A study on trait anger and the bivariate relationships with blood pressure among primary level children in LucknowUttar Pradesh.

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Abstract:

The propensities to become angry and express anger have been identified as important factors in physical and psychological health in children and adults. (Broman & Jackson-1988 & Kherr & Schineider-2008) . Childhood HTN (hypertension) as a result of interaction of, anger, behavioral disorder, psychiatric disorder, addiction problem and depression has become a widely investigated topic within the last decade due to its increasing prevalence and associated health risk. According to AHA, raised blood pressure is estimated to cause 7.5 million deaths, about 12.5% of the total of all annual deaths. Worldwide studies concluded that anger is a leading cause of childhood HTN. Hypertension exerts a substantial public health burden of cardio-vascular health status and health care systems in India. (Source; A Text Book of Preventive and Social medicine by K Park. 23[rd]Edi; page no –372-378).

Objectives: 1.To investigates the association between Gender/Type of School & Hypertension.

2 To study the correlations among the Level of Anger (independent variables) and Dependent Variable: Systolic B.P. & Diastolic B.P.

Method a total of 616children (students between the age group of 8-11 years) and parent's response's completed the scale from two different types of school (Government and Private School). The entire survey population for the study was of **1232** respondents**. Result** Provided initial support for Analysis & Interpretation and Scale Development for the Child anger Related Disorders. Measurement invariance was established across groups using a series of tested tests. Chi Square test were used establishing significance between two Schools (Government & Private). Correlations between children responses and parent's response scale and gender wise difference, support the convergent validity of the scale. (AESS-which included the four subscale components namely Trait Anger, Anger expression, Anger in and Anger control= over all sample n=616 students +616 parents=1232) mean value (17) with Trait anger contribution to hypertension = **Hypertensive** All the score equal to or above 17

Trait anger=17.89& SD=5.20 AE=9.95& SD=3.04, AIN=8.61 &SD= 2.90, AOUT=15.51 & SD= 4.51.Contribution of anger to hypertension was found to be 10 -14 (low) 15 to 21(moderate)High22-40 (high) Hypertension= Mean=17 Midpoint=16.5.

Conclusions Analyses supported the construct validity to check the positive and significant relationship between the dependant and independent variables. Hence it is justified to study the important dimensions as it can facilitate the identification of children who needs genuine help to learn effective methods to overcome Anger.

KEY WORDS: Anger, Hypertension, Blood pressure, Anger expression, Interpretation, Dimensions. Systolic and Diastolic blood pressure.(AESS) Anger expression sub scale

INTRODUCTION:

Anger **contribution** toHypertension is a known risk factor for many diseases and conditions that affect the body, especially diseases related to the cardiovascular system **(AHA, 2013; Rosebdorf et al., 2008),** stroke, and renal failure, limbs, and eyes. High blood pressure may also damage the circulatory system causing the arteries to be susceptible to damage. The pressure of the heart does not stay at the same level at all times. It varies based on activities at a particular point in time.Hypertension occurs as a result to long duration of abnormal pressure of the main arteries.**(Cutting & Dunn 1999). (Source: WHO-Hypertension fact sheet, what is high blood pressure or hypertension? Department of Sustainable Development and Healthy Environments, September 2011)**Worldwide studies concluded that anger is a leading cause of childhood HTN. Hypertension exerts a substantial public health burden of cardio- vascular health status and health care systems in India. (Source; a text book of preventive and social medicine by K Park. 23rd edi; page no –372-378).**Hasan M et al, (2018),** Hypertension prevalence has shown growing trend with the increase of age. This prevalence was also higher among rich and overweight/obese individuals.**Bruno CM et al., (2018,)** lifestyle habits may influence blood pressure value.**(Source: WHO-Hypertension fact sheet, what is high blood pressure or hypertension? Department of Sustainable Development and Healthy Environments, September 2011)**. Blood pressure is written as two numbers. The first (systolic) number represents the pressure in blood vessels when the heart beats. The second (diastolic) number represents the pressure in the vessels when the heart rests between beats.

Prevalence: Globally, the reported prevalence rates of anger related disorders among children and adolescent range from 3% to 51%.. **Indian context**: According to various studies conducted by **Institute for Health Metrics and Evaluation, (2013**) India contributes 21% of children population in the world. One out of six children is found to be affected with anger related disorders According to HealthyChildren.org, it was found that anger related disorders have both Short-Term and Long-Term effects on an individual's personal and professional life.Adults may eventually lose their jobs. Marriages can fall apart due to prolonged strained relationships, while children may have to switch schools and then eventually run out of options.According to(HealthyChildren.Org ,U.S) .The most serious actions a person with anextreme anger may engage in include starting fights, abusing animals and threatening to use a weapon on others. Today, experts agree that excessive anger related depression can occur at any age. Studies show that two out of every 100 children may have major depression, and as many as eight of every 100 adolescents may be affected (National Institutes of Health, 1999). Research carried out in the above topic in western countries is negligible. The **aim** of study was to find out the, Anger Leveland its contribution towards early onset of childhood hypertension, among the children of Government and Private, Schools in Lucknow Uttar Pradesh. India. Unfortunately a number of challenges exist for parents, teachers and public health professionals when understanding and caring for children, who exhibit symptoms of extreme anger related hypertensive disorders.It is important to identify the anger level in this vulnerable group of individuals, so

as to develop specific and effective preventable techniques and strategies.

Materials & methods: The data for the present analysis were collected   from two different types of Primary schools, namely Government and private schools from Trans Gomti and Sas Gomti areas of Lucknow UP. A study was conducted with a sample size of **1232** respondents (616 children and 616 parents), to clarify the overall structure of the final questionnaires. The respondents were children of primary government and private schools and their parents of Lucknow, U.P.

Design: Questionnaire Design: Close-ended dichotomous and multiple-choice structured questionnaires were used for the benefit of data analysis, questionnaires items were developed from related research and appropriately adapted. The questionnaire was developed in Hindi and English both and then reviewed by experts. During the survey researcher used questionnaire and schedule survey methods. Non response is very low because this is filled by enumerators who are able to get answers to all questions. As a result, the information collected through schedule is relatively more accurate than that obtained through questionnaires. Researcher translated the questionnaire into Hindi as the most preferred language for the respondent s/children of government and private primary schools to communicate, in Hindi. Researcher validated the questionnaire in Hindi with the help of language experts.

Instruments :BLOOD PRESSURE:A conventional mercury sphygmomanometer   with 0 (zero) to 300 Mm Hg was used to obtain blood pressure with pediatric cuff, with other anthropometric measurements like height and weight.

Validity: A rating scale was finalized for the proposed research. It is a four Point Scale having four category of responses viz.: **Not at All (1) or A little (2) or somewhat (3) or Very (4)**

Data collection: For the data collection of children of primary schools and their parents, 1600 questionnaires were used, but the numbers of usable questionnaires, received after questionnaire and schedule methods, were1232, which is an effective response rate of **77.0%.**

Table –4.1 Sample size details of the respondents.

Children Sample size details/school/gender wise/age group wise.	
Type of School	
Government	187
Private	429
Total	616
Gender	
Boys	330
Girls	286
Total	616
Age Group wise Distribution	
8 years Old	176
9 years Old	118
10 years Old	208
11 years Old	114
Parents Sample size details	
Male	499
Female	117
Total	616

The unit of analysis was a child (students between the age group of 8-11 years) and a parent, which were **selected as observation units**. The entire survey population for the study was of **1232** respondents; they were sampled and surveyed.

Inclusion criteria: All the willing children with parents and teachers consent.

Exclusion criteria: Uncooperative children and parents and students who remains absent.

Analysis & Interpretation.

Scale Development for the Child Anger Related hypertensive disorders:

The Child Anger Related hypertensive Disorders scale has 10 items based on scaling technique. They are represented on 3 point scale. The 10 items were prepared after the pilot study conducted on students and after the critical evaluation of the items before the finalization of the pilot study questionnaire. Following 10 items were included in the questionnaire-

1. I getangry being around kids who are rude.
2. I get angry being teased or bullied by other kids.
3. I get angry if I am pressured to do something.
4. I get angry when other kids are fighting.
5. I get angry being left out or rejected.
6. I get angry when I ask someone out and I am turned down.
7. I get angry and worried during class test or examination.
8. I am extremely angry if I am scolded.
9. When I am trying to sleep, I can't stop thinking about the day's events that makes me angry..
10. I try not to think about problems and to forget all about it.

Administration & Scoring

The final questionnaires were distributed amongst the students of government and private schools in Lucknow city. The final version consists of items where a respondent has to make his/her agreement with each item on 4 point scale. All the 10 items were given score from **0 to 2**. There were 4 choices namely '**Not at All (1), a little (2), somewhat (3) & Very (4)'.**= over all sample n=616 students +616 parents=1232Trait anger= 17.89& SD=5.20 AE=9.95& SD=3.04, AIN=8.61 &SD= 2.90, AOUT=15.51 & SD= 4.51. Contribution of anger to hypertension was found to be 10 -14 (low) 15 to 21(moderate) High22-40 (high) Hypertension = Mean= 17 Midpoint=16.5.

Frequency Analysis: Psychographic Profile: Hypertension & traitangerof **the Children**

Table-4.1.2 distribution of table reflecting the status of family history of hypertension & anger

Family history of hypertension& Anger		
	Frequency	Percent
Yes	353	57.3
No	263	42.7
Total	616	100.0

Frequency Analysis: Psychographic Profile: Hypertension &trait angerof the **Children: Parents' Perspective**
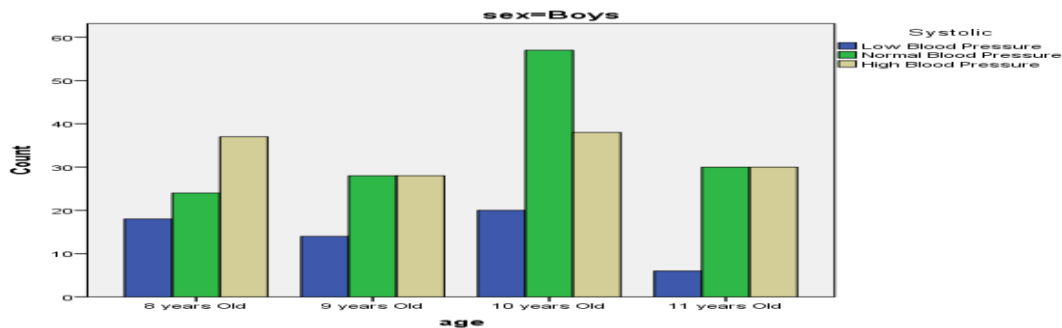
Table-4.1.3 distribution table of family history of Hypertension& anger(parent's perspective)

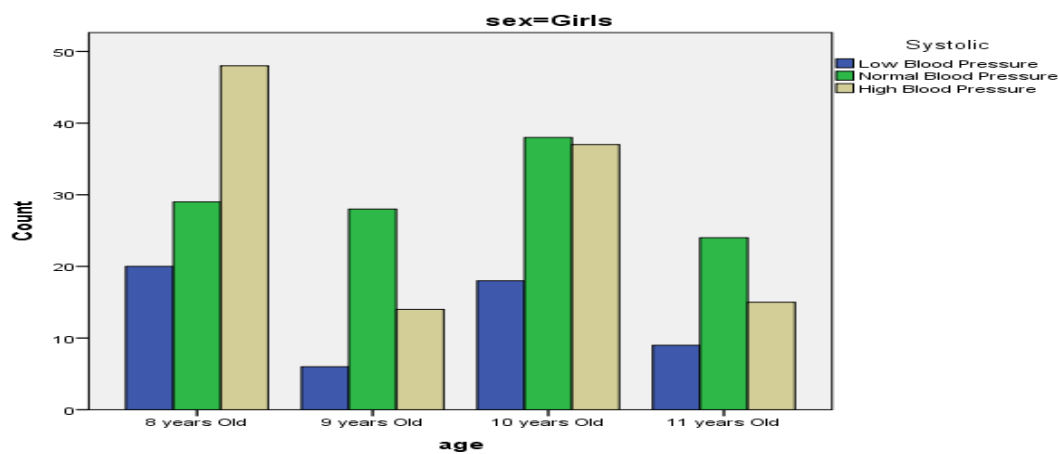| Family history of Hypertension& Anger		
	Frequency	Percent
Yes	349	56.7
No	224	36.4
Can't say	43	7.0
Total	616	100.0

Table 4.1.4 Distribution table of **association** between **Type of school and variable- anger.**

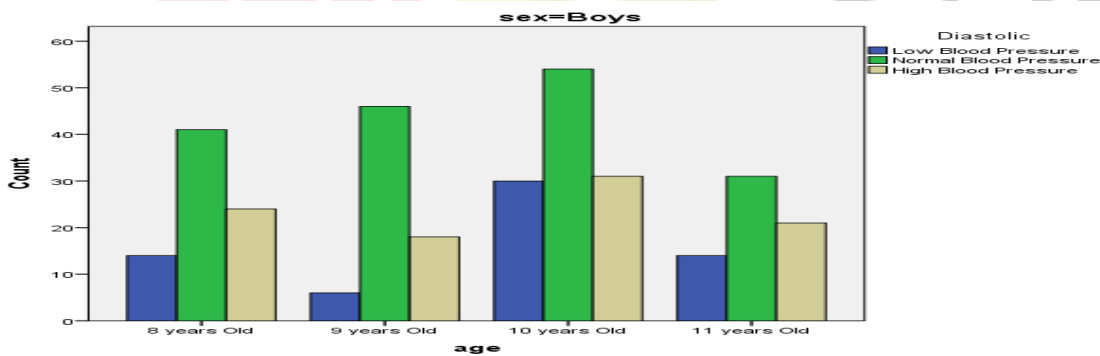| Crosstab			Irrational anger				
			Not at all	A little	Somewhat	Very	Total
Type of school	Government School	Count	30	112	43	2	187
		% within	16.0%	59.9%	23.0%	1.1%	100.0%
		% of Total	4.9%	18.2%	7.0%	0.3%	30.4%
	Private School	Count	143	225	61	0	429
		% within	33.3%	52.4%	14.2%	0.0%	100.0%
		% of Total	23.2%	36.5%	9.9%	0.0%	69.6%
Total		Count	173	337	104	2	616
		% within	28.1%	54.7%	16.9%	0.3%	100.0%
		% of Total	28.1%	54.7%	16.9%	0.3%	100.0%

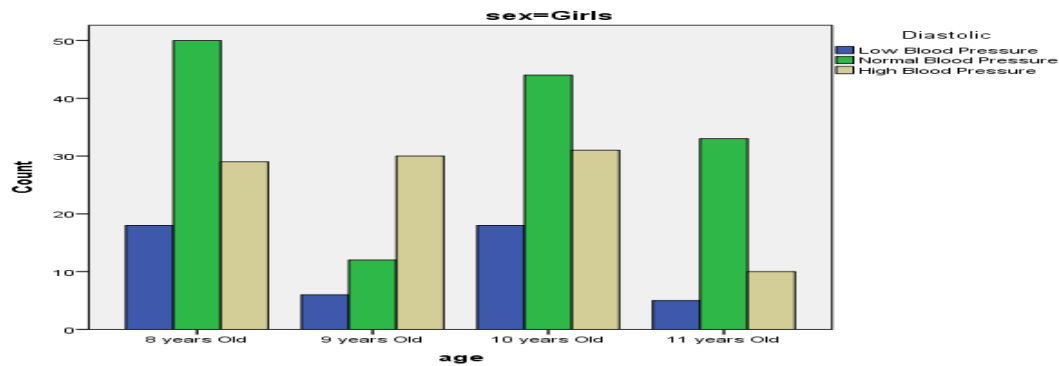**Bar Chart 1- Association between Gender/ Age/ Type of School & Hypertension Level.**

Age wise systolic level for boys

Age wise systolic level for girls.

Age wise diastolic level for boys

Age wise diastolic level for girls

Table 4.1.5.Chi-Square Tests

<table>
<tr><th colspan="5" align="center">Chi-Square Tests</th></tr>
<tr><td>Type of school</td><td></td><td>Value</td><td>Df</td><td>Asymptotic Significance (2-sided)</td></tr>
<tr><td rowspan="4">Government School</td><td>Pearson Chi-Square</td><td>7.035</td><td>6</td><td>.318</td></tr>
<tr><td>Likelihood Ratio</td><td>7.174</td><td>6</td><td>.305</td></tr>
<tr><td>Linear-by-Linear Association</td><td>.458</td><td>1</td><td>.499</td></tr>
<tr><td>N of Valid Cases</td><td>187</td><td></td><td></td></tr>
<tr><td rowspan="4">Private School</td><td>Pearson Chi-Square</td><td>16.409</td><td>6</td><td>.012</td></tr>
<tr><td>Likelihood Ratio</td><td>17.381</td><td>6</td><td>.008</td></tr>
<tr><td>Linear-by-Linear Association</td><td>.001</td><td>1</td><td>.982</td></tr>
<tr><td>N of Valid Cases</td><td>429</td><td></td><td></td></tr>
<tr><td rowspan="4">Total</td><td>Pearson Chi-Square</td><td>15.457</td><td>6</td><td>.017</td></tr>
<tr><td>Likelihood Ratio</td><td>15.957</td><td>6</td><td>.014</td></tr>
<tr><td>Linear-by-Linear Association</td><td>.141</td><td>1</td><td>.708</td></tr>
<tr><td>N of Valid Cases</td><td>616</td><td></td><td></td></tr>
</table>

Table- 4.1.6 Chi- Square distribution table

Chi-Square Tests (Genderwise)				
Sex		Value	df	Asymptotic Significance (2-sided)
Boys	Pearson Chi-Square	11.283	6	.080
	Likelihood Ratio	11.989	6	.062
	Linear-by-Linear Association	.395	1	.530
	N of Valid Cases	330		
Girls	Pearson Chi-Square	12.979	6	.043
	Likelihood Ratio	13.086	6	.042
	Linear-by-Linear Association	1.451	1	.228
	N of Valid Cases	286		
Total	Pearson Chi-Square	15.457	6	.017
	Likelihood Ratio	15.957	6	.014
	Linear-by-Linear Association	.141	1	.708
	N of Valid Cases	616		

Correlations between Level of trait anger and Dependent Variable: Systolic B.P / Diastolic B.P.

Table 4.1.7. Correlations between variables

Correlations		Systolic	Diastolic	Total Score Anger	Total Score Anger expression
Systolic	Pearson Correlation	1	.556	-.032	.096
	Sig. (2-tailed)		.000	.423	.018
	N	616	616	616	616
Diastolic	Pearson Correlation	.556	1	-.054	.009
	Sig. (2-tailed)	.000		.181	.817
	N	616	616	616	616
Total Score Trait anger	Pearson Correlation	-.032	-.054	1	.422
	Sig. (2-tailed)	.423	.181		.000
	N	616	616	616	616
Total Score Hypertension	Pearson Correlation	.096	.009	.422	1
	Sig. (2-tailed)	.018	.817	.000	
	N	616	616	616	616

Results: Provided initial support forAnalysis & Interpretation and Scale Development for the Child Anger Related hypertension Disorders.Measurement invariance was established across groups using a series of tested tests. Chi Square test were used establishing significance between two Schools (Government & Private). Correlations between Children response scale and gender wise difference support the convergent validity of the scale. (**Mean Value-16.50 Mid-Point: 17**From the various tests it was found that there were total 616 respondents out of which, 56.7% respondents had a Family history of hypertension and 36.4% respondents have no Family history of hypertension.It can be said that out of total 616 respondents, 187 respondents were in Government School and 429 respondents were in Private School.

Out of total 187 respondents in Government School, 16.0% respondents said 'not at all', 59.9% respondents said 'a little', 23.0% respondents said 'somewhat' and 1.1% respondents said 'very much' for the symptoms of Irrational anger.

- ❖ **Out of total 429 respondents in Private School**, 33.3% respondents said 'not at all', 52.4% respondents said 'a little', 14.2% respondents said 'somewhat' and 0.0% respondents said 'very much' for the symptoms of Irrational anger.It was found that there is no association between Type of school and variable- anger. it can be said that out of total 616 respondents, 187 respondents were in Government School and 429 respondents were in Private School. There is no association between Gender (dependent variable) and (Independent variable)

- ❖ Various tests proved that there is no association between Type of school /Age (dependent variable) and (Independent variable) Systolic. There is no association between **Type of school/Age/(dependent variable) and (Independent variable) Diastolic.**

It was found that asymptotic significance for Pearson Chi Square comes out to be more than 0.05, so we **accept null hypothesis** at 5% level of significance. Hence it can be concluded that **two variables are not associated. Government School:**It was found that asymptotic significance for Pearson Chi Square comes out to be more than 0.05, so we **accept null hypothesis** at 5% level of significance. Hence it can be concluded that **two variables are not associated.**

Private School: It was found that asymptotic significance for Pearson Chi Square comes out to be less than 0.05, so we **reject null hypothesis** at 5% level of significance. Hence it can be concluded that **two variables are associated. Chi Square test reportedGovernment School:** From the table it was found that asymptotic significance for Pearson Chi Square comes out to be more than 0.05, so we **accept null hypothesis** at 5% level of significance. Hence it can be concluded that **two variables are not associated.**

Private School: From the table it was found that asymptotic significance for Pearson Chi Square comes out to be less than 0.05, so we **reject null hypothesis** at 5% level of significance. Hence it can be concluded that **two variables are associated. While chi Square distribution for gender wise proved out to beBoys:** From the table it was found that asymptotic significance for Pearson Chi Square comes out to be more than 0.05, so we **accept null hypothesis** at 5% level of significance. Hence it can be concluded that **two variables are not associated.**

Girls: From the table it was found that asymptotic significance for Pearson Chi Square comes out to be less than 0.05, so we **reject null hypothesis** at 5% level of significance. Hence it can be concluded that **two variables are associated.So it can be concluded that there is greater association between anger and hypertension.**

Anger Level for onset of hypertension: (Hypertensive)all the score equal to or above 17.

Conclusion: Hence, it can be concluded that, only **Anger Level has positive and significant** impact on **Systolic blood pressure.**

Discussion: The purpose of this study is to determine the relationships between,traitanger and hypertension.And its impact, in a group of primary School children aged between 8 -11 years in selected schools at Lucknow U.P. However no specific studies were ever carried out for primary school children at Lucknow .Anger related health problems goes undetected in children when (**Haveman2004**) compared with the adult population. The presence of anger contribution has been associated with high risk of developing Hypertension and behaviors such as smoking, drinking and low levels of physical activity. Anger can lead to hypertension related depression and over eating resulting in child hood obesity and high risk of developing significant health problems like diabetes and asthma. Causes are multi factorial. Prevalence of trait anger is high in primary school going children. Health care services have predominantly focused on the primary on set of hypertension among adulthood or adolescents, rather than on prevention or reduction of early onset on trait anger among primary school going children. This study is an attempt to provide key insights into the barriers to early diagnosis and management of anger & hypertension related diseases in a vulnerable population.

Study limitation: The author's research was undertaken with in one limited area, of Lucknow and not many areas covered. Therefore it will be wise to cover a larger group in the state of Uttar Pradesh.

- **Conclusion:**Hence, it can be concluded that, only **Anger Level has positive and significant** impact on **Systolic blood pressure**during childhood and adolescence. Environmental events through disruption in the social fabric of a child's life may trigger biological dysfunction. Antecedents of childhood hypertension can be targeted both to prevent depression in this population.Growing up process is an inescapable period of each student's life. A number of variables, such as age, years spent in school, and recent grade deterioration, poor social adjustment were found significantly associated with the increased scores in various subsets of anger and hypertension and thus these should be addressed.. In the above study, the author found that the prevalence of trait anger was more in students who feel overburdened with academic schedules or the participants who were not self-satisfied with their academic performance and whose parents were not satisfied. In the above study, level of irrational anger leading to severe hypertension was prevalent in participants who belong to poor families. Poverty has multidimensional phenomenon, encompassing inability to satisfy basic needs, lack of control over resources, lack of education and poor health. Since trait angers was very high,provision should be made for a natural mentoring program for the children as well as adolescents. Psychological health should be the prime concern of school authorities, and it should be integrated with school health programs. Child-centre activities including individual mental health consultation and specific problem-focused interventions as well as more general classroom programs to improve coping skills, social support, and self-esteem. For relieving anger, yogic exercises, meditation, laughter therapy, and other recreational activities suitable for that group of students should be made part of school curriculum. Child psychologists should be recruited on permanent basis in both government and private schools. There should be counseling sessions for students and their parents.Research efforts are expected to lead to more effective use of existing treatments, so children and their families can live happier, healthier, and more fulfilling lives.

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