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Risk Factors of Youth Violence in Bangladesh: A Statistical Investigation

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ABSTRACT : Youth violence is a serious public health problem which has received significant attention in recent years. No society or community, whether affluent or poor, urban or rural, is secure from its destructive effects. It has become a high-visibility, high-priority concern in our country, Bangladesh. The main objective of this study is to find out the risk factors of youth violence in Bangladesh. Furthermore, the determinants of weapon using during violence are also sought in this study. Binary logistic regression model is used for both the occasions. The study finds economic and education status as significantly influencing occurrence of youth violence. Age, division, and crime place are the significant risk factors for using weapon according to the findings of the study. Moreover, family type and effect of western culture have significant association with weapon using, while effects of drug and reasons of youth violence are also associated according to Chi-square test of significance. The study finds evidence that global networking and western culture have influence on youth violence. Though this is an era of globalization, we must become aware of the misuse of it of our youths. It is found from the result that the youths from lower middle and middle class family are more involved in youth violence. It is not suggested to upgrade their social status to lessen youth violence, they should be enhanced with more moral and social education, and that responsibility should be taken mainly by their families. The political leaders can play have a great role in reducing youth violence as youth have a significant tendency to use weapon in violence at political programs. After all, considering all the hazards to the country arriving from youth violence, Government should come forward with necessary steps to control this violence in a great extent.

Keywords: Youth violence, Risk factors, Bivariate Analysis, Binary logistic regression model, Chi-square test.

1. INTRODUCTION

The health and well-being of a country is negatively affected by any form of violence. Youth violence refers to when young people of age 10 to 24 years intentionally use physical force or power to threaten or harm others (David-Ferdon & Simon, 2014). Youth violence, especially, is an important public health problem. Also, the youth who become victims of violence have a higher risk for poor physical and mental health problems including smoking, high-risk sexual behavior, depression, academic problems, and even suicide (Arseneault et al., 2006; Finkelhor, Turner, & Ormrod, 2006; Menard, 2002; Swahn & Bossarte, 2006).

Though it is a problem throughout history, it has become more frequent and more severe over the past decade (Sickmund, Snyder, & Poe-Yamagata, 1997). The damages that result from youth violence extend beyond the young offenders and victims (Salgado-Pottier, 2008). It increases health care costs along with decreasing property values and disrupting social services (Botvin, Griffin, & Nichols, 2006). Generally, youth violence entangles youth perpetrating violence against other young people (Kellermann, Fuqua-Whitley,

Rivara, & Mercy, 1998). A young person may be involved with this violence as a witness, a victim, or an offender (General, 2001). Youth violence can have various forms, like bullying, fighting, threats with weapons, and gang-related violence (Das et al., 2014). The occurrence of these different forms of youth violence depends on where and how often they occur.

In Bangladesh, the incidence of youth violence is increasing day by day. The hazards originated from youth violence in last few years is a matter of serious concern in our country although there hardly have potential researches on this topic. All the factors that contribute to create youth violence is not certainly known. This study works with two possible factors of youth violence and analyses the data regarding occurrence of this violence through binary logistic regression model. Weapon using during violence is another important issue since it increases the hazards significantly. This aspect is also modeled in this study and obtained results are interpreted statistically. Chi-square test of significance is also used to see some important associations among variables chosen in this study to meet some objectives. Recommendations based on the study findings are incorporated at the end.

2. METHODS AND MATERIALS

This study uses primary data on youth violence in Bangladesh. Direct interview method is used to collect the data. The study is completed without any financial support from any external source. The respondents are conveniently chosen by the researcher from known circles residing in different divisions of Bangladesh. The data collection is done by convenience sampling procedure which covers a total of 287 respondents.

Frequency and percentage distribution of some selected covariates are presented in this study as a means of univariate analysis. Bivariate analysis, the analysis of the association between two variables, is performed through Chi-square test. The formula for Chi-square test is

$$\chi^2{}_c = \sum \frac{(O_i - E_i)^2}{E_i},$$

where c be the degrees of freedom, O be the observed value, and E be the expected value (Chen & Chen, 2011).

This study uses regression analysis which is a statistical technique to analyze the relationship between a dependent variable and a set of covariates (Brown, 2009). This analysis emphasizes which factors matter most, which factors can be ignored, and how these factors influence each other (Draper & Smith, 1998). There are different forms of regression techniques for making predictions (Fahrmeir, Kneib, Lang, & Marx, 2013). These techniques are mostly determined by three important facts (number of independent variables, type of dependent variables, and shape of regression line) (Fox, 1997). If the response vector $\boldsymbol{Y}$ be of binary type i.e. referring to whether an event has occurred or not, binary logistic regression is used for modeling purpose, which has the form (Bender & Grouven, 1998):

$$\pi(\boldsymbol{x}) = \frac{e^{\boldsymbol{x}'\boldsymbol{\beta}}}{1 + e^{\boldsymbol{x}'\boldsymbol{\beta}}}$$

where $\pi(\boldsymbol{x})$ represents the conditional mean of $\boldsymbol{Y}$ given $\boldsymbol{x}$ i.e., $E(\boldsymbol{Y}|\,\boldsymbol{x})$. The unknown parameters $(\boldsymbol{\beta})$ are estimated by the method of maximum likelihood estimation (McDonald, 1993). This study considers this binary logistic regression model for analysis purpose as each response variable (whether participated in youth violence, whether weapon used) has two categories.

3. RESULTS AND DISCUSSIONS

Univariate Analysis

Table 1 is depicting the descriptive statistics of some important variables related to youth violence in Bangladesh that are obtained from the sample data. For the variable impact of global network, the respondents were asked whether there exists any impact of association of global network on increasing youth

violence. From total of 287 respondents, 195 voted for association of global network is increasing youth violence, which covers 67.9% of the total response. Youth violence occurs in many different forms. This study surveyed what type of violence occurs frequently in Bangladesh. From the table, it is clear that destructing private property is the most common (38%) forms of violence in Bangladesh. The share of fight (19.9%) and abusing woman (12.9%) can also be mentionable. According to the respondents, poverty (27.9%) is the main catalyst of youth violence in Bangladesh. Unemployment problem is another major catalyst as 23% people voted for this.

Table 1: Descriptive statistics of some important covariates related to youth violence in Bangladesh

Covariates	Frequency (*n*)	Percentage (*%*)
Impact of global network		
Yes	195	67.9
No	61	21.3
Don't know	31	10.8
Different forms of violence		
Theft	18	6.3
Disorderly conduct	19	6.6
Destructing private property	109	38.0
Abusing woman	37	12.9
Gun related violence	4	1.4
Threat with weapon	20	7.0
Murder	6	2.1
Bulling	11	3.8
Fight	57	19.9
Others	6	2.1
Reasons for youth violence		
Unemployment	64	22.3
Education system	45	15.7
Poverty	80	27.9
Family problem	54	18.8
Loving affair	25	8.7
Others	19	6.6

Bivariate Analysis

Table 2 and Table 3 are representing the results obtained from bivariate analysis through chi-square test. For the first variable place of residence, the tested hypothesis is

H_0: There is no association between place of residence and weapon used during youth violence.

H_1: There is association between place of residence and weapon used during youth violence.

The obtained results from both Pearson chi-square test and likelihood ratio test support that there is no significant association at 5% significance level between place of residence and weapon used as the obtained p-values for both the tests are bigger than 0.005. Similar hypotheses have been made for rest of the variables. It is found from the analysis that the variables family type and effect of western culture have significant association with whether weapon used during youth violence, as the respective p-values are less than 0.005.

Table 2: Cross classification of selected covariates and whether weapon used during youth violence

		Weapon used		Total
		Yes	No	
Place of residence	Rural	37	76	113
	Urban	67	107	174
Total		104	183	287
Family type	landless	15	4	19
	lower	5	7	12
	lower middle	19	28	47
	middle	49	102	151
	higher middle	21	37	58
Total		109	178	287
Effect of western culture	yes	59	144	203
	no	40	44	84
Total		99	188	287

Table 3: Chi-square tests of selected covariates for whether weapon used during youth violence with necessary coefficients, degrees of freedom (DF), and p-value

Covaraites	Coefficient	DF	p-value
Place of residence			
Pearson Chi-Square	0.985	1	0.321
Likelihood Ratio	0.990	1	0.320
Family type			
Pearson Chi-Square	10.625	4	0.031
Likelihood Ratio	10.236	4	0.037
Effect of western culture			
Pearson Chi-Square	15.444	1	<.001
Likelihood Ratio	15.112	1	<.001

Table 4 and Table 5 show the results regarding whether there is any association between responsible reasons of youth violence and effect of drug. The tested hypothesis is

H_0: There is no association between responsible reasons of youth violence and effect of drug.

H_1: There is association between responsible reasons of youth violence and effect of drug.

Table 4: Cross classification of responsible reasons of youth violence and effect of drug

		Effect of drug						Total
		Depression	Mentally disorder	Suicide	Murder	Aggressive behavior	Conflict ion	
Responsible reasons of youth violence	Unemployment	11	15	9	12	13	4	64
	Education system	2	16	2	6	10	9	45
	Poverty	9	11	22	17	18	3	80
	Family problem	6	12	4	6	23	3	54
	Loving affair	2	3	5	2	12	1	25
	Others	1	7	0	7	4	0	19
Total		31	64	42	50	80	20	287

Table 5: Chi-square tests of association between responsible reasons of youth violence and effect of drug with necessary coefficient, degrees of freedom (DF), and p-value

Covaraite	Coefficient	DF	p-value
Responsible reasons of youth violence			
Pearson Chi-Square	64.086	25	<.001
Likelihood Ratio	63.091	25	<.001

From the Chi-square table (Table 5), it is seen that the obtained p-values are less than 0.001. So, it can be concluded that there exists highly significant association at 1% level of significance between responsible reasons of youth violence and effect of drug.

Multivariate Analysis

Table 6 shows the binary logistic regression model estimates for the factors responsible for occurring youth violence. The model considered two predictors: economic status and education status; and found both of them statistically significant at 10% significance level. From the variable economic status, it is found that the odds of taking part in youth violence is significantly (1.483-1)*100% = 48.3% as likely in the youth group from lower middle class family compared to those from lower class family having p-value 0.065. The categories primary and secondary become significant for the variable education status with respective p-values 0.076 and 0.092. The result indicates that the youth group having primary and secondary education are respectively 49.4% and 13.2% as likely to take part in youth violence as those who have no education.

Table 6: Binary logistic regression model estimates of the selected covariates for youth violence along with standard error (SE), odds ratio (OR), and p-value

Covariates	Coefficient	SE	OR	p-value
Economic status				
Lower middle	0.394	0.867	1.483	0.065
Middle	0.269	0.599	1.309	0.654
Higher middle	0.776	0.534	2.173	0.146
Landless	-0.169	0.549	0.844	0.758
Lower	-	-	-	-
Education status				
Primary	0.402	1.359	1.494	0.076
Secondary	0.124	1.335	1.132	0.092
Higher secondary	0.385	1.289	1.470	0.765
Graduate	1.057	1.271	2.878	0.405
Higher	1.085	1.268	2.960	0.392
No education	-	-	-	-
Constant	-1.140	1.349	0.320	0.398

Whether weapon used during violence is modeled through binary logistic regression model and the obtained results are presented in Table 7. Age, division, and crime place are considered as the predictors in the model and all of them are found statistically significant. From the result, it is observed that the youths of the age categories 13-15 and 16-18 have significantly different weapon using history than those of from category 10-12. The odds of using weapon during violence is respectively 5.686 and 8.953 times higher in the two mentioned age groups than the reference category 10-12 with respective p-values 0.014 and 0.001. A significant difference, at 5% significant level, is observed in weapon using during violence between Sylhet and Rajshahi division. The youths from Sylhet division are 69.8% less likely to use weapon during violence than the youths from Rajshahi division carrying p-value 0.045. The Categories Street and political function become significant for the variable crime place. If the violence is occurred at street and political functions, the odds of using weapon is respectively 82% and 59.7% higher comparing when violence occurs at home with respective p-values 0.040 and 0.089.

Table 7: Binary logistic regression model estimates of the selected covariates for weapon using during violence along with standard error (SE), odds ratio (OR), and p-value.

Covariates	Coefficient	SE	OR	p-value
Age				
13-15	1.738	0.704	5.686	0.014
16-18	2.192	0.660	8.953	0.001
19-21	1.563	0.665	4.771	0.219
22-24	1.194	0.746	3.300	0.109
10-12	-	-	-	-
Division				
Chittagong	1.773	1.147	5.890	0.122
Mymensingh	-0.689	0.513	0.502	0.179
Dhaka	0.130	0.590	1.139	0.825
Rangpur	0.852	0.545	2.344	0.118
Barishal	0.740	0.640	2.095	0.248
Sylhet	-1.198	0.625	0.302	0.045
Khulna	-0.566	0.617	0.568	0.359
Rajshahi	-	-	-	-
Crime place				
School	0.077	0.579	1.080	0.895
Community	0.938	0.668	2.555	0.160
Street	0.599	0.490	1.820	0.040
Political function	0.468	0.452	1.597	0.089
Others	0.880	0.537	2.411	0.101
Home	-	-	-	-
Constant	-1.607	0.849	0.200	0.058

4. Conclusion

According to the primary dataset collected in this study, most of the respondents support that global network has impact on youth violence in Bangladesh. This result is also evident in previous study on youth violence (Gidley, 2001). Destructing private property and fight are the major types of youth violence, obtained from the sample data (Francois III & Commentator). Most of the respondents think that poverty and unemployment are the main basis of youth violence in Bangladesh which is similar to the findings of previous study (Dahlberg, 1998). From the bivariate analysis part, the study finds no significant association between place of residence and weapon using during violence. Family type and effect of western culture are significantly associated with weapon using. Also, responsible reasons of youth violence and effect of drug are found to be associated. This study considers binary logistic regression model to find out risk factors of youth violence in Bangladesh and model the weapon used during this violence. The first variable in Table 6 shows that youth violence is significantly associated with the economic status of the families where the youths belong to. This result is similar to a previous study on youth violence (Magojo & Collings, 2003). The youths from lower middle class family are significantly related to violent activities. Education status of the youths has a significant influence on taking part in violence which is also found in a similar previous study (Egbue, 2006). The youths who have only primary and secondary education are more prone to violent activities. From Table 7, it is evident that the teen agers (13-18) are mostly using weapons during violence (Barlas & Egan, 2006; Shaeffer et al., 2007). The youths from Sylhet division have less tendency to use weapon. Whether weapon is used or not by the youths during violence significantly depends on the place where the violence is occurring. According to the result, mostly weapon is used when violence takes place in the streets or political functions.

5. RECOMMENDATIONS

In recent times, youth violence has become prevalent in Bangladesh. This study aims at detecting out the potential factors of youth violence in Bangladesh. The study finds evidence that global networking and western

culture have influence on youth violence. Though this is an era of globalization, we must become aware of the misuse of it of our youths. It is found from the result that the youths from lower middle and middle class family are more involved in youth violence. It is not suggested to upgrade their social status to lessen youth violence, they should be enhanced with more moral and social education, and that responsibility should be taken mainly by their families. The youths with only primary or secondary school education are more prone to violence according to the analysis. Obviously, it should be tried to make the youth high educated, but still the youth with primary or secondary education are needed to provide valuable caring so that they can feel the negative sides of violence. Again, the youths aged 13-18 need extra care as they more frequently use weapon during violence. The political leaders can play have a great role in reducing youth violence as youth have a significant tendency to use weapon in violence at political programs. After all, considering all the hazards to the country arriving from youth violence, Government should come forward with necessary steps to control this violence in a great extent.

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