Archives of Psychiatry and Psychotherapy, 2018; 3: 63–77

DOI: 10.12740/APP/85758

Suicide ideation and stresses among the working professionals in India

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Summary

There were more than 800000 suicides per year throughout the globe and it is second leading cause of death among the age group of 15-25. National Crime Record Bureau (NCRB, 2014) reported that on an average more than one tenth of a million commit suicides per annum that indicate 15 suicides per hour, pushing India to the top position in the world. Suicide had emerged as one of the leading causes of deaths in India and around the world (WHO, 2012). Suicide was mainly linked to mental disorders but recent evidence indicates that normal people take their life due to impulsiveness and easy access to means to end life (WHO, 2012). Even though it is one of leading cause of death in India it is not considered as a serious public health (WHO, 2012) issue. The first objective of the study was to find the reasons for stress among working professionals leading to suicide ideation, which can comprehend to factors leading to suicides and second objective was to establish the relation between suicide stresses and ideation. Suicidal behavior proposed similar model whereby suicidal behavior is associated with socio-cultural, developmental, psychiatric, psychological and family factors. Bonner & Rich (1987) also found similar results as the current study which indicates that Social stress, Economical, Health and Family stress have the significant and positive relationship with suicide ideation and the model predicts 83% of the variance.

suicide ideation, suicides, social stress, economical stress, health and family stress

INTRODUCTION

The World Health Organization reported in 2012 that, there are more than 800,000 suicides per year globally and suicide is a second leading cause of death among the 15-25 age group (WHO 2012)[1]. In India, the, National Crime Record Bureau reported that on an average more than 100,000 people die by suicides every year, the equivalent of a 15 suicides per hour, pushing India to the top position in the world (NCRB, 2014)[2]. Suicide has emerged as one of the leading causes of death both in India and around the world (WHO, 2012)[1]. Gupta et al.,[3] found that 75% of suicides occur in low – income and middle-income countries such as India. Suicide is a result of an imbalance between the individual's needs and means, and a suicide attempt and suicide completion differ in their intention to end one's life. WHO[1] defines suicide as an act of deliberately killing oneself. The NCRB [2] defines it as deliberate termination of life. Suicide has three major essential ingredients – death should be of un-natural causes; individuals inheritable desire to die and one should have a reason to end one's life. As our daily lives are becoming more and more stressful, it is important for the young generation who are entering

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the workforce to be more flexible and able to adapt to the changing environment. The person who is not able to cope with life events may feel high level of stress, show symptoms of withdrawal from their social setup, and in most extreme cases, may end their life by suicide.

Cutler et al [3], propose four explanations for suicide. The strategic suicide theory states that people attempt suicide just to make others realize that they are unhappy or to punish others for their own unhappiness, but do not intend to die. The researchers found that suicide rates have tripled since 1950, and that several types of stress are contributing factor: social, economic, psychological, and biological stress. However, no single factor can sufficiently explain the complex phenomenon of suicide. In the past, suicide was mainly linked to mental disorders but recent evidence indicates that healthy people take their life due to impulsiveness and easy access to the means of ending a life [1]. In India even though suicide is one of the leading causes of death, it is not considered a serious public health issue [1]. There exists a huge gap with respect to research on suicide in India, which is attributed to a lack of funds [1]. Gupta et.al. [4] found that India's research contribution towards suicide is merely 2.47% of global research where as around 170,000 suicides occur in India every year and many cases go unreported [1]. Instances of suicides have increased since 1967, from 38,829 to over 100,000 in 2014 [2] with Maharashtra the leading state., The current study investigated the stresses leading to suicide and their relationship with suicide ideation. Further, it tested the model fit by using logistic regression.

LITERATURE REVIEW

1. Suicidal theories

Suicide had been extensively researched by different schools of thought: cognitive, sociological, and psychological and in many more dimensions. The depression theory states that an unhappy person takes their life rationally; the contagion theory focused on the stresses leading to depression, which amplifies (a 'social multiplier') stress leading to suicide; and the instrumentality theory assumes that access to lethal means increases the chances of a completed suicide. Some other perspectives are explained below.

1a. Cognitive perspective

A cognitive perspective on suicide was popularized by Aaron Beck, who proposed that a link between depression and suicides is hopelessness which as a cognitive origin. The hopelessness strengthens the negative views in an individual regarding the future, the self and situation/problem. These negative thoughts are what leads an the individual to ending their life.

1b. Sociological perspective

Emile Durkheim was a pioneer of work on suicide[5].. He argued that suicides were maily caused by the social factors, apart from other psychological factors. He proposed that social integration and social regulations are the two dimensions which lead an individual towards suicide. Based on these two dimensions he classified suicides as egoistic, altruistic, anomic and fatalistic. Anomic suicide happens when an individual becomes disconnected from society and has a low sense of belonging due to less social cohesion. This type of suicide prevails during any social, political or economic upheaval. Altruistic suicide occurs when an individual is subjected to excessive regulation by the social forces, which lead them to end their life for the betterment of society. Egoistic suicide occurs when and individual is completely detached from the society, its roles, responsibilities, and relationships. Fatalistic suicide occurs when an individual is extremely oppressed and is in a state of self-denial due to the stringent social regulations, leading them to take their life. Durkheim showed that the stronger the social integration, the lesser the tendency toward suicide, and vice versa. In his study to examine suicide rates among Catholics and Protestants, he found that they were lower among Catholics than among Protestants, which he attributed to the strong social control and cohesiveness in the former. He found that men were more prone

to suicide than women, that unmarried singles, childless couples and soldiers were more susceptible to suicide than married couples, couples with children and civilians, and that suicide rate were higher during the peace time than during the war[5].

1c. Psychological perspective

Sigmund Freud and Karl Menninger supported the psychological perspective on suicide. Freud proposed that the depressed individual will not be motivated to complete suicide unless they identify a person or an object that they wanted to kill. Karl Menninger expanded the concept and explained it in three wishes: the wish to be killed which he termed as guilt; the wish to kill named as revenge: and the wish to die known as hopelessness. Shneidman [6] termed suicide "*psychache"* and described it as the "drama of the mind". He defined psychache as "psychological pain consisting of negative emotions and unmet psychological needs of an individual". The list contains 14 terms and five psychological needs: succorance and affiliation; achievement, autonomy, order and understanding; dominance, aggression and counteraction; affiliation and nurturance; affiliation, defense and shame-avoidance. If an individual is not able to meet these needs such as social needs, they will end their life. Shneidman[6] also emphasized *perturbation* (psychache and lethality), which is defined as "the willingness and ability to kill oneself" [6].

1d. Biological perspective

Many researchers have linked suicides with biological origin. Kraemer et al., [7] found that a lower level of serotonin is associated with aggression, risk-taking behavior and impulsiveness which are related to suicide. Ordway [8] discovered that decreasing levels of norepinephrine lead to an increase noradrenergic proteins which are commonly found in people who die by suicide. Engstrom et al.,[9] found an abnormal relationship between serotonin, dopamine and norepinephrine among who people attempted suicide and Placidi et al., [10] found low levels of serotonin among individuals with major depression who attempted suicide.

From the above literature review we can conclude that suicidal ideations can be attributed to psychological, social, cognitive and biological disruptions and without a timey intervention can lead to an increase in suicides.

2. Suicide stresses and suicide ideation

Bonner & Rich [11] examined the relationship between emotional, interpersonal and cognitive variables and suicidal ideation and behavior in college students. The study identified three factors: social/emotional alienation, deficient adaptive resource and cognitive distortion and tried to explain suicidal ideation and behavior using multiple regression analysis. Marono et. al.[12] found that youth suicide is positively related to family stresses such as abuse, alcoholism, and to economic conditions such as poverty. Jiang and Tsai [13] found that unemployment and divorce are positively related to suicide and that the relationship significantly varies depending on gender and ethnicity. Freeman's study indicated that 1% increase in cohort size will increase youth suicide rate by0.25% [14]. Gibb's research predicted the positive and significant correlation between economic crises, divorce rates and religious affiliations with the suicide rate among young Europeans. Kosky found that youth from the lower income group were found to have a high suicidal tendency in the US which was contradicted by Girard's (1993) study. Lester [15] found that college – related stresses and general stresses are not significantly related but can predict depression, while past suicidal ideation and college stresses can predict the current suicidal ideation. Gupta et al.,[3] identified experiencing conflict, disaster, violence, abuse or a loss, sense of isolation, failed relationships and, financial difficulties with suicidal behavior. But very few studies have ventured to test these reasons for suicide ideation in an Indian context [1],[3]. Therefore the current study examines the reasons for stress among working professional leading to suicide ideation and analyze the factors relationship with suicide ideation using regression analysis[12].

RESEARCH OBJECTIVES:

The first objective of the study was to find the reasons for stress among working professionals leading to suicide ideation, which can contribute to factors leading to suicide, and the second objective was to establish the relationship between suicide stresses and ideation. Considering the study objectives, a qualitative method of data collection was adopted to identify factors leading to suicide. Quantitative measures were used to trace the relationship between the identified stresses and suicide ideation.

The hypotheses of the study are:

H1: Social stresses and suicide ideation are not correlated.

H2: Economic stresses and suicide ideation are not correlated.

H3: Health stresses and suicide ideation are not correlated.

H4: Family stresses and suicide ideation are not correlated.

METHOD

An internal ethical committee consisting of experts in the area approved the study. To identify the stresses among working professionals, psychiatric clinics involved in counseling for working professionals were approached and patients who were interested in taking part in the study were randomly selected. Respondents signed a consent form to take part in in-depth interviews and were assured of confidentiality of the data and their identity. The first objective was realized by use of in-depth interviews were selected for data collection due to the sensitive nature of the subject of the study. The interviews were informal and consisted of leading questions which mainly depend upon the previous response. Sixteen in-depth interviews were conducted due to homogeneity characteristic of respondents, as no further new insights were evolving. All interviews were audio recorded and transcribed into meaningful codes. Transcripts were independently coded by an expert in suicide counseling and mapped against the codes generated by researchers using a thematic analysis frame work. The final list of 17 themes was derived based upon the mutual consent between the researcher and an external subject expert (Box 1)

Box 1. Suicide stress Themes

Love failure
Cancellation of marriage
Death of the dear person
Barrenness/impotence
Divorce
Unwanted pregnancy
Bankruptcy
Financial crisis
Unemployment due to recession
Professional/career problems
Alcoholism
Illness/sickness
Drug abuse
Physical abuse
Dowry abuse
Family problems
Family health issues

In the second stage of data collection, a structured questionnaire depicting the stress factors derived from factor analysis were measured on a five point Likert scale along with Beck et al.'s suicide ideation scale [16,17]. The questionnaire was distributed among clinically listed patients based upon the selection criteria for the in-depth interview. A total of 500 patients were approached through email or direct face-to-face interactions at clinics, leading to 297 usable data points which were analyzed to test the hypotheses. The study was conducted in Mumbai and Pune as the Maharashtra state had reported the highest number of suicides cases with 16,307 deaths per year [2].

RESULTS

Demographics

The sample consisted of working professionals mean age 25 years, S.D= 1.5 years. Male and female representation in the study was 70% and 30% respectively.

RELIABILITY TESTS

Cronbach's alpha for each of the study variables and the overall questionnaire indicates that the instrument was able to measure the variables and is highly reliable (Table 1).

Table 1. Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	Items no.
.870	.877	38

KMO AND BARTLETTE'S TEST

Table 2 depicts the results of the Kaiser-Meyer-Olkin Measure of sample adequacy(KMO) and Bartlette's test for sample adequacy. The resultant value of 0.715 indicates that a sample of 297 is adequate to carry out further investigations.

Table 2. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.715
Bartlett's Test of Sphericity	Approx. Chi-Square	657.488
	Df	171
	Sig.	**.000**

DESCRIPTIVE STATISTICS

The mean score values were similar for all four type of stress, which indicates normal distribution.

FACTOR ANALYSIS

The perceived stresses for suicide as identified qualitatively from in-depth interviews were similar to the existing literature and from the WHO and NCRB [1,2]. 18 stresses were identified and subjected to scale reduction using varimax rotation. The higher the commonality, the higher the variance explained by the factor and all the extraction values were near or above 0.6. The number of useful factors considered for the study was four and only factors with Eigenvalue higher than 1 were considered. These four factors explain 70% of the variance were derived. Factor one explains 39.6%, factor two explains 17.2%; factor three explains 7.6% and factor four explains 5.4%. To overcome the factor loading problem on one or two variables, varimax rotation was used and loading values greater than 0.60 [18] were considered under the factors. One item property disputes stress did not fall under any factor was therefore not considered for analysis. The results of rotation commonalities are depicted in Table 3 as factor loading.

Table 3. Factor loading

Dimension	F1	F2	F3	F4
Love failure	.744			
Cancellation of marriage	.746			
Death of dear person	.883			
Barrenness/impotence	.774			
Divorce	.752			
Illegitimate pregnancy	.601			
Bankruptcy		.744		
Financial crisis		.735		
Unemployment due to recession		.693		
Professional /career problems		.743		
Alcoholism			.787	
Illness /sickness			.742	
Drug abuse			.799	
Physical abuse			.808	
Dowry abuse			.778	
Troubled family				.656
Family health issues				.683

The first factor identified is named as the social stresses which is measured by the following items: love failure, cancellation of marriage, death of a loved person, barrenness/impotence, divorce and unwanted pregnancy. The second factor was named as the economic stresses measured by bankruptcy, financial crisis, unemployment due to a recession, and professional/career problems. The third factor identified was named health stresses and the items loaded in this category are alcoholism, illness/sickness, drug abuse, physical abuse, and dowry abuse. The fourth factor, family stresses and is measured by family problems and family health issues. The reliability test for each identified factor is depicted in Table 4.

Table 4. Reliability for each of the factors

Factors	Cronbach's alpha	No.of Items
F1 – Social stressors	.805	6
F2 – Economic stressors	.885	5
F3 – Health stressors	.867	5
F4 – Family stressors	.765	2

HYPOTHESES TESTING

The hypotheses of the study were tested by using Pearson's correlation coefficient (Table 5).

H1: "Social stresses and suicide ideation are not correlated."

The results indicate that social stresses and suicide ideation are significantly positively correlated (r =0. 558, p =0.000).

H2: "Economic stresses and suicide ideation are not correlated."

The economic stresses and suicide ideation are significantly positively correlated as r = 0 .601, p =0.000.

H3: "Health stresses and suicide ideation are not correlated."

The correlation between health stresses and suicide ideation is positive but not significant (r = 0.048 and p = 0.74).

H4: "Family stresses and suicide ideation are not correlated."

The results indicate that family stresses and suicide ideation are moderately positively correlated (r = 0.261, p =0.047).

The results are similar to risk factors for adolescent suicides found by David & Brent [19].

Table 5. Correlations matrix

		F1	F2	F3	F4	SIMEAN
F1	Pearson Correlation	1	.735**	.321*	.630**	.558**
	Sig. (2-tailed)		.000	.028	.000	.000
	N		297	297	297	297
F2	Pearson Correlation		1	.446**	.589**	.601**
	Sig. (2-tailed)			.002	.000	.000
	N			297	297	297
F3	Pearson Correlation			1	.337*	.048
	Sig. (2-tailed)				.021	.649
	N				297	297
F4	Pearson Correlation				1	.261
	Sig. (2-tailed)					.047
	N					297
SIMEAN	Pearson Correlation					1
	Sig. (2-tailed)					
	N					

LOGISTIC REGRESSION

Multivariate regression analysis as used by Bonner & Rich [12] was applied to analyze the results of the study and to predict the perceived suicide ideation by using predictors derived from factor analysis: social stresses, economic stresses, health stresses and family stresses. The test of the full model and the constant – only model was carried out and the results indicate the full model is significant (chi-square = 28.38, p<0.001, df = 4).

Naegelkerke's R^2 value is 0.621 indicates strong-moderate relationship between a predic-

tor and prediction at 62.1% (Table 6). The model predicts 83% of the varience (73% of decline and 86.7% of accepting). The Wald criterion was significant for social stresses (p =0.058), economic stresses (p =0.009), health stresses (p = 0.022), and family stresses (p = 0. 41) and was able to predict the suicide ideation significantly (Table 7).

Table 6. Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	33.123[a]	.453	.621

a. Estimation terminated at iteration number 6 because parameter estimates changed by less than .001.

Table 7. Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	F1	1.494	.786	3.606	1	.058	4.453
	F2	1.978	.762	6.734	1	.009	7.226
	F3	-.917	.593	2.390	1	.022	.400
	F4	-1.066	.674	2.502	1	.014	.344
	Constant	-1.911	1.400	1.864	1	.172	.148

a. Variable(s) entered on step 1: F1, F2, F3, F4.

DISCUSSION

The reasons attributed for the occurrence of suicides are emotional, interpersonal, cognitive, social alienation, deficient adaptive resources, cognitive distortion [12]; abuse, alcoholism, economic conditions [13]. The current study investigated suicide ideation among working professionals in India and the underlying stresses. It found that social stress, economical, health and family stresses have a significant and positive relationship with suicide ideation and the model predicts 83 % of variance. In a study on adolescent suicide and suicidal behavior, Bridge et al., [20] proposed a similar model, whereby suicidal behavior is associated with socio-cultural, developmental, psychiatric, psychological and family factors. Similar results were achieved in several other studies [12, 20].

The current study adds empirical evidence on possible stresses among working professionals. With this knowledge, organizations can provide employees with timely help, such as counseling, which could contribute to prevent suicides, particularly in the young workforce. As it is found that employee experience stress from different sources (family, economic, health and social factors), holistic interventions should be designed to overcome any suicidal ideation that may arise. Depending upon the stresses identified, both organizational and individual interventions should be developed. The current research could be extended to predictors related to individual aspects like psychological stresses and organizational aspects like work demand, job characteristics to increase the understanding of suicide behavior among working professionals, who accounts for more than 65% of Indian population and are a high-risk group [1].

LIMITATIONS

One of the major limitations of the study was that the sample was restricted to the Mumbai/ Pune area. Time and cost restrictions also limited the scope of the study.

REFERENCES

1. WHO, 2012. http://www.who.int/mental_health/prevention/suicide/suicideprevent/en/ (accessed on 17 May, 2018).
2. NCRB, 2014. http://www.nber.org/chapters/c10690.pdf (accessed on 17 May, 2018).
3. Cutler DM, EL Glaeser, Norberg KE. Explaining the rise in youth suicide. In: Gruber J, ed. Risky Behavior Among Youth. Chicago: University of Chicago Press; 2001, pp. 219-269.
4. Gupta R, Sharma S, Gupta BM. Indian Contribution to suicide research during 2005-2014: A scientometric assessment

using publications and citation data. Intern J Medicine Publ Health. 2016; 6: 4-12.

5. E Durkheim, Suicides,Trans. by JA Spaulding and George Simpson. New York: The Free Press
6. Shneidman E. Final Thoughts and Reflections. The Suicidal Mind. New York: Oxford University Press; 1996, pp. 157-166.
7. Kraemer GW, Schmidt DE, Ebert MH. The behavioral neurobiology of self-injurious behavior in rhesus monkeys: current concepts and relations to impulsive behavior in humans. In: Stoff DM, Mann JJ, eds. The Neurobiology of Suicide: From the Bench to the Clinic. Ann New York Acad Sci. 1997; 836.
8. Ordway GA. Pathophysiology of the locus coeruleus in suicide. In: Stoff DM, Mann JJ, eds. The Neurobiology of Suicide: From the Bench to the Clinic. Ann New York Acad Sci. 1997; 836.
9. Engstrom G, Alling C, Blennow K, Regnell G, Traskman-Bendz L. Reduced cerebrospinal HVA concentrations and HVA 5-HIAA ratios in suicide attempters monoamine metabolites in 120 suicide attempters and 47 controls. Eur Neuropsychopharmacol. 1999; 9: 399-405.
10. Placidi G, Oquendo M, Malone K, Huang Y, Ellis S, Mann J. Aggressivity, suicide attempts, and depression: relationship to cerebrospinal fluid monoamine metabolite levels. Biol Psychiatry. 2001; 50: 783-791.
11. Bonner RL, Rich AR. Concurrent validity of a stress-vulnerability model of suicidal ideation and behavior: a follow-up study. Suicide Life-Threatening Behav. 1987; 17(4): 265-270.
12. Marono et al. 1993.
13. Jiang YS, Tsai MC. The correlation between socioeconomic factors and the suicide rate. Intern J Intell Technol Appl Statistics. 2013; 6(4): 416-429.
14. Freeman DG. Determinants of youth suicide: the Easterlin–Holinger cohort hypothesis re-examined. Am J Econ Sociol. 1998; 157(2): 183-199.
15. Lester D. College student stressors, depression and suicidal ideation. Psychol Rep Sociocult Iss Psychol. 2014; 114(1): 293-296.
16. Beck AT, Kovacs M, Weissman A. Assessment of suicidal intention: The scale of suicide ideation. J Consult Clin Psychol. 1979; 47: 343-352.
17. Beck AT, Steer RA, Rantier WF. Scale of suicide ideation: psychometric properties of a self-report version. J Clin Psychol. 1988; 44: 499-505.
18. Anderson RN and BL Smith. Deaths: Leading causes for 2001. National Vital Statistics Report 2003;52(9): 1-86.
19. David A, Brent MD. Risk factors for adolescent suicide and suicidal behavior: Mental and substance abuse disorders, family environment factors, and life stress. Intern J Psychol. 1995; 25(1): 52-63.
20. Bridge JA, Goldstein TR, Brent DA. Adolescent suicide and suicidal behavior. J Child Psychol Psychiatr. 2006; 47(3-4): 372-394.