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I|J|S|P

International Journal of
Social Psychiatry
58(4) 393–399

DOI: 10.1177/0020764011401164
isp.sagepub.com
SAGE

Prevalence and social determinants of suicidal behaviours among college youth in India

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Abstract

Background: Little is known about the prevalence of and factors associated with suicide ideation and suicide attempts among college youth in India.

Aims: The aims were to estimate the prevalence of suicidal behaviours among Indian college students and identify potential risk factors for suicide ideation and attempts.

Method: The study surveyed 1,817 undergraduate college students aged 18–24 years in Ahmedabad, Gujarat, with a questionnaire that assessed suicidal behaviours as well as stressful situations and life events. Logistic regression analysis was used to assess risk factors.

Results: The prevalence of lifetime suicide ideation and lifetime suicide attempts was 11.7% and 4.0%, respectively. Suicide ideation was predicted by female gender, odds ratio (*OR*) = 1.41, 95% CI 1.01, 1.97, economic stress, *OR* = 1.17, 95% CI 1.11, 1.24, stress due to life events involving religious violence in the community, *OR* = 1.43, 95% CI 1.15, 1.78, and life events involving caste conflicts or caste discrimination, *OR* = 1.28, 95% CI 1.13, 1.46. Female gender and caste-related life events were not significantly associated with suicide attempts but economic stress and stressful experience of religious conflict continued to be significantly associated with lifetime suicide attempt, *OR* = 1.19, 95% CI 1.08, 1.31, and *OR* = 1.58, 95% CI 1.14, 2.17, respectively.

Conclusions: In this sample, college students from low socioeconomic classes who faced economic difficulties, and students who experienced distress as a result of caste discrimination or caste conflict, and communal unrest, were at a higher risk for suicidal behaviour.

Keywords

suicide ideation, suicide attempt, stress, caste discrimination, religious conflict, youth mental health

Introduction

There is relatively little research on suicide in highly populated nations such as India and China, in which more than half of the world's suicides occur (Beautrais, 2006). National suicide statistics in India for 2008 showed that young adults aged between 15 and 29 years accounted for 35.7% of all suicides that year (National Crime Records Bureau, 2008). The actual number of suicides is likely to be higher; a suicide attempt is a punishable offence in India and families often do not report suicides or suicide attempts to avoid legal consequences. Families also conceal suicides to avoid facing stigma and shame (Vijayakumar, 2007).

In India, as in many nations, official data on suicidal behaviours including suicide attempts and suicide ideation are not generally available. Globally, estimates based on unofficial reports suggest that for every completed suicide, there may be up to 10–40 attempted suicides (Bertolote and Fleischmann, 2005). Cross-national prevalence rates of suicidal behaviour estimated through local studies show considerable variability. For example, the prevalence of lifetime suicide attempt ranges from about 2% in Turkish children and adolescents (Toros et al., 2004) to about 12% in adolescents from the Caribbean (Blum et al., 2003). Lifetime suicide ideation ranges from about 11% in Mexican adolescents (Borges et al., 2008) to 38% in Austria

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(Dervic et al., 2007). Unlike trends in suicide rates, trends in youth suicidal behaviour are difficult to determine given that countries do not consistently report prevalence rates for suicidal behaviours. Estimating trends is also difficult because there are considerable differences in the methods and instruments used to assess suicidal outcomes across countries.

Results from the World Health Organization (WHO) World Mental Health Surveys carried out in 17 countries indicate that the risk of first onset of suicide ideation increases significantly during adolescence and adulthood and then stabilizes in early midlife (Nock, Borges, Bromet, Alonso et al., 2008). Reviews of other cross-national data indicate that about a third of those who have suicidal thoughts go on to make suicide plans, and about another third attempt suicide (Nock, Borges, Bromet, Cha et al., 2008). The gap between suicidal behaviours is smaller in India, where suicide attempts are almost as frequent as plans (Bertolote et al., 2005). A consistent finding is that in most countries, adolescents and young adults are at a significantly greater risk for suicidal outcomes compared to older groups (Nock, Borges, Bromet, Alonso et al., 2008; Nock, Borges, Bromet, Cha et al., 2008). Thus, early identification of suicidal thoughts and attempts among youth is crucial in informing suicide prevention efforts.

As noted, whereas statistics on completed suicide are available in India, epidemiological data on suicide ideation and suicide attempts are scant. Recently, a small number of studies have reported lifetime suicide ideation prevalence among high school students ranging from 6% (Arun and Chavan, 2009) to 15.8% (Sharma et al., 2008) and 21.7% (Sidhartha and Jena, 2006). The prevalence of suicide attempts in these samples ranged from 0.39% to 5.1% and 8%, respectively. In a community sample of rural and urban youth aged between 16 and 24 years, 3.9% reported suicide ideation, plans and attempts (Pillai, Andrews et al., 2008). However, these studies involved mostly adolescents and the authors do not know of any large studies that have established prevalence estimates for an urban college student population.

Generally in India, data on the incidence of suicide attempts come from hospital-based psychiatric studies or police records. These statistics vary widely since they come from geographically and socioculturally diverse parts of the country and have been collected over different time periods. Nevertheless, regional epidemiological data, including those from community samples, are needed to add to the database on prevalence estimates across the country. These data can highlight regional differences and can aid in the formulation of national and state suicide prevention priorities and identify targets for intervention. Thus, one objective of the present study was to estimate the prevalence of suicide ideation and suicide attempts in a sample of college students in Gujarat, a state in western India.

A second objective was to investigate the role of certain culturally relevant stressors related to social and communal life as risk factors in suicidal behaviour outcomes. While suicide attempts have been associated with a history of psychiatric disorders (Parkar et al., 2008; Sarkar et al., 2006), situational contexts and social stresses also play a major role in suicidal behaviour and these social factors may vary across cultures. Suicide attempts in India tend to be associated with economic and psychosocial difficulties such as poverty and family disputes (Adityanjee, 1986). Risk factors for suicidality in youth identified in previous studies include interpersonal conflict and financial problems (Kar, 2010; Nagendra Gouda and Rao, 2008), as well as female gender and exposure to abuse or violence (Pillai, Andrews et al., 2008; Sidhartha and Jena, 2006). Interestingly, while socioeconomic disadvantage has been implicated in suicidal behaviour, culturally relevant indices of disadvantage, such as caste and communality, have not been explored in relation to suicidal behaviour among youth.

Caste-based discrimination and inter-caste conflict in various domains such as education and employment are common in India's stratified society. Caste status or social origin form the basis of one of the most pernicious forms of discrimination in Gujarat and across India. Low caste status and socioeconomic disadvantage are inextricably linked and it is likely that in addition to economic factors, experiences of caste discrimination and inter-caste conflict are also related to poor mental health outcomes. Like caste, religious or political beliefs are also highly divisive in secular India. Religious tensions, typically between the Hindu majority and religious minorities such as Christians and Muslims, have also been a common feature of Gujarati communal life. In other Asian countries, stressful life events involving socioeconomic and political changes and cultural tensions have been linked to suicide (Chan et al., 2001; Vijayakumar et al., 2005).

In the past decade, there have been changes in Gujarat's political climate, which have been associated with rising tensions between Hindus and Muslims. In 2002, thousands of lives were lost to communal violence in Gujarat. Research on the effects of communal violence on mental health vulnerabilities is sparse and, as with caste-related life events, the effects of stress-related to life events involving these factors is not fully understood. While caste- and religion-based discrimination is more apparent in rural areas, it is not known how these factors impact on urban youth. Thus, the second objective was to specifically investigate whether stressful life events related to caste discrimination, caste conflict and communal conflict affect suicidal behaviour outcomes in a sample of college students in an urban area of Gujarat. It was hypothesized that economic difficulties and distress experienced as a result of caste discrimination and communal unrest would be associated with suicidality among youth.

Method

Community setting

The study took place in Ahmedabad, a large city in the state of Gujarat, in western India. The primary languages spoken in Ahmedabad are Gujarati, Hindi and English. The predominant religion is Hinduism, with Jains, Muslims, Christians, Parsis, Sikhs and Buddhists constituting religious minorities. In Ahmedabad, students from low-caste groups and low socioeconomic classes attend government-funded universities. In recent years, Ahmedabad has witnessed several social and political upheavals. In 2002, a train carrying hundreds of Hindu pilgrims was set on fire in the town of Godhra, in Gujarat. The attack led to the worst outbreak of communal violence between Hindus and Muslims across Gujarat in decades, and Ahmedabad was particularly affected by the violence (Spodek, 2010). Discrimination against low-caste groups, which has been prevalent throughout India's history, persists in Gujarat. Despite affirmative action taken by the government to increase access to socioeconomic resources and to improve overall social and political agency, there is still inequity among castes in sectors like education and health where low-caste groups have poorer outcomes.

Participants

The survey was administered to students at 17 colleges affiliated with Gujarat University in the faculties of Arts, Science, Commerce and Law (the faculties with the largest undergraduate student enrollments). Only those students aged 18 years and above were eligible for participation. A total of 1,835 participants were administered the questionnaire, of which 1,817 were between the ages of 18 and 24 years ($M = 19.11$, SD = 1.09). Participants were excluded if they provided insufficient data for analysis.

Procedure

The Research Ethics Office of the Jewish General Hospital in Montreal, Canada, granted ethics approval for this study. On the recommendation of the regional Departments of Health and Education, Gujarat University also granted ethics approval and permitted access to classrooms in all affiliated colleges for the purpose of data collection. A total of 17 colleges were randomly selected from a list of 254 colleges affiliated with Gujarat University. The selection of classrooms was based on the convenience and availability of lecturers. With the exception of one classroom in which two students did not wish to participate, there was a 100% participation rate for this study. At the time of administration, students were told that the purpose of the study was to investigate the sources of stress among youth. For reasons of anonymity, participants were not asked to sign a consent form but rather to read a consent letter attached to the questionnaire. This letter explained the nature of the study and the participant's rights to refuse participation at any time during questionnaire completion. Participants completed either the English or Gujarati version of the questionnaire.

Measures

Based on the available literature on risk factors for suicidal behaviour in India and consultations with a psychiatrist serving as a Government of Gujarat programme officer for mental health initiatives, a questionnaire was developed to measure the variables of interest in the study. Since several colleges use Gujarati as a medium of instruction, the instrument was translated into Gujarati by a professional translation agency and back-translated into English by a mental health professional fluent in English and Gujarati. Discrepancies were resolved through discussions with the translators. The final questionnaire consisted of a section assessing socio-demographic data of participants including age, gender, marital status, religious denomination, caste affiliation, with whom the participants lived, household income and future plans. This was followed by a scale to measure the level of perceived economic stress, a life events scale to measure the level of perceived stress due to caste-related and communal conflict-related adverse life events, and questions assessing lifetime history of suicide ideation and suicide attempt.

Economic stress scale. An economic stressors scale was developed specifically for this study to measure perceived level of stress due to economic difficulties. Since the majority of participants attending government-funded colleges belong to lower socioeconomic classes, it was important to assess the impact of stress associated with funding educational and vocational aspirations. In particular, since training for higher-paying jobs is generally offered through private institutions, it was considered relevant to assess the perception of stress related to funding postgraduate education. Through consultations with lecturers at Gujarat University and mental health consultants with the Government of Gujarat, a list was devised comprising four items that addressed potential stressors commonly faced by students attending public colleges in Ahmedabad: (a) 'applying to postgraduate programmes', (b) 'paying for own education', (c) 'finding a job while studying/working while studying', and (d) 'getting a job after graduation'. Participants indicated the level of stress experienced for each item on a four-point Likert scale (0 = *no stress* and 3 = *severe stress*).

Caste and community life events scale. The life events scale included three life events related to caste and communality. The authors reviewed common risk factors for suicidal behaviours in the Indian context and used their knowledge of local events involving sociopolitical upheavals to develop this scale. The items included were: (a) 'conflict in the community over religious or political beliefs', (b) 'conflict in the community over caste', and (c) 'discrimination due to my caste'. Participants used a

five-point Likert scale (0 = *did not happen to me*, 1 = *no stress*, and 4 = *severe stress*) to indicate the level of stress they had experienced as a result of these life events.

Suicide ideation and suicide attempts. To estimate the prevalence of suicidal behaviours, participants were asked two questions: (a) 'Have you ever thought seriously about committing suicide (taking your life)?', and (b) 'Have you ever attempted suicide (tried to take your life)?'. Responses to each of these items were in a dichotomous *yes* or *no* format.

Data analysis

The main outcome variables in this study were lifetime suicide ideation and lifetime suicide attempt; both were coded as binary variables. Prevalence estimates of suicidal behaviours with odds ratios (*OR*s) and confidence intervals (CIs) were calculated using the Agresti-Coull approach (Agresti and Coull, 1998). Analysis for each outcome was conducted separately.

The first analysis involved bivariate comparisons by gender and by suicide ideator/non-ideator and suicide attempter/non-attempter on sociodemographic characteristics and all other independent variables. Means were compared with *t*-tests and proportions with the χ^2 test for independence. For ordinal data, the Mann-Whitney *U*-test was used to test for differences. Using Mplus statistical software, a confirmatory factor analysis was used to test a proposed factor structure of the economic stress items so that a composite score for economic stress could be used in the analyses. Model fit was ascertained using the χ^2 test as well as the comparative fit index (CFI), the root mean square error of approximation (RMSEA) and the Tucker-Lewis Index (TLI), as is recommended (Reise et al., 1993). Scores obtained on each of the four items of the economic stress scale were summed to yield one composite score for the economic stress factor. Scores on the life events 'conflict in the community over caste' and 'discrimination due to my caste', were collapsed into one composite score for the variable 'Caste-related Life Event'.

Bivariate analyses were used to calculate unadjusted *OR*s for each of the variables selected a priori. In the multivariate analyses, socio-demographic variables, economic stress, and caste-related and communality-related life events were entered into a logistic regression to estimate *OR*s and 95% CIs. In the final multivariate model for suicidal behaviour outcomes, the variables entered were age, gender, household income, economic stress, conflict in the community over religious or political beliefs, and caste discrimination and caste conflict in the community. Analyses were conducted using SPSS statistical software, version 15.0.

Results

Participant characteristics

The sample comprised 793 men and 1,107 women. The majority of participants were unmarried (99%), lived with their parents (87%) and resided in an urban area (89%). The most common religious affiliation was Hindu (77%), followed by Jain (11%), Muslim (6%) and Christian (5%). Other religions practised in India such as Sikhism, Buddhism and Zoroastrianism represented 1% of the sample. More than half of the participants belonged to upper castes (66%), while 34% belonged to lower castes. Almost a third (27%) were in the lowest annual household income category of 0–49,000 rupees, while the largest proportion of the sample (29%) fell within the next income category, 50,000–99,000 rupees. Most of the students (63%) completed the Gujarati version of the questionnaire.

Prevalence of suicide ideation and suicide attempt

In this sample, 212 participants or 11.71%, 95% CI 10.31, 13.28 of the sample reported lifetime suicide ideation and 73 participants or 4.04%, CI 3.23, 5.05 reported having ever attempting suicide. There were no significant gender differences in the prevalence of suicidal behaviours.

Risk factors for suicidal behaviours

Table 1 and Table 2 present the results of logistic regression analysis for lifetime suicide ideation and lifetime suicide attempt, respectively. When controlling for other factors, women were at a significantly elevated risk for suicide ideation (Table 1). Suicide ideation risk was also significantly higher for students who experienced greater stress due to economic difficulties, caste discrimination or caste conflict, and conflict in the community over religious or political beliefs. Multivariate analysis for suicide attempt (Table 2) revealed that economic stress and communal conflict stress were also significantly associated with increased risk for suicide attempt. However, female gender and experience of caste-related negative life events were not significant risk factors for suicide attempt.

Discussion

The prevalence of suicide ideation and suicide attempts in this sample were 11.71% and 4.04%, respectively. These rates are lower than those found in previous studies of high school students in India (Sharma et al., 2008; Sidhartha and Jena, 2006). No significant gender differences were found in the prevalence of suicide ideation or attempts, but female gender was found to be a significant risk factor for suicide ideation when other socio-demographic variables were controlled. Other Indian studies have found female gender to be a risk factor for suicidal behaviours (Pillai, Andrews et al., 2008; Sharma et al., 2008; Sidhartha and Jena, 2006), as have international studies (Bernal et al., 2007; Nock, Borges, Bromet, Cha et al., 2008).

Table 1. Risk factors for suicide ideation: Multiple logistic regression model

Variable	Unadjusted *OR* (95% CI)	*p*	Adjusted *OR* (95% CI)	*p*
Age	1.06 (0.93, 1.22)	0.36	1.07 (0.93, 1.23)	0.38
Female	1.21 (0.91, 1.63)	0.19	1.41 (1.01, 1.97)	0.04
Annual household income (rupees)				
> 300,000	Reference			
100,000–299,000	0.89 (0.54, 1.46)	0.64	0.98 (0.56, 1.69)	0.93
50,000–99,000	0.88 (0.53, 1.45)	0.61	0.94 (0.53, 1.64)	0.82
< 49,000	1.39 (0.86, 2.26)	0.18	1.36 (0.79, 2.35)	0.27
Economic stress	1.18 (1.12, 1.24)	< 0.001	1.17 (1.11, 1.24)	< 0.001
Stress due to religious/political conflict	1.64 (1.37, 1.96)	< 0.001	1.43 (1.15, 1.78)	< 0.01
Stress due to caste conflict or caste discrimination	1.38 (1.24, 1.54)	< 0.001	1.28 (1.13, 1.46)	< 0.001

OR = odds ratio; CI = confidence interval

Table 2. Risk factors for suicide attempt: Multiple logistic regression model

Variable	Unadjusted *OR* (95% CI)	*p*	Adjusted *OR* (95% CI)	*p*
Age	1.07 (0.86, 1.33)	0.53	1.12 (0.89, 1.41)	0.34
Female	1.19 (0.74, 1.92)	0.47	1.43 (0.82, 2.51)	0.21
Annual household income (rupees)				
> 300,000	Reference			
100,000–299,000	0.44 (0.21, 0.89)	0.02	0.54 (0.24, 1.21)	0.13
50,000–99,000	0.55 (0.27, 1.10)	0.09	0.59 (0.26, 1.32)	0.20
< 49,000	0.55 (0.27, 1.11)	0.09	0.63 (0.28, 1.41)	0.26
Economic stress	1.22 (1.12, 1.33)	< 0.001	1.19 (1.08, 1.31)	< 0.001
Stress due to religious/political conflict	1.90 (1.48, 2.43)	< 0.001	1.58 (1.14, 2.17)	< 0.01
Stress due to caste conflict or caste discrimination	1.24 (1.04, 1.49)	0.02	1.12 (0.90, 1.36)	0.32

While female gender was a significant risk factor, it is striking that no gender differences in the prevalence of suicidal behaviours were found. Since suicidal behaviours, particularly suicide attempts in women, are more common in the marital context in India (Khan, 2002; Parkar et al., 2008), it is possible that no gender differences were found because almost all of the female participants were unmarried. The sample comprised college youth including females who were availing educational opportunities; most likely to advance their vocational prospects. Thus, this sample may represent a relatively advantaged female population that has access to vocational choices and greater social agency. At the same time, it is possible that in the rapidly transforming social and economic circumstances in large cities such as Ahmedabad, young women now have to navigate pressures of a modernizing culture. As gender roles change, they may face stressors similar to those that affect males in relation to educational choices, job opportunities and financial responsibility for their families. In addition, non-traditional lifestyle choices, such as premarital relationships, may be on the increase and could be sources of stress as these choices come into conflict with traditional cultural prescriptions of acceptable social behaviours. Such factors have been found to significantly elevate the risk of mental health problems in Indian adolescents (Pillai, Patel et al., 2008). Young males and females in the present urban undergraduate student sample may face similar stressors, which might explain the lack of gender difference in suicidal behaviours. Conversely, in the general population, female gender may emerge as a risk factor because of the relatively greater pressures that women experience in a society undergoing rapid social change.

Economic stress

Lifetime suicide ideation and attempt were both associated with economic stress in this sample. Since the participants were attending government-funded colleges that offer subsidized education, the majority were from lower socioeconomic classes. Participants from this sample who perceived job seeking after graduation and paying for postgraduate education stressful, were at greater risk for suicidal behaviours. A relationship between poverty, financial crises and poor mental health is well established in the literature (Chatterjee, 2009; Kuruvilla and Jacob, 2007; Patel and Kleinman, 2003; Patel et al., 1998). The present findings also suggest that lack of resources for postgraduate education, poor employment prospects and pressure to find employment while still in college can cause considerable psychological distress and predispose youth to mental health vulnerabilities.

Caste discrimination, caste conflict and suicidal behaviours

At a bivariate level, experiences of caste discrimination and caste conflict in the community had a significant association with suicide ideation. Caste discrimination was also significantly associated with suicide attempt but experiences of caste conflict were not. While the association between experiences of caste conflict and suicide attempts was weak, it is possible that stress due to caste discrimination, which is more chronic and pervasive in nature, has a greater influence on suicidal outcomes than does stress due to specific episodes of conflict. In contemporary Indian society, caste status continues to restrict social and economic agency and mobility. Even as educational and economic interests of lower castes have been promoted through constitutional provisions, discrimination against lower castes and scarce employment opportunities often thwart aspirations of socially disadvantaged classes (Jeffrey, 2009). Education has some tendency to reinforce caste and class inequalities, as private education is highly competitive and expensive (Béteille, 1993; Jeffrey et al., 2005). Employment opportunities are available to low-caste groups through explicit reservations in the public sector, but not in the private sector where higher-paying jobs are now to be found. Thus, while higher-caste groups can improve their social standing through better educational credentials and consequently better social connections and greater wealth, lower castes struggle to improve their overall living standards (Jeffrey et al., 2005; Kijima, 2006). The wide disparity has also led to conflict within castes as they compete for the same pool of jobs (Martyn, 2008).

Religious or political violence and suicidal behaviour

These findings show that experiences of stress in the context of religious and political conflict are associated with suicide ideation and attempts. In recent years, political dynamics have led to considerable changes in the social dynamics of collective ethno-religious identity in Gujarat. Religious minorities, such as Muslims and Christians, have faced considerable discrimination and violence during communal conflicts (Spodek, 2010). Experiences of religion-based violence, or prejudice, or the threat of discrimination may be causing minorities tremendous anxiety about their future. While it cannot be concluded that religious minorities who have historically faced discrimination and marginalization are at risk for suicidal outcomes due to their unique experiences of discrimination (the present sample was too small to test this hypothesis), the results do suggest that experience of religious and political violence make youth in general particularly vulnerable to suicidal behaviours.

Limitations

These findings should be interpreted with caution as there are some limitations in the methodology. Since the sample was recruited through convenience and incidental sampling, biases may have been introduced. The measures included in the questionnaire have not been independently validated and the questionnaire relied entirely on self-report. The results cannot be generalized to other parts of India, particularly to rural areas, or to youth who do not enter universities. As this is a cross-sectional study, it is not possible to infer causality; for example, it is possible that the association between suicidal behaviour and economic and caste-related stressors reflects the tendency for more psychologically distressed individuals to perceive more adversity in their social environment.

Nonetheless, this is a unique study, conducted in a large urban college-going sample that highlights the powerful role of sociocultural context in suicidality. As a next step, researchers could investigate factors that mediate the relationship between caste, socioeconomic class and stressors, and suicidal outcomes.

Conclusion

In summary, this study highlights the effect of poverty, caste and communal conflict on suicidality. It suggests important directions for future research that explores the local context within which suicidal behaviours occur. In Western cultures, suicidal behaviour is more commonly related to childhood adversity involving parental divorce, history of child abuse and parental psychopathology (Beautrais, 2003). This study in Gujarat focused on other factors relevant to the cultural context and found that suicidality in youth was related to economic difficulties and community level factors specific to the sociocultural milieu.

Acknowledgements

This work was carried out as part of an MSc by Yogini Nath, who was supported by a studentship award from the Canadian Institute of Health Research Strategic Training Program in Culture and Mental Health Services Research (CIHR STS-63312, L.J. Kirmayer, Principal Investigator). Dr Thombs was supported by a New Investigator Award from the Canadian Institutes of Health Research and an Établissement de Jeunes Chercheurs award from the Fonds de la Recherche en Santé Québec. The authors would like to thank the Education Department and the Health and Family Welfare Department of the Government of Gujarat and Gujarat University for extending their cooperation during data collection.

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