Marimuthu P[3]., Omkar SN[4] and Nagendra HR[5]

[1]SVYASA Yoga University, Bengaluru
[2]Department of Clinical Psychology, NIMHANS, Bengaluru
[3] Department of Bio-Statistics, NIMHANS, Bengaluru
[4]Department of Aerospace Engineering, Indian Institute of Science; Bengaluru
[5]Chancellor, SVYASA Yoga University; Bengaluru

ARTICLE INFO

Article History:

Received 23rd May, 2016
Received in revised form 17th June, 2016 Accepted 9th July, 2016
Published online 28th August, 2016

Key words:

Anger, Adolescents, Schools

ABSTRACT

Background: Adolescent anger, aggression and violence in school and college campuses are on rise across globe. Anger typically associated with hostile thoughts, physiological arousal and maladaptive behaviours inspires powerful often aggressive feelings and behaviours that affects all aspects of life. Negative outcomes of anger, its long term consequences, its negative impact on academic success and emotional well-being makes it a social menace.
Materials & Methods: 1220 high school children (652 girls and 568 boys) in the age group of 12 to 16 years participated in a survey using self-reporting anger scale STAXI-2 CA. Data was analysed to study the prevalence of state and trait nature of anger and anger expression styles.
Results: Multivariate General Linear Model and Pearson product-moment correlation coefficients were used to analyse the data. 45% of the children experienced elevated and high state anger and 23% experienced elevated & high trait anger. Higher scores of state and trait anger were observed in girls than boys. Significant positive correlation was observed between anger expression out with both state and trait anger. Higher levels of anger experience and lower levels of anger control are observed in girls than boys.
Conclusions: High school children exhibited higher levels of anger experience and expression and moderate levels of anger control. The study has implications for thorough assessment of anger with more physiological parameters and developing culture specific, yoga based anger management programs and assessment tools.

INTRODUCTION

Anger which enables a 'fight' response has been linked to hostility, aggression and violence especially in adolescents. The terms 'anger' 'aggression' 'violence' lack clarity in their definitions, demarcation and homeostatic levels that are healthy. The relation between these terms is mediated by moral disengagement (Ramírez JM 2009). Consideration of interplay of these constructs is essential in order to take forward the research work on these constructs. (Hubbard, 2006).

The concept of anger stated by Spielberger which is regarded as more fundamental is considered as the basis for this study. According to him, anger is an emotional state or condition that consists of feelings which vary in intensity from mild irritation or annoyance to intense fury and rage, accompanied by activation and arousal of the autonomic nervous system (Spielberger, 1988; Brunner 2009).

Problems associated with inappropriate expressions of anger remain the most serious concerns of parents, educators, and the mental health community. Childhood aggressive behaviour is considered as a risk factor for adulthood violence and criminal behaviour (Rowell, 2002). Uncontrolled anger is a contributing factor of adolescent deaths due to homicide, suicide and injuries (CDC, 2015). Anger is a strong emotional predictor of violence which has a strong correlation with cognitive distortion (Simona VC, 2012). Anger contributes positively to physical and verbal aggression (Rubio GF, 2016; Cornell, 1999). Intense, uncontrolled feelings of anger are often associated with externalizing behavior problems, particularly aggression (John EL, 2005). Adolescent anger leading to violence is hence identified as a health disparity (CDC, 2012).

Schools and colleges across the globe are witnessing a massive rise in anger related behaviours and conduct disorders. According to indicators of school safety and crime 2015, USA, about 58% of public schools recorded incidents of physical attack or fight without a weapon. Higher percentages of

females (15%) than of males (13%) reported bullied. Higher percentage of males (7%) than of females (5%) reported being pushed, shoved, tripped, or spit on (NCES 2016-079).

Amongst 94777 Japanese adolescents, 8.7% have experienced intense anger (Itani O, 2016). Study further reports higher levels of intense anger among students who had history of smoking, alcohol use, skipping breakfast and using mobile phones for longer duration. Out of 1662 Malaysian adolescents, when angry, 7.1% have hit others, 25.1% have hit objects, 27.8% have become aggressive verbally (Rohany N, 2014). High attitude to aggression was also found in 81% of 426 Malaysian adolescents (Chidiebere, 2015). Turkish adolescents, 24% of the 2409, recorded very high rates of aggression scores (Dilek A, 2016). Positive correlation between anger and suicide ideation is reported in 18.5% of 14537 Chinese adolescents (Ping Z, 2012).

Angry behaviours, bullying, aggression are also on rise among the Indian adolescents. Study of 1500 Indian adolescents reports 23% of victims and 13% perpetrators of violence (Munni, 2006). About 18% of 5476 youths from different cities of India reported high aggression scores. Higher anger-aggression scores were observed in males than females and also in the age group of 16-19 years (Sharma MK, 2015). Parental anger styles tend to have strong impact on anger expression in Indian adolescent females (Kavitha D, 2014). Aggression has shown negative correlation with interpersonal and romantic relationships among Indian youth (Sharma MK, 2013). Indian alcohol-dependent youths reported low levels of anger control, high level of trait anger and poor quality of life (Sharma MK, 2012).

Adolescents with high trait anger have shown negative health, social, and academic consequences related to anger (Colleen, 2014). Adolescents exposed to violence had poorer school performance and adjustment scores (Munni, 2006). Dispositional anger leads to higher risk-taking behaviour in adolescents (Jungmeen KS, 2015). Self-esteem in adolescents reported positive correlation with anger control and negative relationship with trait anger (Coskun A, 2009). Significant correlation is observed between trait anger and proneness to shame in youth (Jennie H, 2011).

Studies on adolescent population have documented significant association between anger and depression, stress (Pullen 2015; Zimmer GMJ 2015; Deffenbacher, 1996); suicidal attempts, conduct disorders, hyper tension, heart diseases, psychosomatic ailments (Dale JT 2009; Stephanie SD, 2009; Ahmad G, 2007; Grunbaum, 1997). Anger has significant positive correlations with negative life events, anxiety and drug use in adolescents (Kathryn Puskar, 2008). Studies on premenstrual syndrome in adolescent girls reported high prevalence (59%) of anger/ irritability as a most common symptom (Raval CM, 2015; Doerte UJ, 2014).

Though adolescent anger is a strong predictor of aggression, violence, crime and homicide and a major risk factor for many health problems, it has received relatively less attention of researchers. Most of the studies have included anger as secondary variable or a comparative construct. Research on studying correlates of maladaptive nature of anger in adolescents has lagged behind than adults (Matthew AK, 2008). Understanding the developmental trajectory of high anger levels in adolescents is important, considering its role as a precursor to negative adult physical, psychological and social health outcomes (Catherine PB, 2010).

India is going to be the youngest nation by 2020 with 64% of its population comprises of adolescents and youths. India is also witnessing increased anger related issues in schools and colleges and also early onset of psychosomatic ailments. Hence study of adolescent anger is an essential component of public health promotion in India. On contrary, no studies are cited studying prevalence of anger and its effective management amongst Indian adolescents. There is also dearth for culturally suited measurement tools to assess adolescent anger. This study is therefore focussed to understand the prevalence of anger, its types and intensity in high school children using available self-reporting STAXI-2-CA scale.

MATERIALS AND METHODS

Design: It is school based survey conducted in high schools with one time data collection in groups. Anger is the only parameter measured in this study. The study was approved by the institutional ethical committee. Consent to participate in the survey was obtained in writing by the children and approval obtained from school authorities. Authorised tools and software were used for measurements and assessment.

Sample: The participants of the study included 1220 healthy adolescents studying in 8^{th}, 9^{th} and 10^{th} standard in English medium private co-education high schools in south Bangalore. Sample size had a good baseline match of gender but not of age. Inclusion criteria was ability to read, write and communicate in English while adolescents unwilling to participate were excluded.

Tool: State-Trait Anger Expression Inventory-Child and Adolescents (STAXI 2 CA scale), a 35 item self-report scale that measures anger experience, expression and control in adolescents. STAXI-2 C/A has five subscales - State anger (10 items), Trait Anger (10 items), Anger Expression–Out (5 items), Anger Expression-In (5 items) and Anger-Control (5 items). The tool divides the adolescent age range into three groups 9-11 years, 12-14 years and 15-18 years.

Having 3 point Likert scale, STAXI-2 CA has high reliability and validity scores with internal consistency (α) 0.87 for state anger, 0.80 for trait anger, 0.70 for anger expression out, 0.71 for anger expression in and 0.79 for anger control in normative samples. Spanish adaptation of this scale found the structure of this scale robust and acceptable internal consistency and test-retest reliability scores (Victoria DB, 2003).

STAXI-2-CA professional manual acts as a tool for data processing as it provides data of normative samples as well as conversion tables of percentile scores and t-scores, gender wise and age group wise. Statistical software SPSS version 10 was used to analyse the data.

Procedure: As a pilot work, the scale was first administered to 30 children to assess the feasibility, content understanding, etc. A psychologist was present while administering the scale. Some of the terms like 'grumpy' 'grouchy' were difficult to understand by the children in the Indian cultural context. The meaning of such terms was explained to the group and also incorporated within brackets in the scale.

Then the scale was administered in 8 schools during academic hours around 10 to 11 am. About 14 high schools were approached out of which only 8 schools consented to

participate in the study. The scale was administered in groups (section wise). Children were briefed about the study and then asked to fill up the questionnaire. Children were instructed to answer all the questions and they took around 5-10 minutes for filling up the questionnaire.

Data processing: Totally 1236 children participated in the survey, out of which 16 questionnaire were incomplete with more than 50% unanswered questions. The sample size mentioned above (1220) is after excluding these 16 cases.

Raw scores of each subscale corresponding to each participant were converted into percentile scores and t-scores with the help of conversion tables provided in the professional manual.

Percentile scores were used to calculate intensity of anger, gender difference and significance through multivariate analysis using General Linear Model; T scores were used to calculate correlation using bivariate Pearson product-moment correlation coefficients.

ANALYSIS AND RESULTS

Data of 1200 participants (652 girls and 568 boys) was considered for analysis. The age wise distribution of participants included 72 children aged 12 years (42 girls and 30 boys), 629 children aged 13 years (325 girls and 304 boys), 282 children aged 14 years (163 girls and 119 boys), 191 children aged 15 years (103 girls and 88 boys) and 46 children aged 16 years (19 girls and 27 boys).

The mean and standard deviation of raw scores for all subscales was calculated using t test.

Table 1 Mean and Standard Deviation of Raw scores

	SA	TA	AO	AI	AC
Scoring Range	**10-30**	**10-30**	**5-15**	**5-15**	**5-15**
Girls (n=652)	14.9 (±3.7)	19.5 (±3.6)	9.1 (±2.0)	9.2 (±2.2)	11.6 (±2.3)
Boys (n=568)	15.4 (±3.8)	18.9 (±3.3)	9.2 (±2.1)	9.2 (±2.1)	11.1 ((±2.4)
Total (n=1220)	15.1 (±3.8)	19.2 (±3.5)	9.1 (±2.0)	9.2 (±2.2)	11.4 (±2.4)

SA-State Anger, TA-Trait Anger, AO-Anger Expression Out, AI-Anger Expression In, AC-Anger Control

Table 1 shows overall higher levels of trait anger (19.2%) indicating higher levels of anger proneness and regular experience of intense anger without specific provocation. Moderate level of anger control (11.4) is also observed denoting the tendency to control expression of anger. Marginal difference is seen between genders in all subscale except anger expression-in. Clarity on these will be obtained analysing the percentile and t scores in the subsequent tables.

Table 2 Intensity of anger among boys and girls

Intensity → Subscale ↓		Low Anger (< 25)	Average Anger (26-75)	Elevated Anger (76-89)	High Anger (> 90)
State Anger	Girls	0 (0%)	287 (44%)	313 (48%)	52 (8%)
	Boys	40 (7%)	346 (61%)	143 (25%)	39 (7%)
Trait Anger	Girls	131 (20%)	336 (52%)	122 (19%)	63 (10%)
	Boys	110 (19%)	366 (64%)	64 (11%)	28 (5%)
Anger Expression Out	Girls	242 (37%)	263 (40%)	103 (16%)	44 (7%)
	Boys	100 (18%)	375 (66%)	66 (12%)	0 (0%)
Anger Expression In	Girls	35 (5%)	332 (51%)	186 (29%)	99 (15%)
	Boys	27 (5%)	292 (51%)	168 (30%)	81 (14%)
Anger Control	Girls	129 (20%)	262 (40%)	132 (20%)	129 (20%)
	Boys	59 (10%)	283 (50%)	82 (15%)	144 (25%)

Table 2 reports 37% of children experiencing elevated state anger and 7% of children experiencing very high state anger indicating children experiencing relatively intense anger at the time of scale administration. More number of girls (56%) than boys (32%) have shown higher levels of state anger.

Trait anger scores also show more in girls (19% and 10%) than boys (11% and 5%)) in elevated and very high trait anger zone respectively. Prevalence of 23% of children experiencing higher levels of trait anger indicate very high proneness to anger and are alarming.

Relatively low anger expression-out scores (17.5%) indicate children having hostile attitude and exhibit aggressive tendencies with a lesser frequency. More girls (16% and 7%) than boys (12% and 0%) have shown elevated and very high anger expression out. Surprisingly no boys fell in the very high anger expression-out zone.

High anger-expression-in scores (44%) indicate adolescents hold-in or suppress anger when they are angry or furious. Significant gender difference is not observed in terms of anger expression in scores.

In all 15%, 45%, 15%, 25% of children reported low, average, elevated and very high extent of anger control respectively. This shows 60% of the children are in low and average anger control zone where they tend to control angry feelings less frequently, modulating their anger expression or hiding their feelings. 40% of children have shown elevated and very high anger control abilities. This indicates children are tolerant, understanding and or patient with others. They control their anger by relaxing, calming down and reducing the feelings.

Mixed pattern is seen in gender wise distribution across intensity levels of anger control. Low anger control (girls 20%, boys 10%), average control (girls 40%, boys 50%), elevated anger control (girls 20%, boys 15%) and very high anger control (girls 20%, boys 25%). Further analysis is needed to substantiate gender difference.

Table 3 chi-square data & significance level for gender difference in subscales

	SA	TA	AO	AI	AC
Chi Square value	105.45	29.01	85.84	5.31	33.76
Significance level	<.001	<.001	<.001	0.912	<.001

SA-State Anger, TA-Trait Anger, AO-Anger Expression Out, AI-Anger Expression In, AC-Anger Control

Table 3 indicate significant gender difference is reported in all subscales except anger expression-in.

Table 4 Pearson Correlation of Anger Experience, expression and control

Gender		TA	AO	AI	AC
Girls (n=652)	SA	.411**	.356**	-.076	-.110**
	TA		.542**	.013	-.061
Boys (n=568)	SA	.469**	.477**	.053	-.075
	TA		.566**	.189**	-.007
Total (n=1220)	SA	.439**	.395**	-.017	-.098**
	TA	1	.535**	.085**	-.045

SA-State Anger, TA Trait Anger, AO-Anger Expression Out, AI-Anger Expression In, AC-Anger Control

Table 4 provide gender-wise correlation coefficient values for all subscales. High positive correlation between State and Trait Anger (0.439) with 0.01 level of significance is observed. Similarly high positive correlation is seen between Anger

expression out and State anger (0.395) as well as Trait anger (0.535). However, Anger expression-in and Anger control have not shown any strong correlation with either state or trait anger.

Frequency of answering various options for Q 21 (I show my anger) and Q 25 (I hide my anger) were analyzed to check the authenticity of response for two contradictory questions. Both questions were answered 'never' by 85 (6.98%) children and 'often' by 35 (2.87%) children which indicates high reliability of responses.

DISCUSSION

The study indicates higher levels of state (45%) and trait (23%) anger experience and moderate levels of anger control (40%) among high school children. Gender difference was also observed. Girls showed higher levels of anger and lower levels of anger control (table 2).

60% of children having average and low anger control scores indicating children having poor abilities to address their anger issues. They tend to modulate the amount of anger they express in an inappropriate manner which is a cause of concern (table 2). 15% of children having very low anger control and very high anger expression in and /or anger expression out scores indicated presence of lack of well-developed internal anger control mechanisms (table 2). Positive correlation has been seen between trait and state anger. Higher correlation is observed with respect to anger-expression-out with both state and trait anger. Higher levels of both state and trait anger and low levels of anger control may be a high risk factor for many behavioural and conduct disorders (table 4). Results of anger expression scores are characterized by children having hostile attitude and aggressive tendencies and are generally reacting to anger provoking situations by suppressing or holding in their angry feelings (table 2). The findings are also corroborated with available literature in this area.

Gender difference was significantly observed in anger expression in adults in a study conducted in India using STAXI-2 Hindi version with males having higher anger expression and control than females, which implies the need for developing gender specific anger management program (Mamta, 2013). Females were found to be predominantly victims in the study on prevalence of violence among Indian adolescents and males were an important predictive factor for witnessing and perpetrating violence (Munni, 2006). Whereas in other studies, like African American adolescence reported no gender difference in anger expression scores measured using two scales STAXI and FAS (Cheryl A, 2002). A Meta analytic review on gender difference in emotion expression in children reports significant but very small difference of negative emotion expression in boys than girls. It also reported change in emotion expression as the age advances and found the shift in emotion expression in adolescent girls from less during childhood to high expression in adolescents (Tara MC, 2013). Another intervention based pilot study indicated girls having higher levels of anger expression and lower levels of anger control than boys. However, their response to anger management program was better than boys as they showed greater improvement in both anger expression and anger control scores (Isaac B, 2015)

Presence of high level of anger suppression is also linked to children having a) an aggressive family background, b) shy away expressing anger, c) have been sexually abused and have learnt to suppress their anger for fear of reprisal and d) having emotionally internalizing disorders (Brunner, 2009). Studies also have reported significant gender difference between anger covariants and systolic and/or diastolic blood pressure readings in relation to anger (Roxanne PH, 1998; Albayrak, 2012).

A number of studies are cited documenting cultural influence on anger experience and expression even though physiological effects are universal (Seung HY, 2010). Significant difference in anger experience and expression is reported in Asian American and European American women (Iris BM, 2010). Subjective feedback from the participants of the current study also supports these findings. Children had difficulty in differentiating the meanings for words such as 'angry' 'irritated' 'annoyed' 'mad'. Also difficulty in understanding the sentences like, 'I say mean things', 'I do things like slam doors'.

Figurative language (anger is hot) is often ambiguous and should be used with caution on psychological tests unless there is evidence the language is understood cross-culturally (Barchard KA, 2016). The subjective feed back by the children during the administration of scale corroborated this view. Children had difficulty in understanding 'I keep my cool' 'Hot headed' etc. Analysis of question wise frequency of response to questions revealed that questions like 'I am mad', 'I get Mad', 'I am hot headed', 'I do things like slam doors' have received higher percentages (74%, 57%, 44% and 50%) of 'never' answers. It indicates children are not able to relate them with these questions. This aspect may have had its bearings on the results obtained. Future studies are recommended using physiological biomarkers of anger in addition to culturally appropriate self-reporting scales.

The strength of this study is assessing anger in the school setting with a large sample size of 1220 children. The study aimed at closer observation of types of anger experience and anger expressions and also analysed correlation among the subscales. Very few or no studies are reported assessing and analyzing intensities of anger and also anger as a sole construct. This study measured anger using self-reporting scale to assess children's knowledge about anger which may not be easily observed by adults. Observational feedback of the scale administrator is that the children lacked introspective ability and had response bias. Social desirability response set might have also influenced under/over report of their degree of anger.

Future studies are recommended to consider socio-economic, anthropometric and demographical data of participants as these aspects strongly influence experience and expression of anger in adolescents. The study was conducted only in private high schools. It is also recommended to extend the study to corporation/ govt schools as well as residential schools. The replication of this study in other settings (urban, rural, clinical, minority subjects) may strengthen the findings of this study. Since adolescent period (10 to 19 years) is a transitional stage heralded by tremendous growth and changes, age-wise assessment of anger is recommended. In addition to self-reporting assessment, there is a need to get the assessment done by the teachers and parents.

The present study has implication for developing anger management programs/assessment tools based on yoga – medication (spirituality), as yoga based programs have found effective in addressing issues of cognitive and executive

functions in adolescents in addition to promoting fitness and physiological health in adolescents.

Acknowledgement

Authors gratefully acknowledge Sri. Venkateswara Vedic University, Tirupati who have funded this study.

Authors also acknowledge schools who participated in the study - Mahila Seva Samaja, Deccan Public School, Sri Krishna International School, Community High School, Bangalore High School, Jyothi Kendriya Vidyalaya, Auden High School and Our School.

Special acknowledgement to Dr. Thomas Brunner, one of the authors of STAXI 2 CA scale who shared the scale and the professional manual free of cost and also accorded permission to use the scale in this study.

References

Ahmad Ghanizadeh (2008); Ahmad Ghanizadeh; 'Gender difference of school anger dimensions and its prediction for suicidal behaviour in adolescents', *International Journal of Clinical and Health Psychology* 2008

Albayrak (2012): Albayrak B, Kutlu Y; The determination of blood pressure, anger expression and body mass index in adolescents in Turkey: a pilot study. Coll Antropol; 2012 Mar;36(1):87-92.

Barchard KA (2016): Barchard KA, Grob KE, Roe MJ, Behav Res Methods 'Is sadness blue? The problem of using figurative language for emotions on psychological tests'; Behaviour Res Methods, 2016

Brunner (2009): Brunner, T. M. & Spielberger, C.D., The State Trait Anger Expression Inventory, Second edition, Child Adolescent (STAXI-C/A). Psychological Assessment Resources: Sarasota, Florida. (2009).

Catherine (2010) : Catherine P. Bradshaw , Cindy M. Schaeffer, Hanno Petras, Nicholas Ialongo (2010); Predicting Negative Life Outcomes from Early Aggressive–Disruptive Behavior Trajectories: Gender Differences in Maladaptation Across Life Domains; J Youth Adolescence (2010) 39:953–966; DOI 10.1007/s10964-009-9442-8

CDC (2006): Centers for Disease Control [CDC]. Youth risk behavior surveillance – United States, 2005 Morbidity and Mortality Weekly report, 55 (SS-5). 2006. Retrieved March 23, 2007. http://www.cdc.gov/mmwr/PDF/SS/SS5505.pdf

CDC (2012): Fact-sheet 2012 of Centre for Disease Control and Prevention; 1-800-CDC-INFO (232-4636), www.cdc.gov/violenceprevention

Cheryl A (2002) : Cheryl A. Armstead and Rodney Clark; Assessment of self-reported anger expression in pre- and early-adolescent African Americans: psychometric considerations ; *Journal of Adolescence* 2002, 25, 365–371, doi:10.1006/jado.2002.0481

Chidiebere K (2015) : Chidiebere Kelechi Duru, Ma'rof Redzuan, Hanina Hamsan, Mohd. Ibrani Shahrimin; Attitude to Aggressive Behaviour and Intention of Aggressive Behaviour among Adolescent School Children in Selangor state; Research on Humanities and Social Sciences ; 2015 Vol.5, No.3,

Colleen AQ (2015) : Colleen A. Quinn, David Rollock, andScott R. Vrana 'A Test of Spielberger's State-Trait Theory of Anger with Adolescents: Five Hypotheses' NIH Public Access, Emotion. 2014 February ; 14(1): 74–84. doi:10.1037/a0034031.

Cornell DG (1999): Cornell DG, Peterson CS and Richards H 'Anger as a predictor of aggression among incarcerated adolescents' *J Consult Clin Psychol* 1999, 67:108-115

Coskun A (2009): Coskun ArslAn; Anger, Self-eSteem, and Perceived Social Support in Adolescence; Social Behavior and Personality, 2009, 37(4), 555-564

Dale JT (2009): Dale J Terasaki, Bizu Gelaye, Yemane Berhane and Michelle A Williams; 'Anger expression, violent behavior, and symptoms of depression among male college students in Ethiopia', *BMC Public Health* 2009, **9**:13 doi:10.1186/1471-2458-9-13

Deffenbacher1(1996) : Deffenbacher JL, Lynch, R. S., Oetting, E. R., & Kemper, C. C. Anger reduction in early adolescents. *Journal of Counseling Psychology*, (1996). 43, 149– 157.

Dilek A (2016) : Dilek Avci, Mahmut Kilic, Kevser Tari Selcuk, et al 'Levels of aggression among Turkish Adolescents and Factors Leading to Aggression, Issues of Mental Health Nurses, July 2016.

Doerte UJ (2014): Doerte U. Junghaenel, Stefan Schneider, Arthur A. Stone, PhD, Christopher, Christodoulou, and Joan E. Broderic; Ecological Validity and Clinical Utility of PROMIS® instruments for detecting premenstrual symptoms of depression, anger, and fatigue; *J Psychosom Res*. 2014

Grunbaum(1997):Jo Anne Grunbaum, Sally W. Vernon, Ca rla M. Clasen; The association between anger and hostility and risk factors for coronary heart disease in children and adolescents: A review; Annals of Behavioral Medicine June 1997, 19:179 DOI: 10.1007/BF02883335

Hubbard J (2006) : Julie A. Hubbard, Meghan D. McAuliffe, Ronnie M. Rubin, and Michael T. Morrow; The Anger–Aggression Relation in Violent Children and Adolescents; 2006; Book chapter

Iris B (2010) : Iris B. Mauss, Emily A. Butledr, Nicole A. Roberts, Ann Chu ; Emotion control values and responding to an anger provocation in Asian-American and European-American individuals; Cognition and Emotion; 2010, 24 (6), 1026_1043

Isaac B (2015); Isaac Burt; Identifying Gender Differences in Male and Female Anger Among an Adolescent Population; Researchgate: December 2015 DOI: 10.15241/ib.4.5.531

Itani O (2016) : Itani O, Kaneita Y, Munezawa T, et al Anger and impulsivity among Japanese adolescents: a nationwide representative survey. *Journal of Clinical Psychiatry*

Jennie H (2011) : Jennie Hejdenberg, Bernice Andrews; The relationship between shame and different types of anger theory-based investigation; Personality and Individual Differences 50 (2011) 1278–1282

Jennifer J (2011) : Jennifer Jackson, Peter Kuppens, Lisa B. Sheeber, Nicholas B. Allen; Expression of Anger in Depressed Adolescents: The Role of the Family Environment; *J Abnorm Child Psychol* (2011) 39:463–474; DOI 10.1007/s10802-010-9473-3

John EL (2005): John E. Lochman, Nicole R. Powell, Nancy Clanton, Heather K. McElroy, book chapter 'Anger and Aggression, 2005

Jungmeen KS (2015): Jungmeen Kim-Spoon, Christopher Holmes and Kirby Deater-Deckard; Attention regulates anger and fear to predict changes in adolescent risk-taking behaviors; *J Child Psychol Psychiatry*. 2015

Kathryn Puskar (2008): Kathryn Puskar, Dianxu Ren, Lisa Marie Bernardo, Tammy Haley and Kirsti Hetager Stark, 'anger correlated with psychosocial variables in rural youth, Compr Pediatr Nurs. 2008

Kavitha D (2014) : Kavitha Dhanaraj and R Manoj; 'A study on expression of anger among the parents and their adolescent daughters' Indian Streams Research Journal, Jan 2014

Mamta (2013) : Mamta, Nov Rattan Sharma ; Across Gender Comparison in Anger Expression; Global International Research Thoughts; *October-December 2013*

Matthew A (2008): Matthew A. Kerr, Barry H. Schneider; Anger expression in children and adolescents: A review of the empirical literature, Clinical Psychology Review 28 (2008) 559–577

Munni (2006): Munni R, Malhi P: Adolescent violence exposure, gender issues and impact. Indian Paediatr. 2006, 43(7):607-612.

NCES (2016-079) ; Indicators of school crime and safety 2015, U.S. department of education, u.s. department of justice programs

Ping Zhang (2012) : Zhang P, Roberts RE, Liu Z, Meng X, Tang J, et al. Hostility, Physical Aggression and Trait Anger as Predictors for Suicidal Behavior in Chinese Adolescents: A School-Based Study PLoS ONE . (2012)7(2): e31044. doi:10.1371/journal.pone.0031044

Pullen L (2015): Pullen L, Modrcin MA, McGuire SL, Lane K, Kearnely M, Engle S.; Anger in Adolescent Communities: How Angry Are They?; Pediatr Nurs. 2015 May-Jun; 41(3):135-40.

Ramirez JM (2008): Ramírez JM and Andreu; The Main Symptoms of the AHA-Syndrome: Relationships Between Anger, Hostility and Aggression in a Normal population, The AHA- and cardiovascular Diseases 2008

Raval CM (2016): Raval CM, Panchal BN, Tiwari DS, Vala AU and Bhatt RB; 'Prevalence of premenstrual syndrome and premenstrual dysphoric disorder among college students of Bhavnagar, Gujarat, *Indian J Psychiatry*. 2016 Apr-Jun; 58(2):164-70. doi: 10.4103/0019-5545.183796.

Rohany Nasir, Norisham Abd Ghani, Behavioral and Emotional Effects of Anger Expression and Anger Management among Adolescents Procedia - Social and Behavioral Sciences 140 (2014) 565 – Science Direct

Rowell H (2002) : L. Rowell Huesmann, Leonard D. Eron, and Eric F. Dubow; Childhood predictors of adult criminality: are all risk factors reflected in childhood aggressiveness?; Criminal Behaviour and Mental Health, **12**, 185–208 2002

Roxanne (1998) : Roxanne Picket Hauber, Marti H Rice, Carol C Howell, Myra Carmon; Anger and Blood Pressure readings in Children; 1998; Applied Nursing Research, Vol 11, pp 2-11.

Rubio GF (2016): Rubio-Garay F, Carrasco MA, Amor PJ; 'Aggression, anger and hostility: evaluation of moral disengagement as a mediational process' *Scand J Psychol*. 2016

Seung H (2010): Seung Hee Yoo, Joanne M.Chung; The Expression of Anger Across Cultures; Researchgate; book chapter January 2010 DOI: 10.1007/978-0-387-89676-2_8

Sharma MK (2012): Sharma MK, LN Suman, Pratima Murthy and Palaniappan Marimuthu , State-Trait Anger and Quality of Life Among Alcohol Users, German Journal of Psychiatry, 2012

Sharma MK (2013) Sharma MK, Mohan Raju; 'Relationship of Personality Dimensions and aggression in romantic relationship among youth; *Indian Journal of Psychological Medicine*, 2013

Sharma MK (2015) ; Manoj Kumar Sharma, Palaniappan, Marimuthu; Prevalence and Psychosocial Factors of Aggression Among Youth; *Indian Journal of Psychological Medicine*, 2014-36:48-53.

Simona (2012) : Simona V Chereji, Sebastian Pintea and Daniel David; The Relationship of Anger and Cognitive Distortions with Violence in Violent Offenders Population: A Meta Analytic Review; The *European Journal of Psychology Applied* to Legeal Context; 2012; 4(1): 59-77

Spilberger CD (1988); State-Trait Anger Expression Inventory (STAXI) professional mannual. Lutz FL; Psychological Assessment Resources.

Stephanie S (2009): Stephanie S. Daniel, Franklin, David B. Goldston, Alaattin Erkanli, Joseph C and Andrew M. Mayfield; Trait Anger, Anger Expression, and Suicide Attempts among Adolescents and Young Adults: A Prospective Study, *J Clin Child Adolesc Psychol*. 2009

Tara MC (2013): Tara M. Chaplin, Amelia Aldao; Gender Differences in Emotion Expression in Children: A Meta-Analytic Review; Psychological Bulletin © 2012 American Psychological Association; 2013, Vol. 139, No. 4, 735–765 0033-2909/13/$12.00 DOI: 10.1037/a0030737

Victoria dB (2004): Victoria del Barrio, Anton Aluja and Charles Spielberger; Anger assessment with the STAXI-CA: psychometric properties of a new instrument for children and adolescents; Personality and Individual Differences 37 (2004) 227–244

Zimmer GMJ (2015) : Zimmer-Gembeck MJ, Skinner EA, 'Adolescent vulnerability and the distress of rejection: Associations of adjustment problems and gender with control, emotions, and coping' *J Adolesc*. 2015 Dec; 45:149-59. Epub 2015 Oct 3.