Prevalence and Correlates of Suicide Ideation and Suicide Attempts Among College Students in Gujarat, India

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Abstract

Research on suicidal behaviors from non-Western countries is limited, and knowledge from Western studies may not be suitable for developing appropriate intervention strategies in other cultures. An understanding of the sociocultural context within which suicidal behaviors take place can provide valuable insight into the processes that contribute to risk of suicide. The aim of the present study was to estimate the prevalence and identify correlates of suicide ideation and suicide attempt in a population of college age youth in India. The cross-sectional study took place in Ahmedabad, the largest city in the western state of Gujarat. A total of 1,817 undergraduate college students aged 18-24 years completed a questionnaire with self-report measures assessing suicidal thoughts and suicide attempts in the past 12 months and over their lifetime, as well as potential risk factors. Independent risk factors were identified through logistic regression models. Overall, 11.7% of youth reported suicidal thoughts in their lifetime, and 4.0% reported lifetime suicide attempts. Results indicate that suicidal behaviors were significantly associated with economic stress, illness or mental health problems of a family member, experiences of caste discrimination or caste conflict, religious or political conflict, and depressive symptoms. The findings underscore the importance of sociocultural factors in determining vulnerability to suicidal behaviors in the Indian context and point to the need for culturally appropriate and locally informed approaches in mental health service delivery.

Résumé

Force est de constater que la recherche sur les comportements suicidaires dans les pays non occidentaux ne revêt qu'une valeur limitée. Ainsi, les conclusions d'études occidentales ne peuvent pas toujours être transposées à d'autres cultures et servir à l'élaboration de stratégies d'intervention au sein de ces différentes cultures. Or, la compréhension du contexte socioculturel dans lequel les comportements suicidaires interviennent peut fournir de précieux renseignements sur les processus qui contribuent au risque de les comportements suicidaires. Le but de la présente étude était d'estimer la prévalence et identifier les corrélats de l'idéation suicidaire et des tentatives de suicide au sein d'une population de jeunes collégiens indiens. L'étude transversale a été menée à Ahmedabad, la plus grande ville de l'Ouest de l'État du Gujarat. Un total de 1817 étudiants de premier cycle âgés entre 18 à 24 ans ont rempli un questionnaire comportant des mesures auto déclarées évaluant les pensées suicidaires et les tentatives de suicide au cours des 12 derniers mois et tout au long de leur vie, ainsi que des facteurs de risque potentiels. En outre, des facteurs de risque indépendants ont été identifiés à l'aide de modèles de régression logistique. Globalement, 11,7% des jeunes ont rapportés avoir entretenu des pensées suicidaires au cours de leur vie, et 4,0% ont déclaré avoir fait une tentative de suicide durant leur vie. Les résultats indiquent que les comportements suicidaires sont associés de façon significative au stress économique, à la maladie ou aux problèmes de santé mentale d'un membre de la famille, aux expériences de discrimination de castes ou aux conflits parmi les castes, aux conflits religieux ou politiques, et aux symptômes dépressifs. Les résultats soulignent l'importance des facteurs socioculturels dans la détermination de la vulnérabilité au les comportements

suicidaires en Inde et atteste de la nécessité d'adopter des approches culturellement appropriées dans la prestation de services en santé mentale menées localement, et d'y recourir judicieusement.

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Chapter I: Introduction

The World Health Organization estimates that based on current trends, approximately 1.5 million people worldwide, will die by suicide in 2020 (Bertolote & Fleischmann, 2002a). Estimates of suicide attempt in developed nations range from 6 to 40 times more than completed suicides (Hawton, Arensman, Wasserman, Hulten, Bille-Brahe, et al., 1998; Maris, Berman, & Silverman, 2000). Despite a long history of suicidology, several gaps exist in the epidemiology of suicidal behaviors (suicide ideation and suicide attempts), particularly from an international perspective. In particular very little is known of the prevalence and correlates of suicide and suicidal behaviors in developing countries. Research efforts in theses countries are hampered by inadequate national statistics, deficient or discrepant data sources and differing methodologies in data collection. (Diekstra & Garnefski, 1995; Vijayakumar, Nagaraj, Pirkis, & Whiteford, 2005). In addition, cultural variations influence the impact of risk factors making comparisons between developing and developed nations difficult. Although the accuracy of national suicide statistics has been questioned (Vijayakumar et al., 2005), most developing nations do collect nation wide statistics on completed suicide. In contrast, the prevalence of suicidal behavior in the general population in developing countries is virtually unknown. Estimates of the prevalence of suicide ideation and suicide attempt provide a measure of the general mental health status in the population studied and allow recognition of specific groups or communities in greater need of mental health services. In addition to estimating the prevalence, it is also crucial to investigate correlates of suicide ideation and suicide attempt across cultures to gain an understanding of the culturally and contextually salient risk factors for suicidal behaviors. A culturally

informed understanding of the contingents and antecedents of suicidal behaviors are vital for the development and delivery of timely intervention at multiple levels across diverse cultures.

Most developed nations recognize suicide and suicidal behaviors as a public health concern and efforts have been made in research and policy to advance the understanding of suicidal phenomena and reduce its prevalence. However populous developing nations such as India and China — whose citizens constitute more than half of the world's suicides (Beautrais, 2006; Vijayakumar, 2007) — have a dearth of suicidology research and much work is needed to examine the factors associated with suicidal behaviors in their unique sociocultural contexts. There is relatively more literature available from China and cross cultural comparisons with Western studies show some risk factors for suicides and suicide attempts such as psychopathology, negative life events, poverty, and physical health variables to be common across cultures. Other correlates in these reports differ from Western literature and are more relevant to the Chinese context. These include religion, academic stress, and family disputes, (Liu & Tein, 2005; Zhang, Conwell, Zhou, & Jiang, 2004), and a higher propensity for suicidal behavior in females (Ji, Kleinman, & Becker, 2001; Li, Phillips, Zhang, Xu, & Yang, 2008; Liu, Tein, Zhao, & Sandler, 2005; Phillips, Liu, & Zhang, 1999).

Purpose of the current study

The present study had two overarching objectives. The first was to estimate the prevalence and correlates of suicide ideation and suicide attempts in college students in a large urban city in western India. A second objective was to investigate demographic and psychosocial correlates of suicidal behaviors with particular reference

to the local cultural milieu. The study took place in Ahmedabad, the largest city in the western state of Gujarat. Undergraduate students in the faculties of Arts, Commerce, Science and Law from colleges affiliated with Gujarat University took part in the survey. Participants completed self report measures on suicidal behaviors and various psychosocial correlates. The contribution of socioculturally relevant risk factors for lifetime and past year suicide ideation and suicide attempts was investigated.

The following chapter presents a review of literature on the epidemiology of suicide and suicidal behavior across cultures. Cultural variations in suicides and suicidal behavior are also reviewed. The prevalence and correlates of suicidal behavior in India are presented with particular reference to the sociocultural milieu. The importance of local contextual features in suicidal behaviors in India is also discussed.

Chapter II: Literature Review

Definitional issues in the study of suicidal behaviors

Suicidology encompasses several related, overlapping phenomena including non-fatal suicide attempts, suicide ideation and self-destructive behaviors. This spectrum of behaviors has been studied from multiple disciplinary standpoints drawing on neurobiological, cognitive, psychoanalytic and sociobiological theories. The aetiology of suicidal behavior involves a complex interaction of many factors, at various levels, from individual to cultural. Thus a variety of theoretical models are proposed and suicidal phenomena are variously defined (Maris et al., 2000).

Researchers agree that suicide, suicide attempts, and suicidal thoughts do not simply represent a single continuum of severity. Stengel (1964) posited that there was only a small degree of overlap between suicide completers and suicide attempters. Kreitman (1977) also favored the view that attempters were not just failed completers, but were subgroups that had little or no intention to die. However, the distinction between completers, attempters and ideators is complicated by the fact that since intention to die cannot be operationalized or measured easily, it proves to be an unsatisfactory criterion for suicide attempt (Kreitman, 1977). In recognition of this ambiguity, Kreitman, Philip, Greer, & Bagley (1969) proposed the term “parasuicide” to refer to behaviors ranging from suicide ideation and gestures to suicide attempts, regardless of intent. A number of studies adopted similar umbrella terms for a large range of non-fatal behaviors in light of the difficulties inherent in the ascertainment of intent (De Leo, Burgis, Bertolote, Kerkhof, & Bille-Brahe, 2006). The International Classification of Diseases and Causes of Death - Version 10, developed by the World Health Organization (1992), created a

category of "Intentional Self-Harm" to include "purposely self-inflicted poisoning or injury" and "attempted suicide". The interchangeable use of "parasuicide" and "attempted suicide", the lack of consistent definitions (Santa Mina & Gallop, 1998) and the use of idiosyncratic definitions in studies (Ivanoff, 1989, cited in De Leo et al., 2006) have hindered advances in research and practice.

The problem of classification

Several researchers have offered terms and definitions or classification systems to overcome the over-inclusive character of the term "parasuicide" (Ellis, 1988; Maris, 1992; O'Carroll, Berman, Maris, Moscicki, Tanney et al., 1996; Silverman, Berman, Sanddal, O'Carroll, & Joiner, 2007). O'Carroll et al. (1996) proposed a nomenclature that sought to clearly define terms used in suicidology and provide a conceptual structure to demarcate the terms. This nomenclature distinguished suicidal behaviors by three features: intent to die, evidence of self-inflicted injury, and outcome (injury, no injury, or death). Silverman et al. (2007) further refined this nomenclature by focusing on suicide-related ideation, communication (suicide threats and suicide plans) and behaviors (self harm, suicide attempts and suicide), demarcating and defining subsets of these categories. Within this schema, the first distinction based on suicidal intent, allows for a distinction between suicidal and self-harm behaviors. The terms "self-harm" and "deliberate self-harm", mostly favored in Europe, have been used to describe a range of behaviors from substance abuse and self-poisoning to eating disorders, and non-fatal suicidal acts (Hawton & James, 2005; Santa Mina & Gallop, 1998). However, with a growing corpus of literature on habitual, non-suicidal self-harm acts such as self-mutilation ("the deliberate nonsuicidal destruction of one's own bodily tissue" [Favazza, 1998]), it is

increasingly clear that such behaviors are qualitatively different from suicidal behaviors (Bille-Brahe, Schmidtke, Kerkhof, De Leo, Lonnqvist et al., 1994; Favazza & Rosenthal, 1993; Linehan, 1997).

Definitional ambiguities about the classification of self-injurious behaviors have rendered comparisons of studies on suicidal behaviors difficult (Linehan, 1997). Efforts are underway to specify, define and operationalize the full range of dependent variables in the field of suicidology (Silverman, Berman, Sanddal, O'Carroll, & Joiner, 2007). Researchers have begun to recognize the varieties of self injury and suicide attempts in an effort to clearly outline exactly what outcome they wish to assess and/or predict (Nock & Kessler, 2006).

The definition of suicidal behavior used for the current study was adapted from De Leo et al. (2006) to refer to "a non-habitual act with nonfatal outcome that the individual, expecting to, or taking the risk to die, initiated and carried out with the purpose of bringing about wanted changes". In contrast, behavior that involves the deliberate destruction of body tissue, or deliberate ingestion of substances, that is not socially sanctioned and is not accompanied by suicidal intent, is referred to as non-suicidal self-injury (Prinstein, 2008). In the following review of literature however, this distinction is not always present as the use of "deliberate self-harm" in many studies has been used to variously describe a range of self injurious behaviors.

Prevalence and correlates of suicide, suicide ideation and suicide attempt: international findings

Determining the prevalence of completed suicides and suicidal behavior across populations depends on the data source used; community surveys and service utilization

studies yield different results (Diekstra & Garnefski, 1995). Availability of data and diversity of the sites where data is collected can also give rise to highly variable observations. Worldwide lifetime suicide rates per 100,000 based on data reported to the World Health Organization show huge differences; the average ratio between the highest and lowest suicide rates in the world is 1:102.4 for men and 1:35.8 for women (Schmidtke, Weinacker, Apter, Batt, Berman, et al., 1999). Across countries, higher rates are associated with being male although some countries like China and India show little sex difference (Cantor, 2000; Nock, Borges, Bromet, Cha, Kessler, et al., 2008; Schmidtke, et al., 1999).

Risk factors for completed suicides include genetic and other biological factors (Maris et al., 2000), psychiatric disorders and psychological processes including depression (Lönnqvist, 2000), schizophrenia (De Hert & Peuskens, 2000), personality disorders, hopelessness, impulsivity, alcohol and drug abuse (Bertolote & Fleischmann, 2002b; Brezo, Paris, Tremblay,Vitaro, Zoccolillo, et al., 2006; Harris & Barraclough, 1997). Societal conditions also play an important role in the aetiology of suicide. Factors such as employment status, socioeconomic upheaval and accessibility of means to commit suicide have been shown to be associated with suicide (Platt, 1984; Sartorius, 1995; Schmidtke, Bille-Brahe, De Leo, Kerkhof, Bjerke, et al., 1996). While biological and psychological factors operate at an individual level, social and cultural factors affect whole populations and may determine whether a high-risk individual commits suicide. This would mean that the variation in frequency of suicide across cultures reflects the interplay of individual factors and the prevailing societal conditions in those cultures (Bille-Brahe, 2000). For instance, the size of a birth cohort and its effect on social

structure has been linked to societal variation in suicide rates. It has been argued that a large birth cohort leads to social conditions like higher divorce rates, unemployment and accelerated inflation, and increased psychological stress that in turn can lead to higher crime rates and suicidal behavior in young adults (Bille-Brahe, 2000; Easterlin, 1980). In addition, societal conditions influence the cultural norms that shape attitudes toward suicide (Bille-Brahe, 2000).

Cultural specificity of suicidal behavior

While social facts influence patterns of suicidal behavior in societies, it is also clear that individuals do not all respond to social circumstances in the same manner. The influence of social conditions is mediated by not only individual level differences but the "cultural context of evaluation and cognition, partly formed as a response to and defence against the social forces" (Mäkinen, 1997). The role of culture in human development was recognized a century ago but the study of culture within a developmental psychopathology framework has only just burgeoned over the past three decades (Coll, Akerman, Cicchetti, 2000). In the normal course of development dramatic transformations take place, for example in the transition from adolescence to young adulthood. From a developmental perspective, negative outcomes such as poor mental health, including suicidal behaviors are determined by not only individual level vulnerabilities but by the transaction of youth with their larger ecologies such as their society and culture (Masten & Obradović, 2007). Young people's outcomes are thus intrinsically linked to the culture in which their lives are embedded and it is of paramount importance to understand which factors in their particular context are the most relevant in negative outcomes such as suicidal behaviors.

Culture is what emerges when a collective of ideas, thoughts, habits, traditions, norms and values manifest as a shared pattern in a group of people living in a community at a specific point in time (Bille-Brahe, 2000). A cultural vantage point in suicidology focuses on the interaction of the individual and his larger context. In every culture, the meaning of suicide reflects specific historical or mythic symbolism and affective significance (Boldt, 1988). Cultural, religious and legal institutions all give rise to cultural meanings and normative values that individuals use to assess their behaviors and action (Boldt, 1988; Mäkinen, 1997).

Culture shapes not only the nature and perception of stressful conditions but also the responses to stressors. Kral (1994) proposed that suicidal responses to stress or "perturbation" can eventually become prototypes that an individual accesses during periods of heightened distress. The notion that ideas of suicide can be internalized through culturally inherited schemas (Kral, 1998), has gained support from several cross-cultural and cross-ethnic studies that have shown differences in sociocultural correlates of suicidal behaviors (Aubert, Daigle & Daigle, 2004; Bhui & McKenzie, 2008; Eshun, Chang, & Owusu, 1998; Etzersdorfer, Vijayakumar, Schöny, Grausgruber, & Sonneck, 1998; Morris & Maniam, 2001; Pritchard & Hean, 2008). These studies show that the same risk factors across cultures are of varying relevance for individuals who engage in suicidal behaviors. However even within each culture there may be large differences in the number of individuals who do and don't think about or attempt suicide. It is important to note that the presence of a salient risk factor in a particular culture does not invariably lead to suicidal behaviors for all individuals in that culture.

Studies within specific cultures across the globe have highlighted the need to understand suicide and suicidal behavior with reference to the sociocultural context. In Western developed nations, for example, youth suicide has been shown to be associated with cultural measures of social attachment and integration, especially individualism (Eckersley & Dear, 2002). These cultural correlations have been shown to be even stronger than those between suicide and socioeconomic variables. Within North America there are striking differences in the rates of suicide of the general population and Native peoples, especially among youth. A long history of oppression from colonization, forced assimilation, loss of culture, and the manifestations of these realities in social and psychological problems increases the vulnerability to suicide in Aboriginal communities (Chandler & Lalonde, 1998; Kirmayer, 1994; Wexler, 2006). Even within Aboriginal communities there are vast differences in suicide rates with some communities reporting zero suicides and others reporting as high as 633 suicides per 100, 000. Suicidal behavior in other racial and ethnic groups in North America is also influenced by each group's unique context. For instance, African Americans' experiences of racism, discrimination, and social disadvantages brought about by deindustrialization of inner city areas are associated with elevated levels of depression, substance abuse and hopelessness. These factors increase vulnerabilities to suicidal behavior among African Americans, although they have lower rates than the mainstream population (Goldston, Molock, Whitbeck, Murakami, Zayas, et al., 2008; Kubrin, Wadsworth, & DiPietro, 2006). Among Latinos, who have higher rates of suicidal behavior compared to non-Latino groups, stresses of immigration experiences and acculturation, decreased familism, differential rates of

acculturation within a family, and parent-child conflicts over traditional values, are among the factors related to distress and suicidal behavior (Zayas & Pilat, 2008).

Rates of suicide and suicidal behavior in Asian cultures

Rates, trends and risk factors for suicidal behavior in developing nations and in industrialized collectivist cultures in Asia differ from developed Western nations. Differences are also seen between Asian diasporaic groups living in Western countries and their respective mainstream groups (Bhugra, 2004; Bhugra & Desai, 2002; Morris & Maniam, 2001; Thompson & Bhugra, 2000). Given their highly varied cultural, historical and religious contexts and diverse economic and social settings, the study of suicidality in Asian regions can make significant theoretical contributions to suicidology, with particular reference to the impact of culture- specific values and norms (Tousignant, 1995). These contributions are also vital in informing mental health policy and developing intervention strategies appropriate to local settings.

Due to large differences in suicide rates within Asian countries it is difficult to compare rates for Asia as a whole to the West. According to the WHO database (WHO, 2008), suicide rates (per 100,000) range from 7.8 in Thailand (2002 data) to 21.9 and 23.7 in Korea and Japan respectively (2006 data). Rates for India and Singapore in 2006 were reported as 10.5 and 10.3 (National Crime Records Bureau, 2006; WHO, 2008). China and Hong Kong SAR had similar rates in 1999 with 13.9 and 13.2 (WHO, 2008). Low rates ranging from 0.4 to 2.9 have been reported in cities across Pakistan (Khan, Naqvi, Thaver, & Prince, 2008) and a rate of 2.1 reported for the Philippines in 1993 (WHO, 2008). International and regional variation in rates should however be interpreted with caution. Data collection and suicide ascertainment methods vary within countries

and data quality is often compromised due to factors like inefficient registration systems and unreliable population counts. Further, shame and stigma avoidance, ubiquitous in Asian cultures, may lead to under-reporting of suicides (Vijayakumar, et al., 2005). Despite the fact that suicide estimates tend to err on the conservative side in Asia, in terms of sheer numbers, China, Japan and India account for more than 40% of world suicides (Beautrais, 2006). These figures clearly indicate the pressing need to further investigate the contextual features of suicidal behaviors in Asian countries.

Correlates of suicide and suicidal behavior in Asian cultures

Age

As in developed Western nations, suicide rates in Asians tend to increase with age although Asian elderly have higher suicide rates than their Western counterparts in some regions like Hong Kong SAR, Taiwan and Beijing (Cheng & Lee, 2000). Elderly suicide on the Indian subcontinent however, is reportedly lower than in the West (Khan, 2002). In Sri Lanka, suicide rates have been the highest in the 15-29 age group (Cheng & Lee, 2000; WHO, 2008). Other Asian nations have also seen increasing rates in younger age groups in recent years. A substantial increase in youth suicides was observed in the 1990s in Japan and Hong Kong SAR (De Leo & Evans, 2004), with suicide reported as the leading cause of death in 15-34 year olds in Hong Kong SAR (Yip, Law, & Law, 2003).

Gender

While the male to female sex ratios in suicides are similar in many Asian and Western countries, there are some important exceptions. China has reported equal or higher numbers of female suicides and suicide attempts (Phillips, Li, & Zhang, 2002) and a near equal sex ratio has also been observed in India (Mayer & Ziaian, 2002a).

Marital status

There are divergent reports on other sociodemographic characteristics like marital status. Suicidal behavior in the Western developed world is associated with being single (Schmidtke, Bille-Brahe, De Leo, Kerkhof, Löhr, et al., 2004) or previously married (Borges, Angst, Nock, Ruscio, Kessler, et al., 2008). In some Asian countries however, being married does not necessarily afford protection against suicide. A survey in China found no differences in suicide rates between single and married individuals (Phillips, Yang, Zhang, Wang, Ji, et al., 2002). Similarly in the Indian subcontinent, marriage may not protect against suicide. Many female suicides in India and Pakistan occur within the marital context. Marital issues such as dowry disputes and conflicts within the affinal household are common factors in suicides among married women (Khan & Reza, 2000; Mayer & Ziaian, 2002b; Venkoba Rao, 1991).

Economic, familial and social factors

As in developed nations, low socioeconomic status is also a risk factor for suicidality in Asian countries. Living in rural areas, low levels of education, poverty, indebtedness, financial losses, and the ensuing stress due to these economic factors are proximal causes for suicidal behavior (Phillips et al., 2002; Vijayakumar et al., 2005). Since the well-being of the community and family are of central importance in Asian cultures, upheavals in communal or family life have a more pronounced impact on mental health in these societies. Disturbances in family life have been associated with higher risk for suicidal behaviors in adolescents in China (Liu & Tein, 2005). In India, unspecified family problems were cited as the leading cause of suicide (National Crime Records Bureau, 2007). Other stressful life events such as socioeconomic and political changes,

cultural tensions, changes in traditional values systems, have also been linked to suicidal behaviors (Chan, Hung, & Yip, 2001; Lam, Stewart, Yip, Leung, Ho, et al., 2004; Vijayakumar et al., 2005).

Philosophical and religious ideologies

The diverse philosophical, spiritual and religious traditions in Asia and their associated cultural ideologies and practices also influence the perception of suicide and propensity for suicidal behaviors. Most research suggests that suicide is less prevalent where the predominant religion has strong sanctions against suicide. As an example, in the Islamic country of Pakistan, suicide rates are much lower than its subcontinental neighbors (Khan & Reza, 2000). In other regions, certain types of culture-specific suicides that were socially acceptable or even sanctioned at some point may continue to affect suicide statistics. For example, the tendency to suicide by fire, a relatively common method in India (National Crime Records Bureau, 2006) can be linked to *sati,* a Hindu tradition sanctioning the self-immolation of a woman on her dead husband's funeral pyre (Bhugra, 2005). Another type of culture-related suicide, *hara-kiri,* or more properly *seppuku,* is a traditional form of suicide committed by warriors in feudal times in Japan (Takahashi, 1997). Such suicides are rare in modern times but it is possible that persistent cultural ideas about the value of self-sacrifice, social responsibility and social 'face', increase propensity for suicidal behavior in response to shame and failure.

Psychopathology

While it is well established that psychopathology is strongly associated with suicide in the West, Asian studies infrequently report mental illness as a cause of suicide (Cheng & Lee, 2000; Vijayakumar, 2004). Support for mental illness and substance

abuse as risk factors for suicide has begun to surface in studies in recent years even as equal or greater importance is placed on sociocultural factors (Vijayakumar et al., 2005).

Access to means

Methods adopted for suicide vary widely across countries in the East and West and are largely dependent on access. Self poisoning from pesticides, uncommon in the West, is one of the most common methods for suicide in Asia. Easy access to highly toxic pesticides at home results in higher numbers of deaths in countries like China, especially for impulsive attempters (Beautrais, 2006; Conner, Phillips, & Meldrum, 2007).

Summary

Current knowledge of suicides and suicidal behavior in Asian countries is hindered by a paucity of research. Where suicide data does exist, its quality is often compromised due to unreliable reporting or poorly designed data collection systems. Based on the evidence, risk factors for suicidality in Asian nations include low socioeconomic status; living in rural areas; being male (with the exception of rural China); being a youth or elderly; mental illness; access to high lethality substances; and chronic or acute stress related to one's sociocultural context; and economic or political changes. While many of these risk factors overlap with those found in the West, the societal conditions and cultural and religious beliefs in each setting may be particularly salient factors in mediating suicidal responses to stressful situations in Asian cultures (Beautrais, 2006; Colucci, 2006; Hendin, Phillips, Vijayakumar, Pirkis, Wang, et al., 2008; Mishara, 2006).

Suicide and suicidal behaviors in India

Suicide in Indian history

The study of suicide in any culture must take into account the religious, historical, cultural, and social context within which it occurs to develop a nuanced understanding of its aetiology and inform intervention and policy. In India, certain types of suicides have historically characterized accounts and reports of suicide. References to suicides on religious grounds can be found in ancient Hindu scriptures, particularly the Vedic corpus. Other texts like *Upanishads*, while not condoning suicidal acts, show leniency towards religious suicide. Jainism, another ancient religion practised in India also sanctioned the act of *santhara* or *sallekhana* for ascetics, a ritual of voluntary fasting to death. Voluntary starvation (with an implied or explicit risk of death) has also been seen in Indian political history as means of non-violent protest, most famously by Gandhi (Venkoba Rao, 1975).

Two other forms of suicides, *sati* and *jauhar* have also held an important place in the history of suicide in India. *Sati,* or the self-immolation of widows, can be traced to medieval times and was described in the *Mahabharata*, an important Indian epic. *Jauhar*, another type of heroic sacrifice was performed by *Rajputs,* the rulers of the western state of Rajasthan. *Jauhar* was committed by *Rajput* women during battle, to escape degradation and dishonor at the hands of enemies (Thakur, 1963). Similar acts of self-sacrifice were not uncommon in other cultures during medieval times. Similar accounts have also been found in other cultures including the Egyptian, German and Chinese (Westermarck, cited in Thakur, 1963).

Although major epics like the *Mahabharata* and *Ramayana*, and Hindu scriptures have permitted certain types of suicides, the *Dharmasastras*, the main body of texts that

deal with religious duties and legal codes, condemn suicide as a great sin (Veeraraghavan, 1985). In modern day India *sati*, *jauhar,* and religious activities such as fasting, are not seen among the list of causes of suicide in national suicide reports (National Crime Records Bureau, 2007). It has been suggested however, that the sanction on religious suicides in earlier historical periods of Hinduism has led to more ambivalent attitudes towards suicide in general (Morris & Maniam, 2001).

Suicide statistics in India

Studies of suicidality in India have focused primarily on epidemiology, reporting suicide rates and variations within India (Kim & Singh, 2004; Lester, 2000; Lester, Agarwal & Natrajan, 1999). Official suicide statistics in India are collected by the National Crime Records Bureau, an organization that maintains databases for crimes, and accidental and suicide deaths. Since suicide attempts constitute punishable offences under Section 309 of the Indian Penal Code, 1860 (http://indiacode.nic.in/), suicide cases are reported to the police. This data is published in an annual report, *Accidental Deaths and Suicide in India* (http://ncrb.nic.in/ADSI2007/home.htm). Given the highly variegated cultural landscape of India, it is not surprising that official data shows great disparities in suicide rates across the country. There are immense variations in beliefs, customs, practices, and attitudes that transcend language and geographical differences. In addition, since Indian society is highly stratified based on economic status, caste, religion and sectarian affiliation, responses to social conditions vary widely across these strata.

According to the National Crime Records Bureau, the suicide rate in India in 2007 was 10.8 per 100,000, a 3.8% increase from the previous year. State-wise comparisons show large differences, ranging from 48.6 in the southern state of Pondicherry to 1.0 in

the eastern state of Bihar. The number of suicides reported has increased by 28% from 1997 to 2007. The overall female to male ratio was 1:1.9 but among children under 14 years, the ratio was 1:0.9; almost equal numbers of males and females in this age group had committed suicide. More than a third (35.2%) of all suicides reported in India had occurred among youth aged 15-29 years.

The commonest methods for suicide were self poisoning or hanging. The most commonly reported causes among males were social and economic while causes for females were more personal and emotional in nature. For about 42% of suicides causes were either unknown or listed as "Other". Family problems were cited as the most common known cause attributing to 24% of total suicides. More than 70% of suicide victims were married, more than 40% were educated only up to high school, more than 40% were self employed, and about 20% were housewives. South India reported higher numbers of suicides. Although the suicide database shows a low suicide rate compared to other Asian nations such as China and Sri Lanka, these figures may be conservative estimates. (Joseph, Abraham, Muliyil, George, Prasad, et al., 2003). Official suicide mortality and morbidity statistics are unreliable since families often under-report, conceal or attribute suicidal behaviors to accidental causes to avoid entanglement in legal issues or escape the consequent stigma and shame (Vijayakumar, 2007). The actual number of suicides and suicide attempts is undoubtedly greater in developing countries like India (Joseph et al., 2003; Ruzicka, 1998).

Suicidal behavior in India

Estimating the prevalence of suicidal behavior such as suicide ideation and suicide attempts is extremely difficult due to a dearth of research in this area. Most data

comes from hospital-based psychiatric studies or from police records. Suicide attempt data is varied since it comes from geographically and socioculturally diverse parts of the country and has been collected over different time periods. An early report by Veeraraghavan (1985) on attempted suicides over a 66 year period, from 1914 to 1979 in New Delhi, found a total of only 1,775 registered cases — less than the number of completed suicides. It is well-known among suicidologists that suicide attempts outnumber completed suicides. However in India, suicide attempts, particularly among females, are very often not reported to the police. Since suicidal behavior among women frequently takes place in the marital context, (Khan & Reza, 2000; Mayer & Ziaian, 2002b; Venkoba Rao, 1991), affinal households do not report suicide attempts to avoid stigma, shame and legal consequences.

Veeraraghavan's (1985) review, along with separate verbal interviews conducted in two hospitals, showed that compared to completers, attempters were largely males, unmarried, had lower levels of education, were Hindu, belonged to upper or upper middle class. Suicide attempts were motivated by emotional causes such as family or relationship issues, death of loved one; or illness (including mental illness). Among female attempters, the majority were married and were housewives. The commonest method was self-poisoning, typically with organophosphate pesticides. While later studies have largely confirmed these demographic correlates, the sex ratio among attempters remains inconsistent. Adityanjee's (1986) review of six reports from 1965 to 1981 showed near equal ratios for male and female attempters while other studies have reported either male (Nagendra Gouda, & Rao, 2008; Narang, Mishra, & Mohan; 2000; Satyawathi, 1971), or female majority in suicide attempts (Logaraj, Ethirajan, Felix, & Roseline, 2005; Sharma,

1998). Precipitating or predisposing factors in Adityanjee's (1986) review included disputes with spouse or family; disappointment or rejection in love; infidelity; rape; illegitimate pregnancy; impotence in males or sterility in females; poverty; failure in examinations; and incurable illness. Some researchers in South India (Satyawathi & Venkoba Rao, cited in Adityanjee, 1986; Venkoba Rao, 1965) found that suicidal patients attributed their suicide attempts to stomach pain; likely a somatic complaint they used to communicate psychological problems or distress. Somatization in the expression of emotional distress is common worldwide but specific features of the presentation are shaped by culture and especially by the perceived stigma attached to the distress or problem in that culture (Kirmayer & Young, 1998; Raguram, Weiss, Channabasavanna, & Devins, 1996).

Religion influences suicidal behavior at an individual and community level where it can be a protective factor against suicidal behavior. However religious attitudes towards suicide may mediate these protective effects (Vijayakumar, 2002). Some studies have observed that suicide rates are lower in countries where religious beliefs are actively promoted and higher levels of religiosity protect against suicide at an individual level (Gururaj, Isaac, Isaac, Subbakrishna, & Ranjani, 2004; Neeleman & Lewis, 1999). Hinduism is the predominant religion in India while other religions such as Islam, Sikhism, Buddhism, Jainism, Christianity and Zoroastrianism represent the religious minorities. As noted earlier, Hinduism has historically condemned suicide but has sanctioned and tolerated suicide for spiritual purposes. Islam is less ambivalent with strict prohibitions against suicide (Vijayakumar, Pirkis, Huong, Yip, Seneviratnae, et al., 2008). Compared to Islamic countries, India has a higher suicide rate (Bertolote &

Fleischmann, 2002a), suggesting the influence of religious sanctioning of suicides. Apart from religion there are several other interacting contextual factors that collectively impact suicidal behavior. Thus, while Islam may have strong sanctions against suicide, religion per se may not afford protection against suicidal behavior among Muslins in India. Rather, the interaction of factors such as religious conviction, social conditions and individual level variables is related to suicidal risk (Vijayakumar, et al., 2008).

Alcoholism and mental illness have not been traditionally considered as strong risk factors for suicidal behavior in India. The emphasis instead has been on the relationship between stress, impulsivity and suicide, with psychological distress being implicated much more than severe mental illness (Jacob, 2008). Additionally, the use of psychological autopsies instead of police records for investigating risk factors reveals a lower contribution of mental illness to suicides (Prasad, Abraham, Minz, Abraham, Joseph, et al., 2006). The low contribution of psychopathology to suicide in clinical samples could be indicative of lower prevalence of mental disorders in community populations. It can be argued, however, that certain methodological limitations lead to an underestimation of the prevalence of psychiatric morbidity among suicidal patients seen in primary care and in the community. These limitations include the use of Western nosologies and criteria for identifying mental illness, somatic presentations, the lack of mental health services, and stigmatization of mental health problems (Avasthi, Varma Kulhara, Nehra, Grover, et al., 2008; Bhatia, Khan, Mediratta, & Sharma, 1987; Pillai, Patel, Cardozo, Goodman, Weiss, et al., 2008). Although there are low levels of self-reported or clinician-diagnosed psychopathology (Bertolote, Felischmann, De Leo, Bolhari, Botega, et al., 2005; Das, Grover, Avasthi, Chakrabarti, Malhotra, et al., 2008;

Parkar, Dawani, & Weiss, 2006), and low levels of alcohol abuse in suicide attempts (Latha, Bhat, & D'Souza, 1996; Sarkar, Sattar, Gode, & Basannar, 2006), most researchers acknowledge the role of mental illness and substance abuse in suicidal behavior in India (Kumar, Mohan, Ranjith, & Chandrasekaran, 2006; Nath, Patra, Biswas, Mallick, Bandopadhyay & Ghosh, 2008; Vijayakumar & Rajkumar, 1999). A diagnosis of Axis I and Axis II disorders has been documented in many patients in several studies (Baby, Haridas, & Yesudas, 2006; Bhatia, Aggarwal, & Aggarwal, 2000; Nath, et al., 2008; Vijayakumar & Rajkumar, 1999).

Youth in India face adjustment to not only developmental processes peculiar to this stage of life, like academic or marital choices (Saraswathi, 2000, Verma & Saraswathi, 2002), but also grapple with the stress associated with changing norms as they renegotiate their adherence to traditional customs, beliefs and practices. In the 1990s, India formally launched programs of economic liberalization with reforms that opened its domestic economy to world markets (Council for Social Development, 2006). Post liberalization, in the midst of globalization, India is witnessing several shifts in attitudes and value orientations. While economic reform has reduced poverty and improved the standard of living overall (Kishore, 2002), the resulting income and wealth inequalities have led to a wider gap between ambition and reality. The expanding middle and lower classes struggle to keep up with lifestyles that demand increased consumerism and materialism. As youth internalize the ideals that a globalizing culture propounds, they may be focusing increasingly on materialistic goals. Such materialistic value orientations have been shown to be associated with lower personal well-being and psychological health (Kasser, 2002). Emerging adulthood is a stressful time for youth universally, but

this transitional stress is further compounded in India, where the local cultural milieu is changing in response to globalization. This cultural dichotomy undoubtedly has a great psychological impact on youth as they struggle to form identities based on both local and global cultures (Arnett, 2002).

Rationale and scope of the current study

The available literature shows that suicidal behavior is multifactorial in aetiology involving a complex interplay between psychological, social, cultural and ecological factors. It is thus worth understanding suicidal behavior from various vantage points, given that it occurs in a powerful social context and is influenced by a collective of ideas internalized through culture (Kral, 1998). The impact of social and cultural life on mental health warrants specific inquiry more so in India, where social and cultural factors may be equally or more salient than psychopathology in determining suicidal outcomes (Parkar, et al., 2006; Vijayakumar, 2007). Such factors include psychosocial stresses, the impact of cultural change, and traumatic events motivated by religious or political ideologies (Kandamuthan, 2001; Kim & Singh, 2004; Prasad, et al., 2006; Thompson & Bhugra, 2000; Vijaykumar & Rajkumar, 1999).

In India, suicidality is correlated with factors such as youth, particularly between the ages of 15 and 29 years; male gender, except in marital contexts where females outnumber males; and being socially and economically disadvantaged. It was thus pertinent to study the prevalence and correlates of suicidal behaviors within a community sample that was within the 15-24 year age range, mostly unmarried, and from a variety of socioeconomic backgrounds. As noted earlier in the previous section, this age range also represents a period of transition in which youth have to cope with several stressors. While

psychopathology has been shown to play a larger role in attempted suicide (Kumar, et al., 2006), situational stressors have been reported to be more relevant to suicide ideation or self-harm without suicidal intent. Psychological factors such as impulsivity and maladaptive strategies to cope with prolonged and chronic situational stress may contribute more to suicidal thoughts and self-harm (Das et al., 2008; Sarkar et al., 2006). An exploration of the experience of stress with reference to situational, cultural and social factors is crucial in understanding the role of the sociocultural dimension in suicidal responses. Identifying domains and sources of perceived stress and suffering also highlights areas where the effectiveness of timely and appropriate intervention can be optimized. While the research study presented here is an epidemiological survey, it is a useful first step in exploring the status of mental health among young people in a local community where no such research has been conducted previously. The data from this study provides a basis for further qualitative micro-level investigation across heterogeneous geographic, cultural, and social contexts within India.

This study took place in Ahmedabad, the most urbanized city in the state of Gujarat located in western India. The city has a population of approximately 4.5 million. It was founded in 1411 by the Mughal emperor Sultan Ahmed Shah after whom the city is named. Ahmedabad is situated in Ahmedabad district and is the sixth largest city in India. The primary languages used in Gujarat and Ahmedabad are Gujarati, Hindi, and English. The predominant religion is Hinduism, with Muslims, Christians, Jains, Parsis, Sikhs and Buddhists constituting the religious minorities. Jains are overrepresented in Gujarat relative to the rest of India. Although known for its famous textile industry, Ahmedabad was also brought to the political forefront by Gandhi during India's freedom

struggle (http://collectorahmedabad.gujarat.gov.in/). Ahmedabad is the intellectual and cultural center of Gujarat and home to a large number of government funded and private universities and their affiliated colleges. Almost 12% of Ahmedabad district's population belongs to lower castes that are socially and economically disadvantaged (Census of India, 2001). In urban areas like Ahmedabad, lower castes and lower social classes attend government funded universities. Gujarat University is the largest government run University in Gujarat and was the site of the present study.

In recent years, Ahmedabad has witnessed several social and political upheavals. The 1990s saw the rise of political power that has advanced an agenda based on Hindu ideology. Consequently communal tension between Hindus and Muslims has been on the rise in Gujarat in recent years and had sparked large scale communal riots in 2002 that left thousands dead. Additionally, conflicts within Hindu castes which have been prevalent throughout India's history, have also increased considerably over the past decade. Caste conflicts and religious conflicts have been common features of Gujarat's history. In 2001 Gujarat was also ravaged by an earthquake that caused massive loss of life and complete devastation of homes and businesses across the state.

Ahmedabad was an ideal locale for pursuing the current research study for several reasons. To date, no such investigation had been carried out in Ahmedabad providing a unique opportunity to open avenues for research. The city has a large and easily accessible college population which allowed for a large sample size. Being the most urbanized city in Gujarat, it afforded an opportunity to assess the impact of globalization on youth. Additionally, since the city has witnessed several socioeconomic and political upheavals in recent history, the impact of these events on youth mental health could also

be investigated. Government officials from the Departments of Health and Education as well as officials from Gujarat University were receptive to the study and offered considerable logistical support. Conceptual support was also available for this study from several mental health professionals in Ahmedabad.

Based on a review of literature, the present study was designed to estimate the prevalence of suicide ideation and suicide attempt in an urban student population. It was also aimed at identifying the contribution of perceived stressful factors and stressful life events situated in various domains of social, personal and familial life, and underpinned by social norms and cultural values. The role of dysphoric mood as an associated factor was also investigated.

Chapter III: Method

Sample

The survey was administered to 1,835 students of Gujarat University in 36 classrooms of the faculties of Arts, Sciences, Commerce and Law since these are the faculties with the largest undergraduate student enrollments in Ahmedabad. Classes in the colleges of Gujarat University are presented in Gujarati and English. Students were eligible for the study if they were between 18 and 24 years old and fluent in Gujarati or English.

Measures

Based on the available literature on risk factors for suicidal behavior in India and consultations with several mental health professionals working in Ahmedabad, a questionnaire was designed to measure the variables of interest in the study (Appendix A). Since several colleges use Gujarati as a medium of instruction, the questionnaire was translated into Gujarati by Shabd, a professional translation agency with experience in translating documents for the social sciences. The translated version was reviewed and approved by a mental health professional and a psychology lecturer fluent in English and Gujarati, and well versed with the terminology used in the questionnaire.

The final questionnaire consisted of a sociodemographic measure, a stressors scale to measure the level of perceived stress; a life events scale to measure the level of perceived stress due to adverse life events; the K-6 scale (Kessler, Andrews, Colpe, Hiripi, Mroczek, et al., 2002) to measure depressive symptoms; a coping strategies scale (Ross & Heath, 2002) to measure the frequency of use of various strategies in dealing with stress; history of recent and lifetime suicide ideation and attempt; history of self-

injurious behaviors without suicidal intent; and the Aspiration Index (Grouzet, Kasser, Ahuvia, Fernandez-Dols, Kim, et al., 2005) to measure perceived importance of various life goals and aspirations. For the purpose of the current study, sociodemographic data, level of perceived stress in everyday life and adverse life events, dysphoric mood, and suicidal behavior data, were used in the analysis. Since the focus of the current thesis was the correlates of only suicide attempts and suicide behavior, self injury was not included in the analysis. Similarly the impact of coping strategies on suicidal outcomes and self injury, and the aspirational motivations of youth were not within the focus of this report and were therefore not subject to analysis.

Sociodemographic data: Questions included participant's age, gender, marital status, religious denomination, caste affiliation, who they live with, household income, and future plans. Income, along with literacy levels and occupation, has regularly been used as one of the determinants of socioeconomic status. Lower education levels are related to lower occupational status, and therefore lower income. Economic hardship and lower social status are very often sources of socioeconomic stress. Since the impact of socioeconomic status on mental health and suicidality has been previously noted (Arun, Yoganarasimha, Palimar, Kar, & Mohanty, 2004; Kuruvilla & Jacob, 2007), it was relevant to include income and economic stress among variables of interest for this study

Stressors scale: This component was designed to measure the perceived level of stress experienced in situations that were socially and culturally relevant. Items for this measure were culled from a review of available literature on precipitating and predisposing factors and anecdotal information of the local sociocultural milieu. Illness and family problems are the most commonly reported causes of suicides in India

(National Crime Records Bureau, 2007), and interpersonal conflict with parents, spouse or in-laws, are cited as triggers for suicidal behaviors (Parkar et al., 2006). Family and kinship are central to Indian ethos as evidenced by the wide prevalence of the joint family structure in India. Thus adverse events experienced by one family member affect the well-being of other members. It was therefore pertinent to include family related stressors.

The level of stress was ascertained from the participant's response to each item on a four point Likert scale. The response categories were "No Stress", "A Little Stress", "Moderate Stress", and "Severe Stress". Each item was presented as a situation commonly encountered by youth in Gujarat. These potentially stressful situations could be conceptually grouped into different domains; academic, economic, familial and social. Each item could be identified with one of these areas. For example, the variable "Achieving the level of academic success my parents expect from me" fell under the "Academic" domain. Stress levels were measured for a total of 29 items in this question.

Life events scale: This component measured the level of stress experienced due to negative life events. Based on a review of common precipitating factors in suicidal behavior in the Gujarati context, and knowledge of local events involving social, economic and political changes, a list of ten adverse life events was developed. As noted for the Stressors scale, it was culturally relevant to include family related life events. Another distinct feature of social organization in India is caste stratification, largely among Hindus. Scheduled castes and tribes, and other backward castes have historically faced oppression and have been socially disadvantaged even post-independence. Caste-related stresses such as those of discrimination were thus included as relevant

sociocultural variables. The socio-political environment is also relevant to a community that has a history of political upheavals, especially with respect to religious factionalism. Communal rioting has been a common feature of Gujarat's political history and has left indelible impressions on the community's psyche. Since the impact of life events related to communal unrest were of interest in this study, caste and religion related events were included in the Life Events scale.

Participants were asked to indicate the level of stress experienced as a result of these ten life events using a five point rating scale as in the previous question. Respondents could also indicate if they had not experienced the event. The response categories were "Did Not Happen To Me", "Not Stressful", "Little Stressful", "Moderately Stressful", and "Severely Stressful".

K- 6: The K-6 scale is a screening measure for dysphoria in the general population. It is a short, six item screening measure that was originally developed for use in the U.S National Health Interview Survey (http://www.cdc.gov/nchs/nhis.htm). The K-6 is useful in indicating the range of the distribution of non-specific distress, and cut-off scores discriminate between cases and non-cases of serious mental illness (Kessler, et al., 2002; Kessler, Barker, Colpe, Epstein, Gfroerer, et al., 2003). The prevalence of psychological distress allows estimation of depressive symptomatology in the sample, an important factor to consider since some form of psychiatric morbidity has been found in suicide attempts in India (Sarkar et al., 2006). The scale consists of six items presented as statements describing a range of feelings. Participants responded by indicating how often they had experienced each of those feelings in the past 30 days on a five point Likert

scale. Response categories were “None Of the Time”, “A Little Of the Time”, “Some Of the Time”, “Most Of the Time”, and “All Of the Time”.

Suicidal behaviors and exposure to suicide*:* To estimate the prevalence of lifetime and past year suicide ideation and attempt, participants were asked to respond to questions about serious thoughts of suicide in their lifetime or in the past year, and suicide attempts in their lifetime or in the past year. In a separate demarcated section within the same measure, participants were also asked if any family member, relative, or friend had died by suicide in the past year. Responses to each of these items was in a dichotomous “Yes” or “No” format.

It should be noted that since this was an exploratory study and measures of stress and adverse life events validated for use in this setting were not available, these measures were specifically developed for this study. They had not been tested for their psychometric properties previously nor validated for use in the Indian context. However, during development of the measures, consultations with mental health professionals in Ahmedabad deemed the items to have sufficient face validity for use in this study.

Procedure

A consent letter (Appendix B) was obtained from Gujarat University on the recommendation of the State Departments of Health and Education, which had been apprised of the study several months prior to data collection. The consent letter granted access to classrooms in all affiliated colleges for the purpose of this study. A list of Arts, Science, Commerce, and Law colleges in Ahmedabad was obtained from Gujarat University, and 17 colleges were randomly selected from a list of 254 colleges affiliated with Gujarat University. The principals of each of the randomly selected colleges were

then approached in person to request participation in the study. The consent letter from Gujarat University was shown to each principal prior to a briefing on the study. The aims of the study, the procedure, and the rights of the participants were explained to the principals. They were also shown a copy of the questionnaire.

A date and time for data collection were scheduled, or if possible, data collection was permitted on the same day. Data from Arts colleges was collected between 8 a.m. and 12 p.m., and for Commerce, Science and Law colleges, between 12 p.m. and 3 p.m. On the principal's request, lecturers who were commencing classes during this time frame were engaged to facilitate collection of data in their respective classrooms. The selection of classrooms was thus based on convenience and availability of lecturers. Once access was granted to classrooms, students who agreed to participate were administered the survey and had the entire duration of the lecture, typically 45 minutes. Participants could choose whether to complete the questionnaire in English or Gujarati. With the exception of one classroom in which two students did not wish to participate, there was a 100% participation rate in every classroom selected for this study.

Once the students were settled and the class commenced, lecturers introduced the investigator and research assistant. The aims of the study and rights of the participants were read aloud prior to data collection (see Consent form and Instructions in Appendix C and Appendix D). All instructions and clarification of questions were given in English and Gujarati. Students were told that the purpose of the study was to investigate the sources of stress among youth and strategies used to deal with stress. Due to the stigmatization of mental illness and suicidal behavior in India (Khan, 2002; Reddy, 2007), the investigation of suicidal behavior was not emphasized in the introduction.

Students were informed that participation was not compulsory and that they could withdraw from the study at any time. They were also assured of anonymity and confidentiality throughout the course of data collection and dissemination. Based on the language preference of their choice, questionnaires were then distributed to students who were willing to participate in the study. Participants were requested not to start entering information until they were instructed to do so by the investigator. Once questionnaires were administered, participants were asked to read the consent form carefully prior to filling out the survey. Participants were told not enter their name anywhere on the questionnaire to maintain anonymity. They were also informed that questions about the research study or local mental health resources could be directed to the contact persons indicated on the consent form or to the investigator.

Once all queries regarding the questionnaire were answered, participants were then instructed to start filling out the questionnaire. Lecturers were present at all times during the survey administration and completion, and invigilated classrooms to ensure that requests for clarification of the survey questions were directed to the investigator. Questionnaire completion time was approximately 25 minutes. Completed questionnaires were either collected by the research assistant and investigator or deposited at the front of the class on a table. Once all questionnaires were returned, students were thanked for their time and participation.

Data analysis

Separate analyses were conducted for suicide attempts and ideation. Gender differences and differences between suicide ideators/attempters and non-ideators/attempters on sociodemographic characteristics and all other variables were first

analyzed. Differences in means were compared with a *t*-test and differences in proportions were tested using the chi-square test for independence.

Next, using Mplus statistical software, a confirmatory factor analysis was used to test a proposed factorial structure of the Stressors scale (Appendix E). This was done to group conceptually similar items on the Stressors scale that represented a particular domain of stress. The WLSMV estimator was used, and all items in the model were treated as categorical/ordinal indicators. Based on factor loadings and other indices, modifications were made to the initial model and tested again (see Appendix F for factor loadings). Initial testing led to the removal of six items from the proposed model and moving one item ("Applying for post-graduate programs") from the "Academic" to "Economic" factor based on statistical and logical fit. The items ""Bullying", "Living in a joint family", "Living with in-laws", ""Pressure from others to smoke"; "Pressure from others to drink alcohol"; and "Pressure from others to take drugs" were removed from the model because they did not load specifically onto any factor. The last three (substance abuse) items were removed from the model due to multicollinearity. The initial "Social" factor was then split into two factors in the final structure; a Social and a "Romantic" factor. Items that were oriented towards finding a partner were moved from the Social factor since they loaded better onto the new Romantic factor.

Model fit was ascertained using the $\chi 2$ and practical fit indices. The chi-square tests are highly sensitive with large sample sizes and this can lead to the model being incorrectly rejected. Hence, three other practical indices were also used to test goodness-of-fit of the model as is recommended (Reise, Widaman, & Pugh, 1993). These were the comparative fit index (*CFI*); the root mean square error of approximation (*RMSEA*); and

the Tucker-Lewis Index (*TLI*). A *CFI/TLI* value close to 0.95 and *RMSEA* value close to .06 are indicative of good model fit (Hu & Bentler, 1999). However, a *RMSEA* of .08 or less and *CFI/TLI* of 0.90 or above are also considered to represent reasonably acceptable model fit (Browne & Cudeck, 1993). A total of 23 items were included in the final factorial model and five factors were identified representing academic stress; economic stress; familial stress; romantic relationship stress; and social stress. Scores were computed for these factors by summing the item scores for each item of the factor.

Bivariate analyses were then conducted with sociodemographic characteristics, stressors, life events, and K-6 scores, with suicide ideation and suicide attempt as the dependent variables. For all ordinal data, the Mann-Whitney *U* test was used to test for differences. Select variables (predictors) of interest that were statistically significant in the bivariate analyses were then used to develop three models for each of the four suicidal behavior outcomes: lifetime suicide ideation; lifetime suicide attempt; past year suicide ideation; and past year suicide attempt. The three models were entered into a hierarchical logistic regression to assess the independent contribution of each risk factor. The odds ratio (*OR*) was calculated with 95% confidence interval (*CI*). For each outcome, the first model contained sociodemographic variables, the second model contained sociodemographic variables and selected stressors and life events; and the third model contained sociodemographic variables, stressors and life events, and the K-6 score. To develop a more parsimonious model and hence to reduce the number of variables, items that were conceptually similar (family illness and family mental health problems; caste discrimination and caste conflict in the community) were combined. Since there were a small number of ideation and attempt events, the number of variables that could

be included in the multivariate analyses was limited. Inclusion of variables in logistic regression models was based on knowledge of known risk factors from previous research and the salience of the variable in suicidal behavior, particularly in the cultural context of Gujarat. Due to the small number of suicide attempts, separate logistic regression equations were developed for each stressor for suicide attempt.

Logistic regression analyses for all four outcomes, i.e., lifetime suicide ideation, lifetime suicide attempt, past year suicide ideation, and past year suicide attempt, involved three models. The format for each model as described below was the same for each analysis.

Model 1: Basic sociodemographic controls: Age, gender, and household income.

Model 2: Potential risk factors: Variables in Model 1 and four stressors: academic, economic, familial, and romantic. Life events include illness or disability in the past year, conflict in the community over religious or political beliefs, family illness or mental health problems, and conflict in the community over caste or discrimination against own caste.

Model 3: Risk Factors + Depressive Symptoms: Variables in Model 2 and K-6 score.

Data collected for this study was analysed using the SPSS statistical software, version 15.0 and confirmatory factor analysis was carried out using the MPlus statistical modeling program. A *p*-value of .05 or less was considered statistically significant for all analyses.

Chapter IV: Results

Sociodemographic data

From the 17 colleges, 1, 835 students across all three years of undergraduate study participated in the survey with an average of 108 students per college. The participation rate was almost 100%. Gender data was missing for seven participants. Of the total of 1,835 students who participated in the study, *N*=1817 were included in the final data analysis. Participants who did not complete the questionnaire and those who were above the age of 24 years were not included in the analysis.

Table 1 presents the sociodemographic characteristics of the participants. The mean age of the sample was approximately 19 years (*M*±*SD*, 19.11±1.09). The number of men and women was almost equal, with 56% women (*n*=1017) and 44% men (*n*=793). A majority of the sample was unmarried (99%), lived with their parents (87%) and resided in an urban area of the city (89%). The commonest 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. Compared to the overall population of India, Jains were overrepresented in this sample since they are predominant in Gujarat. Jains make up only 0.4% of the total Indian population (Census of India, 2001) but Jains in the current study constituted 11% of the total sample. More than half of the participants belonged to upper castes (66%) while 34% belonged to lower castes. Attendance at place of worship or frequency of praying was used as an index of religiosity. More than half (66%) prayed or visited their place of worship at least once a week. Almost a third (27%) were in the lowest annual household income category of 0-49,000 Rupees (approximately 0-CAD$1,200). The largest

proportion of the sample (29%) fell within the next income category, 50,000-99,000 Rupees (approximately CAD$1,200-CAD$2,400). Although only income was available to assess socioeconomic class, a rough approximation is possible using the per capita monthly income and the Wholesale Price Index (Ministry of Commerce and Industry, 2008), available for the period during which data collection took place. Based on the method proposed by Agarwal (2008), there are six social class categories ranging from upper high to very poor. When these class categories were applied to the present sample based on their per capita household incomes, the distribution of the participants in the upper high, high, upper middle, lower middle, poor and very poor categories was 1.1%, 9.6%, 10.3%, 20.3%, 28.6%, and 26.1% respectively. More than half of the sample belonged to poor and very poor social classes. On average, there were approximately 5 people in each household ($M \pm SD$, 5.07±1.9). More than half (54%) of all participants were enrolled in Commerce programs and majority (56%) wanted to study further after their undergraduate studies. More than a third (33%) wanted to work along with further studies. 63% of the total sample filled out the Gujarati version of the questionnaire.

Table 1.

Demographic characteristics of participants

Characteristic	**N**	**%**
Age[a] (n= 1745)	*M*= 19.11, *SD*= 1.09	
Gender (n= 1810)		
Female	1017	56
Male	793	44
Marital status (n= 1807)		
Unmarried	1782	99
Married	25	1
Living with (n= 1813)		
Parents	1572	87
Alone	76	4
Partner, relatives or friends	165	9
Area of residence (n= 1789)		
Rural	197	11
Urban	1592	89
Religion (n= 1813)		
Hindu	1396	77
Jain	207	11
Muslim	110	6
Christian	84	5
Sikh, Parsi, Buddhist or Other	16	1
Caste (n= 1540)		
General Category	1016	66
Other Backward Caste	102	7
Scheduled Caste/Tribe	422	27
Visit place of worship/pray (n= 1807)		
At least once a week	1200	66
Once a month	329	18
2-3 times a year	152	8
Less than 2-3 times a year	126	7
Annual household income (n= 1771)		
0-49,000 rupees	478	27
50,000-99,000 rupees	506	29
100,000-199,000 rupees	393	22
200,000-299,000 rupees	170	10
300,000-399,000 rupees	100	6
≥400,000 rupees	124	7
Family size[a] (n=1790)	*M*= 5.07, *SD*= 1.9	

Characteristic	**N**	**%**
Degree (n= 1817)		
Arts	423	23
Commerce	976	54
Science	418	23
Future plans after college (n= 1793)		
Study further	1000	56
Get a job	151	8
Join family business	51	3
Work and study	591	33

[a] *mean, standard deviation*

Suicide ideation and suicide attempts

Table 2 presents the prevalence of lifetime and past year suicide ideation and suicide attempt. Ten percent of participants reported ever having serious thoughts of suicide and 7% had thought seriously about suicide in the past year. Three percent had ever attempted suicide while 2% had attempted suicide in the past year. Three percent had exposure to a family member's suicide in the past year while 10% had exposure to a relative (other than immediate family members) or friend suicide in the past year. An analysis of sex differences in suicidal behavior outcomes and in exposure to suicide, revealed no statistically significant differences.

Table 2.

Suicide ideation, attempt and exposure to suicide

Variables	Proportion	%
Ever thought of suicide	178/1809	10
Thought of suicide in past year	130/1810	7
Ever attempted suicide	58/1810	3
Attempted suicide in past year	34/1802	2
Family member died by suicide in past year	53/1807	3
Relative or friend died by suicide in past year	189/1807	10

Correlates of suicidal behaviors: Bivariate analyses

Tables 3 and 4 (see Appendix G and Appendix H) present results of bivariate analyses for suicide ideation and attempt. Only variables that were statistically significant are presented in the tables. Based on the bivariate analyses, variables that reached statistical significance were entered into regression models. These were age, gender, income, all the stressors, negative life events involving personal illness/disability, a family member's mental or physical health problems, negative life events involving caste discrimination or caste conflict in the community, negative life events involving religious/political conflicts, and depressive symptoms. As noted in the literature review, these variables were shown to be relevant to the local context in previous studies.

Logistic regression model for lifetime suicide ideation

Table 5 presents results of the logistic regression analysis for lifetime suicide ideation. Odds ratios (*OR*) with 95% confidence intervals were calculated. The results show the independent contribution of risk factors for the prediction of suicide ideation controlling for sociodemographic variables. Increased stress due to illness or disability, and high stress levels due to religious/political conflict events were directly related to suicide ideation in Model 2. In Model 3, high levels of economic stress, high levels of stress due to caste conflict and caste discrimination, and high depressive symptomatology were robust predictors of suicide ideation. While illness did not significantly contribute to suicidal thoughts when depressive symptoms were added in Model 3, it nevertheless highlights the pervasive negative impact of illness and disability which is exacerbated by economic stress, stigma and social barriers. Religious conflicts that were significantly

associated in Model 2 but were no longer significant after adding depressive symptomatology also suggest the influence of civic strife on individual vulnerabilities.

Table 5.

Risk factors for lifetime suicide ideation: results of hierarchical logistic regression analysis

Variable	Odds ratio	95% Confidence Interval	*p* Value
Model 1. Demographic characteristics:			
Age	1.10	0.95 – 1.27	.190
Gender	0.77	0.55 – 1.08	.130
Annual Household income	0.83	0.70 – 0.98	.026
Model 2. Demographic characteristics + stressors and adverse life events			
Age	1.08	0.93 – 1.26	.306
Gender	0.68	0.47 – 0.97	.035
Annual Household income	0.86	0.72 – 1.02	.082
Academic stress	1.03	0.97 – 1.09	.291
Economic stress	1.10	1.02 – 1.18	.007
Familial stress	1.06	0.99 – 1.13	.090
Romantic relationship stress	1.04	0.99 – 1.09	.089
Stress due to illness or disability in past year	1.30	1.06 – 1.60	.011
Stress due to conflict in the community over religious or political beliefs	1.34	1.06 – 1.69	.013
Stress due to family illness or mental health problems	1.19	1.05 – 1.34	.004
Stress due to community conflict over caste or discrimination against own caste	1.26	1.09 – 1.45	.001
Model 3. Demographics + stressors and adverse life events + depressive symptoms			
Age	1.02	0.87 – 1.19	.841
Gender	0.80	0.55 – 1.16	.230
Annual Household income	0.86	0.72 – 1.03	.101
Academic stress	1.02	0.96 – 1.08	.542
Economic stress	1.09	1.02 – 1.18	.017
Familial stress	1.03	0.96 – 1.10	.362
Romantic relationship stress	1.03	0.98 – 1.07	.299
Stress due to illness or disability in past year	1.16	0.94 – 1.44	.171
Stress due to conflict in the community over religious or political beliefs	1.15	0.90 – 1.47	.266
Stress due to family illness or mental health problems	1.11	0.97 – 1.25	.120
Stress due to community conflict over caste or discrimination against own caste	1.21	1.05 – 1.40	.010
K-6 Total score[a]	1.16	1.19 – 1.21	<.001

[a]higher score on the K-6 reflects greater depressive symptomatology

Past year suicide ideation

Table 6 presents the results of logistic regression analysis for past year suicide ideation, with the same predictor variables as in the lifetime suicide ideation models. Stress due to caste related events and depressive symptoms continued to be statistically significant in Models 2 and 3. However, in comparison to the lifetime ideation model, for Model 2, participants who had higher levels of perceived academic stress rather than economic stress were more likely to endorse suicide ideation. In Model 3, academic stress had a weaker relationship, but a *p* value of .069 could be considered borderline statistically significant. As with the lifetime models, family illness and mental health problems were strongly associated with past year ideation in Models 2 and 3.

Lifetime suicide attempt

Tables 7a to 7h present results of the logistic regression analysis for lifetime suicide attempt. Due to the small number of lifetime suicide attempts (*n*=58), and past year suicide attempts (*n*=34), stressors and life event variables were entered separately for Model 2. Age was not included in these analyses.

Table 6.

Risk factors for past year suicide ideation: results of hierarchical logistic regression

Variable	Odds ratio	95% Confidence Interval	*p* Value
Model 1. Demographic characteristics:			
Age	1.04	0.86 – 1.26	.666
Gender	0.79	0.52 – 1.21	.276
Annual Household income	0.84	0.68 – 1.04	.103
Model 2. Demographic characteristics + stressors and adverse life events			
Age	1.01	0.83 – 1.21	.959
Gender	0.71	0.45 – 1.12	.142
Annual Household income	0.86	0.69 – 1.08	.193
Academic stress	1.08	1.01 – 1.17	.035
Economic stress	1.06	0.97 – 1.15	.242
Familial stress	1.08	1.00 – 1.16	.066
Romantic relationship stress	1.03	0.97 – 1.09	.328
Stress due to illness or disability in past year	1.22	0.95 – 1.57	.123
Stress due to conflict in the community over religious or political beliefs	1.25	0.94 – 1.67	.124
Stress due to family illness or mental health problems	1.26	1.10 – 1.45	.001
Stress due to community conflict over caste or discrimination against own caste	1.36	1.16 – 1.59	<.001
Model 3. Demographics + stressors and adverse life events + depressive symptoms			
Age	0.93	0.76 – 1.13	.444
Gender	0.84	0.52 – 1.36	.484
Annual Household income	0.87	0.69 – 1.09	.216
Academic stress	1.07	1.00– 1.16	.069
Economic stress	1.05	0.95 – 1.15	.338
Familial stress	1.04	0.96 – 1.13	.327
Romantic relationship stress	1.01	0.95 – 1.07	.757
Stress due to illness or disability in past year	1.08	0.83 – 1.40	.571
Stress due to conflict in the community over religious or political beliefs	1.03	0.76 – 1.40	.827
Stress due to family illness or mental health problems	1.17	1.01 – 1.35	.037
Stress due to community conflict over caste or discrimination against own caste	1.32	1.12 – 1.55	.001
K-6 Total score	1.18	1.13 – 1.24	<.001

Table 7.

Risk factors for lifetime suicide attempt: results of hierarchical logistic regression analysis

7a. Demographics, depressive symptoms and academic stress

Variable	Odds ratio	95% Confidence Interval	*p* Value
Demographic characteristics:			
Gender	0.84	0.51 – 1.38	.486
Annual Household income	1.13	0.88 – 1.43	.341
Demographic characteristics + stressor			
Gender	0.87	0.53 – 1.44	.595
Annual Household income	1.14	0.90 – 1.45	.285
Academic stress	1.10	1.03 – 1.18	.004
Demographic characteristics + stressor + depressive symptoms			
Gender	0.96	0.58 – 1.59	.862
Annual Household income	1.18	0.92 – 1.51	.184
Academic stress	1.05	0.98 – 1.12	.153
K-6 Total score	1.17	1.11 – 1.22	<.001

Table 7b. Demographics, depressive symptoms and economic stress

Variable	Odds ratio	95% Confidence Interval	*p* Value
Demographic characteristics:			
Gender	0.79	0.48 – 1.30	.355
Annual Household income	1.12	0.88 – 1.43	.363
Demographic characteristics + stressor			
Gender	0.76	0.46 – 1.27	.296
Annual Household income	1.20	0.94 – 1.53	.150
Economic stress	1.21	1.11 – 1.32	<.001
Demographic characteristics + stressor + depressive symptoms			
Gender	0.87	0.52 – 1.46	.598
Annual Household income	1.22	0.95 – 1.56	.125
Economic stress	1.15	1.05 – 1.25	.002
K-6 Total score	1.16	1.11 – 1.22	<.001

Table 7c. Demographics, depressive symptoms and familial stress

Variable	Odds ratio	95% Confidence Interval	*p* Value
Demographic characteristics:			
Gender	0.86	0.52 – 1.42	.561
Annual Household income	1.10	0.86 – 1.40	.444
Demographic characteristics + stressor			
Gender	0.83	0.50 – 1.37	.460
Annual Household income	1.12	0.88 – 1.43	.354
Familial stress	1.14	1.06 – 1.23	.001
Demographic characteristics + stressor + depressive symptoms			
Gender	0.95	0.57 – 1.59	.850
Annual Household income	1.15	0.90 – 1.48	.267
Familial stress	1.07	0.99 – 1.16	.108
K-6 Total score	1.17	1.11 – 1.22	<.001

Table 7d. Demographics, depressive symptoms and romantic relationship stress

Variable	Odds ratio	95% Confidence Interval	*p* Value
Demographic characteristics:			
Gender	0.84	0.51 – 1.39	.492
Annual Household income	1.12	0.87 – 1.43	.374
Demographic characteristics + stressor			
Gender	0.85	0.52 – 1.41	.534
Annual Household income	1.12	0.88 – 1.43	.363
Romantic relationship stress	1.05	0.99 – 1.11	.119
Demographic characteristics + stressor + depressive symptoms:			
Gender	0.95	0.57 – 1.59	.854
Annual Household income	1.15	0.90 – 1.48	.275
Romantic relationship stress	1.01	0.95 – 1.07	.816
K-6 Total score	1.17	1.11 – 1.22	<.001

Table 7e. Demographics, depressive symptoms and illness/disability stress

Variable	Odds ratio	95% Confidence Interval	*p* Value
Demographic characteristics:			
Gender	0.76	0.46 – 1.26	.284
Annual Household income	1.08	0.85 – 1.38	.521
Demographic characteristics + adverse life event			
Gender	0.76	0.46 – 1.27	.299
Annual Household income	1.07	0.84 – 1.36	.600
Stress due to illness or disability in past year	1.34	1.02 – 1.77	.036
Demographic characteristics + adverse life event + depressive symptoms:			
Gender	0.86	0.51 – 1.45	.576
Annual Household income	1.12	0.87 – 1.43	.378
Stress due to illness or disability in past year	1.10	0.83 – 1.46	.517
K-6 Total score	1.18	1.12 – 1.23	<.001

Table 7f. Demographics, depressive symptoms and community conflict over religious/political beliefs

Variable	Odds ratio	95% Confidence Interval	*p* Value
Demographic characteristics:			
Gender	0.83	0.50 – 1.38	.478
Annual Household income	1.14	0.89 – 1.46	.286
Demographic characteristics + adverse life event			
Gender	0.77	0.46 – 1.29	.320
Annual Household income	1.14	0.90 – 1.46	.284
Stress due to conflict in the community over religious or political beliefs	1.85	1.43 – 2.41	<.001
Demographic characteristics + adverse life event + depressive symptoms:			
Gender	0.89	0.53 – 1.50	.661
Annual Household income	1.19	0.93 – 1.53	.175
Stress due to conflict in the community over religious or political beliefs	1.43	1.07 – 1.90	.015
K-6 Total score	1.16	1.11 – 1.22	<.001

Table 7g. Demographics, depressive symptoms and family illness/mental health problems

Variable	Odds ratio	95% Confidence Interval	*p* Value
Demographic characteristics:			
Gender	0.80	0.48 – 1.32	.380
Annual Household income	1.10	0.86 – 1.40	.445
Demographic characteristics + adverse life event			
Gender	0.80	0.48 – 1.33	.387
Annual Household income	1.08	0.85 – 1.38	.532
Stress due to family illness or mental health problems	1.40	1.23 – 1.60	<.001
Demographic characteristics + adverse life event + depressive symptoms:			
Gender	0.88	0.52 – 1.47	.622
Annual Household income	1.11	0.87 – 1.43	.399
Stress due to family illness or mental health problems	1.24	1.07 – 1.43	.004
K-6 Total score	1.15	1.10 – 1.21	<.001

Table 7h. Demographics, depressive symptoms and caste discrimination/caste conflict in community

Variable	Odds ratio	95% Confidence Interval	*p* Value
Demographic characteristics:			
Gender	0.78	0.46 – 1.31	.347
Annual Household income	1.06	0.83 – 1.37	.631
Demographic characteristics + adverse life event			
Gender	0.74	0.44 – 1.26	.267
Annual Household income	1.08	0.84 – 1.39	.553
Stress due to community conflict over caste or discrimination against own caste	1.27	1.06 – 1.52	.009
Demographic characteristics + adverse life event + depressive symptoms:			
Gender	0.85	0.50 – 1.46	.561
Annual Household income	1.11	0.86 – 1.43	.423
Stress due to community conflict over caste or discrimination against own caste	1.10	0.91 – 1.34	.336
K-6 Total score	1.17	1.11 – 1.22	<.001

Lifetime suicide attempts were strongly associated with academic, economic and familial stress in Model 2. Stressful life events that were also predictors of attempt in Model 2 were illness/disability in the past year, family illness/mental health problems, religious/political conflict, and caste discrimination/caste conflict in the community. In Model 3, economic stress, stress due to religious/political conflicts in the community, and family member's illness/mental health problems were strong predictors along with depressive symptoms. Depressive symptoms were statistically significant predictors in each of the final models. Caste-related issues were not significant predictors in the lifetime suicide attempt model. There was some overlap with the ideation models with family illness/mental health problems featuring as predictors in both ideation and attempt. It is interesting to note that while caste related events predicted suicidal thoughts, they did not predict suicide attempts. The reverse is true for religious/political conflicts in the community.

Past Year Suicide attempt

Tables 8a to 8h present results of the logistic regression analysis for suicide attempt in the last 12 months. As with the lifetime suicide attempt model, each stressor and life event were entered separately for Model 2. Academic, economic and familial stresses were significantly associated with past year suicide attempt in Model 2. Adverse life events that were significantly associated with recent suicide attempt were religious/political conflicts in the community and family member's illness or mental health problems. Unlike suicide ideation models, caste related stress did not predict suicide attempt in the past year, indicating that caste related issues may be chronic in nature as posited earlier.

Table 8.

Risk factors for past year suicide attempt: results of hierarchical logistic regression

8a. Demographics, depressive symptoms and academic stress

Variable	Odds ratio	95% Confidence Interval	*p* Value
Model 1: Demographic characteristics:			
Gender	0.92	0.45 – 1.90	.828
Annual Household income	1.12	0.79 – 1.60	.533
Model 2: Demographic characteristics + stressor			
Gender	0.98	0.48 – 2.03	.958
Annual Household income	1.14	0.80 – 1.63	.463
Academic stress	1.14	1.04 – 1.26	.007
Model 3: Demographic characteristics + stressor + depressive symptoms			
Gender	1.06	0.51 – 2.20	.885
Annual Household income	1.19	0.83 – 1.70	.353
Academic stress	1.09	0.99 – 1.20	.090
K-6 Total score	1.16	1.08 – 1.23	<.001

Table 8b. Demographics, depressive symptoms and economic stress

Variable	Odds ratio	95% Confidence Interval	*p* Value
Model 1: Demographic characteristics:			
Gender	0.88	0.43 – 1.79	.716
Annual Household income	1.10	0.78 – 1.56	.594
Model 2: Demographic characteristics + stressor			
Gender	0.84	0.41 – 1.73	.644
Annual Household income	1.20	0.84 – 1.71	.307
Economic stress	1.28	1.12 – 1.45	<.001
Model 3: Demographic characteristics + stressor + depressive symptoms:			
Gender	0.95	0.46 – 1.98	.900
Annual Household income	1.21	0.85 – 1.73	.295
Economic stress	1.21	1.06 – 1.37	.004
K-6 Total score	1.15	1.08 – 1.23	<.001

Table 8c. Demographics, depressive symptoms and familial stress

Variable	Odds ratio	95% Confidence Interval	*p* Value
Model 1: Demographic characteristics:			
Gender	0.93	0.45 – 1.91	.843
Annual Household income	1.12	0.79 – 1.60	.533
Model 2: Demographic characteristics + stressor			
Gender	0.89	0.43 – 1.83	.748
Annual Household income	1.15	0.81 – 1.64	.446
Familial stress	1.16	1.05 – 1.29	.005
Model 3: Demographic characteristics + stressor + depressive symptoms			.
Gender	1.02	0.49 – 2.12	967
Annual Household income	1.17	0.82 – 1.68	.382
Familial stress	1.09	0.98 – 1.21	.133
K-6 Total score	1.16	1.08 – 1.24	<.001

Table 8d. Demographics, depressive symptoms and romantic relationship stress

Variable	Odds ratio	95% Confidence Interval	*p* Value
Model 1: Demographic characteristics:			
Gender	0.93	0.45 – 1.93	.846
Annual Household income	1.11	0.77 – 1.59	.571
Model 2: Demographic characteristics + stressor			
Gender	0.96	0.46 – 1.99	.903
Annual Household income	1.12	0.78 – 1.60	.555
Romantic relationship stress	1.07	0.98 – 1.17	.110
Model 3: Demographic characteristics + stressor + depressive symptoms			.
Gender	1.06	0.51 – 2.23	869
Annual Household income	1.14	0.80 – 1.64	.469
Romantic relationship stress	1.03	0.95 – 1.13	.496
K-6 Total score	1.16	1.09 – 1.24	<.001

Table 8e. Demographics, depressive symptoms and illness/disability stress

Variable	Odds ratio	95% Confidence Interval	*p* Value
Model 1: Demographic characteristics:			
Gender	0.74	0.35 – 1.56	.422
Annual Household income	1.02	0.71 – 1.47	.899
Model 2: Demographic characteristics + adverse life event			
Gender	0.74	0.35 – 1.57	.433
Annual Household income	1.01	0.70 – 1.45	.956
Stress due to illness or disability in past year	1.31	0.87 – 1.98	.195
Model 3: Demographic characteristics + adverse life event + depressive symptoms:			
Gender	0.84	0.39 – 1.79	.646
Annual Household income	1.06	0.74 – 1.52	.764
Stress due to illness or disability in past year	1.06	0.70 – 1.61	.786
K-6 Total score	1.18	1.11 – 1.26	<.001

Table 8f. Demographics, depressive symptoms and community conflict over religious/political beliefs

Variable	Odds ratio	95% Confidence Interval	*p* Value
Demographic characteristics:			
Gender	0.85	0.41 – 1.79	.672
Annual Household income	1.10	0.77 – 1.57	.610
Demographic characteristics + adverse life event			
Gender	0.76	0.36 – 1.61	.474
Annual Household income	1.10	0.77 – 1.57	.615
Stress due to conflict in the community over religious or political beliefs	2.18	1.56 – 3.07	<.001
Demographic characteristics + adverse life event + depressive symptoms:			
Gender	0.87	0.41 – 1.85	.710
Annual Household income	1.14	0.79 – 1.64	.491
Stress due to conflict in the community over religious or political beliefs	1.71	1.18 – 2.49	.005
K-6 Total score	1.15	1.07 – 1.23	<.001

Table 8g. Demographics, depressive symptoms and family illness/mental health problems

Variable	Odds ratio	95% Confidence Interval	*p* Value
Demographic characteristics:			
Gender	0.84	0.40 – 1.76	.643
Annual Household income	1.06	0.74 – 1.52	.746
Demographic characteristics + stressors			
Gender	0.84	0.40 – 1.76	.644
Annual Household income	1.04	0.73 – 1.49	.818
Stress due to family illness or mental health problems	1.39	1.15 – 1.69	.001
Demographic characteristics + stressors + depressive symptoms:			
Gender	0.92	0.43 – 1.95	.827
Annual Household income	1.07	0.75 – 1.54	.709
Stress due to family illness or mental health problems	1.23	1.00 – 1.51	.053
K-6 Total score	1.15	1.07 – 1.23	<.001

Table 8h. Demographics, depressive symptoms and caste discrimination/caste conflict in community

Variable	Odds ratio	95% Confidence Interval	*p* Value
Demographic characteristics:			
Gender	0.87	0.40 – 1.88	.714
Annual Household income	0.96	0.65 – 1.40	.828
Demographic characteristics + adverse life event			
Gender	0.84	0.38 – 1.82	.650
Annual Household income	0.97	0.66 – 1.42	.871
Stress due to community conflict over caste or discrimination against own caste	1.20	0.90 – 1.60	.226
Demographic characteristics + adverse life event + depressive symptoms:			
Gender	0.96	0.44 – 2.11	.920
Annual Household income	1.00	0.68 – 1.46	.981
Stress due to community conflict over caste or discrimination against own caste	1.03	0.76 – 1.39	.871
K-6 Total score	1.17	1.09 – 1.25	<.001

In Model 3, the most significant predictors of past year suicide attempt were economic stress, family member's illness/ mental health problems, stress due to religious/political conflicts in the community, and depressive symptoms. These risk factors were also found to be significant in the lifetime attempt models. Among Muslims who reported to have found religious/political conflicts severely stressful, 3 out of 5 had attempted suicide in the past year compared to 2 out of 21 Hindus who reported severe stress. The higher percentage of Muslims attempting suicide in the past year and experiencing severe stress because of religious conflicts suggests that they may have experienced stress more intensely. This may increase their vulnerabilities to suicidal responses following trigger events during times of heightened stress. Economic stress was a more robust predictor of lifetime and past year suicide attempts than past year suicide ideation. Family member's illness continued to be a significant risk factor for past year ideation and lifetime suicide attempt. In all models, for all four dependent variables, depressive symptoms were strongly predictive of suicide ideation and attempt.

Most risk factors found to be significant in these analyses were common to suicide ideation and suicide attempts. The only differences were the caste and religion related life events which impacted the two outcomes differently. Caste-related stress was predictive of suicide ideation, while those who had higher levels of perceived stress due to religious/political upheavals were more at risk for suicide attempts. Model 3 shows that some stressors may have been related to suicidal outcomes independent of depressive symptoms. It is plausible that these stressors affected depressive symptoms, which in turn determined suicidal vulnerability. Overall the results show that suicidal outcomes are

significantly associated with depressive mood and some specific aspects of the local sociocultural milieu.

Chapter V: Discussion

The prevalence of suicide ideation (including past year suicidal thoughts) and suicide attempt (including past year attempt), was 11.7% and 4.0% respectively among college youth in Ahmedabad. There is no previous data on the prevalence of suicidal behaviors among college students from Gujarat for comparison but studies of suicidal behaviors among high school students in New Delhi (Sidhartha & Jena, 2006; Sharma, Grover, & Chaturvedi, 2008), show higher prevalence rates than those obtained in the present study. Among women, the prevalence of lifetime suicide ideation was 13%; lifetime suicide attempt was 4%; past year suicide ideation was 8%; and past year suicide attempt was 2%. Among men, the prevalence of lifetime suicide ideation was 11%; lifetime suicide attempt was 4%; past year suicide ideation was 7%; and past year suicide attempt was 2%. There was near equal prevalence of suicidal behavior in women and men although women had slightly higher prevalence of lifetime and past year suicide ideation. These findings support earlier studies showing no significant gender differences in suicidal behavior although a higher prevalence of suicide attempts was found among men in general (Adityanjee, 1986; Kumar, et al., 2006; Latha et al., 1996). In younder age groups however, research shows higher suicide attempts in women compared to men (Sarkar et al., 2006; Sidhartha & Jena, 2006). It is worth noting that because of the lower age group (18-24 years) in the current study, only 1% (*n*=25) were married. Since female suicides in India are commonly reported in the context of marriage and affinal relationships (Khan, 2002), it is possible that a study of older adults including a larger proportion of married females would yield a sex ratio favoring women over men in suicidal behaviors.

Suicide ideation was found to be significantly correlated at the bivariate level with economic stress; adverse life events involving family illness, disability or mental health problems; adverse life events involving caste discrimination or caste conflicts in the community; and depressive symptoms. Academic stress was also strongly associated with suicide ideation in the past year, although it did not reach statistical significance.

Suicide attempts were found to be significantly correlated with economic stress; adverse life events involving communal or political conflicts in the community; and adverse life events involving family member's mental or physical health. As with suicide ideation, academic stress was positively correlated with past year suicide attempt but did not reach the set significance level. It appears that recent suicide thoughts and attempts may be more a result of acute stressors such as academic stress especially for third-year students whose future depends on their final year performance. Conversely, chronic stressors such as caste issues continue to be important risk factors for ideation since caste status is unchanging, and social disadvantages may continue to be a source of everyday life stress rather than precipitating suicide attempts.

Caste affiliation is largely characteristic of the predominant Hindu religion. For members of lower castes, suicidal thoughts may be a result of chronic frustration over social barriers rather than trauma from actual events involving caste. Indeed, at a bivariate level, for the individual caste items, caste discrimination stress had a significant association with suicide attempt (U= 56278.0, p <.05) while caste conflict stress did not (U= 54144.0, p >.05); suggesting that caste discrimination stress, which is more chronic in nature, may have a greater influence on suicide ideation. Caste conflict stress on the other hand, which relates to specific episodes of conflict that an individual may be

exposed to, is more acute in nature and may therefore play a greater role in suicide attempts.

While caste issues are relevant for Hindus, religious issues are most relevant for minority groups like Muslims, who in recent times have been exposed to considerable communal violence in Gujarat. While caste and religion have historically been sources of discrimination, for religious minorities the impact of discrimination may be more acutely felt in light of recent communal clashes in Gujarat. Of all Hindus who found religious/political conflicts to be severely stressful, 13% had attempted suicide, compared to 50% of all Muslims who had faced the same level of stress and had attempted suicide.

Overall, the results point to the importance of the social pressures faced by certain sections of Gujarati society, namely lower castes and religious minority groups, particularly Muslims. The collective experience of family problems also seems to be a potent source of stress, indicating that the household is an important context for interpersonal difficulties. Added to the already socially disadvantaged positions, lower income groups may experience relatively more economic stress when coping with the caretaking responsibilities towards an ailing family member. The experience of stress may itself be directly linked to suicidal behavior or may be acting on already existing depressive symptoms that perhaps mediate the effect of stress on suicidal behavior risk. The level of depressive symptoms was the most robust predictor for all suicidal outcomes, controlling for all other variables.

Sources of stress in the sociocultural context of Gujarat

In every culture, the aetiology of suicidal behavior is influenced by psychological, social, and cultural factors. However, the salience of a particular factor in relation to

suicidal outcomes is influenced by the cultural and social world within which it is configured. Culture shapes the sources, symptoms, explanatory models, and idioms of distress. An individual's coping mechanisms, help-seeking behavior and social responses to the distress are also influenced by culture (Kirmayer, 2001). To better understand why certain variables were significantly associated with suicidal behaviors in this study, it is important to understand the cultural and contextual salience of these variables in the lives of college students in Gujarat and how they are affected by these factors in their transactions within their familial, social and cultural ecologies.

Young people in Gujarat face myriad adjustments in their transition from adolescence to young adulthood. For youth the world over, adolescent and young adulthood is a crucial developmental period, especially in terms of identity formation. For college youth in Gujarat and across India this period is a critical time for making decisions about academic and career choices, forming social networks in their new college environment, pursuing romantic relationships, and finding a marriage partner. The perception of these choices and their outcomes is governed by cultural attitudes, beliefs, and values attached not only to an individuals' position with reference to their society, but also to the meaning of their social transactions. Given the social divisions of caste, class and religion in Gujarat, an individual's caste and class status and religious affiliation can be sources of considerable chronic and acute stress. As youth face the challenges of adulthood, aspirations are often thwarted by lack of resources. In addition the need for individuation and autonomy is often suppressed in favour of conformity with the family's plans. The interplay of social realities, cultural values, and intrapsychic

dynamics impacts mental health by shaping the perception of stress and responses to the stressful situation.

Academic stress

College students in Gujarat are faced with a host of pressures that arise out of expectations in several domains of their social and personal lives as they enter a period of decision making that will shape their future. The educational system in India, which is also in place in Gujarat, is underpinned by the political ideas of British colonial times. It has not evolved considerably in the last five decades post independence. Knowledge structures and styles of teaching in institutions remain outdated and do not cater to the experience of youth in contemporary India (Kumar, 1991). Combined with the systemic stress that arises from the rigid and archaic educational environment is the pressure to excel in academic pursuits.

Academic excellence is highly valued in Indian culture and students face enormous parental and social pressure to excel in their school years to ensure a place in prestigious colleges. High school performance not only determines where students can apply but also the type of programs they can apply to (Varma, 1998). Competition is severe for popular professional courses like medicine and engineering which have stringent entrance requirements. Students who do not reach the cut-off performance criteria often have to settle for programs in the Arts faculty that do not provide them with any industry-specific training. Future prospects for economic success and overall social mobility are thus major concerns of academic life. Even for children of the few parents that can afford private education, the academic environment is highly competitive.

Not unlike other socially oriented Asian countries, in Gujarat, achievement in any sphere is motivated by, among other cultural tenets, the desire to fulfil the expectations of significant others (Kumar & Maehr, 2007). An examination focused education, parental control, and parental expectations for academic performance put considerable strain on young students. Lower academic performance, anxiety, depression, somatic complaints, and other mental health problems have been shown to be associated with academia related stress (Chakravarty, 2005; Kalia, 2005; Lakshmi & Arora, 2006; Verma, Sharma, & Larson, 2002). Although academic stress was not a significant predictor for suicidal behavior when depression was controlled, its strong bivariate correlation with recent suicidal thoughts and attempts indicates that youth have to grapple with not only academic, but also social pressures in the high-stake Indian educational environment.

Economic stress

Lifetime suicide ideation and attempt were both associated with the experience of economic stress. Economic stress was not however, a significant predictor for past year suicidal thoughts. Since the sample surveyed was drawn from government funded colleges that offer subsidized education, a majority of students were from lower social classes. Of all those who had suicidal thoughts or had made suicide attempts, more than 75% belonged to lower middle, poor, and very poor social class categories based on their household income. In the present study economic stress referred to the stress associated with job seeking and paying for higher education, not household income. The relationship between economic deprivation and suicidality is complex with several interrelated factors. Lower caste status, lower social mobility, indebtedness, family responsibilities, highly competitive academic and job environment, are among the social circumstances

that can exacerbate poverty. In recent times, indebtedness has been cited as the proximal cause of suicide among farmers in India. Although rates of farmer suicides in Gujarat are reportedly lower compared to rates in other Indian states like Karnataka or Maharashtra, the accuracy of this data is disputed (Gruère, Mehta-Bhatt, & Sengupta, 2008). For rural farming communities and those that support family members living in urban areas, agro-economic factors such as capital intensive input and unfavorable government policies have created acute subsistence crises. These crises have had dire social consequences. The lack of resources for children's education, for health care, for participation in social ceremonies such as marriage, has led to heightened levels of emotional distress. Such factors have created highly stressful conditions that have often precipitated suicidal responses in farmers (Dandekar & Narvade, 2007; Murty, 2007; Prasad, 2007).

While this scenario pertains to rural agrarian communities in Gujarat, similar social stresses may occur for youth in urban Ahmedabad, where the cost of living is higher, and educational and vocational opportunities are highly competitive. In poorer families, youth, especially males, often assume financial responsibilities earlier in order to support their families. Their feelings of relative deprivation may grow as material aspirations increase in a rapidly changing social environment. In the wake of liberalization, economic prosperity has been ushered in largely by private sector entrepreneurship. These enterprises typically provide high end, capital and knowledge intensive manufacturing and services (Das, 2006). Since the training for these industries is offered by private institutions, students from poorer classes who cannot afford private education have fewer opportunities for economic prosperity, therefore perpetuating their lower social class status. In addition, the effects of urbanization also increase mental

health vulnerabilities. Some of these experiences include feelings of relative poverty due to living in proximity to others with more wealth, the lack of social support systems of extended family, and living away from one's native village (Kuruvilla & Jacob, 2007).

Chronic economic stress among poor youth in Guajrat can lead to mental health problems, and can exacerbate the experience of vulnerability for those who already suffer from mental disorders such as depression. Aspects of economic stress such as the challenges of seeking better jobs may seem insurmountable and could precipitate suicidal outcomes as responses to the stress. The relationship between poverty and mental health is thus reciprocal (Patel & Kleinman, 2003; Patel, Pereira, Fernandes, Fernandes, & Mann, 1998). As results from the current study confirm, college students from poor families in Ahmedabad experienced considerable stress as a result of economic deprivation, making them a high-risk group for mental health problems and suicidal behaviors. The association of economic stress with past year suicide attempt also suggests that trigger events may include situations where economic adversity has dire social and psychological consequences for the individual.

Family illness or mental health problems

The sociocentric nature of Indian families is based on central cultural ideals that deemphasize individual volition and promote action for the purposes of social wholes (Derné, 1995; Kakar, 1996). The independent contribution of family mental and physical health problems in suicidal behavior risk can be understood with reference to family structure, organization and function in a changing urban environment. The processes through which familial adverse events may influence suicidality are multidimensional and involve economic, social, and cultural factors. The traditional "joint" family in

Gujarat and in other parts of India typically consists of three or four generations of close kin related patrilineally. Common features of this social system include defined role relationships, authority structure, division of labor, bonds of duties and responsibilities, and joint performance of rites and rituals (Chakrabortty, 2002).

In urban cities like Ahmedabad, most households are smaller than the traditional joint family system as evidenced by an average of 5 people per household in the current sample. The size of a household alone however does not offer clues about whether the family is nuclear or joint, nor does it indicate the relational structure of the household (Madan, 1993). In smaller families, joint family ideals persist and changes in family structure and function can be sources of stress for young people in rapidly urbanizing areas. Madan (1993) suggests that since "jointness" is present in nuclear families too, it is not the family, but the household which is functionally the more important group when speaking of the Indian familial context. Despite geographic dispersion of family members and structural changes to the household, sentimental bonds with kin, functional solidarity represented by mutual privileges and obligations, do not entirely cease in nuclear families. Mutual expectations and filial obligations resonate strongly in all households, whether rural or urban, nuclear or joint in structure. Family crises such as illness and mental health problems thus demand that family members provide financial and emotional assistance, even to kin living away from the household. For men, who are traditionally the income earners and higher in the family hierarchy, the family is the emotional center of their lives (Derné, 1995). Crises such as illness can thus cause considerable distress as they try to cope with the financial and emotional demands of the family member's illness. However, with the changing role of women's function in

households (Chakraborty, 2002), family illness events can place equal caretaking burden on women.

For poor families, in addition to emotional distress due to illness in the family, caretaking of an ailing family member also demands resources for adequate healthcare. Without the financial means to look after a family member's physical or mental health problems, there may be increased pressure to take loans or seek extra income. The stigma of illness coupled with the lack of adequate resources to look after a family member can also be a source of shame, guilt, and frustration, increasing the potential for the individual's own mental health problems.

Even as joint family values persist in smaller households, family dynamics are invariably affected by social changes (Chakrabortty, 2002). Support from kin, which is a key feature of functional solidarity in extended family systems, can erode with changes in family structure caused by social changes such as urbanization. Hence kin may not feel obligated to provide assistance to an ailing family member living in a separate unit. Thus, young people who do not receive financial or moral support from kin may experience much greater stress and pressure to care for their ailing family member.

Family dynamics involve interplay between family members themselves and the changing sociocultural norms, making the relationship between family related life events and suicidality a complex one. In the Indian cultural context, and in this case, within families Gujarat, illness in a family can cause considerable stress through the emotional and financial demands it places on family members (Pai & Kapur, 1981). This stress is exacerbated by lower social status, barriers to health care, lack of social support, and stigmatization, especially in the case of mental illness (Thara & Srinivasan, 2000).

It is worth noting that since family mental health problems were also included in the family illness related life event, the association must also be due in part to the transmission of mental health problems form parents to offspring. Evidence for this comes primarily from studies in Western countries that have shown family history of psychopathology and suicidal behaviors as distal risk factors for offspring psychopathology and suicidal behaviors (Brent & Mann, 2005; Melhem, Brent, Ziegler, Iyengar, Kolko, et al., 2007; Nock et al., 2008). Few Indian studies mention family history of mental illness and suicidal behavior as a risk factor for suicide in the next generation. This does not necessarily imply that family mental illness or suicidal history as risk factors are absent in India. Under reporting of family psychopathology or suicide could be attributed to factors such as unreliable accounts from family members and absence of family suicide history data in studies; undiagnosed mental illness in the family member, and stigmatization of mental disorders and suicide. Studies that have collected information on family psychopathology and suicidal history, such as Vijayakumar and Rajkumar's (1999) psychological autopsies have implicated these family variables in completed suicides in India.

Caste discrimination and caste conflict

Social mobility and agency, political participation, and access to educational and vocational opportunities in Gujarati society are severely restricted by one's social origin and background. Caste is a social group based on a hierarchical order derived from certain Hindu cultural prescriptions (Mohanty, 2004). The term itself was a rough translation of the word *jati,* which referred to various birth groups, and *varna,* which referred to an idealized hierarchy of four occupational groups. The *Brahman* (priests)

were the highest ranking caste, then the *Kshatriya* (warriors), followed by *Vaishya* (traders) and *Shudra* (laborers). Below all of these were the *avarna*, formerly referred to as "untouchables" (Jenkins, 2003). Caste divisions were also accompanied by culturally prescribed rules of behavior and purity. Caste was thus not only a structural, but also a cultural phenomenon (Singh, 1997). The Schedule Caste (SC) category was created during colonial rule in India to include untouchables, the lowest rung of the caste system. Schedule Tribes (ST) were originally social groups with tribal characteristics and were distinguished by their social and cultural isolation from the rest of the population (Galanter, cited in Jenkins, 2003). Other Backward Classes (OBC) have been hard to define although generally speaking they constitute people who are economically depressed and belong to castes that are not considered untouchables, or who are from other socially disadvantaged non-Hindu groups (Jenkins, 2003). These groups include Muslims and ex-Hindu Christian converts who identify themselves with backward classes. The distinction among castes based on division of labor also led to a distinct class structure.

Class is a political economy category where the ruling classes are traditionally owners of the means of production and the ruled are those who are engaged in labor, and are typically exploited. A connection thus has traditionally existed between caste and class and in contemporary times, caste status and economic mobility are both used as criteria for determining class (Mohanty, 2004). Historically, the lower castes and socially disadvantaged non-Hindus have suffered profound inequalities in social mobility and participation in society. In an effort to promote equality and weaken the oppressive forces of caste, constitutional laws have permitted explicit reservations for SC/STs and OBCs in

social sectors like education (Mohanty, 2004). Despite such measures inequality is still virulent and caste continues to affect opportunities in terms of residence, education, occupation, social interaction and marriage. In fact, the positive discrimination legislations that created reservations for SC/STs and OBCs to promote equality have been precisely the cause of much of the inter-caste conflict (Jenkins, 2003; Mohanty, 2004). The cumulative advantages of the upper castes have been so strong historically that even in contemporary Gujarat, the relationship between caste and privilege persists without the need for an institutional structure of hereditary advantages.

It is suggested that although the educational and occupational system implemented through constitutional reform may have freed individuals from the demands of caste, the transmission of social, cultural and material capital in families may play a role in perpetuating existing inequalities (Béteille, 1993). As noted earlier, the family is one of the strongest institutions in Gujarati society and plays an active role in transmitting to its children, all the advantages it has in its command. Families, particularly of the service classes in urban cities like Ahmedabad take an increasingly active part in the educational and career choices of their children, using social and political connections to secure school admissions or employment. Similarly, school education has also been implicated in reproducing caste and class inequalities (Béteille, 1993; Jeffrey, Jeffery, & Jeffery, 2005). There is a major difference in the quality of education imparted by government academic institutions and private institutions. Since private education is highly competitive and expensive, access to better education in Gujarat is restricted to wealthier families with resources such as powerful social/political connections. Employment opportunities are available to lower caste groups through explicit

reservations for SC/ST/OBC in certain job categories, but for those who wish to pursue private sector employment, opportunities are greatly reduced since there is no reservation system. Thus access to higher paying jobs is very limited for lower castes. In addition, even within the labor market, caste discrimination exists in the form of unequal pay for equal work (Bhattacherjee, cited in Deshpande, 2008). Greater wealth, social connections and higher status thus ensure privileged access to school credentials and employment therefore improving overall living standards for higher castes, while lower castes continue to suffer the effects of historic dependence, discrimination, and exploitation despite improving their social standing through increased educational opportunities (Jeffrey et al., 2005; Kijima, 2006; Singh, 2008).

In light of institutional discrimination that has widened existing disparities, political struggles involving caste and class have intensified in recent decades. A high degree of politicization, communication, exposure and social awareness has made the lowest castes not only reject and resent the patronage and exploitation of upper castes, but has also created a hostile competitive relationship between them. Similarly, tensions also exist between tribal groups who have demanded separate territorial demarcation (Singh, 1997). As economic structures and employment patterns are transformed as a result of urbanization and industrialization in a capitalistic Gujarati economy, conflicts also emerge within lower castes and classes. Urban SC/STs and OBCs vie for the same pool of white-collar jobs, creating competitive hostility between the groups (Martyn, 2008).

As outlined above, positive discrimination in education and public sector jobs has increased social participation and mobility of erstwhile low castes and outcastes.

However, lower caste-class groups still face challenges in navigating through the glaring disparities perpetuated by several social institutions such as the family and school. For lower classes, most of whom are lower castes, the daily challenges posed by competition and domination can be sources of severe chronic stress. A politically unstable environment that incites inter-caste conflict can also have a damaging effect on youth. Caste-class barriers often lead to experiences of insecurity and anxiety in a rapidly changing social and political environment. In addition, since lower caste and class perpetuate poverty, illiteracy, and restricted health care access, lower caste youth may perceive chronic economic stress relatively more intensely. In the present study, economic stress, and caste discrimination and caste conflict events were all significant predictors of suicidal behavior among college students. The sociocultural context of socially disadvantaged college youth thus bears great impact on their sense of well-being, and shapes the way they respond to these stressors.

Religio-political violence

Like caste, inter-community conflict has been a characteristic feature of Gujarat's social and political history. Communalism in Gujarat, particularly as expressed in the conflict among Hindus and Muslims, has often been orchestrated by social forces and groups. In a capitalistic, rapidly changing milieu that advances unprincipled utilitarianism especially among the higher classes, communal conflicts, like caste conflicts, often occur as an apotheosis to this brand of social devaluation. Religion based violence also erupts as a result of political opportunism; existing social conflicts are often intensified and manipulated by political parties for electoral purposes (Singh, 1997). Caste conflicts, for example, have been leveraged by pro-Hindu polity to neutralize growing tensions of

intercaste conflict at the same time as they have used Hindu communal mobilization to advance their own political agendas (Mohanty, 2004). In Gujarat, it is claimed that backward classes and SCs, who constitute a majority of Gujarat's population, were mobilized by Hindu Nationalists to play a part in violent communal clashes that took place all over Gujarat in 2002 and in the following years (Shah, 2002). Thus it appears that polarization of Hindus and Muslims in Gujarat and elsewhere in India is more politically motivated and not borne out of religious differences per se. Hindu-Muslim conflict depends on the state's role in instigating or preventing violence for electoral purposes; the degree of civic engagement between the two communities; and the socioeconomic status of the lower class Hindus and Muslims. Stereotypical notions of Hindus and Muslims are reinforced by socioeconomic factors that have set the two groups on different trajectories of development. Young Muslims have been discouraged from pursuing secular education and competitive jobs by Muslim clergy or political leaders who incite anti- modernization sentiment using the "threat to Islam" rhetoric. This may increase the numbers of Muslim youth — who already have fewer educational and employment opportunities because of their low class status —who become involved in crime. This reinforces the stereotype in Hindu rhetoric of Muslims being socially inferior, non-progressive and linked to the crime underworld. Muslims in turn perceive Hindus to be the beneficiaries of development. Very often Muslim community leaders involved in politics harness the anger of Muslim youth in collective violence against the state for political gain (Ganguly, 2007).

Communal tensions have been mounting in Gujarat since the 1990s with the rise of Hindu nationalist sentiment propagated by the ruling political party, the *Bharatiya*

Janata Party (BJP). Part of the *Sangh Parivar*, or the Hindu right, the party propagates a Hindu communal ideology known as the *Hindutva* (http://www.bjpguj.org/). In 2002, a mob attacked and burned alive several members of the Sangh Parivar group aboard a train in Godhra, a city in Gujarat. While consensus on the cause and perpetrators of the attack was never reached, the incident sparked off large-scale violence against Muslims and complete devastation of their homes and businesses. Thousands died in the violent clashes that followed in the aftermath of the Godhra attack (Punwani, 2002). Regardless of how ethnopolitical polarization led to that episode of religious violence, the killing, vandalizing, looting, and rape that the Muslim community were subjected to, has had profound social and psychological consequences. For Muslims in Gujarat, the violence not only caused economic loss, displacement, and continuing fears about the re-emergence of violence; but also more significantly, experiences of avoidance, arousal, and re-experiencing — all characteristic features of post traumatic stress disorder (Ganesh, 2006; Mehta, Vankar, & Patel, 2005; Panjabi, Bandhopadhyay, & Gangopadhyay, 2002; Shankar & Gerstein, 2007).

The results of the current study show an association between reported exposure to communal or political conflict and suicidal behavior outcomes. Religious conflict was a significant predictor of lifetime and past year suicide attempt. Since the actual numbers are small, it is difficult to conclude which religious group may be more vulnerable, although a larger percentage of Muslims and Christians who found religious or political conflicts severely stressful, had attempted suicide. Since Hindu nationalism has sought to define what is Hindu, and therefore, "national" (Jenkins 2003), non-Hindu groups have lived in fear of being portrayed as "foreign" and anti-national. These groups thus

continue to live in considerable anxiety about their future under the governance of a pro-Hindu regime.

Mental health problems

Psychiatric illness has been considered a robust risk factor for suicide in Western suicidology; depression (Lönnqvist, 2000; Lester, 2004); schizophrenia (De Hert & Peuskens, 2000), anxiety disorders (Allgulander, 2000), personality disorders (Linehan, Rizvi, Welch, & Page, 2000; Paris, 2002), and substance abuse (Murphy, 2000); have been shown to be significant clinical factors in suicidality. In India, mental disorders have not been considered stronger predictors for suicides or suicidal behavior than sociocultural factors (Adityanjee, 1986; Bhatia, et al., 1987; Das, et al., 2008). However, a small number of recent hospital based studies involving patients admitted to hospital for a suicide attempt have reported diagnosis of depression to be the most common psychiatric correlate (Kumar, et al., 2006; Parkar, et al., 2006; Sarkar, 2006). The findings of the present study confirm these reports. Depressive symptomatology is strongly associated with suicide attempts and with suicide ideation.

Currently, there is scant literature on the prevalence of mental illness in India and the few studies that have been conducted do not allow generalization of results due to the enormous heterogeneity of India's social and cultural landscape. The significant independent contribution of depressive symptoms to suicide ideation and attempt in the present study sheds light on the salience of mental health problems as risk factors in the Indian context. The relationship between mental illness and socioeconomic factors such as poverty is complex. Mental disorders and factors associated with poverty are mutually reinforcing (Patel & Kleinman, 2003; Patel, et al., 1998). The link between mental illness

and suicidal behaviors is also unclear in Gujarat where causes are typically attributed to social and economic stressors. Since sociocultural factors underpin mental health problems in Gujarat and across India, it is apparent that there is a pathway that involves a triad of sociocultural factors, mental illness and suicidality, rather than the presence of mental illness alone. It has been noted in reviews of mental illness in low income countries that feelings of insecurity, hopelessness, rapid social change, and risk of violence, can explain greater vulnerability to mental illness in subaltern groups (Patel & Kleinman, 2003). In turn, the presence of mental illness may heighten the experience of distress during acute stress situations such as negative life events, and can prompt maladaptive and suicidal responses. It may not just be low income per se, but the feelings of relative deprivation, humiliation of poverty, pessimism, and low self-worth that may be more relevant in associating low socioeconomic status with mental illness. This contention may hold true in light of the current findings that confirm that low household income per se was not a risk factor, but feelings of economic deprivation, measured as economic stress, were strongly associated with suicidal behaviors. It cannot be said that all those who belong to subaltern groups would engage in suicidal responses to stress; the distress experienced (either as a symptom of independently occurring mental illness or as a result of a stressor) could mediate such responses. The processes underlying the pathway from stressors to mental illness to suicidal behavior are yet to be investigated in Gujarat, but it is evident that socially disadvantaged groups who experience more intense feelings of psychological distress especially in relation to adverse life events, are most at risk for suicidal responses to stressors. These results corroborate reports from a very recent study in India using a similar age group in rural and urban communities that found

psychological distress to be a significant predictor of suicidal behaviors (Pillai, Andrews, & Patel, 2008). It is also interesting to note that as in Pillai et al.'s (2008) study, where violence was an independent predictor, the present study results also show communal conflict (and perhaps violence experienced as a result of it) to be a significant independent predictor of suicide attempt. Drawing on earlier suggestions from Mehta et al.'s study (2005), it is possible that features of PTSD, comorbid with depressive symptomatology, may have conferred increased risk for suicidal behaviors among college youth in the present study. In Western studies, PTSD is often comorbid with major depressive disorder and the co-occurrence increases the risk for suicidal behavior (Oquendo, Brent, Birmaher, Greenhill, et al., 2005; Oquendo, Friend, Halberstam, Brodsky, Burke, et al., 2003). It is thus possible that there may be a constellation of other clinical risk factors which may increase suicidal risk through comorbidity with depression. However since psychological distress was the only clinical dimension available for analysis in the present study, it cannot be inferred with certainty if distress indicates clinical depression or depression co-occurring with other psychiatric diagnoses. Since clinical presentation of Western psychiatric categories may differ in other cultures, the K-6 used in the current study may either have missed features of depression as they occur in Gujarat, or may have captured local idioms of distress that pertain to another diagnosis. Overall, while the salience of the clinical dimension was highlighted in the present study, mental illness as a risk factor is neither necessary nor sufficient for suicidal outcomes. This contention is supported by the independent contribution of stressful life events and daily stressors, even when controlling for depressive symptoms, in predicting suicidal behavior in the present study.

Limitations of the present study

The present study faced several methodological constraints. Since the sample was recruited through convenience and incidental sampling, biases may have been introduced in the sampling of students at certain times of the day. Within classrooms, participants were in close proximity with one another and due to the stigmatization of certain constructs in the questionnaire, responses to these items may have been altered. Since the questionnaire relied on self-report, there was considerable subjectivity in the interpretation of questions. Several measures included in the questionnaire have not been validated previously, nor is there any data on the reliability of the scales. Thus the psychometric properties of the stressor scales and adverse life events are open to question. Translation of the English questionnaire to Gujarati may have also posed problems. Approximate translations of words that have no literal translation in Gujarati may have been interpreted differently by participants. For example, in the Gujarati language there is no equivalent word for stress, and Gujarati youth often use the English word "tension" to describe experience of stress. The word used to describe stress in the Gujarati version of the questionnaire was thus open to different interpretations.

Participants found the format of the questionnaire difficult to understand. Since test-taking is not a common feature in schools and colleges in India, many participants had no prior experience in taking psychological tests. As a result, participants frequently asked for clarification on how to use the Likert scale and several respondents either skipped items or circled two response categories. Other sources of missing data were items that pertained to situations that participants had not experienced. For example, since many participants did not drink alcohol, they did not indicate how much stress they

experienced on the item “Pressure from others to drink alcohol”. Responses to items on the survey that were grouped together for the purpose of developing a parsimonious multivariate model may also bear effect on interpretation of results pertaining to those items. It is thus difficult to determine whether life events involving family illness/disability, or life events involving family emotional/mental health problems, were more strongly associated with suicidal behavior, since the two items were combined in the final multivariate model. Also, among the life event items it cannot be ascertained whether actual experience of caste discrimination or communal violence directed specifically towards the participant; or the presence of these events in the community’s history; played a role in suicidal risk. Further, specific religious groups cannot be identified as being the most at-risk groups although findings do suggest that religious minorities, specifically Muslims and Christians are at greater risk for more intense stressful experiences, and are therefore more vulnerable to suicidal behavior outcomes.

The demographic profile of the sample in the study does not correspond to the entire student population in Ahmedabad. Results of the present study, therefore, cannot be generalized to students in programs other than Arts, Sciences, Commerce or Law, or to students in private institutions. Since poorer students cannot afford private education, they make up a vast majority of the student body in government institutions like the colleges included in the present survey. Lower socioeconomic groups may thus have been overrepresented in this particular sample. However this may not negate the impact of economic stress in the general population of Ahmedabad since relative deprivation can be experienced across socioeconomic strata. Overall, while the study results may hold relevance for students in hundreds of government run colleges all over Gujarat,

generalization to other parts of India should be made with caution. Rural and urban contexts give rise to different stressors and suicidality may be correlated with different factors in the two settings.

With regard to suicidal behavior related outcomes, it is not possible to determine the frequency, lethality or intent of suicide. This is of relevance in assessing suicide risk and differentiating between high and low lethality attempts. In addition, since suicide completers, attempters and ideators may represent different psychosocial and clinical profiles, correlates of suicidal behaviors found in the present study cannot be generalized to completed suicides.

Implications and directions for future research

The results of the present study highlight crucial areas for research and intervention. Demographic characteristics such as low socioeconomic status, low educational achievement, exposure to stressful life events and childhood adversity including family problems and psychiatric morbidity are among the common life course factors in youth suicides in developed nations (Beautrais, 2003). However, the nature, perception, and responses to stressful life events and adversities differ cross-culturally. For example, suicide behavior is more likely to be related to childhood adversity involving parental divorce, history of child abuse, and parental psychopathology in Western cultures (Beautrais, 2003). But in Gujarat, suicidal responses in college youth are related to academic concerns such as failure in examinations, and adversities and events involving caste or religious discrimination against the family. Studying the cultural specificity of suicidal responses thus allows for an informed understanding of

risk and vulnerability and the development of interventions appropriate for the local context.

The prevalence of suicidal behavior in college students in the present study highlights the need to acknowledge and address the psychosocial problems encountered by youth in a rapidly changing milieu. Measures to make more accurate assessments of suicidality in youth need to be put in place. The prevalence of suicidal behaviors in the current sample may have been lower than the actual prevalence rates due to stigmatization. The high prevalence of intense distress among suicide ideators and attempters indicates the presence of clinical factors that shape the perception and response to stress. There needs to be much greater awareness of the presence and features of common mental disorders in the general youth population. Generating research and providing a socioculturally informed perspective on mental illness can reduce stigma, increase awareness and raise mental health to the health policy level. Currently, mental health and suicide prevention needs are addressed largely by non-governmental organizations (NGOs) (Patel & Thara, 2003; Shrivastava, 2003; Vijayakumar, 2003). There is a growing need for synergy between NGOs, community workers, nurses and doctors in primary health care, and the community in making mental health a priority for health policy. Further, in the absence of adequate mental health services and given the dearth of psychiatrists and psychologists in India, health workers need to be trained in recognizing mental illness and suicidal tendencies, and providing basic intervention. Mental health “manuals” are already available to the local community in India (Patel, 2003).

Results from the current study also underscore the need to address mental health issues within the context of education. Educational institutions, with the involvement of counsellors, can perhaps implement programs or impart information to students on using more positive and adaptive coping strategies in dealing with academic stress. Institutions could also regularly bring in vocational counsellors to advise on a number of career-related issues. The frequency of such programs can be increased during high-stress periods such as final year examinations.

A very clear finding in the present study is the increased vulnerability to distress and suicide of socially disadvantaged groups, specifically, lower castes, Muslims and Christians. These findings warrant more in-depth, qualitative research focusing on narratives of suffering of lower socioeconomic and religious minority groups. Such research is needed to better understand the aetiology of psychopathology and suicidal behavior and identify areas where intervention strategies can be optimized for these groups. In particular, the experiences of trauma and psychological suffering as a result of prejudicial acts and violence are pressing issues for research and preventive actions. The greater vulnerability of religious minorities and lower castes also has implications for sustaining peace between communities. Shedding light on the impact of violence and discrimination on psychopathology and suicidal behaviors, regardless of one's religious or caste background, can provide further impetus to community participation in peacebuilding efforts. In addition, such research can also aid in developing disaster response and relief programs for various communities following communal violence. Models for psychosocial support programs for disaster or violence victims have begun to

surface in India (Diaz, Lakshminarayana, & Bordoloi, 2004) and continued research efforts in these areas will serve to further improve the applicability of such models.

The significance of the cultural and contextual factors in determining suicidal behavior risk as evidenced in this study underscores the importance of conceptualizing problems within a local sociocultural context. Reiterating the recommendation of earlier ethnopsychiatric studies (Parkar, Fernandes, & Weiss, 2003; Weiss, Isaac, Parkar, Chowdhury, & Raguram, 2001), while psychiatric epidemiology is needed to estimate the prevalence and burden of mental health and suicidal behaviors, cultural epidemiology can contribute to a greater understanding of how these problems are configured with reference to local categories and narratives of experience, meaning and behavior. Such research orientations are vital for the formulation and development of informed global, national and local priorities for mental health and suicide prevention.

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Appendix A. English Questionnaire

QUESTIONNAIRE: COPING WITH STRESS

I. Please begin the questionnaire by providing the following information:

1. Age ____
2. Sex:
   - ☐ Female ☐ Male
3. Present Marital Status
   - ☐ Single
   - ☐ Married/Living with partner
   - ☐ Divorced/Separated
4. Whom are you living with presently?
   - ☐ Living alone
   - ☐ Living with parents
   - ☐ Living with partner
   - ☐ Living with other relatives/friends
5. Do you live in a rural or urban area?
   - ☐ Rural ☐ Urban
6. What is your religious denomination?
   - ☐ None
   - ☐ Hindu
   - ☐ Jain
   - ☐ Muslim
   - ☐ Sikh
   - ☐ Parsi
   - ☐ Christian
   - ☐ Buddhist
   - ☐ Other(please specify) _____
7. What is your caste?
   - ☐ Don't know/Not applicable
   - ☐ Scheduled Caste/Scheduled Tribe
   - ☐ Other Backward Caste
   - ☐ Upper
8. How often do visit your place of worship or pray?
   - ☐ At least once a week
   - ☐ About once a month
   - ☐ About 2-3 times a year
   - ☐ About once a year
   - ☐ Almost never
9. What is your total family income (parents' income plus any additional income) per year?
   - ☐ 0-49,000 Rs/year
   - ☐ 50,000 -99,000 Rs/year
   - ☐ 1 lakh -1,99000 Rs/ year
   - ☐ 2 lakh - 2,99000 Rs/year
   - ☐ 3 lakh -3,99000 Rs/year

- ☐ 4 lakh - 6,99000 Rs/year
- ☐ 7 lakh -9,99000 Rs/year
- ☐ 10 lakh and above Rs/year

10. How many people live in your household? _____
11. How big is your house approximately? Number of bedrooms _ Number of bathrooms _

What are you currently studying?

12. Degree/Diploma Program (e.g. B.A, BSc) _____
13. Year of Study (FY, SY, TY etc)_____
14. Major (e.g. Economics) _____
12. What do you plan to do after college?

- ☐ Study further
- ☐ Get a job
- ☐ Join family business
- ☐ Work and study
- ☐ Other (please specify)_____

II. Please read the instructions to each of the following six questions carefully and then answer the questions as truthfully and accurately as you can.

Question 1

The following questions ask about your feelings towards different areas in your academic and social life. Please indicate how much stress each situation adds to your life by circling a number in the appropriate column.

Situation	No Stress	A Little Stress	Moderate Stress	Severe Stress
1) Competing with classmates or friends for academic success	0	1	2	3
2) Choosing which academic stream to enter (e.g., science, arts, commerce)	0	1	2	3
3) Getting a job after graduation	0	1	2	3
4) Paying for my education	0	1	2	3
5) Applying for post graduate programs (e.g., Master's, PhD, MBA)	0	1	2	3
6) Finding a job while I am studying **or** *(if you are already working*): Working while I am studying	0	1	2	3
7) Achieving the level of academic success that my parents expect from me	0	1	2	3
8) Balancing my academic and social life. Having time for social activities and relaxation as well as for my studies	0	1	2	3
9) Failing in examinations	0	1	2	3
10) Bullying or ragging by others	0	1	2	3

Situation	**No Stress**	**A Little Stress**	**Moderate Stress**	**Severe Stress**
11) Living in a joint family; (*answer only if you live with relatives as well as parents and siblings)*	0	1	2	3
12) Sharing the same cultural values as my parents	0	1	2	3
13) Allowing my parents or relatives to make most Major decisions for me	0	1	2	3
14) Living in a nuclear family; only with parents and/or siblings (*answer if you live only with parents and siblings)*	0	1	2	3
15) Providing support to my family	0	1	2	3
16) Facing parents after failure in examinations	0	1	2	3
17) Getting support from family	0	1	2	3
18) Finding a partner to have a romantic relationship with *(if you are married, how stressful was this situation before you got married)*	0	1	2	3
19) Getting permission from my parents to have a romantic relationship *(if you are married, how stressful was this situation before you got married)*	0	1	2	3
20) Being in a romantic relationship *(if you are married, how stressful was this situation before you got married)*	0	1	2	3
21) Finding a marriage partner who meets my parents or relatives' expectations *(if you are married, how stressful was this situation before you got married)*	0	1	2	3
22) Choosing my partner for marriage by myself *(if you are married, how stressful was this situation before you got married)*	0	1	2	3
23) Living with in-laws (*answer only if you are married*)	0	1	2	3

This section asks about your social life. Please indicate how much stress each situation adds to your life by circling a number in the appropriate column.

Situation	**No Stress**	**A Little Stress**	**Moderate Stress**	**Severe Stress**
24) Keeping up with the latest trends (e.g. wearing fashionable clothes, owning a mobile phone)	0	1	2	3
25) Pressure from friends or others to smoke	0	1	2	3
26) Pressure from friends or others to drink alcohol	0	1	2	3
27) Pressure from friends or others to use drugs	0	1	2	3
28) Getting support from friends	0	1	2	3
29) Providing support to my friends	0	1	2	3

Question 2

The following question asks about events that may have occurred in your life. For each event please indicate whether you experienced it and how much stress it caused you, by circling a number in the appropriate column. Please select the "Did Not Happen To Me" option if you have not experienced the event.

	Did Not Happen To Me	Not Stressful	Little Stressful	Moderately Stressful	Severely Stressful
1) An illness or disability in the past year	0	1	2	3	4
2) Problems with alcohol/drugs in the past year	0	1	2	3	4
3) Emotional/mental health problems that have troubled me in the past year	0	1	2	3	4
4) Conflict in the community over religious or political beliefs	0	1	2	3	4
5) Discrimination due to my caste	0	1	2	3	4
6) Conflict in the community over caste	0	1	2	3	4
7) A family member who had emotional or mental health problems	0	1	2	3	4
8) A family member who had an illness or disability	0	1	2	3	4
9) Natural disasters such as floods, earthquakes etc	0	1	2	3	4
10 Recent financial loss	0	1	2	3	4

Question 3

The following question asks about how you have been feeling during the **past 30 days**. For each statement, please circle the number that best describes how often you had this feeling.

During the past 30 days…..	None of the time	A little of the time	Some of the time	Most of the time	All of the time
1)…I have felt nervous	0	1	2	3	4
2) …I have felt hopeless	0	1	2	3	4
3) …I have felt restless or fidgety	0	1	2	3	4
4) …I have felt so depressed that nothing could cheer me up	0	1	2	3	4
5) …I have felt that I need to make an effort for everything	0	1	2	3	4
6) …I have felt worthless	0	1	2	3	4

Question 4

Young people deal with a lot of stress and use various strategies to cope with stress. The following question asks about how you cope with stress. Please indicate if you have used any of these strategies and how frequently you have used them by circling a number in the appropriate column.

Strategy	Never	Once	Sometimes	Frequently
1) Spend time alone	0	1	2	3
2) Talk to family or friends	0	1	2	3
3) Pray or engage in religious activities	0	1	2	3
4) Drink alcohol or take drugs	0	1	2	3
5) Listen to music	0	1	2	3
6) Smoke	0	1	2	3
7) Read	0	1	2	3
8) Do risky things e.g. theft, reckless driving, unprotected sex	0	1	2	3
9) Eat	0	1	2	3
10) Stop eating	0	1	2	3
11) Go out with friends or family	0	1	2	3
12) Sleep	0	1	2	3
13) Talk to counselor, social worker or other health professional	0	1	2	3
14) Cry	0	1	2	3
15) Physically hurt myself on purpose	0	1	2	3
16) Think of suicide	0	1	2	3
17) Please list any other ways you may have used to cope with stress:				

Question 5

The following section asks more detailed questions about coping strategies. For each question, please circle a number in the appropriate column.

	Yes	No
a) Have you **ever** thought seriously about committing suicide (taking your life)?	1	0
b) In the **past 12 months**, have you thought seriously about committing suicide?	1	0
c) Have you **ever** attempted suicide (tried to take your life)?	1	0
d) In the **past 12 months**, have you attempted suicide (tried to take your life)?	1	0
	Yes	**No**
e) In the past **12 months**, has any member of your family in your household died by suicide?	1	0
f) In the past **12 months**, has anybody among your relatives or closest friends, apart from your household members, died by suicide?	1	0

The following section asks detailed questions about physically hurting yourself **(without the intention to take your own life).**		
g) Have you cut your wrists, arms or other areas of your body?	1	0
h) Have you burned yourself?	1	0
	Yes	**No**
i) Have you scratched yourself to the extent that you were bleeding or you had a scar?	1	0
j) Have you banged your head against something to the extent that you had a bruise?	1	0
k) Have you punched yourself or punched another object to the extent that you had a bruise?	1	0
l) Other self-injurious behavior (please specify)		

Question 6

This section asks you about goals you may have for the future. Rate each item by circling a number to indicate how important each goal is to you. Try to use the entire scale when rating the items. That is, some of your answers will likely be at the lower end of the scale, some will be in the middle, and others will be at the higher end of the scale.

1. There will always be someone around to take care of me.
   Importance 1 2 3 4 5 6 7 8 9
   not at all a little moderate very extremely
2. My image will appeal to others.
   Importance 1 2 3 4 5 6 7 8 9
   not at all a little moderate very extremely
3. I will find personal answers to universal spiritual questions (such as: Is there a supreme spiritual being? Is there life after death? What is the meaning of life?)
   Importance 1 2 3 4 5 6 7 8 9
   not at all a little moderate very extremely
4. I will assist people who need it, asking nothing in return.
   Importance 1 2 3 4 5 6 7 8 9
   not at all a little moderate very extremely
5. I will choose what I do, instead of being pushed along by life.
   Importance 1 2 3 4 5 6 7 8 9
   not at all a little moderate very extremely
6. People will show affection to me, and I will show affection to them.
   Importance 1 2 3 4 5 6 7 8 9
   not at all a little moderate very extremely
7. I will have few threats to my personal safety.
   Importance 1 2 3 4 5 6 7 8 9
   not at all a little moderate very extremely

8. My life will be full of wine, lovers and song.

Importance	1	2	3	4	5	6	7	8	9
	not at all		a little		moderate		very		extremely

9. I will have many expensive possessions.

Importance	1	2	3	4	5	6	7	8	9
	not at all		a little		moderate		very		extremely

10. I will be admired by many people.

Importance	1	2	3	4	5	6	7	8	9
	not at all		a little		moderate		very		extremely

11. I will be polite and obedient

Importance	1	2	3	4	5	6	7	8	9
	not at all		a little		moderate		very		extremely

12. I will have a great sex life.

Importance	1	2	3	4	5	6	7	8	9
	not at all		a little		moderate		very		extremely

13. I will have developed a code of ethics and/or morals to guide my life.

Importance	1	2	3	4	5	6	7	8	9
	not at all		a little		moderate		very		extremely

14. My basic needs for food, shelter and clothing will be met.

Importance	1	2	3	4	5	6	7	8	9
	not at all		a little		moderate		very		extremely

15. I will feel that there are people who really love me.

Importance	1	2	3	4	5	6	7	8	9
	not at all		a little		moderate		very		extremely

16. I will feel free.

Importance	1	2	3	4	5	6	7	8	9
	not at all		a little		moderate		very		extremely

17. The things I do will make other people's lives better.

Importance	1	2	3	4	5	6	7	8	9
	not at all		a little		moderate		very		extremely

18. My name will be known by many different people.

Importance	1	2	3	4	5	6	7	8	9
	not at all		a little		moderate		very		extremely

19. I will be in good physical shape.

Importance	1	2	3	4	5	6	7	8	9
	not at all		a little		moderate		very		extremely

20. I will find satisfying religious and/or spiritual activities.

Importance	1	2	3	4	5	6	7	8	9
	not at all		a little		moderate		very		extremely

21. I will live up to the expectations of my society.

Importance	1	2	3	4	5	6	7	8	9
	not at all		a little		moderate		very		extremely

22. People will often comment about how attractive I look.

Importance	1	2	3	4	5	6	7	8	9
	not at all		a little		moderate		very		extremely

23. I will be financially successful.

Importance 1 2 3 4 5 6 7 8 9
not at all a little moderate very extremely

24. I will have a lot of excitement in my life.
Importance 1 2 3 4 5 6 7 8 9
not at all a little moderate very extremely

25. I will not have to worry about bad things happening to me.
Importance 1 2 3 4 5 6 7 8 9
not at all a little moderate very extremely

26. I will find religious or spiritual beliefs that help me make sense of the world.
Importance 1 2 3 4 5 6 7 8 9
not at all a little moderate very extremely

27. Mostly everyone who knows me will like me.
Importance 1 2 3 4 5 6 7 8 9
not at all a little moderate very extremely

28. I will feel good about my abilities.
Importance 1 2 3 4 5 6 7 8 9
not at all a little moderate very extremely

29. I will be relatively free from sickness.
Importance 1 2 3 4 5 6 7 8 9
not at all a little moderate very extremely

30. My desires and tastes will be similar to those of other people.
Importance 1 2 3 4 5 6 7 8 9
not at all a little moderate very extremely

31. I will have enough money to buy everything I want.
Importance 1 2 3 4 5 6 7 8 9
not at all a little moderate very extremely

32. I will express my love for special people.
Importance 1 2 3 4 5 6 7 8 9
not at all a little moderate very extremely

33. I will overcome the challenges that life presents me.
Importance 1 2 3 4 5 6 7 8 9
not at all a little moderate very extremely

34. I will understand why I do the things I do.
Importance 1 2 3 4 5 6 7 8 9
not at all a little moderate very extremely

35. I will help the world become a better place.
Importance 1 2 3 4 5 6 7 8 9
not at all a little moderate very extremely

36. I will experience a great deal of sensual pleasure.
Importance 1 2 3 4 5 6 7 8 9
not at all a little moderate very extremely

37. My life and actions will be in agreement with my religious/spiritual beliefs.
Importance 1 2 3 4 5 6 7 8 9
not at all a little moderate very extremely

38. I will have a committed, intimate relationship.

Importance	1	2	3	4	5	6	7	8	9
	not at all		a little		moderate		very		extremely

39. I will have a job that pays well.

Importance	1	2	3	4	5	6	7	8	9
	not at all		a little		moderate		very		extremely

40. I will "fit in" with others.

Importance	1	2	3	4	5	6	7	8	9
	not at all		a little		moderate		very		extremely

41. I will keep up with fashions in clothing and hair.

Importance	1	2	3	4	5	6	7	8	9
	not at all		a little		moderate		very		extremely

42. People will really respect me.

Importance	1	2	3	4	5	6	7	8	9
	not at all		a little		moderate		very		extremely

43. I will fulfill my duties towards my family.

Importance	1	2	3	4	5	6	7	8	9
	not at all		a little		moderate		very		extremely

44. I will be a good parent

Importance	1	2	3	4	5	6	7	8	9
	not at all		a little		moderate		very		extremely

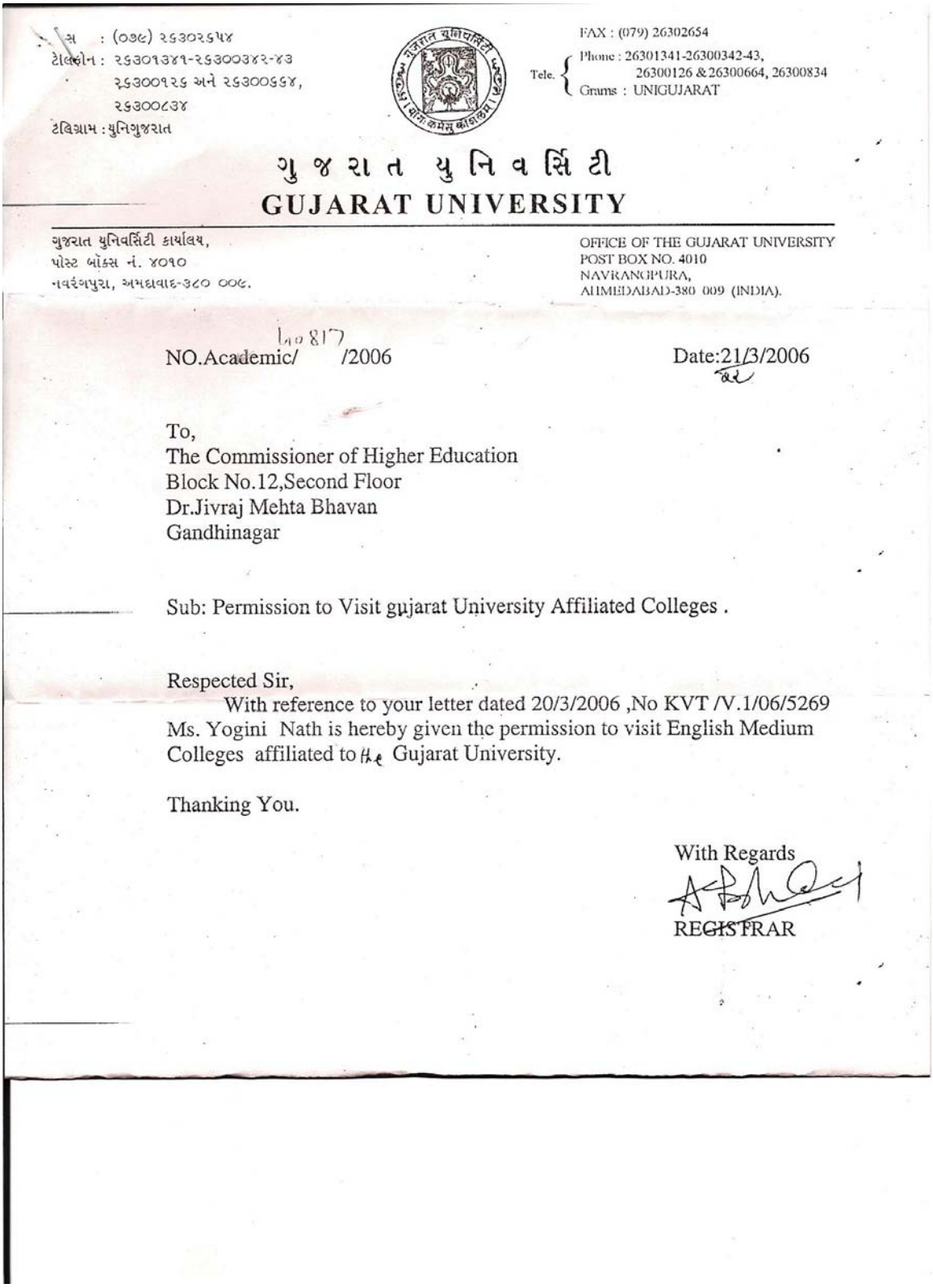
45. I will have good academic/professional qualifications

Importance	1	2	3	4	5	6	7	8	9
	not at all		a little		moderate		very		extremely

************ END OF QUESTIONNAIRE ************

THANK YOU!

Appendix B. Consent letter from Gujarat University



ફેક્સ : (૦૭૯) ૨૬૩૦૨૬૫૪
ટેલિફોન : ૨૬૩૦૧૩૪૧-૨૬૩૦૦૩૪૨-૪૩
૨૬૩૦૦૧૨૬ અને ૨૬૩૦૦૬૬૪,
૨૬૩૦૦૮૩૪
ટેલિગ્રામ : યુનિગુજરાત

FAX : (079) 26302654
Tele. { Phone : 26301341-26300342-43, 26300126 & 26300664, 26300834
Grams : UNIGUJARAT

ગુજરાત યુનિવર્સિટી
GUJARAT UNIVERSITY

ગુજરાત યુનિવર્સિટી કાર્યાલય,
પોસ્ટ બૉક્સ નં. ૪૦૧૦
નવરંગપુરા, અમદાવાદ-૩૮૦ ૦૦૯.

OFFICE OF THE GUJARAT UNIVERSITY
POST BOX NO. 4010
NAVRANGPURA,
AHMEDABAD-380 009 (INDIA).

NO.Academic/ 817 /2006 Date:21/3/2006

To,
The Commissioner of Higher Education
Block No.12,Second Floor
Dr.Jivraj Mehta Bhavan
Gandhinagar

Sub: Permission to Visit gujarat University Affiliated Colleges .

Respected Sir,
With reference to your letter dated 20/3/2006 ,No KVT /V.1/06/5269 Ms. Yogini Nath is hereby given the permission to visit English Medium Colleges affiliated to Gujarat University.

Thanking You.

With Regards

REGISTRAR

Appendix C. Consent form

CONSENT FORM

Stress Among College Students in Ahmedabad

You are being invited to participate in a research study designed to investigate sources of stress among college students in Ahmedabad. The study is being conducted by Yogini Nath as part of her master's thesis project at McGill University, Montreal, Canada under the supervision of Dr. Laurence J. Kirmayer. You have the right to know about the purpose and procedures that are to be used in this research study, and to be informed about the potential benefits, risks, compensation, and discomfort of this research.

Before you give your consent to be a participant, it is important that you read the following information and ask as many questions as is necessary in order to understand what you will be asked to do, should you decide to participate. It is also important that you understand that you do not have to take part in this study. You must be at least 18 years of age to participate.

Students in India face stress related to numerous factors. The purpose of this study is to assess the sources of stress among students in India and ways that students attempt to cope with stressful incidents and life situations. If you decide to participate in the study, you will complete the attached questionnaire, which typically takes 15-30 minutes to complete. Once you complete the questionnaire, you will leave the questionnaire in a drop box in order to ensure anonymity.

There are no known risks involved in filling out the study questionnaire. Some of the questions are of a sensitive nature, however, and may cause discomfort. There are no benefits or compensation made for participating in this study, although it is possible that the results from this study will provide information that may be used to help other students in the future. Your participation in this study is voluntary. You may choose to participate now and decide to stop your participation at any time. Since information is being obtained on an anonymous basis, please do not make any marks on the study questionnaire form that might reveal your identity. The study files will be kept at McGill University under the supervision of Dr. Kirmayer for 10 years in a locked file cabinet. The results of this study may be published or communicated in other ways; however, no identifying information will be disclosed in any reports or publications.

By completing and returning the attached questionnaire, you are indicating that you have read the above information, that any questions were answered to your satisfaction, and that you understand that your participation is voluntary and that you can withdraw from the study at any time without giving reasons.

This study has been reviewed and received ethics clearance through the Research Ethics Office of the Jewish General Hospital in Montreal, Canada and has been approved by the

Department of Education of Gujarat State. If you have questions about the research now or later, you should contact Ms. Amee Mehra (lecturer, St. Xavier's College) at 9898028973. If you have questions about your rights as a research participant, you may call the Jewish General Hospital patient representative Ms. Laurie Berlin at +15143408222 ext. 5833.

Appendix D. Instructions

INSTRUCTIONS FOR COMPLETING SURVEY

I am conducting a research study on stress among college students in Ahmedabad. Students in India face different types of stresses and I am interested in exploring the sources of these stressors. Another objective of this study is to understand how students cope with this stress, what types of strategies they use to deal with their problems. The information from this study will be very valuable for the university and health departments in identifying gaps in mental health service delivery and ways to better provide students with such services.

I will be distributing a questionnaire. It will take about 10 minutes to complete. I would be very grateful if you would participate in this study by filling out this questionnaire. Please read the first page carefully, it gives you information on the purpose of the study and explains your rights as a participant. You should be aware that it is not compulsory for you to participate and you may withdraw from the study at any time.

If you are not interested in participating you are free to leave. For those willing to participate, I will distribute the questionnaire. Please do not fill it out until I have distributed all the questionnaires. Instructions for each question have been provided. Please answer every question as honestly and accurately as you can. If you do not understand any of the questions or what they mean, please let me know.

Please do not write your name anywhere on the questionnaire. Your information will remain anonymous and confidential. Once you have fully completed the questionnaire, please leave it in this drop box. If you would like more information on mental health services or would like to talk to someone about any stress that you are currently experiencing I will be happy to provide you with a list of agencies and mental health professionals you can contact. I thank you very much for your time and I will be happy to share the results of this study with you after completion of this project.

Appendix E. Factor Analysis: Factor structure of stress domains

Domains of stressful life situations and their corresponding stressors

Domain	Variable Name	Items
Academic	– Stress 1	– Competing with classmates for academic success
	– Stress 2	– Choosing which academic stream to enter
	– ~~Stress 4~~	– ~~Paying for my education*~~
	– ~~Stress 5~~	– ~~Applying for post graduate programs~~
	– Stress 7	– Achieving the level of academic success that parents expect*
	– Stress 8	– Balancing academic and social life*
	– Stress 9	– Failure in examinations
	– Stress 16	– Facing parents after failure in examinations*
Economic	– Stress 3	– Getting a job after graduation
	– Stress 4	– Paying for education*
	– Stress 5	– Applying for post graduate programs
	– Stress 6	– Finding a job while in school or working while in school
	– ~~Stress 15~~	– ~~Providing support to family*~~
	– ~~Stress 17~~	– ~~Getting support from family*~~
Familial	– ~~Stress 7~~	– ~~Achieving the level of academic success that parents expect*~~
	– ~~Stress 11~~	– ~~Living in a joint family~~
	– Stress 12	– Sharing the same cultural values as parents
	– Stress 13	– Allowing parents or relatives to make most major decisions
	– Stress 14	– Living in a nuclear family
	– Stress 15	– Providing support to family*
	– ~~Stress 16~~	– ~~Facing parents after failure in examinations*~~
	– Stress 17	– Getting support from family*
	– ~~Stress 19~~	– ~~Getting permission from parents to be in a romantic relationship*~~
	– ~~Stress 21~~	
	– ~~Stress 23~~	– ~~Finding a marriage partner who meets family expectations*~~
		– ~~Living with in-laws~~
Social	– ~~Stress 8~~	– ~~Balancing academic and social life*~~
	– ~~Stress 10~~	– ~~Bullying by others~~
	– Stress 18	– Finding a partner for a romantic relationship
	– Stress 19	– Getting permission from parents to be in a romantic relationship*
	– Stress 20	
	– Stress 21	– Being in a romantic relationship
	– Stress 22	– Finding a marriage partner who meets family expectations*
	– ~~Stress 24~~	– Choosing own marriage partner
	– ~~Stress 25~~	– ~~Keeping up with the latest trends~~
	– ~~Stress 26~~	– ~~Pressure from others to smoke~~
	– ~~Stress 27~~	– ~~Pressure from others to drink alcohol~~
	– ~~Stress 28~~	– ~~Pressure from others to use drugs~~
	– ~~Stress 29~~	– ~~Getting support from friends~~
		– ~~Providing support to friends~~

*indicates overlap in another domain

Notes on Confirmatory Factor Analysis:

Item	Action	Reason
Stress 23	Not included	Only 9 students with non-missing data.
Stress 11	Not included	56% missing data
Stress 25	Not included	Too high correlation to model (e.g., with Stress 26 = .87), un-interpretable results
Stress 27	Not included	Too high correlation to model (e.g., with Stress 26 = .95), with Stress 26 = .87), un
Stress 4	Removed from ACADEMIC	Factor loading = -0.31
Stress 19	Removed from FAMILIAL	Factor loading = -0.26
Stress 16	Removed from FAMILIAL	Factor loading = -0.02
Stress 8	Removed from SOCIAL	Factor loading = 0.00
Stress 7	Removed from FAMILIAL	Factor loading = 0.08
Stress 29	Removed from model	Extreme modification indices for all factors.
Stress 10	Removed from model	Large modification indices for 2 factors (ACADEMIC, ECONOMIC)
Stress 24	Removed from model	Large modification indices for all factors.
Stress 28	Removed from model	Large modification indices for all factors.
Stress 15	Removed from ECONOMIC	Factor loading = 0.15
Stress 17	Removed from ECONOMIC	Factor loading = 0.17
Stress 21	Removed from FAMILIAL	Factor loading = 0.24
Stress 26	Removed from model	Factor loading = 0.25
Stress 5*	Added to ECONOMIC	Relatively large modification index (37.0)
Stress 5*	Removed from ACADEMIC	Factor loading = 0.10
SUBSTANCE FACTOR	Attempted, but removed	Model fell apart due to multicollinearity issues

* Stress 5 could have loaded on either ACADEMIC or ECONOMIC. Loading on ECONOMIC (0.52) was slightly higher than for ACADEMIC (0.47), but this could go either way. The overall model fit is similar in either case, but some of the loadings on the other variables on the ACADEMIC factor are a bit more robust when Stress 5 loads on ECONOMIC rather than ACADEMIC.

Overview of Factor Model

- See notes above for steps to develop model
- MPLUS Confirmatory factor analysis with modifications based on factor loadings and modification indices (to add variables to factors).
- All items were treated as categorical/ordinal indicators
- Paired present approach used for missing data (only students missing 9 or fewer items – one-third of total – were included in analyses; N = 1789)
- WLSMV estimation
- The chi-square test is highly sensitive to sample size and can lead to the rejection of well-fitting models, so practical fit indices are emphasized

Appendix F. Factor analysis: Factor loadings

Domain	Variable Name	Factor Loading
Academic	– Stress 1	0.46
	– Stress 2	0.52
	– Stress 7	0.61
	– Stress 8	0.52
	– Stress 9	0.52
	– Stress 16	0.59
Economic	– Stress 3	0.65
	– Stress 4	0.59
	– Stress 5	0.52
	– Stress 6	0.59
Familial	– Stress 12	0.61
	– Stress 13	0.55
	– Stress 14	0.72
	– Stress 15	0.61
	Stress 17	0.59
Romantic	– Stress 18	0.71
	– Stress 19	0.72
	– Stress 20	0.73
	– Stress 21	0.68
	Stress 22	0.66
Social	– Stress 24	0.56
	– Stress 28	0.54
	– Stress 29	0.56

Factor Correlations:

Economic	with Academic	0.76
Familial	with Academic	0.72
	with Economic	0.57
Romantic	with Academic	0.53
	with Economic	0.48
	with Familial	0.51
Social	with Academic	0.57
	with Economic	0.55
	with Familial	0.80
	with Romanic	0.48

Model Fit Indices:

Chi-square (152) = 974.1, $p < .001$
CFI = 0.89
TLI = 0.94
RMSEA = 0.06

Appendix G. Table 3. Factors associated with lifetime suicide ideation

Table 3.

Factors associated with lifetime suicide ideation in youth

	Lifetime Suicide ideation							
	Thought Seriously about Suicide			**Never Thought Seriously About Suicide**				
Variables	**n**	**%**	**Total n**	**n**	**%**	**Total n**	**Result of Significance Test**	***P***
Demographic variables								
Religion:								
Hindu	160	75.8%	211	1232	77.2%	1595	$X^2(4, N=1806)=16.11$	.003
Jain	13	6.2%		192	12.0%			
Muslim	18	8.5%		92	5.8%			
Christian	18	8.5%		65	4.1%			
Sikh, Parsi, Buddhist, Other	2	0.9%		14	0.9%			
Future plans after college:								
Study further	93	44.7%	208	902	57.2%	1578	$X^2(3, N=1786)=15.45$	.001
Get a job	27	13.0%		124	7.9%			
Join family business	4	1.9%		47	3.0%			
Work and study	84	40.4%		505	32.0%			
Annual Household Income:								
0-49,000 rupees	71	35.1%	202	406	26.0%	1563	$U= 143672.0$	.032
50,000-99,000 rupees	50	24.8%		455	29.1%			
100,000-199,000 rupees	45	22.3%		345	22.1%			
200,000-299,000 rupees	11	5.4%		158	10.1%			
300,000-399,000 rupees	8	4.0%		92	5.9%			
≥400,000 rupees	17	8.4%		107	6.8%			
Stressful life situations								
Academic Stress Score		9.58 ± 3.6			8.02 ± 3.7		$T(1798) = -5.79$	<.001
Economic Stress Score		6.28 ± 3.0			4.89 ± 2.8		$T(1779) = - 6.67$	<.001
Familial Stress Score		4.29 ± 3.4			2.94 ± 2.6		$T(1788) = - 6.71$	<.001
Romantic Stress Score		7.28 ± 4.4			5.62 ± 4.1		$T(1616) = - 5.34$	<.001
Social Stress Score		2.52 ± 2.1			1.81 ± 1.7		$T(1783) = - 5.44$	<.001
Stressful life events								
Illness or disability in the past year								
No stress	130	61.9%	210	1167	73.4%	1589	$U= 145179.5$	<.001
Little stress	47	22.4%		313	19.7%			
Moderate stress	21	10.0%		58	3.7%			
Severe stress	12	5.7%		51	3.2%			
Own emotional or mental health problems in past year								
No Stress	93	44.1%	211	1113	70.8%	1572	$U= 115722.5$	<.001
A little stress	50	23.7%		283	18.0%			
Moderate stress	34	16.1%		105	6.7%			
Severe stress	34	16.1%		71	4.5%			

	Lifetime Suicide ideation							
	Thought Seriously about Suicide			Never Thought Seriously About Suicide				
Variables	**n**	**%**	**Total n**	**n**	**%**	**Total n**	**Result of Significance Test**	***P***
Conflict in the community over religious or political beliefs								
No stress	154	73.3%	210	1346	85.6%	1573	*U*= 143504.5	<.001
A little stress	24	11.4%		150	9.5%			
Moderate stress	21	10.0%		49	3.1%			
Severe stress	11	5.2%		28	1.8%			
Discrimination against own caste								
No Stress	178	84.4%	211	1466	92.6%	1584	*U*= 152796.5	<.001
A little stress	11	5.2%		69	4.4%			
Moderate stress	6	2.8%		26	1.6%			
Severe stress	16	7.6%		23	1.5%			
Conflict in the community over caste								
No Stress	165	80.1%	206	1435	91.5%	1569	*U*= 142720.5	<.001
A little stress	21	10.2%		90	5.7%			
Moderate stress	7	3.4%		24	1.5%			
Severe stress	13	6.3%		20	1.3%			
Family member who had emotional or mental health problems								
No stress	129	61.4%	210	1274	81.0%	1572	*U*= 131276.0	<.001
Little stress	40	19.0%		180	11.5%			
Moderate stress	23	11.0%		70	4.5%			
Severe stress	18	8.6%		48	3.1%			
Family member's illness or disability								
No Stress	138	66.0%	209	1283	81.0%	1583	*U*= 140083.5	<.001
A little stress	40	19.1%		185	11.7%			
Moderate stress	18	8.6%		62	3.9%			
Severe stress	13	6.2%		53	3.3%			
Recent financial loss								
No stress	102	48.3%	211	1028	65.1%	1579	*U*= 133673.5	<.001
A little stress	40	19.0%		287	18.2%			
Moderate stress	32	15.2%		133	8.4%			
Severe stress	37	17.5%		131	8.3%			
Depression screen (K6) score								
K6 score [a]	11.28 ± 5.5			6.85 ± 4.4			*t*(1796) = - 13.34	<.001

[a] *mean ± standard deviation*

Appendix H. Table 4. Factors associated with lifetime suicide attempts in youth

Table 4.

Factors associated with suicide attempts in youth

	Lifetime Suicide Attempt							
	Attempted Suicide			**Never Attempted Suicide**				
Variables	**n**	**%**	**Total n**	**n**	**%**	**Total n**	**Result of Significance Test**	***p***
Demographic variables								
Future plans after college:								
Study further	30	42.3%	71	964	56.3%	1712	$\chi^2(3, N=1783)= 19.95$	<.001
Get a job	16	22.5%		134	7.8%			
Join family business	2	2.8%		49	2.9%			
Work and study	23	32.4%		565	33.0%			
Stressful life situations								
Academic Stress Score		9.60 ± 3.2			8.15 ± 3.8		*t*(1795) = -3.23	.001
Economic Stress Score		6.66 ± 2.7			4.99 ± 2.9		*t*(1776) = - 4.89	<.001
Familial Stress Score		4.36 ± 3.6			3.05 ± 2.7		*t*(1785) = - 3.96	<.001
Stressful Life Events								
Illness or disability in the past year								
No stress	43	60.6%	71	1251	72.5%	1725	*U*= 53275.0	.018
Little stress	17	23.9%		343	19.9%			
Moderate stress	8	11.3%		71	4.1%			
Severe stress	3	4.2%		60	3.5%			
Own emotional or mental health problems in past year								
No Stress	26	36.6%	71	1178	68.9%	1709	*U*= 37418.5	<.001
A little stress	15	21.1%		317	18.5%			
Moderate stress	13	18.3%		126	7.4%			
Severe stress	17	23.9%		88	5.1%			
Conflict in the community over religious or political beliefs								
No stress	47	67.1%	70	1450	84.8%	1710	*U*= 48394.5	<.001
A little stress	9	12.9%		165	9.6%			
Moderate stress	6	8.6%		64	3.7%			
Severe stress	8	11.4%		31	1.8%			
Discrimination against own caste								
No Stress	60	84.5%	71	1582	91.9%	1721	*U*= 56278.0	.019
A little stress	2	2.8%		77	4.5%			
Moderate stress	4	5.6%		28	1.6%			
Severe stress	5	7.0%		34	2.0%			

	Lifetime Suicide Attempt							
	Attempted Suicide			Never Attempted Suicide				
Variables	**n**	**%**	**Total n**	**n**	**%**	**Total n**	**Result of Significance Test**	***p***
Family member who had emotional or mental health problems								
No stress	41	57.7%	71	1360	79.6%	1708	*U*= 46312.0	<.001
Little stress	11	15.5%		208	12.2%			
Moderate stress	13	18.3%		80	4.7%			
Severe stress	6	8.5%		60	3.5%			
Family member's illness or disability								
No Stress	42	58.3%	72	1377	80.2%	1717	*U*= 47471.0	<.001
A little stress	14	19.4%		210	12.2%			
Moderate stress	8	11.1%		72	4.2%			
Severe stress	8	11.1%		58	3.4%			
Depression screen(K6) score								
K6 score[a]			11.77 ± 5.34			7.18 ± 4.62	*t*(1793) = -8.25	<.001

[a]*mean ± standard deviation*

Appendix I. Research ethics approval

HÔPITAL GÉNÉRAL JUIF
SIR MORTIMER B. DAVIS
JEWISH GENERAL HOSPITAL
HÔPITAL D'ENSEIGNEMENT DE L'UNIVERSITÉ MCGILL
A MCGILL UNIVERSITY TEACHING HOSPITAL

BUREAU D'ÉTHIQUE DE LA RECHERCHE
RESEARCH ETHICS OFFICE

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October 10, 2007

Dr. Laurence J. Kirmayer
Department of Psychiatry
SMBD-Jewish General Hospital

SUBJECT: **Protocol #07-100** entitled "Stress Among College Students in Ahmedabad"

Dear Dr. Kirmayer,

Thank you for submitting the following documents pertaining to the above-mentioned protocol to the Research Ethics Office for review:

- Protocol (dated August 2007)
- Consent Form
- Questionnaire: Coping with Stress

The Research Ethics Committee of the SMBD-Jewish General Hospital (Federalwide Assurance Number: 0796) is designated by the province (MSSS) and follows the published guidelines of the Tri-Council Policy Statement, 1998 (with 2000, 2002 updates), in compliance with the "Plan d'action ministériel en éthique de la recherche et en intégrité scientifique" (MSSS, 1998), the membership requirements for Research Ethics Boards defined in Part C Division 5 of the Food and Drugs Regulations; acts in conformity with standards set forth in the United States Code of Federal Regulations governing human subjects research, and functions in a manner consistent with internationally accepted principles of good clinical practice.

As this study involves no more than minimal risk in accordance with article 1.6 of the Tri-Council Policy Statement of Ethical Conduct for Research Involving Humans, we are pleased to inform you that the above-mentioned protocol as well as the English consent form have been granted Expedited Approval for the period of <u>one year</u>. For quality assurance purposes, you must use the approved REO stamped consent form when obtaining consent by making copies of the enclosed one. Please note that a <u>French Consent Form</u>, as required by law, must be forwarded to the Research Ethics Office as soon as possible. For your information the above-mentioned protocol will be presented for corroborative approval at the next meeting of the Committee, November 9, 2007.

Expedited Approval Date:	**October 10, 2007**
Expiration date of Expedited Approval:	**October 9, 2008**