Association of Socio-Emotional Factors: Religious Affiliation, Depression to Suicidal Tendency Among Adolescent Girls

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ABSTRACT

Suicidal tendency among adolescent girls is a big challenge for the present day society. The main goal of this paper is to find associations of the various socio-emotional factors to suicidal tendencies among adolescent girls in the United States. The data were obtained from the National Longitudinal Study of Adolescent Health, to explore social behavior among adolescents. The observations from "National Longitudinal Study of Adolescent Health" represent a nationally representative sample of adolescents in grades 7 through 12 in the US. Students in each school were stratified by grade and sex. About 17 students were randomly chosen from each stratum so that a total of approximately 200 adolescents were selected from each of the 80 pairs of schools. The public access sample includes 6,504 adolescents. Models built via multiple regressions are used to find the association between depression, religious affiliation and suicidal tendency. ANOVA and Chi-Square tests are conducted to confirm the association of Religious affiliation, depression to suicidal tendency.

INTRODUCTION

Suicidal tendency among the adolescent girls is one of the biggest challenges for the present day society. The main goal of this paper is to find the association of the various socio-emotional factors to suicidal tendencies among adolescent girls in United States. The data was collected from the National Longitudinal Study of Adolescent Health, to explore social behavior among adolescents. Models built via multiple regressions are used to find the association between depression, religious affiliation and suicidal tendency. ANOVA and Chi-Square tests are conducted to confirm the association of Religious affiliation, depression to suicidal tendency.

The main research questions this paper deals with are:

1. Is specific religious affiliation a moderating influence on depression among adolescent girls ages 10-19?

2. Is depression a moderating influence on suicidal ideation among adolescent girls ages 10-19?

3. Is specific religious affiliation a moderating influence on suicidal ideation among adolescent girls ages 10-19?

During the past quarter-century, suicide among the young has emerged as a significant global public health problem. In many countries, youth suicide is one of the leading causes of death, having increased markedly from the 1960s through the early 1990s.

There has been a recent interest in religion and spirituality in psychiatric research and practice. The literature suggests that those who are religious have a lower incidence of depressive symptoms/depression and that being religious may increase the speed of recovery from depressive disorder.

In this paper we will try to see if there is any association between religion and depression to the suicidal tendency among adolescent girls. And the outcomes of the paper can be used further to get insights into the social behavior of adolescents. This will help in understanding the causes for suicide and appropriate steps that can be taken to avoid it.

DATA PROCESSING

We have used religion, feelings and suicidal tendency related variables from the data set for finding the association among them.

Religious affiliation is derived from the variable **H1RE1-**What is your religion? Based on the response to this variable respondents in the sample are divided into three categories (Christian, Non-Christian and No Religion)

```
/* Sort religious affiliation */
IF H1RE1=96
OR H1RE1 = 98
THEN H1RE1=.;
/*NON-CHRISTIAN*/
IF H1RE1 = 20 OR H1RE1 = 12 OR H1RE1 = 21 OR H1RE1 = 24 OR H1RE1 = 25 OR H1RE1 = 26 OR
H1RE1 = 27 OR H1RE1 = 28
THEN Religious_Aff = "NON-CHRISTIAN";
/*CHRISTIAN*/
IF H1RE1 = 1 OR H1RE1 = 2 OR H1RE1 = 3 OR H1RE1 = 4 OR H1RE1 = 5 OR H1RE1 = 6 OR H1RE1
= 7 OR H1RE1 = 9 OR H1RE1 = 10
OR H1RE1 = 11 OR H1RE1 = 14 OR H1RE1 = 15 OR H1RE1 = 16 OR H1RE1 = 18 OR H1RE1 = 19 OR
H1RE1 = 8 OR H1RE1 = 13 OR H1RE1 = 17 OR H1RE1 = 23 OR H1RE1 = 22
THEN Religious_Aff = "CHRISTIAN";
IF H1RE1 = 0
THEN Religious_Aff = "NO-RELIGION";
```

H1SU1-Have you thought of suicide in past 12 months? (Yes/No) is the target variable we have chosen for modeling purpose. Independent variables which will be considered for the analysis in this paper are responses for feelings (H1FS1-19) and responses for religion (H1RE1-7). We have used variable reduction method to find the representative variables and compute the depression score and religious commitment.

Table 1. Final Variables after data pre-processing:

S.No	Variable	Type	level
1	Depression Score	Continuous	NA
2	Religious Commitment	Continuous	NA
3	Religious Affiliation	Categorical	3
4	Suicide Thought	Categorical	2

DESCRPTIVE ANALYTICS

Since depression score and religious commitment are continuous variable we can look into the the descriptive statistics to see how they are varying across different categories of religion in sample statistics.
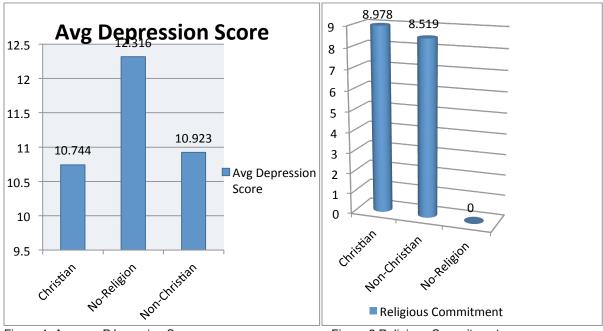

Figure 1 :Average Dépression Score

Figure 2 Religious Commitment

From the Figure 1 shows that people who are not associated with any religion has more depression score. Similarly from Figure 2 shows that people who are associated with Christian has more religious commitment. But all these holds good only for sample statistics. In the next section of this paper various modeling techniques are discussed to find the association of association of Socio-Emotional factors

MODELLING TECHNIQUES

This paper deals with application of ANOVA, linear regression and multiple logistic regression for finding the association of different Socio-Emotional factors.

MULTIPLE COMPARISONS OF ALL POSSIBLE PAIRS VIA TUKEY TEST

Depression score is continuous variable and religious affiliation is categorical variable, so multiple comparisons among all possible pairs via Tukey test is performed to find the relation between religious affiliation and depression score.
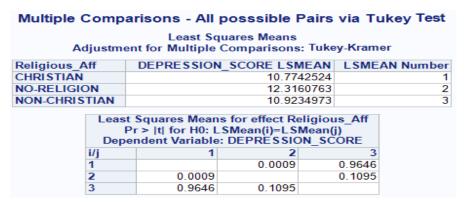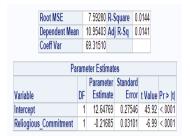

Figure 3: Tukey Test results

Multiple comparisons of all possible pairs via Tukey test suggest that group "No-Religion" is significantly different from other groups and has highest depression score.

LINEAR REGRESSION

Now, let's try to see if there is any relationship between depression score and religious commitment. Since both are continuous variables we'll be using Linear Regression to find the relationship.

Root MSE	7.59280	R-Square	0.0144
Dependent Mean	10.95403	Adj R-Sq	0.0141
Coeff Var	69.31510		

		Parameter Estimates				
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	1	12.64769	0.27546	45.92	<.0001
Reliogious_Commitment	1	-0.21685	0.03101	-6.99	<.0001

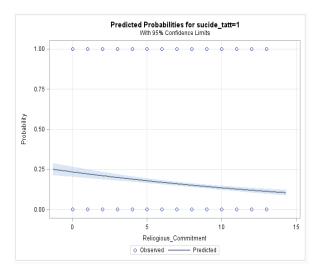Test shows there is significant relation. Since p-value is less than 0.0001 we reject the null hypothesis.

And confirm that there is a linear relationship between the variables in population

Figure 4: Linear regression results

SIMPLE LOGISTIC REGRESSION (RELIGIOUS COMMITMENT VS. SUICIDAL TENDENCY)

Let's try to see if there is any relationship between our dependent variable suicidal tendency and independent variable religious commitment.

The Figure 5: Logit plot shows as religious commitment increases probability of suicidal thought decreases. Also, analyses of maximum likelihood estimates(Figure 6) of simple logistic regression indicate that there is statistically significant relationship between religious commitment and suicidal tendency since p-value is less than 0.0001.

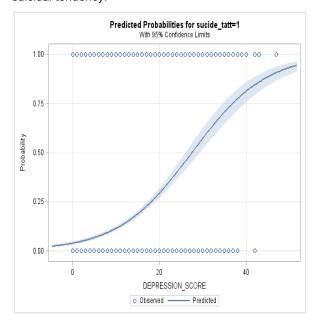|	Analysis of Maximum Likelihood Estimates				
Parameter	DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept	1	-1.1915	0.0902	174.3303	<.0001
Reliogious_Commitmen	1	-0.0676	0.0109	38.2773	<.0001

Figure 6: Maximum likelihood Estimates

Figure 5: Logit plot

SIMPLE LOGISTIC REGRESSION (DEPRESSION SCORE VS. SUICIDAL TENDENCY)

Now, we will analyze relationship between our dependent variable depression score and independent variable suicidal tendency.

Figure 7: Logit Plot

Analysis of Maximum Likelihood Estimates

Parameter	DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept	1	-3.2264	0.1077	896.8696	<.0001
DEPRESSION_SCORE	1	0.1171	0.00639	335.6951	<.0001

Figure 8: Maximum likelihood Estimates

The Figure 7: Logit Plot shows as depression score increases probability of suicidal tendency increases. Also, analyses of maximum likelihood estimates (Figure 8) indicate that there is statistically significant relationship between depression score and suicidal tendency since p-value is less than 0.0001.

MULTIPLE LOGISTIC REGRESSION

Now, let's try to see the cumulative effect of variables depression, religion, grade and affiliation. Grade is added as control variable.
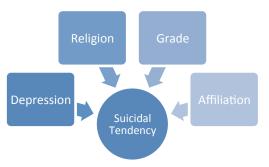

Figure 9: Cumulative effect of Socio-Economic

   factors on suicidal tendency

Analysis of Maximum Likelihood Estimates

Parameter		DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept		1	-2.3544	0.2797	70.8598	<.0001
DEPRESSION_SCORE		1	0.1150	0.00646	316.7735	<.0001
Reliogious_Commitmen		1	-0.0801	0.0168	22.7057	<.0001
Religious_Aff	NO-RELIGION	1	-0.4574	0.2065	4.9057	0.0268
Religious_Aff	NON-CHRISTIAN	1	-0.3294	0.2507	1.7270	0.1888
GRADE		1	-0.0185	0.0224	0.6778	0.4104

Figure 10: Maximum Likelihood Estimates

And from the Figure 10, we can clearly, see apart from the GRADE all the other variables are statistically significant. And religious affiliation turns out to be statistically significant variable which is associated with the target variable suicidal tendency

CONCLUSION

In this paper we have discussed various modeling techniques to find the association between Socio-Emotional factors among adolescent girls. And from the results we can infer that, adolescent girls who are not associated with any religion (No-Religion) are likely to have more suicidal tendency compared with other.

REFERENCES

[1]Simon Dein, Primary Care And Community Psychiatry, Vol. 11, No. 2, 2006, 67–72

[2]Jeffrey A. Bridge, Tina R. Goldstein, and David A. Brent, Journal of Child Psychology and Psychiatry 47:3/4 (2006), pp 372–394

[3] Add health data set is used for this project.

The reference for this is : http://sociology-data.sju.edu/ (ICPSR 21600 National Longitudinal Study of Adolescent Health (Add Health), 1994-2008)

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