Non-suicidal Self-injury and Suicidal Behaviors among Youth in India: An Investigation of their Prevalence and Psychosocial Risk Factors

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Abstract

According to official statistics in India, roughly one out of every three suicides is by a young person aged 18 to 29 years. Yet there is limited research on suicidal behaviors and other non-fatal self-harming behaviors such as non-suicidal self-injury (NSSI) among Indian youth. In the Indian cultural context, knowledge of local epidemiology, especially the identified risk factors, is vital to the formulation of effective strategies to prevent suicidal behaviors and NSSI. The present research therefore aimed to investigate the prevalence and psychosocial correlates of NSSI and suicidal behaviors in a community-based sample of college youth in India. Guided by social-ecological perspectives, the premise of this research was that risk pathways for these behaviors emerge via interactions between individual characteristics and environmental factors. The research reported in this dissertation comprised two separate studies, each of which followed a distinct line of inquiry but collectively contribute to a cultural understanding of NSSI and suicidal behaviors. Study 1 was focused primarily on NSSI while Study 2 focused on suicidal behaviors. Data for both studies was collected from 1,817 undergraduate students (1,017 female, 793 male) in the western state of Gujarat. Study 1 sought to investigate the prevalence and psychosocial correlates of NSSI. A second objective was to identify risk factors for suicide ideation among those with NSSI history. Results showed that about 7.8% of the sample reported engaging in NSSI. Logistic regression analysis revealed that risk for NSSI was significantly associated with higher income, living alone, family-related stress and psychological distress. Among those with a history of NSSI, the risk for suicide ideation was significantly increased by female gender, economic stress, and psychological distress, but not NSSI severity. Study 2 sought to identify psychosocial risk factors for suicidal behaviors (ideation and attempt). Recent research indicates that in the context of a rapidly globalizing culture, one emerging concern is the rise of a consumerist culture that promotes materialistic aspirations. Studies

have found that individuals who focus on materialistic or extrinsic aspirations at the cost of intrinsically satisfying ones report poorer mental health. Therefore a second objective of Study 2 was to examine whether extrinsically or intrinsically motivated aspirations moderated the relationship between psychosocial risk factors and suicidal behaviors. Results showed that about 12.7% of participants reported a lifetime history of suicidal behaviors. Results of logistic regression analyses revealed that economic stress, social stress and psychological distress predicted suicidal behaviors. When the moderating role of aspirations was tested, results showed that placing greater importance on extrinsic aspirations increased the risk of suicidal behavior in the presence of social stress while valuing intrinsic aspirations buffered against risk. Findings draw attention to the social pressures faced by youth and the role of inherently satisfying goal pursuits in buffering the adverse effects of social pressures. Taken together, results from this research indicate that risk factors for NSSI and suicidal behaviors span individual, familial, societal and wider cultural levels, underscoring the need for multipronged prevention and intervention strategies that are aligned with these multiple contexts. Culturally meaningful approaches to help students at risk for suicidal behavior and NSSI may be developed at both the individual as well as institutional level, consistent with a social-ecological model for suicide prevention.

Résumé

Selon les statistiques officielles, en Inde environ le tiers des suicides sont commis par des jeunes âgés de 18 à 29 ans. Pourtant, il existe très peu de recherches sur les comportements suicidaires chez les jeunes Indiens et encore moins de recherches sur l'automutilation non suicidaire (AMNS). Dans le contexte culturel indien, la connaissance de l'épidémiologie locale, notamment les facteurs de risque identifiés, est essentielle à l'élaboration de stratégies efficaces pour prévenir les comportements d'automutilation suicidaire et non suicidaire. Le présent programme de recherche visait donc à étudier la prévalence et les corrélats psychosociaux de l'AMNS et les comportements suicidaires au sein d'un échantillon communautaire de jeunes universitaires indiens. S'appuyant sur des perspectives socio-écologiques, cette recherche reposait sur la prémisse que les trajectoires de ces comportements à risque émergent des interactions entre les caractéristiques individuelles et les facteurs environnementaux. Le programme de recherche présenté dans cette thèse comprenait deux études distinctes, chacune adoptant un axe d'enquête différent, mais contribuant conjointement à une compréhension culturelle de l'AMNS et des comportements suicidaires. L'étude # 1 était axée principalement sur l'AMNS alors que l'étude # 2 a porté sur les comportements proprement suicidaires. Les données pour les deux études ont été recueillies auprès de 1 817 étudiants de premier cycle (1 017 femmes, 793 hommes) dans l'ouest de l'état du Gujarat. L'étude # 1 visait à étudier la prévalence et les corrélats psychosociaux de l'AMNS. Un deuxième objectif consistait à identifier les facteurs de risque en lien avec les idées suicidaires chez les personnes ayant des antécédents d'AMNS. Les résultats ont montré qu'environ 7,8 % des sujets de l'échantillon ont indiqué pratiquer l'AMNS. L'analyse de régression logistique a révélé que le risque d'AMNS était fortement associé à un revenu plus élevé, au fait de vivre seul, au stress familial et à la détresse psychologique. Parmi ceux et celles ayant des antécédents d'AMNS, on observe que le fait

d'appartenir au genre féminin, le stress économique et la détresse psychologique augmentaient fortement le risque d'idées suicidaires, mais non la gravité de l'AMNS. L'étude # 2 visait à identifier les facteurs de risques psychosociaux en lien avec les comportements suicidaires (idées suicidaires et tentatives). Des recherches récentes indiquent que, dans le contexte d'une culture qui se mondialise rapidement, l'émergence d'une culture de consommation qui encourage les aspirations matérialistes soulève de nouvelles préoccupations. Des études ont montré que le fait de mettre davantage l'accent sur les aspirations matérialistes ou extrinsèques, au détriment d'aspirations intrinsèques, a des répercussions sur la santé mentale. Un deuxième objectif de l'étude # 2 consistait donc à examiner si les aspirations intrinsèquement ou extrinsèquement motivées pouvaient modérer la relation entre les facteurs psychosociaux et les comportements suicidaires. Les résultats ont montré qu'environ 12,7 % des participants avaient déclaré des antécédents de comportements suicidaires. Les résultats des analyses de régression logistique ont révélé que le stress économique, le stress social et la détresse psychologique permettaient de prédire les comportements suicidaires. Lorsqu'on a vérifié le rôle modérateur des aspirations personnelles, les résultats ont montré que le fait d'accorder relativement plus d'importance aux aspirations extrinsèques augmentait le risque de comportement suicidaire en présence de stress social tandis que la valorisation des aspirations intrinsèques contribuait à en diminuer le risque. Ces constatations mettent en évidence les pressions sociales qui s'exercent sur les jeunes et le rôle atténuateur de la poursuite d'objectifs intrinsèquement gratifiants sur les effets néfastes provoqués par la pression sociale. Globalement, les résultats de ce programme de recherche indiquent que les facteurs de risque de comportements suicidaires d'AMNS recouvrent des niveaux individuel, familial et social ainsi qu'un niveau culturel plus large, soulignant ainsi la nécessité de mettre en œuvre des stratégies de prévention et d'intervention à plusieurs volets correspondant à cette multitude de contextes. Des approches culturellement

significatives destinées à venir en aide aux étudiants à risque d'adopter un comportement suicidaire, y compris ceux ayant des antécédents d'AMNS, peuvent être développées à la fois au niveau individuel et institutionnel, en conformité avec un modèle socio-écologique de la prévention du suicide.

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Contribution of Authors

This dissertation is written in a manuscript-based format and in accordance with the guidelines provided by the Faculty of Graduate and Postdoctoral Studies. For both the manuscripts included in this dissertation, I am the first author. The manuscripts are co-authored by my primary supervisor Dr. Laurence Kirmayer. My co-supervisor Dr. Nancy Heath and Dr. Brett Thombs, a member of my dissertation committee, are co-authors on Manuscript 1. Dr. Kirmayer provided conceptual input when I was developing the research design and advised on selection and development of study measures. Dr. Heath advised on selection of the non-suicidal self-injury measure. I was solely responsible for data collection. Dr. Thombs provided guidance on data analyses. As first author, I was also responsible for writing the manuscripts in full. Dr. Kirmayer served as advisor during preparation of both manuscripts, and provided feedback on study conceptualization, formulation of research questions, and reporting of results. Dr. Heath and Dr. Thombs served as advisors on Manuscript 1. This research was partially supported by a studentship award to Yogini Nath from the Canadian Institute of Health Research Strategic Training Program in Culture and Mental Health Services Research (CIHR STS-63312, L.J. Kirmayer, Principal Investigator).

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Introduction

India has the largest youth population in the world. Roughly half a billion Indian youth are aged 24 years and under (Office of the Registrar General & Census Commissioner, 2011). The mental well-being of this enormous population needs to be considered a key priority in the nation's socioeconomic transformation and human development as it experiences unprecedented economic growth. Attending to the mental health needs of youth is especially vital as most psychological problems and psychiatric disorders tend to emerge during adolescence and early adulthood, but often go undetected until later in life (Kessler et al., 2005; Patel, Flisher, Hetrick, & McGorry, 2007).

Globally, mental health problems are the leading cause of the overall disease burden among adolescents and young adults (Gore et al., 2011; World Health Organization, 2014a). Among the most adverse mental health outcomes, suicide and self-injurious thoughts and behaviors, are serious public health concerns worldwide. In India, official records show that about a third of all suicides are by youth aged 18 to 29 years (National Crime Records Bureau, 2014). In fact, a recent World Health Organization report estimated a suicide rate of about 35 per 100,000 among 15 to 29 year olds in India, making it the highest rate for this age group in the world (World Health Organization, 2014b). No estimates are available however for non-fatal self-injurious behaviors. Self-injurious thoughts and behaviors encompass suicide ideation and attempts as well as self-injurious behaviors in the absence of suicidal intent (Silverman, Berman, Sanddal, O'Carroll, & Joiner, 2007). The burden of these behaviors appears to be increasing among youth around the world. The Global Burden of Disease Study 2013 by the Lancet Commission on adolescent health and well-being found that among youth aged 15 to 24 years, self-harming behaviors were the second leading cause of mortality and morbidity. Globally, among this age group, almost 10% of deaths were attributed to self-harming behaviors, while in India these behaviors accounted for about 14%

of all deaths (Institute for Health Metrics and Evaluation (IHME), 2016; Mokdad et al., 2016).

In spite of statistics suggesting a high prevalence of self-injurious behaviors among young people in India, little has been done to document or study these behaviors. In the absence of official records and a dearth of scientific research, epidemiological knowledge of these behaviors in India is limited. A small number of mostly hospital-based studies conducted in recent years indicate that as in the case of suicide, suicidal behaviors are also most prevalent among young people aged below 30 years (e.g., Chandrasekaran & Gnanaselane, 2005; Chowdhury et al., 2010; Krishna et al., 2014; Latha, Bhat, & D'souza, 1996; Purushothaman, Premarajan, Sahu, & Kattimani, 2015). Indian research also indicates that suicidal behaviors mostly occur in the context of distress or adversity rather than a psychiatric disorder, and that the perceived causes are specific to the individual's social and cultural milieu. Some of the most commonly cited precipitants of suicidal behaviors include interpersonal problems, predominantly in the familial domain, and economic adversity (S. Banerjee, Chowdhury, Schelling, & Weiss, 2013; Chowdhury et al., 2010; Kattimani, Sarkar, Rajkumar, & Menon, 2015; Patil & Shivakumar, 2011). In their review of studies on suicide in developing countries, Vijayakumar, John, Pirkis, and Whiteford (2005) also noted that in contrast to observations from Western studies, the relationship between psychiatric disorders and suicidal behaviors was found to be relatively weaker in Indian studies. They observed that in Indian research, suicide was strongly associated with interpersonal factors and social adversity.

Although sparse, the literature on suicidal behavior in India is growing. In contrast, there is almost a complete absence of research non-suicidal self-injury (NSSI), a form of intentional self-injurious behavior characterized by a lack of suicide intent. In the last decade, NSSI has gained considerable academic, clinical, and public health attention in high-

income Western nations. Until very recently, self-injurious behaviors, which have been variously termed deliberate self-harm (DSH), self-mutilation, or self-injury, had not been distinguished from suicidal phenomena in most research studies. However, recent research originating mostly in North America, has led to broad acceptance of the term NSSI to refer to the deliberate, self-inflicted destruction of body tissue without suicidal intent, and for purposes not socially sanctioned (International Society for the Study of Self-injury, 2015; Nock & Favazza, 2009).

NSSI has been documented widely in community-based samples of students, predominantly in North American studies (Muehlenkamp, Claes, Havertape, & Plener, 2012). Encompassing a variety of self-inflicted injuries such as skin cutting and interference with wound healing, these behaviors serve many functions. However NSSI appears to be used most often to regulate emotional and cognitive states that arise in response to stressful situations or acute distress, and to influence one's social environment (Klonsky, 2009; Nock, 2009; Nock & Prinstein, 2004). Short- and long-term consequences of NSSI include wounds, scarring, risk of infections (Burke, Hamilton, Cohen, Stange, & Alloy, 2016; Walsh, 2012), and an increase in negative affect states such as anger, guilt (Klonsky, 2009), and shame (Briere & Gil, 1998). Importantly, NSSI is considered a serious health concern not only because of the obvious physical and psychological consequences but also because it is consistently and strongly linked to suicidal behavior (Hamza, Stewart, & Willoughby, 2012).

A flurry of recent research studies have contributed to our understanding of NSSI epidemiology, although in Western cultural contexts. Research contributions from culturally diverse non-Western nations such as Japan (Tresno, Ito, & Mearns, 2013) and China (Tang et al., 2011; You & Leung, 2012), have begun to provide an international perspective on NSSI. Recently, Gholamrezaei, De Stefano, and Heath (2015) provided a comprehensive review of extant NSSI studies from non-Western cultures. Interestingly, of the 17 NSSI studies

reported, only one was from India. As their review suggests, NSSI research is still in its nascent stages in India. Although studies have previously reported a range of low-suicidal intent self-harming behaviors among clinical populations in India (Rao, Sudarshan, & Begum, 2008; Sarkar, Sattar, Gode, & Basannar, 2006), it is not clear whether these behaviors have also included NSSI. The varied terminology used to describe low-suicidal intent behaviors in these studies has also hampered comparisons with Western NSSI data. Moreover, most Indian studies on self-harm have been hospital-based, further limiting our understanding of these behaviors in community settings. The surprising lack of NSSI awareness in India even as research burgeons in the West, has promoted urgent calls for NSSI research among Indian youth, particularly in terms of context-specific risk and protective factors (Aggarwal & Berk, 2015).

Given that many young people are enrolled in educational institutions, the burden of both suicidal behaviors and NSSI merit further investigation among the student population. According to official reports in India, almost 9,000 students died by suicide in 2015 (National Crime Records Bureau, 2015) and if conventional estimates are to be relied on, we can expect that for each suicide there may be as many as 20 suicide attempts (Fleischmann & Leo, 2014). NSSI may similarly be prevalent but in the absence of any official records and the general unavailability of research data, it is difficult to estimate the burden of these behaviors among youth. Prevalence estimates are therefore urgently needed to better understand the magnitude of both NSSI and suicidal behaviors in this population.

Approximately 23 million students are enrolled at the undergraduate level in universities and colleges across India. They make up roughly 87% of the total student population (University Grants Commission, 2015a) and therefore represent a majority of all college enrolments in India. College students, who are at the threshold of adulthood, face a number of stressors related to this stage of development such as making career and personal

life choices (Arnett, 2000). Such stresses may be nested in larger stressors such as economic adversity or family problems. Since these social-ecological factors have been found to be especially relevant to suicidal behavior and self-harm in the Indian context, investigating risk factors operating at these levels is vital to the development of appropriate prevention and intervention strategies.

An important aspect of this research agenda is to also consider student mental health in the context of rapid globalization. Globalization-related changes have implications for mental health (Bhavsar & Bhugra, 2008). Economic globalization in India has effected sociocultural changes that influence various domains of young people's functioning and behavior such as the life goals they value and pursue. There is considerable evidence that the types of goals individuals pursue are associated with their mental health and well-being. Research has shown that individuals who place more importance on goals focused on external rewards such as money and popularity report poorer mental health than those who pursue intrinsically oriented goals. Conversely, the pursuit of inherently satisfying experiences is associated with positive mental health (Deci & Ryan, 2000; Kasser, 2002; Kasser & Ryan, 1993, 2001; Ryan & Deci, 2000).

One specific concern in the Indian context has been the rise of excessive materialism which fosters extrinsically motivated goals, and which in turn, may impact on mental health. Sociological research from India has shown that following India's economic liberalization in the early 1990s, young people have been the prime targets of a thriving consumption-driven culture (N. Gupta, 2011; Mohan, 2011; Upadhya, 2009; Varma, 2007; Venkatesh, 1994). The increase in patterns of conspicuous consumption observed in these studies indicates growing aspirations for material well-being, particularly among the burgeoning middle-class population (Varma, 2007). Indeed, one of the defining features of the contemporary Indian middle class has been its pursuit of material possessions and Western lifestyles and values

(D. Gupta, 2000b; Lakha, 2000). The implication of these findings is that extrinsically oriented aspirations such as those related to wealth and social status may be accorded greater importance by youth and may be prioritized over more intrinsically satisfying experiences such as being connected to other people or doing things for others without self-interest. Given that goal pursuits may influence mental health outcomes, investigating the relationship between aspirations and mental health against the backdrop of a rapid globalization is relevant to in the Indian context. Specifically, a key area for investigation is whether the pursuit of certain types of aspirations increases or decreases mental health vulnerability, thereby moderating risk for adverse outcomes such as suicidal behaviors.

In sum, our current understanding of the epidemiology of suicidal behaviors and NSSI among youth, particularly in the student population, is extremely limited. Despite the large numbers of student suicides each year, there is no national suicide prevention policy. For decades, there has not been any specific policy on student mental health even within the ambit of the basic National/District Mental Health Programme that has been operational since the 1980s (Ministry of Health and Family Welfare, 1982). Only very recently, in 2014, has the Government of India updated its existing mental health plan through the launching of the National Mental Health Policy (Ministry of Health and Family Welfare, 2014) and added suicide prevention and college counselling to its list of policy focus areas. Following these revisions, the provision of student counselling services was also recently mandated by the University Grants Commission (UGC), the apex body of university education in India (University Grants Commission, 2015b). The updated national mental health policy and UGC mandate should bring about positive changes in the availability of mental health services for students. However, it will take some time for policies to be implemented and produce tangible results in terms of improved mental health outcomes.

In the meantime, continued efforts to generate knowledge of the local epidemiology, especially the identified risk and protective factors, are urgently needed to inform prevention strategies. The Government of India has recognized this need in its new mental health policy, and identified research, including epidemiology, as one of the goals for suicide prevention (Ministry of Health and Family Welfare, 2014). Given the lack of data on NSSI in India, it is not surprising that NSSI was not identified as another priority area. However, given that NSSI has its own adverse psychological impact and has the potential to increase risk for suicidal behaviors, an exploration of both suicidal behaviors and NSSI is needed.

Accordingly, the overarching aim of the studies presented in this dissertation was to examine the prevalence and psychosocial correlates of NSSI and suicidal behaviors in a community based sample of college students in India. Two separate studies were conducted:

- Study 1 investigated: (a) the prevalence of and psychosocial risk factors for NSSI, and (b) risk factors for suicide ideation among those with NSSI history.
- Study 2 examined: (a) the prevalence of and psychosocial risk factors for suicidal behaviors, and (b) the role of extrinsic and intrinsic aspirations as potential moderators of suicidal behavior risk.

The studies are presented in this dissertation as two separate manuscripts in Chapters 3 and 4. Although the outcomes of interest in each study were distinct (i.e., NSSI and suicidal behaviors), data for each of the studies was drawn from the same sample of college students. There was also overlap with some of the measures reported in both studies as certain variables were of common interest to both outcomes.

The research presented in this dissertation was motivated by previous research findings in international and local Indian settings, and the gaps in Indian research. The research was also carried out with the intent of contributing to a more culturally nuanced understanding of NSSI and suicidal behaviors. These studies are among the first to examine

how NSSI and suicidal behaviors relate to each other in the Indian cultural setting and how the aspirations of young people impact their mental health.

Chapter 1 provides a review of literature relevant to both studies. Chapter 2 provides an overview of the community setting to orient the reader to the local demography and sociocultural environment. Chapter 3 presents Study 1 and Chapter 4, Study 2. A note on how the studies are linked with one another is provided as a separate preface to Chapter 4. Finally, conclusions based on both studies and directions for future research are presented in Chapter 5. The reader may find some overlap in the broader review of literature presented in Chapter 1 and the more focused literature reviews presented in the two manuscripts, although there have been efforts to keep this to a minimum.

CHAPTER 1

Review of Literature

NSSI and Suicidal Behaviors: Terms and Definitions

Issues in terminology and nomenclature. A standard nomenclature for self-injurious behaviors should consist of widely accepted, unambiguous terms and definitions. However, despite notable efforts in the field of suicidology (Beck, Beck, & Kovacs, 1975; Beck et al., 1972; O'Carroll et al., 1996; Silverman et al., 2007), definitional and nosological issues have plagued the study of self-injurious behaviors. Silverman (2006) notes that there are at least 15 commonly referenced definitions of suicide in scientific literature and a wide range of terms to describe aspects of the suicidal process. The use of various synonyms across studies reflects the lack of a universally accepted nomenclature and classification scheme for suicidal and non-suicidal behaviors.

Among the leading self-harm nomenclatures, Silverman et al.'s (2007) nomenclature sought to organize self-injurious thoughts and behaviors (SITBs) into a clear schema. A revision of the O'Carroll et al. (1996) nomenclature, this classification system organized various configurations of suicide-related thoughts and behaviors into broad categories: suicide-related ideations, suicide-related communications, and suicide-related behaviors. Within each of these supersets, SITBs were further organized into subsets based on the presence of suicide intent, the presence of injury, and whether the outcome was fatal. It is interesting to note that self-injurious behaviors without the intent to die by suicide, referred to as *self-harm*, were subsumed under the *suicide-related behaviors* category.

According to this classification SITBs encompassed suicide ideation and attempt as well as self-injurious behaviors in the absence of suicide intent. Over the years, however, self-injury without suicide intent has been particularly difficult to organize in a clear nomenclature. This ambiguity in classification is reflected in the use of a variety of terms to

describe non-suicidal self-injury across nations. Terms such as instrumental suicide-related behavior, deliberate self-harm, self-harm, self-injury, parasuicide, suicide gesture, self-mutilation, and self-cutting are among the most widely used in research (Silverman, 2006). Among this proliferation of terms, the terms *self-harm* and *deliberate self-harm* (DSH), which usually include all self-harming behaviors regardless of suicide intent, and even acts that do not cause tissue damage (e.g. ingestion of poison); have been preferred in many nations, especially in Europe (e.g., Hawton, Saunders, & O'Connor, 2012; Landstedt & Gillander Gådin, 2011; Madge et al., 2011; Madge et al., 2008; McMahon et al., 2014; McMahon et al., 2010; Morthorst, Soegaard, Nordentoft, & Erlangsen, 2016; Silverman et al., 2007). Researchers in India and other developing nations have similarly favored the use of *self-harm* or *DSH*, subsuming several types of self-injurious behaviors regardless of intent, under this term (e.g., Aggarwal, Patton, Reavley, Sreenivasan, & Berk, 2017; Armitage, Panagioti, Rahim, Rowe, & O'Connor, 2015; S. Banerjee et al., 2013; Das et al., 2008; Law & Shek, 2013; Parkar, Dawani, & Weiss, 2006; Shek & Yu, 2012). One obvious implication of using varied terms is that cross-cultural comparisons between NSSI data from the West and DSH data from India are untenable.

Distinguishing between suicidal behaviors and NSSI. In North American research, self-harm terminology and classification has progressed along a somewhat different trajectory than European research. North American research has been at the forefront of investigating non-suicidal self-injurious behaviors outside the realm of suicide research. Pattison and Kahan's (1983) use of the term DSH was followed by terms such as self-mutilation (Favazza, 1996, 1998; Favazza & Rosenthal, 1993), and later, self-injurious behaviors (SIBs) (Simeon & Favazza, 2001). A defining characteristic of SIBs described in these early studies was that these behaviors were not motivated by a wish to take one's life, and therefore did not belong in (or subsumed by) suicide nomenclature. The trend of documenting non-suicidal SIBs, as

described in North American studies, was for a long time not paralleled in other Western and non-Western countries. Reviews of international studies show that many nations in fact continue to use the term DSH and, in doing so, do not always exclude behaviors with suicide intent in their studies (Muehlenkamp et al., 2012).

Initial efforts by North American researchers to classify SIBs yielded phenomenologically based schema that disregarded etiology (Favazza, 1998; Favazza & Rosenthal, 1990). Around this time, an important step in SIB classification was the bifurcation of SIBs based on their cultural acceptability. Favazza (1996), in his seminal work on culture and self-injury, described culturally sanctioned self-mutilative rituals and practices (e.g. ritual scarification undertaken as part of formal rites of initiation, or aesthetic forms of body-modification). These forms of culturally ritualized SIBs were *not* included in subsequent nosologies, since they were generally viewed favorably by a particular society and they served to promote positive states related to healing, spirituality, and social order (Favazza, 1996). Therefore, by definition, only SIBs that were seen as culturally *unacceptable* were considered to be pathological SIBs. Self-injurious actions for body modification such as tattoos and piercings, widely accepted in many Western and non-Western cultures, would not be considered pathological under this revised schema.

Current conceptualizations of NSSI and suicidal behaviors. With regard to NSSI, the development of a system to classify non-suicidal self-injurious behaviors was based on the tenet that there is a great diversity of pathological SIBs that need to be meaningfully grouped for diagnostic and treatment effectiveness. Simeon and Favazza (2001) described four groups of SIBs: (a) stereotypic, (b) major, (c) compulsive, (d) impulsive. Most behaviors in the first three groups typically occur in the context of psychiatric or neuropsychiatric conditions. These range from ritualistic, repetitive acts that are mild to moderate in severity, such as the hair-pulling that characterizes trichotillomania (American

Psychiatric Association, 2013; World Health Organization, 1992), to dramatic isolated acts such as auto-castration and amputation.

Behaviors in the fourth category, impulsive SIBs, can be episodic (infrequent) or repetitive (habitual), and are usually behavioral responses to distressing internal or external stimuli. Typical examples include skin-cutting, self-hitting, and scratching. These SIBs are often seen as a characteristic of Borderline Personality Disorder (BPD) but are not pathognomonic of BPD, and can occur in the absence of any psychiatric diagnosis. Research efforts to understand impulsive SIBs, particularly in non-clinical contexts, have led to the emergence of the term *NSSI* in research parlance, replacing older terms such as SIBs (Favazza, 2012).

In North American, and increasingly in international research, NSSI is conceptualized as the direct, deliberate destruction of one's own body tissue in the absence of suicidal intent. As noted earlier, NSSI does *not* include socially sanctioned or culturally acceptable behaviors. While NSSI refers to direct self-injury, there is also recognition that there are indirect forms of non-suicidal self-injurious behaviors (e.g., drinking alcohol, or high-risk behaviors such as driving at excessive speeds) and it is important to distinguish between these behaviors. The occurrence of NSSI in the absence of psychopathology has led to suggestions that NSSI may be a separate clinical syndrome (Favazza & Rosenthal, 1993; Kahan & Pattison, 1984; Muehlenkamp, 2005). Indeed, the growing consensus on the prevalence and clinical relevance of NSSI has led the American Psychiatric Association (APA) to tentatively recognize NSSI as a "condition for further study", in Section III of the latest version of the *Diagnostic and Statistical Manual for Mental Disorders* (DSM-5) (APA, 2013).

In contrast to NSSI, there is general consensus on the definition of non-fatal suicidal thoughts and behaviors. *Suicide ideation* refers to thoughts of engaging in behavior that is intended to end one's life, and *suicide attempt* refers to engagement in self-inflicted,

potentially self-injurious behavior in which the intent to die is present to at least some degree (Nock, Borges, Bromet, Cha, et al., 2008; O'Carroll et al., 1996; Silverman et al., 2007).

NSSI Prevalence, Characteristics and Risk Factors across Cultures

NSSI prevalence and characteristics in Western nations. Cross-national research shows that NSSI is prevalent predominantly among adolescents and young adults in both, clinical and community settings. The onset of NSSI is in adolescence or young adulthood (Nixon, Cloutier, & Jansson, 2008; Nock, Joiner, Gordon, Lloyd-Richardson, & Prinstein, 2006; Ross & Heath, 2002), occurring typically within the age range of 14 to 24 years (Kerr, Muehlenkamp, & Turner, 2010). The prevalence rates of NSSI tend to be particularly high among adolescent clinical populations, with estimates ranging from 20% to 68% (Andover & Gibb, 2010; Briere & Gil, 1998; Claes et al., 2010; Perez, Venta, Garnaat, & Sharp, 2012; Sim, Adrian, Zeman, Cassano, & Friedrich, 2009). Among non-clinical populations, the prevalence rates are lower overall, although wide variations exist. Generally, NSSI prevalence among adolescents from the US and Canada is estimated to be between 4% and 46% (Brausch & Gutierrez, 2010; Hilt, Cha, & Nolen-Hoeksema, 2008; Lloyd-Richardson, Perrine, Dierker, & Kelley, 2007; Muehlenkamp, Williams, Gutierrez, & Claes, 2009; Ross & Heath, 2002; Saraff & Pepper, 2014; Taliaferro, Muehlenkamp, Borowsky, McMorris, & Kugler, 2012; Yates, Tracy, & Luthar, 2008). The wide variations in prevalence may be accounted for, to some extent, by differences in study methodology. In a recent meta-analysis of 128 NSSI prevalence studies, Swannell, Martin, Page, Hasking, and St John (2014) noted that methodological factors contributed to almost 52% of the heterogeneity in prevalence rates. Estimating prevalence across studies, they found that the pooled prevalence rates were about 18% and 21% for adolescents and young adults (mostly high school or university students) respectively. After adjusting for methodological factors, prevalence rates were about 15% for adolescents and 11% for young adults.

In terms of gender differences in NSSI prevalence, North American research studies show few differences. Earlier perceptions of self-injurers as females (e.g., Favazza & Conterio, 1988) are not as well supported in contemporary research. A lack of gender differences has been noted in several studies (e.g., Andover, Primack, Gibb, & Pepper, 2010; Baetens, Claes, Muehlenkamp, Grietens, & Onghena, 2011; Klonsky, Oltmanns, & Turkheimer, 2003; Nock et al., 2006; Sornberger, Heath, Toste, & McLouth, 2012). Meta-analyses also echo this pattern: although females have been found to endorse NSSI significantly more than men in several studies, the difference is no longer statistically significant after adjusting for methodological factors (Swannell et al., 2014).

Differences in NSSI prevalence across ethnic and racial groups within Western (mostly North American) nations have been investigated in only a small number of studies. Most of these findings are based on preliminary analyses of differences in demographic characteristics of the study sample. Some North American studies have not found any significant differences in NSSI prevalence across ethnic or racial subgroups (Guan, Fox, & Prinstein, 2012; Hilt, Nock, Lloyd-Richardson, & Prinstein, 2008; Laye-Gindhu & Schonert-Reichl, 2005). Other studies however have reported a greater prevalence among Caucasian students (Kuentzel, Arble, Boutros, Chugani, & Barnett, 2012; Lloyd-Richardson et al., 2007; Muehlenkamp & Gutierrez, 2004; Turner, Arya, & Chapman, 2014), African American students (Latzman et al., 2010; Yates et al., 2008), multiracial (Kuentzel et al., 2012), or non-Caucasian students in general (Taliaferro et al., 2012). In one study of U.S. university students, Caucasian and Asian students had a significantly greater NSSI prevalence than did Hispanic or African American students, but no differences were found between Caucasians and Asians (Chesin, Moster, & Jeglic, 2013). In their review of Western NSSI studies that included ethnically/racially diverse samples, Gholamrezaei et al. (2015) observed that NSSI prevalence patterns for ethnic/racial minorities were highly variable. Surmising NSSI studies

on university student samples, they noted that in general: (a) incidence rates were inconsistent among Asian-American and Hispanic students, (b) NSSI rates were lower among African-American students, (c) NSSI risk was higher among students from Native American, multicultural or "other" ethnic backgrounds. While results from Western studies are generally inconclusive about whether NSSI engagement is consistently high in one particular ethnic or racial subgroup, the variations in NSSI prevalence rates across these subgroups hint at the importance of sociocultural factors in accounting for some of the differences observed. However at present there are too few studies to yield any conclusions about NSSI differences among culturally diverse groups in Western countries.

Cross-national studies indicate that NSSI prevalence also varies across other Western (i.e., European) countries. For example, researchers noted a prevalence rate of about 20% in German adolescents (Plener, Libal, Keller, Fegert, & Muehlenkamp, 2009) while 16% of adolescents reported NSSI in a Danish study (Møhl, La Cour, & Skandsen, 2014). A much lower prevalence rate of 3% was reported among Norwegian adolescents (Larsson & Sund, 2008) while a much higher rate of about 42% was found in an Italian study (Cerutti, Manca, Presaghi, & Gratz, 2011). Other cross-cultural Western studies show relatively comparable rates. For example Giletta, Scholte, Engels, Ciairano, and Prinstein (2012) found NSSI prevalence rates ranging from about 22% in American adolescents to about 24% in Italian and 26% in Dutch adolescents.

In terms of NSSI characteristics, Western research indicates that among the variety of NSSI methods such as burning, scratching or self-hitting, self-biting, etc., the most common method appears to be skin-cutting. Cutting or carving typically occurs on arms, legs, and stomach (Klonsky & Muehlenkamp, 2007; Nock, 2010). Studies have found that more females than males engaged in skin-cutting (Laye-Gindhu & Schonert-Reichl, 2005; Møhl et al., 2014; Whitlock et al., 2011), especially in private (Whitlock et al., 2011), and tended to

engage in NSSI more frequently in general (Sornberger et al., 2012). Interestingly, Western studies have found ethnic and racial differences in NSSI methods. Comparisons between Caucasian and Asian (excluding South Asians) students in one American study revealed a greater frequency and variety of methods among Caucasian students (Turner et al., 2014). In another study, male African American students were found to use scratching, punching, and biting significantly more than Caucasian students and African American female students (Gratz et al., 2012).

NSSI prevalence and characteristics in non-Western nations. Few studies from non-Western countries have reported NSSI data. As in cross-national Western research, NSSI variations are also seen across non-Western countries. In a Japanese study, 10% of college students reported NSSI (Tresno et al., 2013), while in Turkey and China students reported a 15% prevalence (Toprak, Cetin, Guven, Can, & Demircan, 2011; Wong, Stewart, Ho, & Lam, 2007; You & Leung, 2012). In contrast, a higher prevalence of about 23% was reported among Jordanian students (Hanania, Heath, Emery, Toste, & Daoud, 2015) and 38% among Indonesian students (Tresno, Ito, & Mearns, 2012). An Israeli study similarly reported a higher prevalence, with 42% of the sample reporting current NSSI (Rodav, Levy, & Hamdan, 2014).

Comparing NSSI characteristics reported in 17 non-Western studies, Gholamrezaei et al. (2015) noted wide variations in prevalence estimates of NSSI among adolescents, university youth and adults. Their review included studies from Hong Kong, Japan, China Taiwan, India, Indonesia, and Turkey. Adolescent NSSI prevalence rates were found to range from about 9% in Japan to about 33% in Hong Kong, while among university students, NSSI prevalence ranged between 10% in Japan to 38% in India. The reviewers noted that among the adolescent NSSI studies, the most commonly reported NSSI methods were self-hitting/head banging while among university student samples, scratching, cutting, self-hitting,

self-punching and biting were the most commonly reported NSSI methods. Recent studies from other non-Western countries also show that methods other than skin-cutting are also common. For example, head banging or self-hitting was common among Israeli youth in one study (Rodav et al., 2014) while scratching was common in a sample of students in Jordan (Hanania et al., 2015).

Echoing patterns seen in the West, gender differences in NSSI prevalence and characteristics in non-Western cultures have been found to be generally inconsistent. In Gholamrezaei et al.'s (2015) review, studies on adolescent student samples reported mixed results while among university student samples, only one of three studies reported significant gender differences in NSSI prevalence. Interestingly, almost half of the adolescent-based studies and none of the university studies revealed gender differences in NSSI methods. One noteworthy gender pattern however was that three studies from Hong Kong reported higher rates of NSSI among adolescent females and a preponderance of skin-cutting in one of these studies. The reviewers observed that findings from Hong Kong were more closely aligned with those seen in Western research, and that the similarities could be understood in the context of Hong Kong's British colonial history and culture. As international research increases, new patterns such as a higher NSSI prevalence among males are also being revealed in some settings (Hanania et al., 2015).

As noted earlier, some of the NSSI variations seen across cultures may be explained by methodological differences. Importantly, some of these differences have been attributed to the diverse measures used to assess NSSI history (Swannell et al., 2014), restricting cross-cultural comparisons of NSSI. Even when the same measures have been used across studies, cross-cultural comparisons are difficult because most Western measures have not been adapted and validated for use in other cultural contexts. As epidemiological knowledge trickles in from diverse cultures, there is increasing recognition of the need to not only assess

NSSI in a consistent manner, but to also develop tools that integrate knowledge of the local settings in which the studies are conducted.

Risk factors for NSSI. Explanatory models for NSSI purport that the risk for NSSI depends on the interaction of intra-individual, interpersonal and more distal factors. The most widely researched model is the affect or emotion regulation model (Nock & Prinstein, 2004). This model proposes that some individuals develop intra-individual or interpersonal vulnerabilities that make them more likely to manage their emotional states by using NSSI during a distressing or stressful experience. A significant research focus therefore has been on identifying such vulnerabilities and distal risk factors for NSSI. Knowledge of these risk factors in Western cultural contexts is steadily growing.

According to this model, proximal factors primarily relate to psychological characteristics of the individual, which in turn may trigger certain intrapersonal vulnerabilities (e.g., high arousal, low distress tolerance) to NSSI. Proximal factors such as generalized psychological distress, depressive and anxiety disorders, negative self-esteem, and impulsivity, are among the most commonly cited psychological and behavioral correlates of NSSI (Baetens et al., 2014; Brunner et al., 2014; Giletta et al., 2012; Hankin & Abela, 2011; Hasking, Momeni, Swannell, & Chia, 2008; Taliaferro & Muehlenkamp, 2014; Whitlock, Eckenrode, & Silverman, 2006; Wilcox et al., 2012; You & Leung, 2012; Zetterqvist, Lundh, Dahlström, & Svedin, 2013). A history of childhood maltreatment such as abuse or neglect have also been found contribute to NSSI risk in Western (Zetterqvist, Lundh, Dahlström, et al., 2013), as well as non-Western countries such as Indonesia (Tresno et al., 2012), and Turkey (Zoroglu et al., 2003). Other familial factors include parental depression (Hankin & Abela, 2011; Wilcox et al., 2012); lack of parental care; and increased parental control (Bureau et al., 2010; Gratz, 2006; Gratz & Chapman, 2007). NSSI has also

been associated with parental criticism among both Western (Yates et al., 2008) and Asian youth (You & Leung, 2012).

A small number of recent studies from European nations have reported that stressful life events predict NSSI in community (Baetens et al., 2011; Cerutti et al., 2011; Zetterqvist, Lundh, & Svedin, 2013) as well as in clinical populations (R. T. Liu et al., 2014). For example, in a community-based study of Italian adolescents, a significant association was found between stressful life events and NSSI, and (Cerutti et al., 2011). Both, the presence and frequency of NSSI were significantly correlated with the number of stressful life events reported. Specifically, compared to those who did not non-self-injure, adolescents engaging in NSSI were more likely to report psychological maltreatment, sexual abuse, physical problems, natural disasters, loss of someone important, serious accidents, witnessing family violence or serious accidents. Cerutti et al. (2011) further noted that compared to occasional self-injurers, repetitive self-injurers endorsed significantly higher rates of sexual harassment experiences, severe physical or mental problems, and witnessing family violence. Zetterqvist et al. (2013) similarly reported that adolescents with a history of NSSI as well as those with NSSI and suicidal behavior history had experienced more adverse life events and trauma symptoms such as depression and posttraumatic stress. Moreover, an almost linear relationship was found between the number of negative life events and trauma symptoms and NSSI frequency. These studies draw attention to experiences of cumulative stress from situational stressors or negative life events, especially those of an interpersonal nature, as well as depressive symptoms as potential risk factors for NSSI.

Comparisons across Western nations have revealed both similarities and variations in risk factors. In a cross-national comparison of Dutch, Italian and American adolescents, Giletta et al. (2012) found that family-related loneliness was a significant risk factor for Dutch and American, but not Italian adolescents. They also observed that peer-victimization

was a relevant risk factor only for Italian and Dutch, but not American adolescents. Interestingly, the authors concluded that multi-group analyses comparing the overall predictive model did not show evidence for sample differences in this study. They reported that psychosocial correlates overall appeared to be similar for all adolescents in their study. It is possible, however, that the risk factors investigated were common cross-nationally because they were relevant to all study sites, all of which were Western, industrialized countries.

In another cross-national study, Brunner et al. (2014) found considerable variations in the associations between psychosocial variables and NSSI in their samples from 11 European countries. The variables investigated included parental factors (parent's employment status; parents' lack of understanding of children's' problems; lack of parental attention); loneliness; peer victimization; high-risk behaviors; suicidality; and psychopathology. Compared to adolescents in other countries, family environment had the strongest association with NSSI in Germany. In contrast, high-risk behaviors (drug/alcohol use) and psychopathology had the greatest influence on NSSI outcomes in Ireland. Psychopathology and high-risk behavior influenced NSSI prevalence only marginally in Romania, and in Italy parental variables were shown to have minimum influence on NSSI. Brunner et al. (2014) noted that the cross-cultural variability seen in the relationship between certain risk factors and NSSI highlighted the relevance and influence of the local context in determining NSSI risk.

In their review, Gholamrezaei et al. (2015) found that as in Western research, certain risk factors such as childhood maltreatment (abuse/neglect), depressive symptoms, and alcohol abuse are also reported in non-Western contexts. However it was also noted that differences in risk factors would likely emerge if NSSI is studied with reference to the local cultural context and in relation to specific cultural features (Gholamrezaei et al., 2015). Although NSSI research in culturally diverse contexts is still in its nascent stages, it is evident that knowledge of NSSI risk with reference to local contexts would central to a culturally

informed understanding of NSSI, which in turn would provide the basis for locally appropriate interventions, especially in non-Western countries.

Suicidal Behavior Prevalence, Characteristics and Risk Factors across Cultures

Prevalence and characteristics of suicidal behaviors. The onset of suicidal behaviors (suicide ideation and attempts) is typically in adolescence and young adulthood (Nock, Borges, Bromet, Cha, et al., 2008). As in the case of NSSI, the prevalence of suicidal behaviors varies within and across countries. In the US, a large epidemiological study using a nationally representative sample of close to 6,500 adolescents revealed a lifetime prevalence of about 12% for suicide ideation and 4.1% for suicide attempt (Nock et al., 2013). Internationally, wide variations in prevalence rates are observed. A systematic review of 128 international studies (predominantly on school-based youth) from North American and European nations found a prevalence of lifetime suicidal thoughts ranging from 8% to 70% and that of lifetime suicide attempts from 2% to 30%. The overall mean prevalence rates for thoughts and attempt were approximately 30% and 10%, respectively (Evans, Hawton, Rodham, & Deeks, 2005).

Cultural variations. In the US survey (Nock et al., 2013), some ethnoracial variations were noted, with lower rates of suicidal behavior reported among non-Hispanic blacks compared to other groups. In their review of international literature, Evans et al. (2005) observed that Asian adolescents had a higher prevalence of recent suicide ideation but lower prevalence of lifetime suicidal behavior in comparison to White adolescents. However, these comparisons were based on only one study, and given that there were only four Asian studies in the entire review, these findings may not be generalizable to youth in Asian nations or to the Asian diaspora. Indeed, in contrast, two UK studies found that when compared to White youth, South Asian women reported a significantly higher prevalence of suicidal behaviors (Bhugra, Desai, & Baldwin, 1999; Cooper et al., 2006).

Variations in prevalence of suicide ideation and attempts are also seen across non-Western nations. The prevalence of recent (within the previous 6 to 12 months) suicide ideation was about 9% in an Israeli study (Ponizovsky, Ritsner, & Modai, 1999), 17-19% in Mainland China and Hong Kong (X. Liu, Tein, Zhao, & Sandler, 2005; Yip et al., 2004), and about 31% in Pakistan (Khokher & Khan, 2005). Lifetime suicide ideation prevalence as high as 56% has also been reported in a Ugandan study (Ovuga, Boardman, & Wasserman, 2006). In a Turkish study, the prevalence of lifetime suicide attempts among youth was about 2% while recent (6 to12 months) attempts were reported in about 7-8% of Chinese adolescent students (X. Liu et al., 2005; Yip et al., 2004). In a majority of these studies as well as in Western studies, suicidal behavior prevalence was observed to be generally higher among female participants (Nock, Borges, Bromet, Cha, et al., 2008; Nock et al., 2013).

Risk factors for suicidal behaviors. Suicidal behaviors are multifactorial in aetiology and involve complex interactions between biological, psychological, and sociocultural factors. Reviews of epidemiological studies show that biological factors such as inherited risk through familial transmission, and neurotransmitter (specifically serotonin) hypoactivity have been implicated in suicidal behavior risk (Joiner, Brown, & Wingate, 2005; Nock, Borges, Bromet, Cha, et al., 2008). Sociodemographic risk factors for suicidal behaviors commonly observed across nations include being female, being unmarried, low educational achievement, and being unemployed (Nock, Borges, Bromet, Cha, et al., 2008). Among Western studies, psychopathology has been strongly associated with suicidal behaviors. In general, a high prevalence of a psychiatric diagnoses including substance abuse, post-traumatic stress disorder (PTSD), and mood disorders, especially depression, has been found to increase suicidal behavior risk (Bridge, Goldstein, & Brent, 2006; Nock et al., 2013).

Several psychosocial correlates have also been noted in Western and cross-national research. Increased psychological distress and suicidal behaviors are associated with factors such as hopelessness, impulsivity, low self-esteem, perfectionism, and high emotional reactivity. Acute distress and stressful life events, especially in the familial context, are also potent risk factors. Interpersonal stress and subsequent risk for suicidal behavior has been found to increase in the presence of factors such as parental psychopathology (e.g., substance abuse, depression); poor quality of parent-child relationships (e.g., low parental support, maltreatment); or history of parental suicidal behavior. Other social factors include social isolation, peer victimization, especially among those reporting same-sex sexual orientation, and social influences. (Cash & Bridge, 2009; Evans et al., 2005; Nock, Borges, Bromet, Cha, et al., 2008; Nock et al., 2013; O'Connor & Nock, 2014).

Cultural variations. Studies of diverse minority ethnic groups in Western nations have been useful in highlighting variations in prevalence patterns and risk factors among these groups. In North America, for example, a pattern of high prevalence has been noted among Native American and Alaska Natives, and First Nations and Inuit communities (Goldston et al., 2008; Kirmayer, Boothroyd, & Hodgins, 1998). Intergenerational trauma associated with a history of oppression and marginalization and loss of traditional ways of living have been associated with demoralization, hopelessness and increased risk of suicide in these communities. As with distal factors, the precipitating factors may also be culture-specific. Among East Asian American youth for example, suicidal behavior may be triggered by loss of face and feeling ashamed at not meeting the expectations of others (Zane & Mak, 2003).

The specific expressions of distress in the context of suicidal behavior may also be culturally patterned. In a study of young Latino women, Zayas, Lester, Cabassa, and Fortuna (2005) found that those who had attempted suicide showed behaviors that were similar to

ataques de nervios or "attack of the nerves", a psychological syndrome that is often reported among individuals of Latino descent. Nervios (nerves) refers to a culturally based somatic expression of anxiety or other emotional distress, which is differentiated from more severe pathology. The ataques generally occur in the context of stressful events relating to the family. It usually involves intense emotional upset; acute anxiety, anger, grief; attacks of crying; trembling; dissociative experiences; and generally feeling out of control (APA, 2013). Familial disruptions operative in ataques de nervios may similarly precipitate suicidal behaviors and therefore become salient risk factors in this particular cultural subgroup (Goldston et al., 2008).

Studies from the UK similarly show that suicidal behavior patterns vary across diverse ethnoracial groups. Comparing White and South Asian youth, Cooper et al. (2006) found that among those presenting to emergency departments, South Asian women aged 16 to 24 years were more likely to self-harm and to report interpersonal difficulties in the familial context than were their White age-peers. In general, when compared to White youth, South Asians were less likely to report alcohol and drug misuse or depressive symptoms. A review of 25 UK-based DSH studies found that South Asians frequently reported "cultural conflicts" as sources of social or interpersonal distress. In a study of adolescent boys, Bhui, McKenzie, and Rasul (2007) found that parental conflicts, especially those involving disciplinary crises over cultural issues, were risk factors for DSH for South Asians more than for White boys. Collectively, UK-based studies show that in general, South Asian youth may face a greater number of stressors related to discrimination, social disadvantage, and immigration and acculturation/assimilation experiences than their White counterparts as they navigate through the values and norms of the majority culture. Older generations continue to retain many of the traditional values of their native cultures and expect adherence to these values from their children. There may therefore be a tendency for familial conflicts to

emerge over issues like cultural identity, gender role expectations, and disciplinary measures (Till & Bhugra, 2014). An important finding in many of these studies is that fewer psychiatric correlates were noted for minority ethnic groups in general, further underscoring the role of sociocultural experiences in shaping risk pathways (Bhui et al., 2007).

Research from non-Western contexts, although limited, also highlights the cultural patterning of suicidal behavior epidemiology (Colucci & Martin, 2007a, 2007b; Vijayakumar et al., 2005). In non-Western developing nations, the association between mental disorders and suicidal behaviors has been found to be less robust than in Western contexts (Vijayakumar et al., 2005). Nock, Borges, Bromet, Alonso, et al. (2008) have similarly noted in a cross-national review that mental disorder rates are "slightly, but consistently" higher among suicidal people in developed nations compared to those in non-Western developing societies. In sociocentric cultures such as China and India, socioeconomic and familial stressors are especially strongly associated with suicidal behaviors. Some of the salient stressors include intergenerational conflict, chronic poverty, or indebtedness (Li, Yang, & Zhang, 2001; Vijayakumar, 2004; Vijayakumar et al., 2005).

A very relevant but largely unexplored research area is the examination of suicidal behaviors in the context of rapid sociocultural change in fast-globalizing economies like India and China. Studies from China and other southeast Asian nations that have experienced rapid economic growth and cultural change have noted an increased risk of adverse mental health including depression and suicidality with reference to rising stress in the context of these changes (Blum, Sudhinaraset, & Emerson, 2012; Chan, Hung, & Yip, 2001; Ji, Kleinman, & Becker, 2001). This sliver of evidence indicates that although economic growth may have improved the lives of many, globalizing forces may not necessarily augur well on all fronts. The psychological impact of globalization-related changes needs to be considered an

important area of study for researchers, especially as suicidal behavior is increasingly viewed as emerging in the context of interactions between individuals and their wider ecology.

The Relationship between NSSI and Suicidal Behaviors

NSSI as a predictor of suicidal behavior. Recent research suggests that NSSI and suicidal behaviors frequently co-occur and that a history of NSSI strongly predicts suicidal behaviors (Andover & Gibb, 2010; Asarnow et al., 2011; Guertin, Lloyd-Richardson, Spirito, Donaldson, & Boergers, 2001; Klonsky, May, & Glenn, 2013; Muehlenkamp & Gutierrez, 2007; Nock et al., 2006; Prinstein et al., 2008; Whitlock & Knox, 2007; Wilkinson, 2011; Zahl & Hawton, 2004). NSSI has also been found to longitudinally predict suicidal behaviors (Asarnow et al., 2011; Wilkinson, Kelvin, Roberts, Dubicka, & Goodyer, 2011), even independent of the presence of common risk factors such as depressive symptoms (Guan et al., 2012).

One proposition is that there is a causal association between NSSI and suicidal behavior. For example, Whitlock et al. (2013) found that NSSI history prospectively predicted suicidal behaviors, and frequency of NSSI (more than 20 lifetime events) increased the risk of transitioning from NSSI to suicidal behaviors. The temporal association implied that NSSI was probably a "gateway" for future suicidal behavior. This contention has been supported by other researchers (e.g. Asarnow et al., 2011; Stanley, Gameroff, Michalsen, & Mann, 2001; Wilkinson et al., 2011). Moreover, the finding that this prediction holds even when controlling for other risk factors suggests a unique contribution of some aspect of NSSI to later risk for suicidality. The early age of onset of NSSI and later age of onset of suicidal behaviors observed in many studies (e.g., K. L. Kim et al., 2014; Muehlenkamp & Gutierrez, 2007; Whitlock & Knox, 2007) are also consistent with a causal pathway.

Noting the evidence for the Gateway Theory, Hamza et al. (2012) suggest that taken together, the research indicates that NSSI and suicidal behaviors are part of the same

continuum of self-harming behaviors; with NSSI at one extreme of the continuum and suicide at the other. According to their review of the evidence, NSSI appears to precede suicidal behaviors, and increasing engagement in NSSI leads to more extreme forms of self-injury such as suicide attempts. Therefore, NSSI may be thought of as gateway behavior. Moreover, the frequency with which NSSI and suicidal behaviors co-occur suggests that these may be different manifestations of the same underlying problem. Interestingly, while increasing frequency of NSSI has been linked with later suicidal behavior, a recent study has found that the strength of the relationship between NSSI frequency and suicidal behavior among college youth also increased with the use of a greater variety of NSSI methods (Anestis, Khazem, & Law, 2014).

Elaborating on the ways that NSSI may increase suicidal behavior risk, Joiner (2005) has suggested that an individual will engage in suicidal behaviors only if they have a *desire* to die by suicide and the *capability* to engage in a lethal attempt. According to this interpersonal-psychological theory of suicidal behavior, an individual with a history of NSSI may initially not have the capacity to carry out a suicide attempt because of how frightening and painful it appears. However, repeated engagement in NSSI over time may result in habituation to physical pain and reduced fear of death, enabling the individual to acquire the ability to attempt suicide. This proposition has received some empirical support (Joiner et al., 2009; Van Orden, Witte, Gordon, Bender, & Joiner, 2008). Further, pain analgesia and diminished fear of suicide have also been reported in individuals with a history of NSSI and suicide attempt (Muehlenkamp & Gutierrez, 2007; Nock et al., 2006). Studies have found that the higher the frequency of NSSI, the more lethal the suicide attempts (Andover & Gibb, 2010). While some studies have found that a greater variety of methods and a longer history of NSSI predict suicide attempts (Anestis et al., 2014; Nock et al., 2006), others have

observed that varying levels of NSSI frequency and severity also predict suicidal behavior risk (Whitlock, Muehlenkamp, & Eckenrode, 2008).

In their review of 31 studies, Hamza et al. (2012) provide a useful summary of research on NSSI and suicidal behaviors. Aggregated data examined in the review indicated that NSSI was a robust predictor of suicidal behavior even after controlling for several demographic variables such as gender and ethnicity, and after controlling for psychopathology and NSSI assessment methods. In general, the association of NSSI with suicidal behaviors was found to be stronger among individuals engaging in more severe forms of self-injury such as cutting, carving or burning. They also noted that although NSSI was found to be a unidirectional longitudinal predictor of suicidal behaviors among clinical samples, the temporal relationship and specifically the direction of the association, could not be generalized to community samples. NSSI and suicidal behaviors were also found to share certain clinical as well as non-clinical correlates and risk factors. Physical or sexual abuse; psychopathology — primarily depression and BPD; impulsivity; externalizing problems; and family problems were cited as some of the common risk factors in the studies reviewed. The observation that these behaviors have certain common risk factors provides support for the proposition that perhaps a "third variable" may account for the co-occurrence of NSSI and suicidal behaviors (Hamza et al., 2012).

Summary. NSSI and suicidal behaviors are antithetical to one another in terms of their intended outcome: NSSI is used as a coping strategy to preserve life while suicidal behaviors are pursued to end life. Yet, as the preceding review of research indicates, both are responses to acute distress and are strongly associated with one another through complex and multiple pathways. Research focused on this area so far indicates that NSSI and suicidal behaviors may involve a confluence of shared etiologic factors, and that the presence of NSSI itself may elevate risk for suicidal behavior. An important finding is that suicidal behavior

appears to follow NSSI, possibly because NSSI may be lowering the inhibition to self-harm. However, it is also possible for both behaviors to be present in the same general period and at times, for suicidality to be present *before* NSSI. In terms of differentiating the two subgroups, research suggests that self-injuring individuals who are also suicidal are characterized by more frequent and severe NSSI, more severe psychopathology, and poorer psychological and interpersonal functioning (Whitlock, Minton, Babington, & Ernhout, 2015).

In the absence of literature from diverse cultures, it is not known whether these factors characterize people who self-injure in other cultures, outside of Western contexts. Therefore an important area for researchers in non-Western contexts is to investigate whether factors such as NSSI frequency and severity, psychopathology, and even locally relevant stressors increase risk for suicidality among those who self-injure. Such lines of inquiry have important implications for suicide risk assessments and for the development of timely, and locally effective interventions for both, NSSI and suicidal behaviors.

Suicidal Behaviors and Deliberate Self-harm among Indian Youth

Indian research on self-injurious behaviors, whether from hospital or community-based studies, is primarily focused on suicide thoughts and attempts. Similar to the practice followed in several European countries, there is a preference for the term *DSH* to refer to all self-harming behaviors regardless of the intended outcome of the behavior. Documentation of these behaviors is possible only when an individual seeks medical treatment, in which case hospital records may be available. As a result, little is known about the burden of non-suicidal and suicidal behaviors among those who do not seek medical help.

Prevalence of DSH and NSSI. At present, published scientific literature on NSSI in India is scant. This may be, in part, due to a lack of unambiguous and widely accepted terms and definitions. Some researchers contend that making distinctions between suicidal and

non-suicidal behaviors in clinical settings is difficult and there may have been a tendency therefore to bracket NSSI with other self-harming behaviors (Bansal & Barman, 2011; Das et al., 2008; Parkar et al., 2006). A small number of studies have however attempted to make distinctions by focusing on low suicide-intent behaviors (Rao et al., 2008), or exploring differences between those who self-injured with and without suicidal intent (Bhattacharya et al., 2011; Sarkar et al., 2006).

Studies indicate that there may be individuals engaging in NSSI only, but are likely to be classified as suicide attempters because of the prevailing clinical practice of grouping all self-harm behaviors under one umbrella term. This is particularly the case in hospital settings where the extent of harm is severe enough to warrant medical attention. To illustrate, in a study of individuals seeking hospitalization following a "suicide attempt", almost 60% reported low suicidal intent (termed the DSH group), indicating the likely presence of NSSI-only cases in the sample (C. T. S. Kumar, Mohan, Ranjith, & Chandrasekaran, 2006). Other studies similarly found that about 67% (Sarkar et al., 2006) and 50% (Bhattacharya et al., 2011) of the "suicide attempters" had either little or no suicide intent. Interestingly, in each of these studies, significant differences were found among the high- and low-intent groups. Typically, the low-intent/DSH groups were characterized by younger age and lower levels of psychopathology compared to high-intent groups. Sarkar et al. (2006) found that when compared with suicide attempters, the DSH group engaged in their act more impulsively; experienced more stress-related (rather than psychiatric) difficulties; used skin-cutting more frequently (second to overdosing); and reported using DSH to release a build-up of emotional tension. There is limited data on gender differences but it appears that DSH with low suicide intent is prevalent among men and women (e.g., Sarkar et al., 2006; Bhattacharya et al., 2011), but the severity of the self-injury method may vary as a function of gender. Rao et al (2008) found that of all the self-injury cases examined in their study, mild to moderate self-

injury was found most commonly among women while severe self-injury was more common among men. The low suicide intent DSH described in these few studies suggest that the behaviors described are conceptually similar to NSSI. However, given that most data are drawn from a clinical population, community-based studies are needed to explore these behaviors in non-clinical populations.

Anecdotal evidence from mental health professionals, non-governmental organizations (B. Zachariah, personal communication, February 19, 2013; N. Madani, personal communication, February 20, 2013), and reports in popular media (e.g., Sampath, 2014; Sinha, 2011), suggests that self-harming behaviors such as repetitive self-cutting are widely prevalent in community settings in India. One recent NSSI study that used operational definitions and measures consistent with Western studies, was conducted in a community setting in southern India (Kharsati & Bhola, 2015). The study revealed a 31% prevalence of NSSI in the college student sample and endorsement of the affect-regulation functions of NSSI. These early findings provide some evidence that Western conceptualization and functional models of NSSI may share some cross-culturally validity. Although sparse, emerging research suggests that NSSI, as a form of self-injurious behavior distinct from suicidal behavior, is prevalent among Indian youth and merits urgent research attention.

Prevalence of suicidal behavior. A small number of hospital-based studies (e.g., Bansal & Barman, 2011; Bhatia, Aggarwal, & Aggarwal, 2000; Parkar et al., 2006), community studies (e.g., Pillai, Andrews, & Patel, 2009), and sporadic cross-national surveys (e.g., WHO cross-national survey; Bertolote et al., 2005) continue to be the only available sources of information on suicidal behaviors. These studies have helped build local knowledge of the demographic and psychosocial correlates of suicidal behaviors, although largely among clinical populations. Recent student-based studies have also provided

preliminary data from community settings. Studies of high school students, for example, have found suicide ideation rates ranging from about 16% for 12 month prevalence (R. Sharma, Grover, & Chaturvedi, 2008) to 21% for lifetime prevalence (Sidhartha & Jena, 2006). The same studies have reported suicide attempt rates ranging from 8% lifetime prevalence (Sidhartha & Jena, 2006) and 5% rate for 12 month prevalence (R. Sharma et al., 2008).

In a study of college students, about 39% reported active or passive suicide ideation (S. Singh, Manjula, & Philip, 2012), with higher rates—almost 54%—being reported among medical students (Goyal, Kishore, Anand, & Rathi, 2012). However, given the wide disparities in economic and social status and the enormous cultural heterogeneity within India, most study results may not be generalizable to student populations across the country. In terms of gender differences, findings are mixed. Many studies have found a greater prevalence of suicidal behaviors among females (Cheriyath, Sahu, & Kattimani, 2015; Mathew & Nanoo, 2013; Patel et al., 2008; R. Sharma et al., 2008), while others have found about the same prevalence across gender (Chowdhury et al., 2010; Kattimani et al., 2015; Krishna et al., 2014; Patil & Shivakumar, 2011). Given the limited number of studies on student populations, patterns in the prevalence of suicidal behaviors and in gender differences have been difficult to discern.

Risk factors for non-suicidal and suicidal behaviors. Given the absence of NSSI literature, a broad estimation of the possible correlates of NSSI may be gleaned from research on DSH and suicidal behaviors, given that these behaviors frequently co-occur. Psychiatric disorders are variably associated with self-injurious thoughts and behaviors. Studies differentiating low and high suicide intent DSH groups have found a lower prevalence of diagnosable disorders among individuals in low-intent groups (Bhattacharya et al., 2011; Sarkar et al., 2006). As noted earlier, while suicide attempts are associated with

psychopathology, the association has been found to be relatively weaker in Indian research. Where diagnoses have been observed, mild depressive episodes or depressive disorders have tended to dominate (Chakraborti, Ray, Bhattacharya, & Mallick, 2014; Chowdhury, Banerjee, Brahma, Hazra, & Weiss, 2013; Parkar et al., 2006; Sarkar et al., 2006).

Social-ecological factors have been found to be particularly important in determining the course of mental health outcomes in India. Thus, in addition to psychological factors, social stressors are strongly implicated in suicidal behavior and DSH among young people. Suicidal behavior is often found to be precipitated by life circumstances and predicaments, and intensified by socioeconomic disadvantage. Factors such as female gender, belonging to low caste groups, low socioeconomic class, are particularly salient in the course of mental ill-health (Jacob, 2013; Kuruvilla & Jacob, 2007). An early review found that precipitating factors in suicide attempts included: disputes with spouse or family; poverty; failure in examinations; disappointment or rejection in love; infidelity, and incurable illness (Adityanjee, 1986). More recent studies have reported psychosocial stressors related to individual, familial and socioeconomic circumstances as important risk factors. These include psychological distress (Parkar et al., 2006; Pillai et al., 2009); verbal or physical abuse, or domestic violence (Patil & Shivakumar, 2011; Pillai et al., 2009; Purushothaman et al., 2015); familial or interpersonal conflicts with significant others and lack of social support (Chowdhury et al., 2010; Kattimani et al., 2015; Latha et al., 1996; Mathew & Nanoo, 2013; Nair, Armstrong, & Finny, 2015; Patil & Shivakumar, 2011); and economic stress (Chowdhury et al., 2010; Kattimani et al., 2015; Parkar et al., 2006; Patil & Shivakumar, 2011). In recent years, reports of high rates of suicide among farmers has brought to light the robust association of dire economic conditions and suicidal outcomes (Kennedy & King, 2014; Merriott, 2016; Sadanandan, 2014). In addition to familial, interpersonal and socioeconomic stressors, more distal factors may also be involved in risk pathways. There is

evidence that changing sociocultural norms may have a detrimental effect on mental health and increase the risk for suicidal behavior. In a large survey of youth aged 16 to 24 years in rural and urban communities in Goa, Pillai et al. (2009) found that suicidal behavior among young women was predicted by engagement in non-traditional lifestyle choices such as pre-marital sex and independent decision-making.

A small number of studies have investigated risk factors specifically among student populations. In one study of high school students, suicidal behaviors were correlated with female gender and having seen role models smoke/drink (R. Sharma et al., 2008). In another study, academic problems, unsupportive home environment, and feeling that life is a burden, were significantly associated with suicidal behaviors (Arun & Chavan, 2009). Among college students, higher rates of suicide ideation were reported among those who had experienced childhood trauma (physical abuse), and among those who perceived their upbringing to be characterized by low care and high protection (affectionless control), and more neglectful parenting (S. Singh et al., 2012). Depressive symptoms were also found to predict suicide ideation among students (Talwar, Arun, & Kaushik, 2013).

The literature on suicidal thoughts and behaviors in student populations indicates that there are diverse correlates and risk factors, depending on the focus of the study. These are difficult to generalize because of differences in community settings and participant characteristics. Overall, the extant research shows that DSH and suicidal behaviors are strongly associated with psychological factors such as distress and depressive feelings, and social stressors such as familial problems, lack of social support and economic adversity. Subjective accounts elicited from individuals engaging in DSH have shown that perceived problems relate to the local social and cultural milieu, highlighting the need to be attentive to sociocultural determinants in addition to psychopathology (Parkar et al., 2006).

Globalization as a Context for Mental Health Outcomes

Arguably, globalization is one of the most complex phenomena of our time. Rennen and Martens (2003) define globalization as the intensification of cross-national, economic, political, cultural, social and technological interactions that lead to the establishment of trans-national structures, and the integration of economic, political and social processes on a global scale. Globalizing processes are associated with disruptions, dislocations and reconstitution of identities, all of which have implications for mental health (Bhavsar & Bhugra, 2008; Bhugra, 2014). Indeed, societal and structural changes in the context of globalization have also been shown to have an indirect effect on suicide rates. In a recent study assessing globalization levels and suicide rates in 35 countries, Milner, McClure, Sun, and De Leo (2011) found that high scores on a globalization index were related to increased suicide rates in these countries. Although the significance of the association dropped after adjusting for other social and economic variables, the results highlighted the relevance of globalization-related structural changes on suicide incidence. Globalization may not however, affect all cultures in the same way: the health effects of globalization may be context-specific and impact mental health by exacerbating the effects of salient factors within that context (Martin, 2005; Milner et al., 2011). In India for example, globalization may contribute to mental health problems through its effects on social determinants such as poverty and inequalities, migration, or rapid changes in sociocultural values (Bhat & Rather, 2012; Bhavsar & Bhugra, 2008; S. Sharma, 2016). Of particular relevance for young adults, globalization can also influence individual psychosocial processes such as identity formation, value orientation, and psychological resources such as coping. These intrapersonal factors, together with wider effects such as shifts in societal values, can indirectly impact mental health and well-being (Arnett, 2002; Berry, 2008; Tseng et al., 2001).

In India, globalization followed the economic reforms deployed through the liberalization, privatization and globalization model in the early 1990s. Since then, the increased global mobility of humans and their social, cultural, and economic products has ushered in transformative changes in the lives of individuals and communities in India (Lukose, 2009). For young people, rapid globalization has brought with it both, possibilities and perils, as they contend with structural change and new social and cultural flows from across the globe. Indian youth not only have to endure the general developmental stresses of emerging adulthood, but are also now faced with the challenges of a rapidly globalizing milieu.

Globalization and youth aspirations in India. One of the most defining features of globalization in India has been the spread of materialistic values and a culture of consumption (N. Gupta, 2011). Increasingly, consumption and commodities are becoming important ways through which young people express identities. Although the acquisition of material commodities may mean a better standard of living for some, the general supplanting of an ethos centered on sociocentric values with individualistic and materialistic values may not augur well for mental health. Discussions of the transformative social, political and cultural dimensions of globalization, centering on the unprecedented growth of the "middle-class" and a rise in consumerism, has burgeoned in recent years, particularly in anthropology, sociology and cultural studies (Appadurai, 1996; Dickey, 2012; Fernandes, 2000; Lukose, 2005, 2009; Mohan, 2011; Nakassis & Searle, 2013; Varma, 2007). Positive depictions of consumption-driven lifestyles through media may have a powerful influence on young people's life goals or aspirations; increasingly drawing them towards the pursuit of material possessions. (Appadurai, 1996; N. Gupta, 2011; Handa & Khare, 2013; Mankekar, 1999; Thomas & Wilson, 2013; Varman & Belk, 2008). Indeed, there is evidence from other nations that such overt messaging through role models, friends, peers and family who value

material wealth, power, and other self-enhancing goals, promotes material aspirations among youth (Ahuvia & Wong, 2002; R. Banerjee & Dittmar, 2008).

Aspirations and mental health. Values are defined as enduring beliefs concerning certain modes of conduct and states of existence that transcend specific objects and situations, and that are preferable to other modes of conduct or states of existence (Rokeach, 1973). Materialism, understood as a value, is the belief that prioritizing material possessions and their acquisition is a necessary or desirable form of conduct to reach desired states, including happiness (Richins & Dawson, 1992). Based on the tenets of self-determination theory (SDT) (Deci & Ryan, 2000, 2008; Ryan, Sheldon, Kasser, & Deci, 1996), materialistic values are conceptualized as undergirding extrinsic aspirations: goals that are primarily concerned with achieving external self-enhancements, rewards, social approval or praise, and are typically means to an end. In contrast, intrinsic aspirations are centered on fulfilling needs for affiliation, community feeling, and self-acceptance, and the pursuit of such goals is inherently satisfying to individuals. Usually, the pursuit of extrinsic goals usually comes at the cost of inherently satisfying goals (Grouzet et al., 2005; Kasser, 2002; Kasser & Ryan, 1993, 1996).

There is a substantial body of Western research that has found that the pursuit of extrinsically oriented aspirations over intrinsic ones is consistently linked with lower levels of mental health and well-being (e.g., Kasser, 2002; Kasser & Ahuvia, 2002; Kasser et al., 2014; Kasser & Ryan, 1996; Ryan et al., 1999; Sheldon, Ryan, Deci, & Kasser, 2004). An important concern is that the endorsement or centrality of extrinsic goals over intrinsic goals in one's value system may impact psychological resources such as the ability to cope with stress (Weinstein & Ryan, 2011). Since extrinsic goals are implicated in pathways to psychological vulnerability in the presence of stress, it follows that the relationship between stress and suicidal behavior may be influenced by an individual's goal orientation (extrinsic

or intrinsic). In other words, it is possible that aspirations may moderate the relationship between stress and suicidal behavior.

India is experiencing an economic boom and globalization has ushered in unprecedented sociocultural changes such as rising materialism that have a powerful influence young people's values and personal aspirations. To better understand risk for suicidal behaviors among Indian youth it is necessary to investigate not only locally relevant psychosocial stressors, but also their interaction with intrapersonal factors such as goal orientations. Thus one of the questions that the present research sought to answer was whether goal pursuits; either extrinsically or intrinsically focused; moderated the relationship between psychosocial stressors and suicidal behaviors.

Theoretical Frameworks and Approaches Guiding the Research

NSSI and suicidal behaviors are complex and multifactorial in aetiology; they cannot be attributed to a single risk factor in the environment or a single vulnerability factor within the individual. At the same time, the mere presence of these factors does not lead to self-injurious behaviors. Often, the risk is mitigated by the presence of protective factors. Risk and protective factors work cumulatively, and may increase vulnerability or resilience through interactions with each other and with individual characteristics. A wide spectrum of risk factors exist, spanning several domains of an individual's functioning, from intra-individual biological and psychological processes to individual-family or individual-society interactions (World Health Organization, 2014b). The most useful frameworks for addressing the main questions of the present research therefore were those that conceptualized NSSI and suicidal behaviors as occurring in the context of dynamic interactions between individuals and the larger contexts in which they are embedded, such as families, communities, society, and culture.

Social-ecological understanding of NSSI and suicidal behaviors. A social-ecological framework for understanding NSSI and suicidal behaviors represents proposals originating from the work of Bronfenbrenner's (1977) ecological framework for human development. Within this framework, an individual is envisioned as being conceptually at the center of her/his context, which is represented by a series of increasingly expanding concentric circles of influence. The innermost circle represents most immediate influences, typically family, peers, neighborhood, and the outer ones represent wider social influences such as social structures, political systems, and culture. These levels of influence are interactive and reinforcing (Bronfenbrenner, 1986; Bronfenbrenner & Morris, 2006; Golden & Earp, 2012).

From this perspective, risk trajectories evolve from mutually influential interactions between all levels of organization in the individual's ecology; from biological and psychological to social, cultural and historical. Social-ecological models of suicidal behavior are widely used in public health; espoused globally by public health organizations such as the World Health Organization and the Centers for Disease Control and Prevention (CDC) in the US (Centers for Disease Control and Prevention, 2015; Dahlberg & Krug, 2002; World Health Organization, 2014b). They not only guide a multilevel understanding of risk and protective factors, but also serve to inform multi-pronged and multilevel approaches to prevention and positive health promotion (Golden & Earp, 2012).

A social-ecological approach has similarly been useful in providing a framework to better understand the development and maintenance of NSSI (Heilbron, Franklin, Guerry, & Prinstein, 2014; Nock & Prinstein, 2004). Broadly, the theoretical proposition is that distal social factors related to family and family functioning, and community, confer risk for emotion dysregulation and psychopathology. In the event of a stressful incident, the acute stress instantiates the need to cope effectively, and the propensity to use NSSI to regulate

emotions (and therefore cope with stress) is increased when the individual is "primed" to use NSSI. In other words, NSSI may be conceptualized as emerging in the context of interactions between distal risk in familial and social environments, psychological factors, and NSSI-specific social influences such as NSSI exposure through friends or the internet (Heilbron et al., 2014). This framework for understanding risk may also be extended to the investigation of risk factors for suicidal thoughts among self-injurers. Salient factors may include individual characteristics such as severe and frequent engagement in NSSI as well as risk factors in the individual's wider spheres of influence such as family and other social relationships.

In line with the social-ecological approach, psychosocial correlates of NSSI and suicidal behaviors may be thought of as spanning four conceptual circles or systems: individual, relationships, community, and society. Although the exact mechanisms through which self-injurious behaviors are influenced by the myriad dynamic interactions of factors across these levels is not fully understood, the levels allow for broad classification of risk factors and therefore help in identifying target areas for intervention. Moreover, the implicit understanding of culture as a macrosystem, within which NSSI and suicidal behaviors occur, makes this approach particularly useful for developing a culturally relevant understanding of these behaviors.

The purpose of the present research was to investigate the prevalence of and psychosocial risk factors for NSSI and suicidal behaviors among Indian college youth. A social-ecological approach provided an overarching framework for this investigation. Potential risk factors were conceptualized as stressors in various domains of the individual's ecology, ranging from individual (e.g., level of psychological distress) to family (e.g. familial stress), and wider society (e.g. social stress).

SDT as a framework for investigating the relationship between aspirations and suicidal behaviors. One of the objectives of Study 2 was to examine the moderating effect of individuals' goal pursuits or aspirations on the relationship between stressors and suicidal behaviors. Aspirations were conceptualized as variables that might influence psychological vulnerability to suicidal behavior during experiences of acute stress. SDT provided a useful framework for understanding the impact of aspirations on psychological vulnerability.

A well-established meta-theoretical framework for studying human motivation, personality, and well-being, SDT focuses on autonomous or self-determined behavior and the social and cultural conditions that support it. SDT postulates that humans are growth-oriented organisms with a natural tendency to move toward vitality, integration and health. Central to this theory is the notion that the tendency towards personal growth is actualized when three innate, universal psychological needs are fulfilled. The need for *autonomy* or volition reflects the desire to self-organize experience and behavior, and to pursue inherently satisfying activities that are concordant with one's sense of self. The need for *relatedness* refers to the desire to be connected with others and the pursuit of social connectedness. The need for *competence* refers to the desire to exercise capacities and is reflected in the ability to influence the environment in desirable ways. A direct corollary of SDT is that individuals will tend to pursue aspirations that facilitate fulfillment of these needs. To the extent individuals pursue and attain these goals, they will experience positive psychological outcomes (Deci & Ryan, 2000, 2008; Ryan & Deci, 2000).

Specifically, one of the main contentions of SDT is that the content of people's goals (extrinsically or intrinsically oriented) can affect mental health and well-being because the goal contents relate to underlying satisfaction or thwarting of psychological needs. In line with this proposition, a large body of SDT research has established that individuals who value extrinsic (e.g., financial success, popularity) rather than intrinsic goals (e.g., community

affiliation) report poorer mental health. Correlates of extrinsic goal pursuits include less satisfaction with life, lower levels of perceived happiness, and greater psychopathology. On the other hand pursuing intrinsically oriented goals has been associated with greater levels of subjective well-being and mental health (Cohen & Cohen, 1996; Kasser, 2002; Kasser & Ahuvia, 2002; Kasser & Ryan, 1993; Nickerson, Schwarz, Diener, & Kahneman, 2003; Richins & Dawson, 1992; Sirgy, 1998; Solberg, Diener, & Robinson, 2004; Vansteenkiste, Duriez, Simons, & Soenens, 2006).

The SDT framework provided the theoretical grounding for exploring and conceptualizing the relationships between aspirations, stress and suicidal behaviors in Study 2. SDT maintains that psychological need satisfaction is undermined by the pursuit of extrinsic aspirations. In turn, the thwarting of psychological needs is theorized as increasing the likelihood of experiencing stress and negative physiological arousal (stress incursion) and lowering adaptive coping when faced with stressful experiences. On the other hand, intrinsic aspirations are theorized as facilitating psychological need satisfaction, which in turn is linked to better regulation of stress, more active coping, and increased vitality and energy (Weinstein & Ryan, 2011). Based on this model, extrinsic aspirations were expected to be associated with increased psychological vulnerability and therefore with increased risk of suicidal responses in the context of stressful experiences. In contrast, intrinsic aspirations — reflective of greater psychological need fulfilment, were conceptualized as buffering against the effects of stressful experiences and therefore reducing the likelihood of suicidal responses. Indeed, in a recent study, researchers found that basic need satisfaction moderated the relationship between negative life events and suicidal behaviors (Rowe, Walker, Britton, & Hirsch, 2013).

While social-ecological and SDT perspectives have been widely used in Western research, few efforts have been made to apply these frameworks to the Indian context. The

present research therefore sought to contribute to international literature by examining NSSI and suicidal behaviors through these theoretical lenses. A social-ecological approach facilitated a nuanced and contextualized understanding of NSSI and suicidal behavior risk, and SDT provided a framework for understanding the moderating effects of goal pursuits on suicidality risk.

A cultural approach to investigating NSSI and suicidal behaviors. While the theoretical models outlined provided frameworks for conceptualizing interactive relationships between variables of interest and the outcomes, an important and overarching guiding perspective for the study was that these interactions themselves occur in a particular cultural context. Since the advent of a "new cross-cultural psychiatry" (Kleinman, 1977) that integrated methodology and concepts from anthropology with psychology and psychiatry, research from these interdisciplinary endeavors has made clear that culture is fundamental to the causes, course and outcome of psychopathology as well as to healing (Kirmayer & Minas, 2000). In psychology, a cultural approach is premised on the assertion that the mind cannot exist independently of its sociocultural contexts. Indeed mind and culture are seen as being mutually constitutive; the mind is not just a producer of cultural realities, but is itself a product of culture (H. S. Kim & Sasaki, 2014; Kitayama, Duffy, & Uchida, 2007). Any study of human behavior therefore must consider the cultural context in which the behaviors take place (Shweder, 1995).

Humans are biologically evolved to create, acquire and transmit culture (Cole, 2005; Tomasello, 2000), and are therefore fundamentally cultural beings with a cultural, ethnic and family heritage. Culture may be thought of as belief systems and value orientations that constitute customs, norms, practices, and social institutions that are shared by a group of people. Culture includes socially transmitted and learned beliefs and ways of life including knowledge, values, practices, and behaviors. It involves processes of meaning-making within

a social group (Lewis, 2002, p. 3) that follows a way of living, informed by historical, economic, ecological, and political forces (American Psychological Association, 2002).

Although research has shown cross-cultural variations in the prevalence and correlates NSSI and suicidal behaviors internationally (e.g., Muehlenkamp et al., 2012; Nock, Borges, Bromet, Alonso, et al., 2008), few studies have used a cultural approach in understanding these behaviors (Colucci, 2006). Similarly, although culture-specific patterns in the prevalence and course of self-harm behaviors (e.g., the salience of economic adversity in suicidal behaviors), have been noted in a small number of Indian studies, there continues to be a dearth of research examining risk factors in relation to the local sociocultural milieu. Specifically, there are very few studies that have examined culturally salient risk factors in the Indian college-going population.

Culture can shape pathways to NSSI and suicidal behaviors in complex ways. With respect to suicidal behaviors specifically, Chu, Goldblum, Floyd, and Bongar (2010) propose that: (a) culture affects the types of stressors that increase suicide risk; (b) cultural meanings associated with stressors and suicide influence the development of suicidal tendencies, threshold of tolerance for psychological pain, and subsequent suicidal acts; and (c) culture affects how suicidal thoughts, intent, plans, and attempts are expressed. Although this model is based on variations in suicide across minority groups in the US, it provides a useful framework to contextualize and understand both NSSI and suicidal behavior in the Indian cultural setting.

In the present research, culture was conceptualized as a fundamental macro-context for the genesis, experience, and expression of self-injurious behaviors. There was therefore an explicit focus on the cultural context in which the study took place. Cultural/contextual knowledge guided the research process and informed the design, selection and cultural adaptation of research tools. For example, since the research was aimed at identifying

psychosocial correlates, the stress measure included stressors that were locally relevant and meaningful in their relation to students' functioning in their academic, home and wider social environments. Study results, specifically the relationships between risk factors and outcomes, were also interpreted with reference to the local sociocultural milieu. Conceptualizing NSSI and suicidal behaviors as culturally embedded constructs was considered essential in identifying target areas for prevention and intervention initiatives.

Summary. Given the scarcity of NSSI studies in India, our current understanding of NSSI is based almost entirely on data from Western countries, the theoretical and clinical implications of which may not be fully applicable in the Indian setting. A limited number of DSH studies have indicated that low-suicidal intent behaviors are commonly precipitated by stressful experiences in the familial domain or experiences of socioeconomic adversity. However, these findings relate mainly to youth in clinical settings and more community-based research is needed to provide a more comprehensive view of NSSI in India. Moreover, because of ambiguities in terminology, NSSI and suicidal behaviors have not been studied as clinically distinct phenomena and the relationship between these behaviors has not been previously explored in Indian youth. The investigation of NSSI and suicidal behaviors separately would contribute to efforts aimed at disambiguating terminology and moving towards a standardized nomenclature for researchers and clinicians. In addition, the use of consistent definitions and terminology would facilitate cross-cultural comparisons of NSSI epidemiology.

In comparison with NSSI literature, there is relatively more data on suicidal behaviors among Indian youth. Research has revealed that interpersonal and social stressors such as interpersonal conflicts in the family or financial deprivation are strong risk factors for suicidal behaviors in the Indian setting. The impact of such stressors may increase in the context of rapid sociocultural changes brought about by globalization. Specifically the rise of

a materialistic culture and an attendant rise in extrinsic aspirations, may have indirect effects on young people's mental health, possibly increasing their vulnerability to suicidal behavior when faced with severe stress.

The paucity of research among Indian youth may be hampering the development and implementation of actionable plans for the prevention, assessment and treatment of NSSI and suicidal behaviors. In addition, a general lack of adequate mental health training (R. Gupta & Khurana, 2015) may mean that mental health professionals may face enormous challenges in understanding and responding appropriately to youth who harm themselves. The lack of research therefore has severe implications for student mental health. It is possible that mental health resources and support for students engaging in NSSI or suicidal behaviors may extremely limited at present.

Main Objectives of the Research

The two broad aims of the research were to: (a) investigate prevalence of and psychosocial risk factors for NSSI in an urban university student population in India; and (b) investigate risk factors for suicidal behaviors, and examine aspirations as moderators of risk. The two studies presented in this thesis sought to address the gaps in research and limitations of previous work. Study 1 sought to contribute to the growing international NSSI literature and highlight the cultural salience of specific psychosocial factors in the Indian context. An investigation suicide ideation risk among those who self-injured was also considered important because of its implications for suicide risk assessment among those with NSSI history—considered a high-risk group for suicidal behaviors. Study 1 is presented as a manuscript in Chapter 3.

Study 2 sought to extend findings from hospital-based studies to urban, community-based youth, and investigate psychosocial stressors as risk factors for suicidal behaviors. It was also aimed at extending the SDT framework in explicating the relationship between

psychosocial stressors, aspirations and suicidal behaviors in the Indian cultural setting. Study 2 is presented as a manuscript, in Chapter 4.

CHAPTER 2

Community Setting

As the largest and most urbanized city in Gujarat, Ahmedabad offered a unique opportunity to investigate the aspirations of young people in globalizing city and how these aspirations relate to their mental health. This chapter provides an overview of the social, cultural and economic context of the study, highlighting recent cultural changes that may play a role in youth's vulnerability to mental health problems.

Brief History of Ahmedabad

Ahmedabad (also called Amdavad) is the urban center of Ahmedabad district and has a population of approximately 5.6 million (http://www.censusindia.gov.in/2011). Located in the Western State of Gujarat (see Figure 1), Ahmedabad is the seventh largest metropolis in India and the largest city and commercial capital of the state. Natives of Gujarat are referred to as "Gujaratis". Situated on the banks of the Sabarmati river, the history of Ahmedabad can be traced back to the eleventh century. The area around Ahmedabad was originally a kingdom named Karnavati that was conquered by various rulers including the Mughals over several centuries. In 1818, the British East India Company took over, building a military cantonment, establishing a municipal administration and building a railway link between Ahmedabad and Bombay (now Mumbai).

By the middle of the 19th century Ahmedabad became an important junction for trade and traffic between the northern and southern India. The city flourished as a hub for cotton textiles and large numbers of people migrated to the city to work in textile mills. Because of its thriving textile manufacturing and trade, Ahmedabad became known as the "Manchester of the East" (http://ahmedabadcity.gov.in). Ahmedabad continues to have a robust textile industry and is home to some of the largest producers of denim in the world. Other industries that have gained prominence in the city are pharmaceuticals, chemicals, and food processing.

Ahmedabad also occupies a prominent place in India's political history and specifically, India's struggle for freedom from British rule. In 1915 Mahatma Gandhi established two ashrams in Ahmedabad that became the site for several political protests and other nationalist activities. After India's independence from the British in 1947, Ahmedabad became a provincial town of Bombay state until its bifurcation into two states — Gujarat and Maharashtra, in 1960.

Brief Overview of Gujarati Demography, and Social and Cultural Life

India's social and cultural landscape is extremely diverse. States are distinguished by their unique history, language, cultural heritage, social customs, traditional ways of life, and demography. This diversity is evident even within each state. Like other states, Gujarat is multi-ethnic and multi-religious and yet can be distinguished from other states by its distinct cultural and social ethos. The primary languages spoken across Gujarat are Gujarati, Hindi, and English and various regional dialects. Like the rest of India, the predominant religion is Hinduism, but there is significant religious diversity with Muslims, Christians, Jains, Parsis (followers of Zoroastrianism and of Iranian origin), Sikhs and Buddhists constituting other communities. Compared to the rest of India, Gujarat has a much larger Jain (an ancient Indian religion) community. Because of the large presence of Hindu and Jain communities, most Gujaratis are vegetarian. The sale and consumption of alcohol is prohibited in the state.

Gujaratis are widely known for their entrepreneurial spirit and, indeed, it may be said that the "entire ecosystem of Gujarati culture works around entrepreneurship" (Kumar, 2013). Gujaratis are among the wealthiest Indians and have also been at the forefront of India's recent economic surge. Gujarati mercantilism is also seen beyond Indian borders, and in the Indian diaspora worldwide, Gujaratis are the most economically prosperous. Gujarati businesses are traditionally family-run and children, especially sons, are expected to take over family businesses. For most urban Gujaratis, education is a means of achieving business

goals. This focus on entrepreneurial skill is distinctive to Gujarat and contrasts with the dominant orientation of southern Indian states (e.g., Tamilnad, Kerala, Andhra Pradesh) where educational achievement and academic excellence is a widely held cultural value.

Caste and class. Although Guajrat is one of the most industrialized states and the community has generally been prosperous, there continue to be vast disparities in various spheres such as economic progress, social and political agency, educational opportunities and achievement, and health status. Similar inequalities are seen elsewhere in India and are rooted to some extent in the historical oppression and marginalization of low-caste groups. The term *caste* is a rough translation of the Sanskrit word *jati*, which referred to various birth groups. The caste groups were organized into an idealized hierarchy of four broad occupational groups or *varna*, derived from ancient cultural prescriptions for Hindu society which date back at least 2,000 years. At the top of the hierarchy are the Brahman (priests), followed by the Kshatriya (warriors), the Vaishya (traders) and the Shudra (laborers). Within such castes people may further belong to one of numerous sub-caste categories and to specific clans and lineages.

Below all of these were the *avarna* or Ati Shudra, the *outcastes*, who performed tasks that were considered too ritually polluting (e.g., skinning carcasses, removing waste) to merit inclusion within the four-fold caste order. They were referred to as “untouchables”. This notion of purity and pollution also undergirded social divisions over time, which were perpetuated through endogamy (marrying within one’s caste), and customary social exclusion

of the lowest caste groups.[1] Caste is thus not only a structural, but also a cultural phenomenon (Y. Singh, 1997).

After India's independence, the outcaste groups were enlisted in a separate schedule in the Constitution of India and renamed "Scheduled Castes" (SC). Similarly, the numerous *adivasis* or tribal communities—which were distinct from mainstream Hindu society and had their own language, customs and social and cultural practices—were also enlisted in a schedule and renamed "Scheduled Tribes" (ST). The terms SC and ST are now used in common parlance and often, SCs are also referred to as "Dalits". SC/ST communities have historically faced socially sanctioned discrimination, marginalization and oppression. This has had far reaching consequences such as limited social mobility and agency, poor educational and vocational achievements, and poor economic outcomes. Apart from SC/STs, other non-Hindu groups that have also been economically and socially disadvantaged have been enumerated and referred to as Other Backward Classes (OBC). These groups include Muslims and ex-Hindu Christian converts who identify themselves with backward classes (Jenkins, 2003). In Ahmedabad, SC groups comprise 10.7% and ST groups are about 1.2% of the city's population (http://www.censusindia.gov.in/2011). Official statistics for the OBC population in Gujarat or Ahmedabad are not available, but according to government surveys, between 41% (National Sample Survey Office, 2011) and 52% (http://socialjustice.nic.in/) of the Indian population are identified as OBCs.

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1 The acceptance of a single hierarchy based on notions of purity and pollution has been challenged by some scholars. D. Gupta (2000a) has proposed that caste status was also determined by access to land, which denoted social honour and political power, and that castes exist in multiple hierarchies.

In an effort to eradicate exclusionary practises, the Government officially abolished untouchability in 1950, and made constitutional provisions to promote equality and counter the oppressive forces of caste-based discrimination. These provisions include explicit reservations or quotas for SC/STs and OBCs in areas like education and public sector jobs (http://socialjustice.nic.in/). Although this affirmative action has helped lift many SC, ST and OBC communities out of poverty and afforded access to education and employment, there continue to be inequalities in educational and socioeconomic outcomes between upper and lower caste groups (Desai & Kulkarni, 2008; Sedwal & Kamat, 2008).

The distinction among castes based on division of labor led to a distinct and inherent class structure. Class may be seen as a political economic category in which the ruling classes, typically the upper castes, have been the owners of the means of production, while the ruled were landless laborers, who were typically low-caste groups. An interface between caste and class has always existed, and in contemporary times, caste status and economic mobility are both used as criteria for determining class (Mohanty, 2004). The economic reforms of the 1990s brought about dramatic changes in class structure, and most notable among them is the rise of the "middle-class". Because of its heterogeneity, the middle class is hard to define in terms of social stratum; it occupies an ambivalent space between capital and labor (Jeffrey, 2008). In economic terms, India's National Council for Applied Economic Research (NCAER) (http://www.ncaer.org/) defines the middle class "seekers" as households with annual incomes between ₹ 200,000 to ₹ 500,000 and terms those with incomes between ₹ 500,000 and ₹ 1 million, the "strivers". In purchasing-power-parity dollar

terms[2], the per capita per day figures (assuming a household of five members) would be about $8 to $20 for seekers and $20 to $40 for strivers (Meyer & Birdsall, 2012).

In sociological terms, the middle class may be broadly identified as a "class of people whose economic opportunities are not derived mainly from property but rather from other power-conferring resources such as positions of authority, or possession of educational credentials and scarce skills" (Fernandes & Heller, 2006). Fernandes and Heller (2006) delineate three basic strata within the Indian middle class. The dominant tier consists of those with educational and cultural capital who occupy positions of authority such as senior professionals and bureaucrats. The middle tier comprises the urban petit bourgeoisie, and includes small business owners, rich farmers, and merchants. The third tier, which is the most numerous, consists of the subordinate middle class, typically engaged in public and private sector work as low-level clerical staff and low-authority professionals such as teachers and nurses.

As a heterogeneous group, the middle class straddles caste lines as well as rural urban divides and is characterized as consumption-oriented, mobile, and aspiring for a prosperous life. They are typified by ownership of cars, televisions, and other consumer goods, and reasonable incomes and savings. Their children often attend private educational institutions and are fluent in English. While there are varied reports on the middle class population in India — ranging from about 23.5 million to about 264 million depending on the index used (Salve, 2015), there is wide consensus that this large, prospering stratum, which does not herald from traditional elites, exerts a profound influence as key economic, social and political actors (Fernandes, 2006; Jeffrey, 2008; Varma, 2007). Across India, the middle

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[2] Using constant 2005 purchasing-power-parity dollar (Meyer & Birdsall, 2012)

class is concentrated in urban areas. Ahmedabad's population thus has a substantial number of middle class households, especially those belonging to the lowest tier. The middle class population in large urban centres including Ahmedabad is growing rapidly and is projected to constitute about three-quarters of the urban population by 2025 (Beinhocker, Farrell, & Zainulbhai, 2007).

A Globalizing City

Channelled by the economic liberalization, globalizing forces have transformed cities and villages and the lives of people inhabiting them. In the last two decades, under the leadership of its former Chief Minister (and Indian Prime Minister at present) Narendra Modi, Gujarat has drawn considerable national and international attention for its innovative and vigorous efforts to attract global investments (see https://vibrantgujarat.com/), and has often been touted as a model State for its overall socioeconomic development. More recently, the Central government has also chosen Ahmedabad as one of the 20 cities slated to get a $7.5 billion makeover to a "smart city" with facilities and infrastructure comparable to the Western cities (http://smartcities.gov.in/content/). Ahmedabad has been the site for most of the urbanization and modernization policies and therefore has undergone rapid changes in response to the need for creating a business-friendly atmosphere for foreign investors. The city population has witnessed major structural changes such as infrastructure development, improvements in the service sector to cater to a globalizing clientele, and greater availability of private sector employment. Simultaneously, in the broader context of globalization in India, residents are now experiencing rapid changes in the city's sociocultural milieu. Many families, especially the booming middle-classes, have greater access to a vast array of consumer goods, increased access to finance and housing, and greater sociopolitical agency as incomes increase, poverty reduces, and standards of living improve in the city (Bhatkal, Avis, & Nicolai, 2015).

College Education in Ahmedabad

As elsewhere in India, in Ahmedabad, preparation for college admissions begins in high school. High school education is governed by either the Gujarat Secondary and Higher Secondary Education Board (GSHSEB) or the federally administered Central Board of Secondary Education (CBSE). State-funded (government) schools are run in accordance with the GSHSEB guidelines. Government schools typically attract students from poor or low-middle class backgrounds as schooling is free. The medium of instruction in these schools is Gujarati. Private schools on the other hand typically follow CBSE guidelines and provide instruction in English. Most middle- and upper-class families send their children to private schools.

After grade 10, students enter the higher secondary stage of their schooling; grades 11 and 12, often referred to in India as "+2". Performance in Grade 10 and 12 are important determinants of the educational options available at the college level. Under both secondary education boards, students study a variety of subjects until Grade 10. In Grades 11 and 12, subjects are streamlined into three different academic streams: science (subjects typically include mathematics, biology, physics, chemistry, and computer science); commerce (business studies, economics, accounting); and arts (social sciences, fine arts). The streams are overtly hierarchical—entry into a particular stream is based on the results of Grade 10 examinations. Students with the highest scores are free to choose any stream, but more often than not, enter the science stream. Others have to choose between commerce and arts streams. Students with the lowest scores usually have no choice but to enter the arts stream. There is generally considerable pressure for students to enter the science stream, as it is a prerequisite for admission to professional courses such as medicine, dentistry, engineering, and information technology. Interestingly, although entrepreneurship is a deeply embedded Gujarati cultural value, families still prize education in the science stream, regardless of

whether the student eventually enters the family business (H. Patel, personal communication, September 25, 2015). Families place a premium on these fields as they are often seen as avenues for economic prosperity as well as social capital.

Admission to professional courses, particularly at prestigious institutions, is extremely competitive. Students are required to appear for a common entrance exam administered either by the Central or the State government, depending on the institution. Admission is based on students' performance in the 12th grade as well as the common entrance exam. Hundreds of thousands of students appear for these exams each year, competing for a few thousand seats. Students entering other colleges for undergraduate degrees in the sciences, commerce or arts (e.g., B.Sc., B.A., B.Com.) are generally not required to pass any entrance exam and competition is less intense than it is for professional courses.

A unique aspect of college admission in Gujarat and indeed across India is that one's caste also determines college entry. The central government's positive discrimination towards SC, ST, and OBC groups is also enacted in the education sector through a reservation system. Accordingly, 15% of the seats in all institutions are reserved for SC students, 7.5% for ST students, and 27% for OBC students (Ministry of Human Resource Development, 2012). For students from these groups, college education is either free or heavily subsidized. Students from other groups gain entry on the basis of their exam scores alone. Students from affluent backgrounds may also gain entry to private institutions by making "donations" to the institute in exchange for seats. Class divides are thus apparent at the college level, with students from lower socioeconomic backgrounds typically attending state-funded colleges, while private colleges tend to have a larger population of students from wealthier families.

Given the intense competition for professional courses, the student population in professional programs and other undergraduate programs such as B.A. or B.Sc. usually differ

in terms of their academic track record. In addition, they also differ in terms of the types of stressors they face. Students in professional courses, especially medicine and engineering, go through a much longer course of study, have to face greater academic demands with more intense competition from peers, and may also face greater financial stress (especially for students who have to pay the full fee). Moreover, since professional courses attract admissions from other States, out-of-town students may also experience stressors such as poor living conditions (students from poorer families may only afford basic accommodation); being away from family; or making friends. Given that many of the students studying for professional degrees are from different states and different socioeconomic backgrounds, the student population in professional courses is demographically much more heterogeneous than that of other colleges. In addition, the institutes themselves vary considerably in terms of how they are funded (partially or fully government-funded, or private), the quality of training, and the general academic, social, and cultural environment on campus.

In contrast, students in non-professional programs are relatively similar in terms of their backgrounds: most are local and stay with their families, and tend to have a similar academic track record (most have likely opted for commerce or arts streams in high school). They also have a shorter duration of study, typically three years, with a lighter workload, and experience less intense academic competition. Broadly speaking then, students enrolled in professional and non-professional courses tend to represent different populations.

For the present research, recruitment of participants was restricted to colleges that offered programs in sciences, arts, and commerce. Gujarat University (GU) was chosen as the study site as it is the largest and oldest university in the State. Moreover, the highest number of enrolments at GU are in the faculties of science, arts, or commerce. This trend is also seen in college enrolments across the country, with almost 75% of college students enrolled in one of these faculties (University Grants Commission, 2012). Since GU is a

State-run university and education is subsidized, a large proportion of students are from middle class households, and are therefore similar in terms of their socioeconomic backgrounds. The sample drawn from the GU student population was thus considered fairly representative of college students in Ahmedabad.

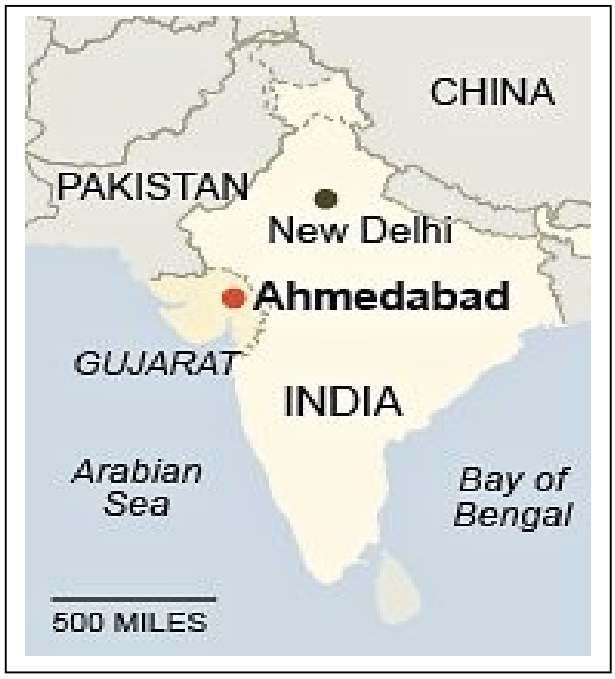

Figure 1. Location of Gujarat State and Ahmedabad

CHAPTER 3

MANUSCRIPT 1

Prevalence and Psychosocial Determinants of Non-suicidal Self-injury among College Youth in Gujarat, India

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Abstract

Non-suicidal self-injury (NSSI) is a recognized public health issue among adolescents and young adults in Western nations and there is an elevated risk of suicidal behaviors among those who engage in NSSI. The present study investigated the prevalence, characteristics, and psychosocial correlates of NSSI in a sample of college students in Gujarat, India. A second objective was to identify risk factors for suicide ideation among those with NSSI history. Overall, 7.8% of students reported NSSI. No significant gender differences were observed in the prevalence rate. Punching oneself or another object was the most commonly reported NSSI method. Female students reported self-cutting significantly more than males. Risk for NSSI was significantly associated with higher household incomes, living alone, family-related stress and psychological distress. Among those with a history of NSSI, the risk for suicide ideation was significantly increased by female gender, economic stress, and psychological distress but not NSSI severity. This exploratory study indicates that NSSI is prevalent in this non-Western setting, but risk for suicidal thoughts in this group may be increased by locally relevant stressors independently of NSSI history. Culturally salient factors such as familial and socioeconomic stress are important determinants of NSSI risk in the Indian setting.

Prevalence and Psychosocial Determinants of Non-suicidal Self-injury among College Youth in Gujarat, India

Reports of the high prevalence of non-suicidal self-injury (NSSI) among young people, predominantly among high school and college students in community settings, has made it a fast-emerging public health concern in the West. In contrast, there is a marked paucity of NSSI research from developing countries and therefore poor awareness of NSSI epidemiology in these nations. In a recent review of community-based NSSI studies in non-Western countries, Gholamrezaei, De Stefano, and Heath (2015) found only 17 studies that had focused on NSSI as it is defined in Western research. As a youth mental health concern, NSSI warrants urgent research attention in India, which has the world's largest youth population with more than a *quarter of a billion* people aged between 14 and 24 years (Office of the Registrar General & Census Commissioner, 2011). Considering these numbers, it is striking that there is almost no knowledge of the burden of NSSI in this population. The present study—one of the first in India—sought to contribute to the growing body of international NSSI literature by investigating NSSI prevalence and determinants in a sample of college youth in the Indian context. A second objective of this study was to investigate risk factors for suicide ideation among those reporting a history of NSSI.

Cross-national Prevalence and Features of NSSI

NSSI is defined as the deliberate, self-inflicted destruction of body tissue without suicidal intent and for purposes not socially sanctioned (International Society for the Study of Self-injury, 2015). Behaviors that are acceptable in a particular cultural setting (e.g., tattoos, self-injury in the context of cultural rituals), or that do not cause tissue damage (e.g., medication overdose) do not constitute NSSI. NSSI often occurs in the context of certain psychiatric disorders (Nock, Joiner, Gordon, Lloyd-Richardson, & Prinstein, 2006) and rates in clinical settings range from 20% to 68% (Andover & Gibb, 2010; Asarnow et al., 2011;

Briere & Gil, 1998; Claes et al., 2010; Perez, Venta, Garnaat, & Sharp, 2012; Sim, Adrian, Zeman, Cassano, & Friedrich, 2009). The age of onset of NSSI documented in most studies appears to fall between 14 and 24 years (Kerr, Muehlenkamp, & Turner, 2010). In community settings, most prevalence estimates come from high school or university populations (Swannell, Martin, Page, Hasking, & St John, 2014). Among North American college youth, rates of NSSI vary widely between 3% and 35% (Gratz, 2001; Taliaferro & Muehlenkamp, 2014; Whitlock, Eckenrode, & Silverman, 2006; Whitlock et al., 2013; Whitlock et al., 2011). Variations in prevalence rates are also evident in non-Western nations. A Turkish study found a prevalence of 15% in their college student sample (Toprak, Cetin, Guven, Can, & Demircan, 2011), and an Iranian study reported a 12% prevalence rate (Gholamrezaei, Panaghi, Mirmohamadi, Moumne, & Heath, 2014). Tresno, Ito, and Mearns (2012) reported a history of NSSI among 38% of Indonesian students, while in a Japanese study 10% of college students reported NSSI (Tresno, Ito, & Mearns, 2013). In one of the only studies from India, Kharsati and Bhola (2015) reported a 31% past year NSSI prevalence in their college student sample.

Gender differences in NSSI prevalence also vary cross-culturally. A higher prevalence has been noted among females in some Western studies (Giletta, Scholte, Engels, Ciairano, & Prinstein, 2012; Laye-Gindhu & Schonert-Reichl, 2005; Ross & Heath, 2002; Sornberger, Heath, Toste, & McLouth, 2012; Whitlock et al., 2006; Yates, Tracy, & Luthar, 2008), and also among student samples from Hong Kong (Shek & Yu, 2012). Yet, other American and European studies (Andover, Primack, Gibb, & Pepper, 2010; Baetens, Claes, Muehlenkamp, Grietens, & Onghena, 2011; Klonsky, Oltmanns, & Turkheimer, 2003), and Asian studies (Kharsati & Bhola, 2015; Tresno et al., 2012) found no gender differences. Some studies from non-Western nations such as Jordan and China, have found significantly higher engagement in NSSI among males (Hanania, Heath, Emery, Toste, & Daoud, 2015;

Tang et al., 2011). In their review of NSSI research, Hamza et al., (2012) have observed that gender variations in prevalence may vary by age, with differences appearing more pronounced among adolescents than in young adults. There are also gender differences in other NSSI features; for example, some studies have found that compared to men, women tend to report higher NSSI frequency (Sornberger et al., 2012) and more skin-cutting (Laye-Gindhu & Schonert-Reichl, 2005; Møhl, La Cour, & Skandsen, 2014; Whitlock et al., 2011).

Across studies, the frequency of NSSI varies substantially; from a single act to hundreds (Saraff & Pepper, 2014). In terms of NSSI methods, the most frequently reported methods include cutting, burning, scraping the skin until it bleeds, self-hitting; self-biting, and picking at wounds. Overall skin-cutting appears to be the most commonly utilized method across North American studies (Nock, 2010; Saraff & Pepper, 2014). Across non-Western studies however, more variations are seen. For example, head banging/self-hitting and interference with wound healing was most frequently reported among Israeli students (Rodav, Levy, & Hamdan, 2014) while self-scratching was most common among Jordanian students (Hanania et al., 2015) and in a student sample in Hong Kong (Shek & Yu, 2012). A preference for self-hitting was noted in an Indian study (Kharsati & Bhola, 2015).

Risk Factors for NSSI

A common clinical observation is that young people report using NSSI a way of coping with acute emotional distress or general negative feelings (Chapman, Gratz, & Brown, 2006; Klonsky, 2007; Nock & Prinstein, 2004). Current models theorize that individuals with intrapsychic or interpersonal vulnerabilities that increase their propensity to respond to stress with emotional or social dysregulation use NSSI (or other maladaptive behaviors) to modulate their distress (Nock, 2009). The hypothesis that NSSI serves as a form of emotion-regulation (Nock & Prinstein, 2004, 2005) has found considerable empirical support cross-culturally in community settings (Kharsati & Bhola, 2015; Klonsky, 2007, 2009; Laye-

Gindhu & Schonert-Reichl, 2005; Lloyd-Richardson, Perrine, Dierker, & Kelley, 2007; Ross & Heath, 2003; Zetterqvist, Lundh, Dahlström, & Svedin, 2013).

Proximal risk factors for NSSI include generalized psychological distress, depressive symptoms, anxiety, low self-esteem, and impulsivity (e.g., high-risk behaviors) (Andover, Pepper, Ryabchenko, Orrico, & Gibb, 2005; Baetens et al., 2014; Brunner et al., 2014; Giletta et al., 2012; Hankin & Abela, 2011; Hasking, Momeni, Swannell, & Chia, 2008; Taliaferro & Muehlenkamp, 2014; Whitlock et al., 2006; Wilcox et al., 2012; You & Leung, 2012). Distal risk factors include a history of childhood trauma, abuse, and neglect (Tresno et al., 2012; Zetterqvist, Lundh, & Svedin, 2013; Zoroglu et al., 2003). Studies have also highlighted the role of parental factors and the familial environments across cultural contexts. NSSI was associated with parental criticism in a US study (Yates et al., 2008), and in China, an invalidating family environment was found to increase NSSI risk (You & Leung, 2012). Family-related loneliness was also found to be a salient risk factor among student samples in the US and the Netherlands (Giletta et al., 2012).

Relatively little is known about other putative risk factors including chronic stressors such as economic deprivation or social disadvantage. These stressors may be important in countries like India where the relationship between socioeconomic adversity and poor mental health outcomes is well-established (e.g., Kuruvilla & Jacob, 2007; Parkar, Dawani, & Weiss, 2006; Patel & Kleinman, 2003). Indeed across cultures, the salience of risk factors has been found to vary. Brunner et al. (2014) for example found considerable variations in the associations between psychosocial variables and self-injury in samples from 11 European countries. Compared to adolescents in other countries, family environment had the strongest association with NSSI in Germany, while high-risk behaviors (drug/alcohol use) and psychopathology had the greatest influence on NSSI outcomes in Ireland. Psychopathology and high-risk behavior influenced NSSI prevalence only marginally in Romania, and in Italy

parental variables did not influence NSSI (Brunner et al., 2014). Similarly, in a cross-national comparison of Dutch, Italian and American adolescents, Giletta et al. (2012) found that family-related loneliness was found to be a significant risk factor for Dutch and US adolescents but not Italian. These cross-national surveys indicate that NSSI risk differs across settings, and point to the need for more culturally informed epidemiology.

Relationship between NSSI and Suicidal Behaviors

There is substantial evidence for a close association between NSSI and suicidal behaviors (Klonsky, May, & Glenn, 2013; Muehlenkamp & Gutierrez, 2007; Nock et al., 2006; Whitlock & Knox, 2007; Whitlock et al., 2013). NSSI and suicidal behaviours often co-occur, and NSSI is a strong predictor of suicidal behaviours in clinical as well as non-clinical samples (Andover & Gibb, 2010; Asarnow et al., 2011; Guertin, Lloyd-Richardson, Spirito, Donaldson, & Boergers, 2001; Klonsky et al., 2013; Muehlenkamp & Gutierrez, 2007; Nock et al., 2006; Prinstein et al., 2008; Whitlock & Knox, 2007; Wilkinson, 2011; Zahl & Hawton, 2004). A review of 31 studies that examined NSSI and suicidal behaviors found that NSSI was a robust predictor of suicidal behaviour even after controlling for demographic variables such as gender and ethnicity, as well as psychopathology and NSSI assessment methods (Hamza, Stewart, & Willoughby, 2012). The reviewers also noted that risk factors including psychopathology (major depression and borderline personality disorder), impulsivity, externalizing problems, and family problems were common to both, NSSI and suicidal behaviors. In their review of non-Western NSSI research, Gholamrezaei et al. (2015) similarly found that NSSI and suicide attempt were strongly associated even when demographic variables, depressive symptoms, and suicide ideation were controlled.

Both, the frequency and severity of NSSI have been linked to suicidal behavior risk. In a study of college students, a history of NSSI was found to nearly triple the risk for later suicidal behaviours. Among this group, those reporting a history of more than 20 lifetime

NSSI incidents, and having ever had mental health treatment had an increased risk of moving from NSSI to suicidal thoughts and behaviors. These findings implicate NSSI *prior* to suicidal behaviours as a possible "gateway" behaviour for later suicide (Whitlock et al., 2013). In another study of college students, Anestis, Khazem, and Law (2014) found that the use of a greater variety of NSSI, reflective of greater NSSI severity, strengthened the relationship between frequency of NSSI and suicidal behavior. In their review, Hamza et al. (2012) also observed that in general, the association of NSSI with suicidal behaviors was stronger among individuals engaging in more severe forms of self-injury such as cutting, carving or burning. Other studies however have found that among college students with NSSI history, increased suicidality was reported regardless of whether NSSI frequency and severity was low, moderate or high (Whitlock, Muehlenkamp, & Eckenrode, 2008), and independently of depressive symptoms (Guan, Fox, & Prinstein, 2012).

Investigations of subgroups of those who self-injure have provided further insight on the NSSI-suicidality relationship. For example, Klonsky and Olino (2008) conducted latent class analysis in a sample of university students based on specific NSSI behaviors and other contextual variables. Among the four NSSI subgroups identified, the group that had endorsed suicidal thoughts and behaviors was more likely to have engaged in a higher frequency of NSSI and used methods such as cutting and wound picking more often. This group also had higher levels of psychopathology, engaged in NSSI when alone, and was more likely to report that NSSI served to regulate their emotions.

In sum, current theories of the mechanisms underlying the relationship between NSSI and suicide risk are still evolving. In general, research suggests that the frequency and severity of NSSI may elevate the risk for suicidal thoughts and behaviors. Moreover, both NSSI and suicidal behaviors may share risk factors. As research from diverse cultures grows, it is likely to increase our understanding of both universal and culturally mediated pathways.

NSSI and Deliberate Self-Harm Research in India

To date, studies on self-injurious behavior in India are limited. Moreover, almost all these studies refer to deliberate self-harm (DSH) which encompasses self-harm behaviors with varying degree of suicidal intent and also includes deliberate self-poisoning. As a result, estimating or extrapolating the prevalence of NSSI from these studies is not feasible. One reason for the relative absence of NSSI research has been the lack of consensus on the need for specific nomenclature distinguishing suicidal from non-suicidal behaviors. Anecdotal evidence from clinicians suggests that ambiguity about suicidal intent is often present among patients when they are questioned about their self-injury. Some researchers also contend that ascertaining suicide intent in a clinical setting may be unreliable (K. N. Rao, Sudarshan, & Begum, 2008). In one hospital-based study, for example, about 70% of those engaging in DSH reported uncertainty about the intent to die (Chowdhury, Banerjee, Brahma, Hazra, & Weiss, 2013). The study authors noted that reporting lack of suicidal intent carried stigma and humiliation and may therefore hamper ascertainment of suicide intent

The ambiguity in the definition of self-injurious behaviors has meant that in most research studies in India self-harming behaviors have been studied together irrespective of suicidal intent and clinical presentation (e.g. Bansal & Barman, 2011; Chowdhury et al., 2013; Das et al., 2008; Parkar et al., 2006). In recent years, there have been some efforts to tease apart various forms of self-injurious behavior. Researchers have either focused on distinguishing DSH types based on suicidal intent (Bhattacharya et al., 2011; Krishna et al., 2014; Sarkar, Sattar, Gode, & Basannar, 2006), or studied the prevalence of clinical presentations of self-injurious behaviors classified as *mild and isolated* to *moderate and repetitive* and *very severe and isolated* (K. N. Rao et al., 2008). Although one recent study used NSSI conceptualization and study methodology comparable to that of North American

studies (Kharsati & Bhola, 2015), DSH studies remain the primary source of information on self-injurious behaviors in India at present.

In terms of risk factors, many studies report psychosocial stressors including familial conflict (Chakraborti, Ray, Bhattacharya, & Mallick, 2014; Chowdhury et al., 2013; Grover, Sarkar, Chakrabarti, Malhotra, & Avasthi, 2015), and other problems with primary support groups (Bhattacharya et al., 2011) as precipitants of DSH. Co-morbidity with psychiatric disorders particularly mild depressive episode or depressive disorders, has also been reported among individuals treated for DSH in hospital settings (Chakraborti et al., 2014; Chowdhury et al., 2013; Sarkar et al., 2006). However, in many studies, DSH with low suicide intent has also been seen in the absence of co-occurring severe psychopathology (Bhattacharya et al., 2011; Krishna et al., 2014; Sarkar et al., 2006).

To summarize, extant studies suggest that deliberate self-harm, including NSSI, is prevalent among Indian youth. However, in the absence of community-based studies with appropriate criteria, the burden of NSSI and factors that potentiate risk for suicide among self-injurers, remain largely unknown. The present study was carried out in a community-based student population to achieve these specific objectives: to investigate prevalence and sociodemographic characteristics of NSSI; to investigate potential risk factors for NSSI; and to explore risk factors for suicidal thoughts among those who self-injure.

Based on prior DSH findings in the Indian setting, we hypothesized that: (H1) generalized psychological distress would elevate the risk for NSSI as well as suicidal thoughts among individuals reporting NSSI; (H2) culturally relevant factors such as family-related stress would be associated with NSSI while financial stress would predict suicide ideation among self-injurers. In keeping with research from Western nations, we also expected that (H3) a greater frequency of NSSI and a greater variety of NSSI methods would contribute to suicide ideation risk even after adjusting for other risk factors.

Method

Setting

The study took place in Ahmedabad, the largest city in Gujarat state in Western India, and among the ten most populous cities in India. The primary languages spoken in Ahmedabad are Gujarati, Hindi, and English. The predominant religion is Hinduism, with Muslims, Christians, Jains, Parsis, Sikhs and Buddhists constituting other religious minorities. Roughly 12% of Ahmedabad's population belong to "Schedule Caste" (low-caste groups) or "Schedule Tribe" groups (http://www.ahmedabadcity.gov.in), which have historically been socially and economically disadvantaged. In Ahmedabad, like other large metropolitan cities in India, most low-caste students and students from low socioeconomic classes attend government-funded universities. Gujarat University (GU), the largest government-run university in Gujarat, was the site of the current study.

Participants

Students enrolled in undergraduate programs at colleges affiliated with GU participated in the study. The medium of instruction at these colleges was Gujarati or English. Participants were students in the faculties of arts, science, and commerce (business studies). Of the 1,837 participants who were invited to participate, approximately 99% (n = 1,835) completed the survey. The participation of almost all students is not surprising given that deference to authority is commonly seen in collectivistic cultures (Hofstede, 1983). The presence of a college lecturer, an authority figure, in the room at the time of data collection may have contributed to the students' decision to participate. In another recent NSSI study in India, the participation rate of invited students was similarly 99% (Kharsati & Bhola, 2015). Survey data from participants aged less than 18 years and more than 24 years were not included in the analyses. The final sample included 1,817 participants aged between 18 and 24 years (M = 19.11, SD = 1.09).

Procedure

The data reported in the present study was collected as part of a wider study on stress and self-injurious behaviors among college students. The study was reviewed and approved by the Research Ethics Committee of the Lady Davis Institute for Medical Research, Jewish General Hospital, Montreal, Canada. Approval for the study was also obtained from Gujarat State's Department of Health and Family Welfare and Department of Education. Upon recommendation from the department heads, GU issued a consent letter granting the first author access to classrooms for the purpose of data collection. Participants were recruited from 17 colleges that were randomly selected from a list of all colleges offering arts, science, and commerce programs in Ahmedabad. The first author provided each college principal a copy of the consent letter from GU. Prior to data collection, the first author also briefed principals on the study aims, procedure, and rights of the participants.

The survey was administered by the first author and a local research assistant. Survey completion instructions and clarification of questions were provided in English and Gujarati. The written consent form that accompanied the survey provided detailed information about participants' rights, assurance of confidentiality, and local contact information for further queries. To ensure their anonymity, participants were told not to write their names anywhere on the questionnaire. Participants were informed that the purpose of the study was to investigate stress and coping among youth. Due to the great stigmatization of mental illness and self-injurious behaviors in India, the outcomes of interest (NSSI and suicidal behaviors) were not highlighted when providing initial information about the study. Students were given 45 minutes to complete either the English or Gujarati version of the survey in their classrooms. After the surveys were completed, students were provided information about local mental health resources as part of the debriefing.

Measures

As part of the wider survey, a questionnaire was developed in consultation with the state government mental health program officer, mental health professionals working in clinical settings in Ahmedabad, and on the basis of available DSH literature in India. The questionnaire was translated into Gujarati by professionals with extensive experience in translating documents for social science research. The Gujarati version was checked by back-translation by two mental health professionals and a psychology lecturer at GU who were fluent in English and Gujarati and well versed with terminology used in the questionnaire. Differences were resolved by replacing items with alternatives suggested and agreed-upon by the back-translators. The following sections from the final survey were included in the data analyses for the present study: (a) sociodemographic data, (b) perceived stress, (c) perceived psychological distress, (d) coping strategies including use of NSSI, (e) history of lifetime suicide ideation, and (f) self-injury methods.

Stressors scale. This 29-item scale was used to assess perceived levels of stress in various domains of students' lives. As this was an exploratory study and locally validated measures of stress were not available, a scale was developed specifically for use in the extended survey on stress and self-injurious behaviors. The items intended to broadly capture situations of relevance to youth mental health in the Gujarati context and were developed on the basis of previous research findings and anecdotal information about sources of stress in the local setting. For example, many items tapped into socioeconomic or familial conditions—variables that have been strongly associated with poor mental (Arun, Yoganarasimha, Palimar, Kar, & Mohanty, 2004; Kuruvilla & Jacob, 2007; Parkar et al., 2006). For each item, participants indicated the level of stress they experienced on a four-point Likert-type scale from 0 (no stress) to 3 (severe stress).

Prior to conducting data analyses for the present study, a confirmatory factor analysis (CFA) had been conducted to test a five-factor structure of the Stressors scale as part of the survey from which data for the present study were drawn. The CFA was used to validate the multidimensionality of perceived stress as found in previous Indian studies on student populations (e.g., Arun & Chavan, 2009; Panchu, Bahuleyan, & Vijayan, 2017). These factors were a priori hypothesized domains of stress with items grouped meaningfully in each domain. The CFA allowed for the use of a composite score for each of these stress domains (subscales) in subsequent analyses. Given the sensitivity of the chi-square test to large sample sizes, other recommended practical fit indices such as the root mean squared error of approximation (RMSEA), comparative fit index (CFI), and the Tucker-Lewis Index (TLI) (Reise, Widaman, & Pugh, 1993) were used to evaluate model fit. Based on factor loadings, modifications were made to the initial model and modified models were tested again. These included removal of certain items due to multicollinearity and moving items from one factor to another based on statistical and logical fit (see Appendix E and F for factors and loadings, and steps taken to reach the final model). Based on widely used cut-off criteria (Hu & Bentler, 1999; Browne & Cudeck, 1992), the final five-factor model showed a reasonably acceptable fit. Subsequently, the 23 retained items were grouped in one of five subscales: academic, economic, familial, romantic, and social. For every participant, scores from each subscale were summed to provide a summary scores for each subscale. A Cronbach's alpha coefficient of .84 was obtained for the Stressors scale, indicating good internal consistency.

To test the hypotheses of the present study, only scores from the economic and familial subscales were used in the main analyses based on the cultural salience of these stressors (e.g., Chowdhury et al., 2010; Kattimani, Sarkar, Rajkumar, & Menon, 2015; Mathew & Nanoo, 2013; Patil & Shivakumar, 2011). The four economic subscale items related to employment prospects after graduation, and paying for higher education. The five

familial subscale items tapped into familial support, resonance with parents' cultural values, acceptance of parents' decision-making for children, and living as a nuclear family unit. In the present study, familial stress was a hypothesized risk factor for NSSI while economic stress was a hypothesized risk factor for suicide ideation among those with NSSI history.

K-6. The K-6 scale is a 6-item self-report measure used to screen for psychological distress in the general population (Kessler et al., 2002; Kessler et al., 2003). Originally developed for use in the US National Health Interview Survey (http://www.cdc.gov/nchs/nhis.htm), the K-6 has been used in India (Patel et al., 2008) and in other regions of the world such as West Africa and Japan (Baggaley et al., 2007; Furukawa et al., 2008). The K-6 items are presented as statements that describe symptoms of emotional distress and respondents indicate how often they had experienced each of the feelings in the past 30 days, on a five-point Likert-type scale from 0 (none of the time) to 4 (all of the time). The Cronbach's alpha reliability coefficient for the K-6 in the current sample was .79.

How I Deal with Stress questionnaire (HIDS). The HIDS, originally developed by Ross and Heath (2002) is a 25-item self-report questionnaire designed to measure the frequency of use of a variety of strategies that youth may use to cope with stress, including both adaptive (e.g., going out with friends or family) as well as maladaptive behaviors (e.g., drinking alcohol). The HIDS also screens for the presence of NSSI through one item that has been embedded in the list of coping strategies. The measure has been widely used in North American settings as well as in non-Western settings such as Jordan (Hanania et al., 2015) and Iran (Gholamrezaei et al., 2014). The NSSI screening item has been found to have high test-retest reliability (r = .83) (Toste, Christie, & Heath, 2011).

Based on discussions with two local mental health professionals and a college lecturer, and informal discussions with government college students, certain items on the HIDS were not included as they were thought to be less commonplace as coping strategies

among students in that particular setting (for e.g., hitting or arguing with others, exercising). The final adapted version of the HIDS consisted of 17 items. Participants indicated their frequency of use of each strategy on a 4-point Likert-type scale, with each item scored from 0 to 3, corresponding to never, once, sometimes, or frequently. Participants who reported that they had used the strategy "physically hurt myself on purpose" (NSSI screening item) were asked to complete a follow-up section to indicate whether they had ever used any of five NSSI methods without the intention to take their own lives. The methods listed were: cutting, burning, scratching, banging head, and punching self or another object. A Cronbach's alpha coefficient of .60 was obtained for the HIDS.

Suicide ideation history. Lifetime suicide ideation history was elicited by a single *yes or no* question asking respondents if they had ever seriously thought about suicide.

Data Analysis

History of lifetime NSSI and history of suicide ideation were the main outcome variables in this study. Participants with and without lifetime NSSI history, and among the NSSI subgroup, those with and without suicide ideation history, were compared with *t*-tests for continuous variables and chi-square for categorical variables. Groups were compared on sociodemographic variables and other measures. The Mann-Whitney test was used to analyze ordinal data. Following bivariate analyses, the hypothesized risk factors were entered into a multivariate logistic regression to determine whether they increased risk for NSSI and for suicide ideation in the NSSI group. Demographic variables such as gender and income were added as controls in each of the multivariate models. All bivariate and multivariate analyses were conducted using SPSS software version 20.0.

Results

Demographic Characteristics of Participants

Of the final sample (N = 1,817), about 56% (n = 1017) were female participants and about 44% (n = 793) were male participants. Almost all (99%) participants were unmarried. About 87% lived with their parents, while 9% lived with a partner, relatives or friends, and 4% lived alone. The majority (77%) identified themselves as Hindu, with 11% as Jain, 6% as Muslim, and 5% Christian. About 1% of participants reported following other commonly practised religions in India such as Zoroastrianism, Buddhism and Sikhism. This distribution reflects that of the general population in India although Jains are over-represented in this sample because Gujarat has one of the largest Jain communities in India. With regard to caste, 66% belonged to upper castes, while 34% belonged to lower castes. More than half of the sample (56%) reported that their annual household income was in the lowest two categories (₹0–49,000 and ₹50,000–99,000), while 13% reported incomes in the highest income category (₹300,000 and above). Close to two-thirds of the participants completed the Gujarati version of the questionnaire.

NSSI Prevalence and Features

To maintain conceptual consistency with the prevailing definition of NSSI, identification of NSSI was based on two criteria: endorsement of NSSI *and* report of at least one NSSI method. Responses to the item "physically hurt myself on purpose" (NSSI screening item) in the HIDS were used to assess whether participants met the first criterion. Of the study sample, 22.1% (n = 402) reported using NSSI at least once, and 14.7% (n = 264) of the study sample reported at least one NSSI method. To ensure that the NSSI criteria were met, only those participants who endorsed the NSSI screening item *and* reported at least one NSSI method were considered in the analyses. Of the 402 participants reporting NSSI use at least once, only about one-third (n = 139) had completed the follow-up section on NSSI methods and were thus classified as the NSSI subgroup. Using these criteria, the lifetime prevalence rate of NSSI in the current study was 7.8%, 95% CI [6.63, 9.12].

Among the NSSI subgroup (n = 139), 51.4% reported punching self or another object, making it the most commonly reported NSSI method. The least common method reported was burning, reported by 18.7% of self-injurers. Almost half of the participants (49.6%) reported one method, 41% reported between two to three methods and 9.4% reported between four and five methods.

Gender Differences

No significant differences were found between female and male participants in the lifetime prevalence of NSSI. As seen in Table 1, no significant gender differences were found in the frequency of NSSI or in the use of specific NSSI methods, except cutting. Women reported cutting significantly more than men, $\chi^2(1) = 4.142$, $p = .042$, $\Phi = -0.173$. Among men who self-injured, the most commonly reported method was punching self or other object while among women, cutting was most common. With regard to number of methods, results from an independent samples t-test showed no significant gender differences in the number of NSSI methods reported.

Risk Factors for NSSI

Among the NSSI subgroup (n = 139), some participants had also reported suicide ideation history. To avoid any confounding effects of suicide ideation history, participants with a history of NSSI only, without any suicidal behavior history were classified as the NSSI only outcome group. This group (n = 74) was subsequently used in the analyses to determine risk factors for NSSI. Bivariate comparisons revealed significant differences between the NSSI and non-NSSI (no NSSI or suicidal behavior history) subgroups on certain sociodemographic variables. A Mann-Whitney U test revealed that higher income categories (Mdn = 4) were associated with NSSI history significantly more than with lower income categories (Mdn = 3), U = 44158.0, p = .007. Chi-square analyses indicated that reports of NSSI history were significantly greater among participants who lived alone, $\chi^2(2) = 1.12$, p =

.004, Φ = 0.085. Therefore the multiple logistic regression model developed to assess risk factors also included these variables as controls, in addition to the hypothesized risk factors. Table 2 presents the results of binary logistic regression analysis for lifetime NSSI history. In the current sample, belonging to higher income categories, living alone, experiencing greater levels of familial stress, and general psychological distress significantly elevated the risk for NSSI.

NSSI and Suicide Ideation

In comparison with participants with no history of NSSI, a significantly greater number of participants with NSSI history also reported a history of suicide ideation, $\chi^2(1) = 160.20$, $p < .001$, Φ = 0.3. Specifically, among those with no NSSI history (n = 1,644), less than 10% reported suicide ideation while among the NSSI subgroup (n = 139), about 46% had a history of suicide ideation. This NSSI subgroup with suicide ideation history (n = 64) were classified as the outcome group for subsequent analyses to assess risk factors for suicide ideation. Results of the logistic regression analysis are presented in Table 3. Among those who had a history of NSSI, the risk for suicidal thoughts was significantly higher among female participants, those experiencing greater levels of economic stress, and those reporting greater levels of psychological distress.

Discussion

The present study is among the first to investigate prevalence and determinants of NSSI in a college population in India and also explore risk for suicidal thoughts among those who self-injure. Fully 22.1% of the sample reported physically hurting themselves deliberately on at least one occasion. To ensure that the responses conformed to the NSSI definition used in the present study, endorsement of an actual NSSI method was used to confirm the *non-suicidal* and *tissue-damaging* nature of the reported self-injury. Based on these criteria, we found an NSSI prevalence rate of 7.8% in our study sample. This

prevalence rate is much lower than the rate reported in another recent study from Bengaluru in south India (Kharsati & Bhola, 2015), but closer to some other non-Western (Gholamrezaei et al., 2014; Tresno et al., 2013) and Western findings (Wilcox et al., 2012). To some degree, the discrepancy in prevalence rates across studies can be been attributed to methodological differences, as noted in recent reviews (Muehlenkamp, Claes, Havertape, & Plener, 2012; Swannell et al., 2014). The HIDS assessed NSSI through a question embedded in a list of coping strategies. However other measures such as the Functional Assessment of Self-Mutilation (FASM; Lloyd, Kelley, & Hope, 1997) used commonly in other studies, uses multiple questions to assess specific NSSI behaviors, frequency, and severity. Another finding was that almost two-thirds of those who reported using NSSI at least once, did not go on to respond to the NSSI methods question. It is possible that participants who did not complete the NSSI methods section were unsure about the intent of their self-injurious behaviors or uncomfortable giving more details. In light of these factors, our estimate likely represents a lower bound on the true NSSI prevalence.

The prevalence of NSSI as a mode of coping or idiom of distress may be influenced by social and cultural factors. Paris and Lis (2013) suggest that in the context of borderline personality disorder, specific symptoms such as self-harm are more frequent among patients in developed countries. They note that social contagion has influenced the use of self-injury to express distress. Indeed, other researchers have cautioned that the increasing prevalence of NSSI-related content on the internet might trigger similar behaviors, and normalize and reinforce such coping patterns (Duggan, Heath, Lewis, & Baxter, 2012; Lewis, Heath, St Denis, & Noble, 2011). In Western nations, where internet penetration is far greater than in India (International Telecommunications Union, 2014), online content may exert a powerful influence on the patterning of coping responses. Moreover, in the West, research has generated widespread interest in NSSI as a public health issue, and the visibility of self-injury

discourse is increasing in mainstream media and popular culture (Beettam, 2013). In India, public discussion of NSSI to date is negligible.

There is also the possibility that low prevalence rates reflect low rates of NSSI disclosure. In the Indian context, there are enormous social, emotional and even legal costs of self-injurious behaviors to the individuals and their families. The great stigmatization of mental health problems (Thara & Padmavati, 2010) and self-injurious behaviors (Chowdhury et al., 2013) may deter self-report of NSSI. Further, suicide attempts until very recently were punishable under Indian law[1] and even acts with low suicidal intent were considered de facto suicide attempts (medico-legal cases that warrant police intervention). Thus there has been a tendency to avoid self-report of self-injurious behaviors due to fear of legal and social consequences, even if suicide intent was absent. Indeed at the behest of the family members, doctors attending to self-injury cases often themselves do not report such cases as suicide attempts to avoid difficulties for the family (Rege, 2011). Taken together, clinical attitudes, ambivalence of intent, social stigma, and legal consequences may increase reticence about NSSI disclosure even in community settings.

NSSI Characteristics and Gender Differences

In line with several international studies (e.g., Andover et al., 2010; Baetens et al., 2011; Hanania et al., 2015; Tresno et al., 2012), no significant gender difference was found in NSSI prevalence. With regard to NSSI methods, punching oneself or another object was most frequently reported in this study sample. This method is comparable to self-hitting, which was found to be most common in another Indian study (Kharsati & Bhola, 2015). Following the general international trend, gender differences were not found in the number of methods endorsed, but were seen in relation to specific NSSI methods. Cutting was reported more by women in this study sample, echoing the pattern seen in Western studies (Andover et al., 2010; Laye-Gindhu & Schonert-Reichl, 2005; Møhl et al., 2014; Whitlock et al., 2011).

In particular, the observation that women reported cutting most often while men reported punching self or objects is also consistent with patterns noted in some Western studies (Andover et al., 2010; Sornberger et al., 2012). In the absence of Indian NSSI data, gender differences in methods are difficult to explain. However, previous Indian DSH studies have generally found that men engage in high-lethality and violent self-harm methods such as self-strangulation and self-stabbing more often than women (Grover, et al., 2015; Sarkar et al., 2006) while moderate and repetitive self-injury such as superficial cuts and scratches are common among women (K.N. Rao et al., 2008), suggesting that self-harm method preference may vary across gender.

Although the reason for gender-specific patterns seen in the current study is not clear, it is possible that some methods may be perceived as being more "feminine" or "masculine" as in the case of suicide methods (McAndrew & Garrison, 2007). Adler and Adler (2011) contend that varied socialization experiences for males and females might explain some of the gender differences in self-injury methods. They note that women are socialized to internalize their upset and enact it through their bodies. Moreover societal emphasis on women's bodies especially in relation to their self-identity, may lead women to feel a greater sense of control over themselves through control of their bodies. Injuring the body may thus give women a greater sense of control over their emotions. Men's socialization on the other hand may lead them to externalize their stress and lead to behaviors such as punching, which are interpreted as more masculine (Adler & Adler, 2011). Indeed, adherence to masculinity norms has been found to not only predict NSSI chronicity but also choice of NSSI method in a recent study (Green, Kearns, Ledoux, Addis, & Marx, 2015). Interestingly the gender differences observed (i.e., greater cutting among women) in the present study are not consistent with an earlier NSSI study from India, indicating the need for further exploration of gender patterns in NSSI across various regions in India.

Risk Factors for NSSI

In the current study, NSSI risk was associated with higher income, living alone, familial stress, and psychological distress. The association of higher income categories contradicts our hypothesis that socioeconomic disadvantage would be linked to NSSI. It is also counterintuitive because there is evidence from Indian studies that poverty and socioeconomic stressors are associated poor mental health and DSH. Findings from the present study appear to be more aligned with some Western studies that have reported a high prevalence of NSSI in affluent groups. In these studies, NSSI prevalence was found to be associated with class-related values and norms (Luthar, Barkin, & Crossman, 2013; Yates et al., 2008). It is possible that NSSI among more affluent Indian students may reflect a similar constellation of factors relating to socioeconomic advantage such as greater modernity (and therefore lower adherence to traditional values), tensions of an "identity remix" (M. A. Rao et al., 2013), and greater exposure to Westernization through an array of media. Qualitative research is needed to better understand risk pathways for affluent Indian youth and provide insights into the differential use of NSSI as a coping mechanism across socioeconomic classes.

Compared to participants who lived with their parents or others, those living alone were at increased risk for NSSI in the present study. In India, youth continue to live with their families well into adulthood and even after marriage (primarily male youth). Family unity is a core cultural ideal in India. Most Indian families continue to follow and be held together by sociocentric values. Relationships within families are interdependent and duty-bound, and the family is seen as critical to well-being; providing nourishment, support and even financial support for young adults (Derné, 2009). The loss of familial support, crucial in a young adult's life as they navigate the stresses of emerging adulthood, can therefore have an adverse impact on mental health. College youth living alone may experience difficulties

coping with the lack of guidance in decision-making and reduced support from multiple caretakers, emotional and financial insecurity, and loneliness. Haw and Hawton (2011) found that among individuals who reported DSH, individuals who lived alone experienced greater social isolation than those living with others. Students living alone may lack supportive networks, increasing their feelings of isolation. For students who move from rural, non-cosmopolitan areas, these difficulties may be exacerbated as youth try to adjust to cosmopolitan city life.

Interestingly, while living without family increased NSSI risk, familial stress was also significantly associated with NSSI risk in this study. Poor family functioning and an overall invalidating family environment have been similarly linked to NSSI in Western nations (Bureau et al., 2010; Gratz, Conrad, & Roemer, 2002; Nixon & Heath, 2009). Family stressors documented in this study included conflicts over sharing cultural values with parents and involving them in major decisions, and receiving or providing support for family, and living in a nuclear family. The independent contribution of familial stress in NSSI risk may be understood with reference to the changing structure, organization and function of the traditionally sociocentric family. As a social unit, the family is increasingly faced with challenges brought about by the onset of rapid social and cultural changes in the context of globalization. Some of these changes include but are not limited to the nuclearization of the joint family structure, inter-generational conflicts, and high expectations of parents in academic and vocational pursuits in a fiercely competitive job market (Carson & Chowdhury, 2000; Carson, Jain, & Ramirez, 2009). Another potent stressor for young people may also be the increasing dissonance between traditional values of parents and the material aspirations of youth, fuelled by an increasingly consumption-driven culture. Given that we found an elevated NSSI risk among higher income groups, it is possible that familial stress as a result of familial conflicts may be particularly salient for middle and upper class students who tend

to have greater exposure and inclination towards Westernized lifestyles which are at odds with traditional values, typically held by the older generations.

Consistent with our hypothesis, NSSI risk was also significantly elevated for those experiencing high levels of non-specific distress as measured by the K-6. High levels of self-reported distress among self-injurers has similarly been noted in Western research (Baetens et al., 2014; Tanner, Hasking, & Martin, 2014; Wilcox et al., 2012). Psychological distress increased NSSI risk independently of demographic and familial factors. Depressive and anxiety symptoms are known risk factors for NSSI (Andover et al., 2005; Hankin & Abela, 2011; Wilcox et al., 2012), although studies have also shown that non-specific distress continues to be associated with NSSI even after controlling for psychopathology (Baetens et al., 2014). In the present study, distress reported by college youth more likely reflects common stresses experienced at this stage of development, heightened by familial stress or more distal factors related to rapid sociocultural change.

Risk for Suicide Ideation among Self-injurers

Among those reporting a history of NSSI, the risk for suicidal thoughts was higher among female students, and those reporting high levels of economic stress and psychological distress. After adjusting for other covariates, we failed to find the hypothesized association between NSSI severity (increased NSSI use and greater number of methods) and suicide ideation. Interestingly, those reporting frequent NSSI use were at lower risk for suicidal thoughts and this association almost reached statistical significance. This finding is counterintuitive and in contrast to previous research and theoretical models that implicate NSSI history in suicidal behaviors (e.g., Anestis et al., 2014; Joiner, 2005; Klonsky et al., 2013; Whitlock et al., 2013). Our sample may have included subgroups that used NSSI prior to suicidal thoughts, had co-occurring NSSI and suicidal thoughts, and/or used NSSI after the onset of suicidal thoughts. Combining subgroups with different histories in terms of the

onset of NSSI and suicide ideation could have obscured indications of any temporal association between NSSI and suicide ideation. Another possibility is that those who endorsed frequent NSSI use found satisfactory relief from distress, thereby reinforcing its use repeatedly over other strategies. This might particularly be the case since NSSI use was embedded in a list of coping strategies in this study, precluding other possible functions of NSSI.

Suicide ideation risk was significantly elevated among female students in the present study. In the changing sociocultural context of India, female students may face new stressors as they balance the demands of traditional roles and the need to compete with male students for academic success and job opportunities. Female students may expect and receive more familial support as they challenge traditional norms. They would likely experience greater pressure to meet parental and societal expectations, and a perceived lack of success may foster a sense of incompetence as well as perceived burdensomeness, which can contribute to suicidality (Joiner, 2005; Ribeiro & Joiner, 2009).

Whereas higher incomes were found to significantly predict NSSI risk, household income was not associated with suicide ideation. However, consistent with our hypothesis, students who reported economic stress reported significantly greater suicide ideation. This result is not surprising given that economic deprivation and general socioeconomic disadvantage bears heavily on mental health outcomes in India (Chatterjee, 2009; Kuruvilla & Jacob, 2007; Patel & Kleinman, 2003). The vast majority of students attending government-funded institutions are from lower socioeconomic classes and it is possible that feelings of relative deprivation, rather than absolute poverty (as indicated by low household income) may heighten vulnerability to mental health problems. Post-graduate education often improves job prospects, and therefore economic prospects. A perceived lack of financial ability to enrol in reputable colleges or perceived limitations in job prospects—

factors that the economic stress scale tapped into—were strong determinants of suicide ideation in the present study.

As predicted, among those who self-injured, psychological distress was significantly associated with suicide ideation. Further, psychological distress was associated with suicide ideation independent of NSSI severity. Whether through a direct effect as subclinical psychopathology or through its interaction with socioeconomic stressors, suicide ideation risk significantly increased among those participants who reported high levels of distress. This finding also supports Hamza et al.'s (2012) contention that the association between NSSI and suicidal behaviors is stronger among individuals experiencing greater levels of psychological distress.

Study Limitations

The study has important methodological limitations. Participants were recruited through convenience sampling and survey results were based on self-report provided in a classroom setting. Although certain measures used in the survey were adapted to suit the local setting, they had not been validated in the Gujarati context, and had modest internal reliability. Although the use of the HIDS helped to maintain conceptual consistency cross-culturally, the lack of completion of the follow-up methods section indicates possible discrepancies between how NSSI was conceptualized in the survey and how participants construed the questions posed. Since NSSI use was embedded in the HIDS as a coping strategy, it is possible that participants' use of NSSI for reasons other than coping, may have been missed.

Although self-poisoning is excluded from NSSI categorization (in North America predominantly), it would have been useful to assess prevalence of this behavior. As noted earlier, self-poisoning is an important issue to address in the Indian context given the ubiquitous use of household chemicals, pesticides, or medication (which are easily

accessible) in low-intent and low lethality self-harm. Future research can examine whether there are differences between individuals reporting non-suicidal self-poisoning and NSSI.

Finally, given India's vast social and cultural diversity, results from this survey cannot be generalized to student populations in other regions. In particular, results may not be generalizable to rural youth, those who do not attend university, and to youth affluent youth who attend private institutions.

Conclusion

This exploratory study is among the first in India to investigate NSSI epidemiology and assess NSSI and suicidal thoughts as distinct phenomena in a large sample of college students. Results show that NSSI as a coping strategy is also prevalent among Indian youth, suggesting that NSSI is a cross-culturally valid clinical construct. Results also highlight the salience of culturally relevant proximal and distal factors in determining NSSI and suicide ideation risk, independent of intrapersonal distress. Specifically, our results indicate that the absence of familial support and the presence of stressful interpersonal relationships with family members significantly elevate NSSI risk. A unique finding of this study is that interpersonal stress may be particularly acute for youth from relatively better-off families. NSSI and suicidal behavior are important mental health issues that warrant further research among young people in India. Moreover, these issues need to be situated in the context of globalization to better understand the various pathways through which rapid changes in the sociocultural milieu may place considerable demands on young people's psychological and material resources.

The prevalence of NSSI documented in this study has implications for mental health service provision. Mental health personnel in college settings need to exercise vigilance around students exhibiting signs of distress as they are at greater risk for using maladaptive coping mechanisms and for adverse mental health outcomes. When dealing with self-injury,

assessment should include a focus on understanding salient stressors in the students' interpersonal domains such as the family and community with reference to students' socioeconomic background. Although a history of NSSI merits attention when assessing risk for suicidal behavior, mental health professionals need to be watchful of signs that students are financially burdened or experiencing economic crises. They also need to pay particular attention to female students who report NSSI history. NSSI research from India is in its nascent stages. Culturally informed assessment and interventions for NSSI as well as suicidal behaviors in the Indian student population would require greater research efforts focused on NSSI epidemiology in this cultural setting.

Footnote

[1] The central government announced its decision to decriminalize attempted suicide in 2014, and the bill received parliamentary approval in 2017.

Table 1

Frequency and Methods of Non-Suicidal Self-Injury (NSSI) Reported by Female and Male Participants

	Females		Males			
NSSI feature	*n*	%	*n*	%	χ^2	*p*
Frequency					0.10	.949
Once	31	40.3	26	41.9		
Sometimes	36	46.7	29	46.8		
Frequently	10	13.0	7	11.3		
Total	77	100.0	62	100.0		
Methods						
Punch self or object	36	24.6	35	31.0	1.29	.256
Scratch	35	24.0	29	25.7	0.02	.877
Cut	34	23.3	17	15.0	4.14	.042
Bang head	25	17.1	22	19.5	0.14	.709
Burn	16	11.0	10	8.8	0.49	.485
Total	146	100.0	113	100.0		

Table 2

Risk Factors for NSSI

Variable	Unadjusted OR [95% CI]	*p*	Adjusted OR [95% CI]	*p*
Male	1.34 [0.84, 2.18]	.220	1.36 [0.82, 2.25]	.233
Annual household income (in Rupees)				
Less than 49,000	Reference		Reference	
50,000 – 99,000	0.73 [0.36, 1.50]	.391	0.89 [0.43, 1.86]	.753
100,000 – 299,000	1.06 [0.55, 2.02]	.869	1.19 [0.61, 2.31]	.609
More than 300,000	2.72 [1.40, 5.29]	.003	3.12 [1.54, 6.34]	.002
Living with				
Parents	Reference		Reference	
Alone	3.38 [1.54, 7.45]	.002	2.56 [1.17, 5.85]	.026
Partner, relatives or friends	1.63 [0.79, 3.37]	.187	1.37 [0.64, 2.93]	.423
Familial stress	1.15 [1.06, 1.24]	< .001	1.10 [1.01, 1.19]	.030
K-6 Total score[a]	1.14 [1.08, 1.19]	< .001	1.13 [1.07, 1.19]	<.001

Note. OR = odds ratio; CI = confidence interval

[a]A higher score on the K-6 reflects a greater level of psychological distress

Table 3

Risk Factors for Suicide Ideation among Participants with NSSI History

Variable	Unadjusted OR [95% CI]	*p*	Adjusted OR [95% CI]	*p*
Female	1.88 [0.95, 3.73]	.070	2.65 [1.06, 6.60]	.037
Annual household income (in Rupees)				
More than 300,000	Reference		Reference	
Less than 49,000	2.47 [0.89, 6.88]	.084	1.19 [0.30, 4.62]	.806
50,000 – 99,000	1.83 [0.60, 5.57]	.285	1.84 [0.44, 7.63]	.404
100,000 – 299,000	2.33 [0.88, 6.21]	.090	2.03, [0.60, 6.91]	.255
Use of self-injury as a way of coping with stress				
Once	Reference		Reference	
Sometimes	2.35 [1.13, 4.88]	.022	1.79 [0.71, 4.52]	.216
Frequently	0.94 [0.30, 2.90]	.907	0.20 [0.04, 1.04]	.055
Number of NSSI methods used	1.60 [1.15, 2.25]	.006	1.34 [0.91, 1.99]	.142
Economic stress	1.35 [1.19, 1.57]	< .001	1.45 [1.21, 1.73]	< .001
K-6 Total score[a]	1.13 [1.06, 1.21]	< .001	1.08 [1.00, 1.17]	.048

Note. OR = odds ratio; CI = confidence interval

[a]A higher score on the K-6 reflects a greater level of psychological distress

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Suicide occurs in high numbers among young people in India. However, little is known about the epidemiology of suicidal thoughts and attempts, the immediate precursors to suicide. Lesser still is known about NSSI, an established risk factor for suicidality (Hamza et al., 2012). Efforts to reduce suicide therefore warrant a better understanding of both, NSSI as well as suicidal behaviors, with a focus on local, context-specific stressors that may increase risk for these behaviors. The main aim of the current research studies was to investigate prevalence and psychosocial risk factors for NSSI and suicidal behaviors in a community sample of college students. Based on the available literature, NSSI and suicidal behaviors were conceptualized as being distinct from each other and therefore investigated along two separate lines of inquiry. This two-pronged approach facilitated a behavior-specific understanding of the epidemiology of both types of self-harm behaviors in the Indian context.

Accordingly, the first study focused on NSSI as the main outcome of interest. The primary objectives were to investigate the prevalence and correlates of NSSI and to determine risk factors for suicidal thoughts among those who reported NSSI. Results supported the cultural validity of the NSSI construct in the Indian setting. NSSI was found to be significantly associated with higher household incomes, living alone, family-related stress and psychological distress. Interestingly, risk for suicidal thoughts was not predicted by NSSI severity or frequency but by economic stress and psychological distress. Results indicated that there was no unique contribution of NSSI engagement to suicide ideation risk after controlling for demographic and other psychosocial stressors. The robust association of psychosocial stressors with suicide ideation in Study 1 indicated the need to further explore these factors in relation to suicidal behaviors (suicidal ideation and attempts). Study 2 therefore focused on exploring the psychosocial correlates of suicidal behaviors in the same community-based sample.

A second objective in Study 2 was to investigate the interaction of psychosocial stress with intrapersonal factors such as personal goals. Specifically, the study sought to test the moderating effects of personal goal pursuits on the relationship between psychosocial stressors and suicidal behaviors. This objective was motivated by recent reports on the mental health effects of rapid sociocultural change in the context of globalization (e.g., Bhat & Rather, 2012; S. Sharma, 2016), and specifically, the rise of increasingly materialistic aspirations among young people (Appadurai, 1996; Eckhardt & Mahi, 2012; N. Gupta, 2011; Varman & Belk, 2008). The rationale for this investigation was also based on a large body of work rooted in self-determination theory that has consistently reported a strong association between materialistically or extrinsically oriented goals and poor mental health, and also found that inherently satisfying pursuits lead to positive mental health and well-being. Exploring goal pursuits was particularly important in the Indian context as given that they are markers for the wider social-ecological factors that influence intrapersonal processes and individual outcomes. Based on the social-ecological model of suicidal behaviors, Study 2 sought to explore the interactive effects of stressors and goal pursuits; which represent different levels of individual, and social-ecological influence; on suicidal outcomes. Thus in addition to determining psychosocial risk factors for suicidal behaviors, Study 2 also sought to assess whether individuals who placed greater importance on extrinsic rather than intrinsically oriented aspirations were at greater risk for suicidal behaviors in the presence of the risk factors, and conversely, whether prioritizing intrinsic aspirations mitigated the risk.

CHAPTER 4

MANUSCRIPT 2

Psychosocial Risk Factors for Suicidal Behaviors among College Students in India: Extrinsic and Intrinsic Aspirations as Moderators of Risk

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Abstract

About a third of all suicides in India are by youth aged between 18 and 30 years. A growing concern is that the rise of a materialistic culture in a rapidly globalizing milieu may have an impact on mental health. Specifically, such a culture may promote extrinsically oriented life aspirations rather than intrinsically satisfying ones, undermining the fulfilment of basic psychological needs and increasing psychological vulnerability. For youth, a greater focus on either extrinsic or intrinsic goals may thus be important moderators of suicidal behavior risk. Using self-determination theory as a guiding framework, the present study sought to: (a) identify psychosocial risk factors for suicidal behaviors; (b) examine whether placing greater importance on either extrinsic or intrinsic aspirations moderates suicidal behavior risk. A survey was completed by 1,817 college students in Ahmedabad, Gujarat. Separate logistic regression analyses were conducted to test the moderating effect of intrinsic and extrinsic goal importance. The prevalence of suicidal behavior in this sample was 12.7%, 95% CI [11.22, 14.29]. Controlling for demographic variables; economic stress, social stress and psychological distress predicted suicidal behaviors. The relationship between social stress and suicidal behaviors was significantly moderated by both intrinsic and extrinsic aspirations. Findings draw attention to the social pressures faced by youth and the role of inherently satisfying goal pursuits in buffering the adverse effects of social pressures.

Psychosocial Risk Factors for Suicidal Behaviors among College Students in India: Extrinsic and Intrinsic Aspirations as Moderators of Risk

Youth suicidal behaviors are a universal concern. A recent World Health Organization report indicates that suicide is the second leading cause of death for youth aged 15 to 24 years worldwide. Further, the number of suicide attempts are estimated as being up to 20 times the number of deaths by suicide (Fleischmann & Leo, 2014). This global trend is echoed in India, where young people aged 18 to 30 years comprise about a third of all officially recorded deaths by suicide (National Crime Records Bureau, 2014). A worrying finding is that approximately 8,000 suicides are by students. In the absence of official data, if worldwide estimates of suicide attempts are applied to India, we would expect a very high rate of suicide attempts among students. There is, therefore, an urgent need to understand which factors predict such behaviors and further, if the risk is enhanced or mitigated in the presence of certain intrapersonal factors.

College students in India, like students elsewhere in the world, face a number of stressors as they enter young adulthood and adapt to the demands of this developmental period. While some cope effectively, others do not and may be at risk for adverse outcomes such as suicide ideation and attempts (henceforth referred to as suicidal behaviors). There is scant data from India, but the available literature indicates that in addition to clinical risk factors such as depression and anxiety (Bhatia, Aggarwal, & Aggarwal, 2000; Das et al., 2008; C. T. S. Kumar, Mohan, Ranjith, & Chandrasekaran, 2006; Parkar, Dawani, & Weiss, 2006), psychosocial stressors such as financial adversity and interpersonal difficulties especially in the familial context, are strongly linked to suicidal behaviors (Das et al., 2008; Jacob, 2008; Parkar et al., 2006). Among university students specifically, risk factors include socioeconomic disadvantage (e.g., being of low-caste status) (Nath, Paris, Thombs, & Kirmayer, 2012), and poor parent-child relationships (Singh, Manjula, & Philip, 2012).

Symptoms of depression have also been found at high levels among Indian college students (G. S. Kumar, Jain, & Hegde, 2012; Naushad et al., 2014; Sidana et al., 2012).

Of course, young people's responses to psychosocial stress usually do not involve suicidal behaviors. A wide range of coping responses are influenced by the individual's appraisal of stress, and the outcome of a stressful individual-environment interaction is contingent on a variety of person- and situation-specific factors (Lazarus & Folkman, 1984). When coping strategies fail or are inadequate, or when self-harm is presented as a salient cultural model, young people who face psychosocial stress may be at increased risk for suicidal behaviour. In line with this idea, stress-diathesis models of suicidal behaviors (for e.g. see van Heeringen, 2012) purport that suicidal behaviors are the result of interactions between environmental stressors (e.g., psychosocial stress) and a susceptibility or diathesis to suicidal behaviors. However there is increasing recognition that risk for suicidal behavior may be shaped by both proximal, individual characteristics as well as more distal contextual factors. A social-ecological view of suicidal behavior recognizes that individuals are embedded in contexts such as family, neighborhood, society, and culture, and risk factors for suicidal behavior span these contexts (World Health Organization, 2014). One implication of this view is that factors in the individual's social ecology can directly or indirectly influence their stress appraisal and coping responses. Research focused on identifying some of these factors is therefore an important part of developing strategies to reduce suicidal responses to stress.

Self-determination Theory, Stress and Coping Responses, and Suicidal Behaviors

One such promising line of inquiry is the application of self-determination theory (SDT) (Deci & Ryan, 2000, 2008), a broad meta-theoretical framework for studying motivation and well-being, to the study of suicidal behaviors. A core concept of SDT is that the optimal development and functioning of individuals involve a natural tendency towards

growth and integration, as well as for meaningful social connectedness and personal well-being. For individuals' ongoing growth, integrity, and psychological health to flourish, three psychological 'nutrients' are essential. Conceptualized as universally innate *basic psychological needs*, the needs are those for competence, autonomy, and relatedness (Deci & Ryan, 2000). Competence relates to an individual's perception that they can influence their environment and bring about a desired outcome; autonomy reflects the desire to engage in behaviors of one's own volition; and relatedness reflects the need to be connected with others. SDT theorists contend that the degree to which these needs are supported or thwarted within an individuals' social context has a robust impact on their well-being. Psychological need satisfaction facilitates well-being by strengthening inner resources and contributing to resilience, while need frustration increases vulnerability to psychological ill-health and psychopathology (Ryan & Deci, 2000; Vansteenkiste & Ryan, 2013).

Recent studies have also shown that fulfilment of psychological needs correlates with a reduced risk of suicide ideation and behaviors (Britton, Van Orden, Hirsch, & Williams, 2014; Bureau, Mageau, Vallerand, Rousseau, & Otis, 2012; Tucker & Wingate, 2014). Importantly, need satisfaction has also been shown to moderate the relationship between life stress and suicidal behaviors (Rowe, Walker, Britton, & Hirsch, 2013). Specifically, Rowe et al. (2013) found that satisfaction of psychological needs was negatively associated with both negative life events and suicidal behaviors. Further, they found that need satisfaction weakened the relationship between life stress and suicidal behaviors. These findings suggest that the association between stressors and suicidal behaviors may be exacerbated among individuals whose basic psychological needs are not supported. The thwarting of basic needs may effect changes in the way individuals process and cope with stressors.

Weinstein and Ryan (2011) propose that stress incursion; the perceived demands of a stressful situation; and coping responses are affected by intrapersonal characteristics such as

greater autonomy motivation. Those with a greater autonomy orientation tend to act out of their own choosing and in accordance with their own interests. Their goals are therefore also congruent with their values. One of the most important ways in which an autonomously motivated orientation buffers against the adverse effect of stress is by guiding individuals towards the pursuit of aspirations that facilitate need satisfaction. It can be said therefore that the pursuit of intrinsic or extrinsic aspirations affects stress and coping through its capacity to facilitate or undermine basic psychological needs (Weinstein & Ryan, 2011).

Extrinsic and intrinsic aspirations and mental health. The differential association of the contents of people's aspirations or goals with their well-being and mental health has drawn considerable interest. Ryan, Sheldon, Kasser, and Deci (1996) have asserted that the pursuit of some life aspirations over others has implications for mental health. Kasser and Ryan (1993, 1996) describe these as either *intrinsic* aspirations (e.g., goals related to meaningful relationships, self-acceptance, and community contribution) or *extrinsic* aspirations (e.g., goals related to money, popularity, and image). These conceptualizations of extrinsic and intrinsic aspirations as relating to externally and internally oriented goals respectively, have also been shown to be consistent across nations including non-Western cultures (Grouzet et al., 2005). Extrinsic goals are, in general, expected to be less likely to lead to need fulfillment, and therefore to be associated with poor mental health. Intrinsic goals on the other hand, which are inherently gratifying, lead to greater need satisfaction and therefore better psychological health (Kasser, 2002; Kasser & Ryan, 1996, 2001; Sheldon, Ryan, Deci, & Kasser, 2004).

Studies have consistently shown that individuals who focus on extrinsic goals (e.g., financial success) rather than on intrinsic goals tend to report lower levels of subjective well-being and greater levels of mental ill-health. These include outcomes such as less happiness, lower satisfaction with life, fewer experiences of day-to-day pleasant emotions and greater

symptoms of distress or psychopathology including depression, anxiety, and conduct problems (Cohen & Cohen, 1996; Kasser, 2002; Kasser & Ahuvia, 2002; Kasser & Ryan, 1993; Nickerson, Schwarz, Diener, & Kahneman, 2003; Richins & Dawson, 1992; Sirgy, 1998; Solberg, Diener, & Robinson, 2004; Vansteenkiste, Duriez, Simons, & Soenens, 2006). Studies from culturally diverse nations have also shown differential associations of goals with well-being in the expected direction. Among Chinese adolescents for example, greater endorsement of extrinsic aspirations relative to intrinsic ones were associated with stress and depressive symptoms (Auerbach et al., 2011). Similarly, Kasser and Ahuvia (2002) found Singaporean students with higher materialistic values (reflected in greater endorsement of extrinsic goals) reported higher anxiety, unhappiness, physical health problems, and lower self-actualization, vitality and happiness. Conversely, greater relative intrinsic to extrinsic endorsement was associated with greater self-actualization, lower anxiety, and fewer health complaints among students in South Korea (Kim, Kasser, & Lee, 2003), and with higher levels of positive affect and greater life satisfaction among youth in Spain (Romero, Gómez-Fraguela, & Villar, 2012).

It appears therefore that the concept of psychological need satisfaction applies to individuals in diverse cultural contexts. Across nations, the pursuit of extrinsic incentives undermines psychological health. Further, individuals who pursue extrinsic goals at the cost of intrinsic ones may not be able to regulate stress optimally, would be less likely to engage in active coping and be less resilient. Through its effect on stress and coping, greater relative endorsement of extrinsic goals may therefore strengthen the relationship between stress and suicidal behaviors. Conversely, a relatively greater focus on intrinsic goals may lead to need satisfaction and more adaptive responses to stress and lower risk for adverse outcomes. As noted earlier, psychological need satisfaction has been found to mitigate the relationship between stress and suicidal behaviors (Bureau et al., 2012; Rowe et al., 2013) suggesting that

the pursuit of activities that promote need satisfaction and greater self-determination may protect against the deleterious effects of stressors.

Globalization, Aspirations, and Mental Health in the Indian Context

The sizeable literature on SDT constructs such as goal contents and their relationship with well-being comes predominantly from Western nations. Since SDT assumes universality of basic psychological needs, goal orientations should differentially predict mental health status even in a non-Western, developing nation like India. The SDT framework may be particularly useful in exploring the mental health implications of aspirations against the backdrop of rapid globalization in India. India's neoliberal policies of the 1990s have ushered in fast-paced socioeconomic and cultural change. Globalization has effected a dramatic change in access to, and availability of the vast Indian market to the rest of the world. Interacting with new social and cultural flows and navigating globally inflected local cultural spaces has now become an essential feature of young people's lives in contemporary India.

Globalization influences psychological well-being in a number of ways. In developing nations like India, social factors such as economic adversity are particularly salient determinants of mental health (Jacob, 2013; Kuruvilla & Jacob, 2007; Patel & Kleinman, 2003) and globalization-related changes may impact mental health by exacerbating the effect of these factors. For example, increasing disparities in wealth distribution between rich and poor in the context of globalization may lead to greater feelings of economic deprivation (Sharma, 2016).

Of particular concern in the Indian setting, globalization has fuelled the growth of a consumption-driven culture which may have unfavorable consequences for mental health. A tremendous surge in supply of domestic and foreign brands of products has proliferated cities and towns. Media institutions stream persuasive images of a materially fulfilling lifestyle as

a desirable consumer value, perpetuating, legitimizing and glorifying conspicuous consumption (Appadurai, 1996; Gupta, 2011; Handa & Khare, 2013; Mankekar, 1999; Thomas & Wilson, 2013; Varman & Belk, 2008). The dovetailing of such media representations and the profusion of consumer goods and services exerts a powerful influence on young people's values and behaviors (Varman & Belk, 2008), making them targets of a consumerist culture that encourages pursuit of extrinsically focused goals (Gupta, 2011; Mohan, 2011; Upadhya, 2009; Venkatesh, 1994). A greater societal focus on materialism and consumption may create conditions that do not support the pursuit of intrinsically oriented goals among young people, in turn affording fewer opportunities for basic need satisfaction. As previous research indicates, thwarting of basic needs can increase risk for suicidal behaviors in the presence of stress (Britton et al., 2014; Rowe et al., 2013). Since goal pursuits are theorized to facilitate or frustrate the satisfaction of psychological needs, an exploration of aspirations is therefore be relevant to the study of suicidal behavior the Indian context.

Objectives and Hypotheses

The available literature indicates that psychosocial factors such as financial and familial stress, and generalized psychological distress are strong determinants of suicidal behaviors. However, to our knowledge, there are no studies examining the potential links between goal pursuits, psychosocial stressors, and suicidality in the Indian context. The overarching aim of the current study therefore was to apply the SDT framework to a non-Western cultural setting to examine these relationships. The specific objectives of this study were to identify psychosocial risk factors for suicidal behaviors and explore the potential moderating effects of relative goal importance (either extrinsic or intrinsic) on the relationship between stressors and suicidal behaviors. The main hypotheses were: (a) economic, familial, and social stressors, psychological distress, and suicidal behaviors will be

positively associated with extrinsic goal importance and negatively associated with intrinsic goal importance; (b) after adjusting for control variables, each of the stressors and psychological distress will emerge as independent risk factors for suicidal behaviors; and (c) extrinsic goal importance will strengthen the association between risk factors and suicidal behaviors, while intrinsic goal importance will weaken the relationship.

Method

Setting

The study was conducted in undergraduate colleges located in Ahmedabad, the largest metropolis in the state of Gujarat in western India. Gujarati is the official language in Gujarat but Hindi and English are also commonly spoken. As in most other parts of India, Guajrat is home to a large number of Hindus (roughly 89%) while Muslims make up close to 10% and other religious minorities including Christians, Jains, Parsis, Sikhs and Buddhists constitute about 1% of the state's population (Office of the Registrar General & Census Commissioner, 2011).

Participants

Participants were recruited as part of a wider study on stress and self-injurious behaviors. The sample was drawn from 17 colleges affiliated with Gujarat University (GU), the state's largest university. Students were enrolled in undergraduate degrees in the faculties of arts, commerce (business studies) or science. Of the 1,837 undergraduate students who were invited to take part in the study, 1,835 gave their consent and completed the survey. Only data from participants aged between 18 and 24 years were included in the final dataset. Thus the final dataset comprised information from 1,817 participants (M = 19.11, SD = 1.09). The high participation rate observed in the present study likely reflects cultural values such as deference to authority which tend to be reproduced through the ethos of educational

institutions (Thapan, 2014). The decision to participate may have been influenced to some extent by the presence of a respected authority figure (lecturer) in the classroom.

Procedure

Ethics approval for the wider survey on stress was given by the Research Ethics Committee of the Lady Davis Institute for Medical Research, Jewish General Hospital, Montreal, Canada, and Gujarat State's Department of Health and Family Welfare and Department of Education. A letter of permission for data collection was provided to the first author by GU. Principals of the 17 selected colleges were briefed on study objectives and data collection procedures as well as rights of participating students. A copy of the GU permission letter was also provided to college principals.

Once verbal assent for data collection was obtained from principals, the first author administered the questionnaire to students in their classrooms with the help of a local research assistant. Verbal instructions for survey completion were given in English and Gujarati. A written consent form with information about study aims, participant rights, confidentiality and privacy, and a contact name and number for further queries was provided along with the survey. Because of the sensitive nature of some of the questions (e.g., those relating to suicidal behavior history), participants were told that the study was aimed at investigating stress and coping among students. The survey took approximately 45 minutes to complete and after all surveys were collected, students were given information about local mental health resources.

Measures

Measures used in the present study were part of a questionnaire that was developed on the basis of relevant literature and consultations with local mental health professionals in Ahmedabad as well as a government official involved in the implementation of Gujarat's mental health program. The final questionnaire consisted of eight sections: (a) demographic

data, (b) stress levels, (c) negative life events, (d) psychological distress, (e) coping strategies (f) history of lifetime suicide ideation and attempt, (g) self-injury methods, and (h) aspirations. The questionnaire was also translated into Gujarati through back-translation (Brislin, 1970) as many students were enrolled in Gujarati-speaking colleges. The translation was carried out by a team comprising of a psychology lecturer at GU and two interpreters with experience in translating documents for social science research. The following section provides details only for measures that were used in the current study.

Stressors scale. Based on available knowledge of salient risk factors such as familial conflicts (Parkar et al., 2006) and socioeconomic disadvantage (Arun, Yoganarasimha, Palimar, Kar, & Mohanty, 2004; Kuruvilla & Jacob, 2007) as well knowledge of the local cultural context, a 29-item scale was developed in consultation with local mental health professionals. The scale was designed to assess perceived levels of stress in various domains of students' lives. Participants responded to each item by indicating the level of stress they experienced on a four-point Likert-type scale from 0 (no stress) to 3 (severe stress). Items were hypothesized to represent stressors in various domains of student functioning rather than reflecting a unidimensional construct. To test a multi-factor structure of perceived stress, a confirmatory factor analysis (CFA) was carried out using Mplus software prior to conducting data analysis for the present study. Models were modified based on factor loadings and logical fit (see Appendix E and F for factor items and loadings, and notes on model development). Goodness-of-fit was evaluated using the comparative fit Index (CFI), Tucker-Lewis Index (TLI), and the Root Mean Squared Error of Approximation (RMSEA). The final model showed an acceptable fit based on recommended cut-off criteria (Hu & Bentler, 1999; Browne & Cudeck, 1992). A total of 23 items were retained in the final model comprising five factors: academic, social, economic, familial, and romantic, which were treated as subscales. Items in each subscale were then summed to compute a composite

subscale score for subsequent analyses. The reliability statistics for Stressors scale indicated good internal consistency with a Cronbach's alpha coefficient of .84.

In the present study, only scores from the social, economic, and familial subscales were of specific interest as these stressors related to these domains have been found to be especially relevant to the aetiology of suicidal behaviors in India. The economic subscale consisted of four items that were focused on educational costs and future employment. The familial subscale comprised five items that were focused on cultural values in the family, familial support, family structure, and decision-making. The social subscale consisted of three items related to peer pressure and friendship support.

K-6. The K-6 (Kessler et al., 2002; Kessler et al., 2003) scale was originally developed for use in the U.S National Health Interview Survey (http://www.cdc.gov/nchs/nhis.htm). It consists of six items and is aimed at screening non-specific generalized psychological distress (primarily depressive and anxiety symptoms. Using a five-point Likert-type scale ranging from 0 (none of the time) to 4 (all of the time), participants indicated how often they had experienced the item (symptom of emotional distress) in the past 30 days. The K-6 has been widely used as a screening tool in Western settings as well as in non-Western nations such as India (Patel et al., 2008), Japan (Furukawa et al., 2008), and Burkina Faso (Baggaley et al., 2007). A Cronbach's alpha of 0.79 was obtained for the K-6 in the present study.

Aspiration Index (AI). The AI (Grouzet et al., 2005) is a measure that assesses various domains of individuals' life goals/aspirations and is based on earlier versions developed by Kasser and Ryan (1993, 1996). Respondents are asked to rate how important each item (goal) is to them on a 9-point scale ranging from 1 (not at all) to 9 (extremely). A cross-cultural validation of the dimensional structure of the AI across 15 countries including India, found that 47 goals organized into 11 domains: financial success, image, popularity,

affiliation, self-acceptance, community feeling, spirituality, conformity, health, hedonism, and safety. Goals related to the financial success, image, and popularity domains are considered *extrinsic* while goals related to the affiliation, self-acceptance, and community feeling domains are *intrinsic*. Sample items include "I will have many expensive possessions" (financial success) and "I will feel that there are people who really love me" (affiliation). Scoring for the AI was based on the 47-item version as recommended (Grouzet et al., 2005) and to test the hypotheses of the current study, only scores from the extrinsic and intrinsic goal domains were used in the data analyses. The removal of certain items due to difficulties in effective translation and accurate interpretation, and the addition of three culturally relevant items (e.g., "I will have good academic qualifications") yielded a modified 45-item version that was used in the present study The Cronbach's alpha for the revised AI was .94. Reliability coefficients for the extrinsic and intrinsic summary subscales were .82 and .84, respectively.

Suicidal behaviors. A history of suicide ideation and suicide attempt was obtained by asking respondents to indicate if they had ever: (a) thought seriously about suicide; and (b) attempted suicide. Responses to each question were given in a *yes* or *no* format. Respondents who had either thought of suicide, attempted suicide or endorsed both, were classified as having a history of suicidal behaviors.

Data Analysis

For the preliminary and main analyses, mean-corrected intrinsic and extrinsic aspiration scores were computed using the scoring procedure recommended by Grouzet et al. (2005). The total importance score (average importance of all goal domains) was subtracted from the summary intrinsic and extrinsic scores. This yielded an importance score for intrinsic and extrinsic aspirations *relative* to all other goal domains. All analyses were then

conducted using this mean-corrected relative importance score. Analyses were conducted separately for the extrinsic and intrinsic goal importance variables.

Bivariate analyses using *t*-tests, one-way ANOVAs, and chi-square tests were used to assess differences in extrinsic and intrinsic goal importance as a function of sociodemographic characteristics. These preliminary analyses provided an opportunity to explore the sociodemographic profile of participants endorsing high and low importance of extrinsic and intrinsic goals. Gender differences in importance of extrinsic and intrinsic goal importance were also examined. Bivariate associations between the hypothesized risk factors, moderators, and suicidal behavior were examined using Pearson correlation. Risk factors and moderating effects of goals were assessed using multivariate logistic regression analyses. The moderating effect of extrinsic and intrinsic goal orientations was tested in separate logistic regression models. Each model included gender, income, and academic faculty (type of degree) as control variables. All bivariate and multivariate analyses were conducted using SPSS version 20.0 for Windows.

Results

About 63% of the sample completed the Gujarati version of the questionnaire. Of the overall sample, 56% (n = 1017) were female and 44% (n = 793) were male participants. Other select sociodemographic data are presented in Table 1. The prevalence of suicidal behaviors in this sample was 12.7%, 95% CI [11.22, 14.29]. No significant gender differences were found in the prevalence of suicidal behaviors.

Preliminary Analyses

A one-tailed paired-samples *t*-test revealed that overall, study participants valued intrinsic goals (M = 6.54, SD = 1.31) significantly more than extrinsic goals (M = 5.91, SD = 1.42), $t(1805) = 21.61$, $p = < .001$, $d = 0.51$. This finding has been observed in Western (Ryan et al., 1999; Schmuck, Kasser, & Ryan, 2000) and Indian research (Rao et al., 2013).

No gender difference was found on the importance placed on extrinsic goals. However intrinsic goal importance was significantly higher among women ($M = 0.44$, $SD = 0.62$) than men ($M = 0.34$, $SD = 0.61$), $t(1796) = 3.47$, $g = 0.17$. This is consistent with previous research (Romero et al., 2012).

Means and standard deviations of relative extrinsic and intrinsic goal importance as a function of other sociodemographic characteristics are presented in Tables 2 and 3 respectively. Post hoc analysis using Scheffe's test showed that extrinsic goal importance was higher for participants living with their parents compared to those living with their partner, friends or relatives. Importance of extrinsic goals was also higher among upper-caste groups when compared to the SC/ST group. Games-Howell post hoc analyses revealed higher extrinsic orientation among Jains and students enrolled in commerce programs than Christians and arts students, respectively. Extrinsic goal orientations were also found to be greater in all income categories when compared to the lowest income group.

With regard to results seen in Table 3, Scheffe post hoc analyses revealed a greater importance of intrinsic goals among Christians compared to Jain participants; and among students in arts rather than commerce programs. Compared to all other income groups, intrinsic goal importance was highest in the lowest income group. Although the omnibus *F*-test for participants' "living with" status, caste, and future plans was significant, no significant differences were revealed in post hoc analyses. Given that significant differences were found among participants across certain sociodemographic characteristics some were included in subsequent multivariate analyses. To ensure parsimony of models, only gender, household income, and degree program were added as controls in the logistic regression models.

Main Analyses

Prior to examining multivariable relationships and the moderating role of goal importance, the hypothesized relationships between the study variables were explored at a bivariate level. Results are presented in Tables 4 and 5. Differences in mean scores for stressors, psychological distress and goal importance for participants with and without a history of suicidal behaviors are displayed in Table 4. Stress and psychological distress scores were significantly higher in the suicidal behavior group. However, scores of extrinsic and intrinsic goal importance did not differ significantly across the two groups. Bivariate relationships among these variables are shown in Table 5. A moderate, positive relationship was found between each of the stressors (economic, familial and social) and psychological distress. The stressors were also positively correlated with each other. Suicidal behaviors shared a weak positive association with each of the stressors and psychological distress.

A strong negative relationship was found between extrinsic and intrinsic orientations, supporting the notion that when individuals greatly value extrinsic goals, there is a greater propensity for intrinsically oriented ones to be devalued. When relationships between goal importance and all other study variables were examined, extrinsic goal importance was only weakly positively associated with familial stress. Similarly, for intrinsic goals, a weak, negative relationship was only found with social stress. Unexpectedly, a weak positive relationship was found between intrinsic goal importance and suicidal behaviors. Our first hypothesis about the relationship between goal orientations and other study variables was therefore only partially supported. As seen in Table 5, not all the proposed relationships emerged as significant and the directions of some relationships were not as hypothesized.

The main study hypotheses were tested using multivariate binary logistic analyses. Unadjusted and adjusted odds ratios derived from each of the final logistic regressions are presented in Tables 6 and 7. As seen in Table 6, in the adjusted model moderated by

extrinsic goal importance, suicidal behaviors were independently predicted by type of degree, economic stress and psychological distress. The interaction of social stress and extrinsic goal importance significantly increased risk for suicidal behavior over and above the effects of other predictors and control variables. Results for the adjusted model moderated by intrinsic goal orientations similarly shows degree type, economic stress, and psychological distress as predictors of suicidal behaviors. Additionally, social stress also emerged as an independent risk factor. The interaction of intrinsic goal importance and social stress significantly reduced suicidal behavior risk. Our second and third hypotheses were also only partially supported because only some of the proposed relationships were found to be significant.

Discussion

The present study is among the first to explore the relationships between psychosocial stress, psychological distress, aspirations and suicidal behaviors in India. Preliminary analysis revealed that extrinsic and intrinsic goals fell on opposite sides of a motivation continuum, corroborating earlier results from culturally diverse nations (Grouzet et al., 2005). The finding that intrinsic goals are ranked as more important than extrinsic ones in general supports the SDT tenet that universally, individuals are naturally inclined to seek satisfaction of basic psychological needs. In line with Western studies (e.g., Britton et al., 2014; Bureau et al., 2012; Rowe et al., 2013), the results of the current study provide broad support for the links between stressors, basic need satisfaction, and suicidal behaviors. A closer examination of the relationships however shows some cultural variations, suggesting that individuals with a particular goal orientation find only some, not all stressors to be easier or more difficult to cope with. Results of the multivariable analyses show that extrinsic goal pursuit increased the risk for suicidal behavior in the presence of social stress, while intrinsic goal pursuit mitigated the relationship between social stress and suicidal behavior. Key findings of the correlational and multivariate analyses are discussed separately in the proceeding sections.

Associations between Goal Importance, Stressors, Psychological Distress and Suicidal Behavior History

In contrast to previous studies, (e.g., Burroughs & Rindfleisch, 2002; Cohen & Cohen, 1996; Kasser & Ryan, 1993), goal importance was not associated with either psychological distress or any type of stressful experience. One possibility for this failure to find a relationship may be that the link between stress or subclinical symptomatology and goal orientations is less direct and may be influenced by other factors in this particular cultural setting.

Unexpectedly, a modest but significant positive correlation was found between intrinsic goal orientation and suicidal behaviors. The pathways to suicidal behavior involve multiple individual and contextual factors that may interact in different ways for different individuals in different cultural settings. Indeed, the process through which goal pursuits are related to well-being may differ across Western and non-Western contexts that vary on cultural factors such as independent versus interdependent self-concept (Markus & Kitayama, 1991). Oishi and Diener (2001) for example found that goals and well-being were related in different ways for Asian and European American college students. In general, they found that among European Americans, well-being was attained and maintained when goals were pursued for their own enjoyment while Asian students seemed to attain and maintain their well-being when they pursued and achieved goals to meet the expectations of others and make significant others happy. Culturally prescribed goals instilled from a young age can become so deeply internalized that they may be experienced as personal goals. Therefore pursuit and achievement of such goals may explain why they relate to personal well-being. Individuals in sociocentric cultures may be more sensitive and attentive to their contexts and also likely to have a more external locus of control (Markus & Kitayama, 1991). Being intrinsically focused would therefore make them sensitive to and affected by others' needs

and expectations to a much greater degree. It follows that for such individuals the experience of any interpersonal stress may be more acute and could increase risk for suicidal behavior in the presence of such stressors. However as Oishi and Diener (2001) have also pointed out, cultural theories of self hold limited explanatory power. The low positive correlation between suicidal behaviors and intrinsically focused goals needs to be interpreted with caution. The results suggest that much more needs to be learned about how intraindividual factors such as motivation and ecological factors interact to increase psychological vulnerabilities.

Risk Factors for Suicidal Behaviors

In both multivariable models, type of degree program, economic stress, and psychological distress independently predicted suicidal behaviors after adjusting for demographic variables and other potential predictors. In addition to these predictors, social stress was also a significant independent risk factor in the multivariate model for intrinsic goal orientation. Previous Indian research has also noted the role of psychosocial factors such as economic adversity (Adityanjee, 1986; Parkar et al., 2006; Vijayakumar, John, Pirkis, & Whiteford, 2005) and depression and anxiety (Bhatia et al., 2000; Das et al., 2008; C. T. S. Kumar et al., 2006; Parkar et al., 2006) in increasing the risk for suicidal behaviors.

The finding that the type of degree program students were enrolled in predicted suicidal behavior risk is unexpected and interesting. One of the main reasons for this could be that educational and career choices tend to reinforce financial adversity and low social status. Education is highly stratified in India. Students are steered into arts, science, or commerce program at the undergraduate level based on their academic performance in Grade 12. Top-ranking students can choose, but most often enrol in science programs while the lowest ranking students have no choice but to enrol in arts programs. Science-oriented programs and careers (including information technology) are at the top of the hierarchy as

they are seen as holding the most promise for economic and social capital. Opportunities for a successful career in the arts are extremely limited and in general are viewed less favorably in terms of bringing financial success or prestige to the family. Business oriented programs fall in between. The convergence of limited career options and thus lowered opportunities for economic prosperity and social mobility may enhance feelings of deprivation, increase anxiety about the future, and cause depressed mood for students in arts programs, increasing psychological vulnerability to suicidal behaviors.

Not surprisingly, economic stress predicted suicidal behaviors. Although the deleterious effects of poverty on mental health have been well documented in the Indian context (Kuruvilla & Jacob, 2007; Patel & Kleinman, 2003; Patel et al., 1998), the experience of relative economic deprivation rather than household income per se was a salient risk factor in this study. Economic stress, as measured in the present study, tapped into pressures related to paying for college and job seeking. The relationship between economic deprivation and suicidality is complex and multidimensional and may be contingent on the experience of salient factors such as lower caste status, indebtedness, family responsibilities, and a highly competitive academic environment and job market. Economic stress, which in the Indian setting is inextricably linked with familial stress, may similarly place strain on familial relationships. Students from poor families for example, may be under pressure to provide financial support to the family. For students to secure well-paying jobs they would need to graduate from reputable but expensive private institutions, and this may place additional financial burden on the family.

Social stress was found to be an independent risk factor in the model moderated by intrinsic goal orientation. In this study, social stress was conceptualized as the absence of supportive friendships and peer pressure to conform to fashion and lifestyle trends. With regard to supportive friendships, previous studies have confirmed strong associations

between friendships and well-being. Friendships not only correlate with happiness but fulfil a fundamental need for social interaction (Demir & Davidson, 2013). Emerging adulthood is a particularly challenging time for college students and friends increasingly become important sources of social support for emotional problems during this transitional period (Collins & Madsen, 2006; Rayle & Chung, 2007). Among college students who are already experiencing stress, lack of perceived social support has an adverse effect on well-being (Chao, 2012) and negative social exchanges can even increase the risk for suicidal behaviors (Hirsch & Barton, 2011). Results of the present study suggest that students experiencing a lack of friendship support; particularly at a time when they are grappling with the stresses of emerging adulthood and fast-paced social change; are at higher risk for suicidal behaviors.

The emergence of peer pressure to conform to lifestyle trends and fashion, and its influence on young people's mental health may be understood with reference to the broader processes of sociocultural and economic change in the context of globalization. In increasingly globalized local spaces, tensions abound; tension between increasing consumer desire and the actual financial ability to do so; between generational ideas on the morality of consumption to live idealized lifestyles; or between what is suitably traditional or suitably modern in the local context (Dickey, 2012; Eckhardt & Mahi, 2012; Gilbertson, 2014; Mathur, 2010). It is possible that when such tensions are not resolved, they may consistently lead to internal or interpersonal conflicts resulting in chronic stress that becomes difficult to cope with. For example, Pillai et al. (2008) in a community study of Indian adolescents reported that non-traditional interests such as going to nightclubs were risk factors for mental disorder. They postulated that non-traditional lifestyles increase risk for conflict with traditional values, creating stressful environments which in turn predispose adolescents to mental health problems.

Relative Goal Importance as a Moderator of the Relationship between Social Stress and Suicidal Behaviors

Adjusting for demographic variables and other predictors, experiences of social stress were more likely to lead to suicidal behaviors for those participants who valued extrinsic goals more than intrinsic ones. Conversely, valuing intrinsic goals relatively more led to a significant reduction in suicidal behavior risk. These findings lend support to the SDT contention that extrinsic pursuits thwart basic need satisfaction, which in turn increases psychological vulnerability in the presence of stress. On the other hand engagement in intrinsically oriented goals may facilitate fulfilment of basic needs, which in turn may promote more adaptive responses to stress and overall maintain psychological health.

An individual's sociocultural context may shape both, the nature of social stress they experience as well as the types of aspirations they value. In recent years, there has been a dramatic increase in material aspirations for privileged lifestyles and widening social acceptance of conspicuous consumption as marker of one's social status (Appadurai, 1996; Ghosh, 2011; Thomas & Wilson, 2013; Varman & Belk, 2008; Venkatesh, 1994). It is possible that college youth may be experiencing pressure to keep up appearances, meet the demands of competing identities, and display expensive possessions to signify social status. They may therefore view goals related to popularity, appearance and money relatively more favorably than intrinsically satisfying ones. Research has shown that individuals who place greater importance on goals focused on obtaining contingent approval and external signs of worth are at greater risk for poor mental health (Kasser, 2002; Kasser & Ahuvia, 2002; Kasser & Ryan, 1993; Roberts & Clement, 2007; Vansteenkiste et al., 2006). Further, peer pressure may also divert individuals from engaging in autonomously motivated behavior and push them more towards behaviors motivated by external control. Such contexts thwart satisfaction of basic psychological needs and foster more defensive or self-protective

processes. These may include the tendency to show less concern for others and a focus on oneself as a way of compensating for unfulfilled needs (Kasser & Ryan, 1993, 1996). It is possible that these tendencies further undermine individuals' functioning in friendships and impact quality of social relationships overall. Lack of supportive close relationships may in turn reduce opportunities for basic need satisfaction (La Guardia & Patrick, 2008).

In the present study, for students who placed greater importance on extrinsic goals, the experience of social pressures and a lack of supportive friendships had a particularly deleterious effect on their mental health. As Weinstein and Ryan (2011) note, consistent deprivation of basic needs presents a cumulative risk for stress incursion and poor stress responses. It is possible that when faced with social stress, extrinsically oriented youth may feel more controlled by external pressures and may be more likely to perceive the stress as threatening. Further, in terms of coping, lower perceived competence to deal with the stressor may lead individuals to be less flexible in choosing appropriate coping strategies, and in the absence of supportive friendships less likely to use adaptive coping strategies (Weinstein & Ryan, 2011). Stress incursion could therefore be higher and stress regulation poorer among youth valuing extrinsic goals over intrinsic ones, increasing their vulnerability to suicidal behavior.

Our results additionally indicate that placing greater importance on need-satisfying intrinsic goals may reduce vulnerability to suicidal behaviors likely by modulating the perception of stress as well as coping approaches. It is possible that intrinsically oriented students in our sample may have been more likely to have experienced a sense of control over the extent to which external influences such as peer pressure affect their behavior or emotions. Their response to such influences is more likely have been of their own choosing and congruent with their own values (greater autonomy). They also may have perceived themselves as being capable of effectively navigating social expectations (greater

competency). Being intrinsically oriented, such individuals were likely to have been —and to perceive themselves as being — more closely connected with important others such as family, than those valuing extrinsic goals. They may therefore have had a greater willingness to rely on them for support (greater relatedness). The adverse effect of social stress was significantly reduced among students valuing intrinsic goal pursuits because they may have felt more in control of their stress responses, competent in dealing with the stress and accessing coping resources.

Study Limitations

The findings of this study need to be interpreted with caution in light of certain limitations. Although the findings show that extrinsic and intrinsic goals lie in opposition to each other, we cannot be certain that the interpretation of goal contents for this sample in this particular cultural setting is consistent with Western interpretations. Discrepancies in interpretations have implications for how these goal contents relate to need satisfaction as hypothesized by SDT. We found unexpectedly low correlations between goal orientations and stressors, which may reflect differences in interpretations of goals or the presence of other culturally relevant mediating factors that were not measured. How a goal is interpreted by an individual in their unique context may lead to differential associations with measures of psychological well-being. For example, for a young student from a poor family who wants to lift his family out of poverty or pay for a family member's medical expenses, or contribute to a sibling's marriage expenses, aspiring to achieve financial success and securing a well-paying job may reflect a relational orientation and actually increase life satisfaction and reduce familial stress. Similarly, goals related to one's popularity may be interpreted as goals that bring pride and respect to the family or community, not just to the individuals themselves. The relationship between extrinsic goals and mental health may therefore be more nuanced for individuals from sociocentric cultures which are typically characterized by

interdependent self-construal and more relational values than in Western cultures (Markus & Kitayama, 1991). Future research efforts therefore need to focus on including other variables that may influence prioritizing of goals (e.g., asking participants *why* they value money might elicit responses such as "to look after my parents when they retire").

The cross-sectional nature of the data also limits conclusions about the temporal associations between variables. It cannot be determined for example, whether materialistic values in the current sample have increased over time, and correspond to increasing levels of stress or distress. The direction of influence between variables may also be difficult to discern. For instance, extrinsically oriented individuals may experience economic stress more acutely, but it also possible that environmental demands such as economic hardship have led individuals to place importance on money. The relationships between goals and stressors are likely to change over developmental phases, therefore it cannot be assumed that the patterns revealed for college students in this study would remain the same in later stages of their lives. The relevance of certain stressors in determining mental health outcomes may change over time and therefore may not continue to be influenced by goal orientations in the same way at different stages. Finally, although analyses were adjusted for income, a vast majority of participants belonged to lower socioeconomic classes, restricting the generalizability of findings to the urban rich. Similarly, due to the vast regional diversity in society and culture across India, results cannot be generalized to students in other states, cities, or in rural areas.

Despite these limitations, the study makes important contributions to our understanding of social stressors and suicidal behavior among youth in India. The study adds to the emerging literature on cultural dimensions of goal orientations, and association of basic psychological need satisfaction and suicidal behaviors in a non-Western setting. Results also draw attention to the likelihood of social stressors such as peer pressure becoming

increasingly powerful determinants of young people's mental health. With a dramatic rise in exposure to global media, and transformations in the ways that young people interact with each other, there is an urgent need to understand how social pressures are affecting psychological well-being. As youth negotiate reconfigurations of local and global identities, this process may be more difficult for some and increase vulnerability to mental health problems (Rao et al., 2013).

Conclusions

Results show that economic stress, social stress, and psychological distress independently contribute to the risk for suicidal behavior among college students in Gujarat. When faced with social stress, valuing extrinsic goals relative to other goals increases risk for suicidal responses while valuing intrinsic goals protects against risk. These findings have important implications for suicide prevention. At a clinical level, eliciting specific information such as students' behavioral motivations, their social contexts, or self-concepts, could be relevant to suicide risk assessment and to intervention development. At a community level, encouraging students to pursue inherently satisfying activities and providing a supportive environment to do so, could foster more adaptive coping responses to stressful situations, and promote positive mental health.

Table 1

Sociodemographic Characteristics of Participants

Characteristic	*n*	%
Marital status		
Unmarried	1782	99
Married	25	1
Living with		
Parents	1572	87
Alone	76	4
Partner, relatives or friends	165	9
Area of residence		
Rural	197	11
Urban	1592	89
Religion		
Hindu	1396	77
Jain	207	11
Muslim	110	6
Christian	84	5
Sikh, Parsi, Buddhist or Other	16	1
Caste		
General Category	1016	66
Other Backward Caste	102	7
Scheduled Caste/Tribe	422	27
Annual household income		
0-49,000 rupees	478	27
50,000-99,000 rupees	506	29
100,000-299,000 rupees	563	32
300,000 rupees and above	223	13
Academic program		
Arts	423	23
Commerce	976	54
Science	418	23

Characteristic	*n*	%
Future plans after college		
Study further	1000	56
Get a job	151	8
Join family business	51	3
Work and study	591	33

Table 2

Relative Importance of Extrinsic Goals as a Function of Sociodemographic Characteristics

Demographic Characteristic	*n*	Extrinsic Importance[a]		Test Statistic	*p*	Effect Size
		M	*SD*			
Living with						
Parents	1561	- 0.21	0.75	$F(2, 1794) = 4.73$	.009	$\eta^2 = .005$
Alone	76	- 0.21	0.76			
Partner, relatives or friends	160	- 0.40	0.73			
Area of residence						
Rural	195	- 0.22	0.77	$t(1771) = - 0.21$	.832	
Urban	1578	- 0.23	0.74			
Religion						
Hindu	1385	- 0.24	0.76	$F(4, 87) = 5.27$[b]	.001	$\eta^2 = .009$
Jain	205	- 0.09	0.69			
Muslim	110	- 0.29	0.72			
Christian	82	- 0.42	0.65			
Sikh, Parsi, Buddhist or Other	15	- 0.11	0.60			
Caste						
General Category	1009	- 0.17	0.74	$F(2, 1525) = 6.79$	.001	$\eta^2 = .009$
Other Backward Caste	100	- 0.33	0.75			
Scheduled Caste/Tribe	419	- 0.32	0.77			

Demographic Characteristic	*n*	Extrinsic Importance[a]		Test Statistic	*p*	Effect Size
		M	*SD*			
Annual household income						
0-49,000 rupees	469	- 0.47	0.78	$F(3, 788) = 23.21$[b]	< .001	$\eta^2 = .04$
50,000-99,000 rupees	503	- 0.17	0.73			
100,000-299,000 rupees	561	- 0.18	0.71			
≥300,000 rupees	222	- 0.02	0.69			
Academic program						
Arts	417	- 0.32	0.76	$F(2, 850) = 6.54$[b]	.002	$\eta^2 = .007$
Commerce	970	- 0.17	0.73			
Science	414	- 0.27	0.80			
Future plans after college						
Study further	994	- 0.23	0.72	$F(3, 1773) = 0.98$	.401	
Get a job	151	- 0.21	0.72			
Join family business	50	- 0.07	0.66			
Work and study	582	- 0.25	0.79			

Note. M = mean; *SD* = standard deviation.
[a]Higher scores reflect greater importance of extrinsic aspirations relative to the individual's total aspirations score.
[b]Based on Welch's test for unequal variances.

Table 3

Relative Importance of Intrinsic Goals as a Function of Sociodemographic Characteristics

Demographic Characteristic	*n*	Intrinsic Importance[a]		Test Statistic	*p*	Effect Size
		M	*SD*			
Living with						
Parents	1561	0.39	0.61	$F(2, 1798) = 3.06$	.047	$\eta^2 = .003$
Alone	76	0.31	0.67			
Partner, relatives or friends	160	0.50	0.64			
Area of residence						
Rural	195	0.32	0.64	$t(1722) = 1.72$	.085	
Urban	1582	0.41	0.62			
Religion						
Hindu	1387	0.40	0.62	$F(4, 1796) = 2.74$	.027	$\eta^2 = .006$
Jain	207	0.30	0.61			
Muslim	110	0.36	0.57			
Christian	82	0.55	0.65			
Sikh, Parsi, Buddhist or Other	15	0.51	0.69			
Caste						
General Category	1011	0.37	0.61	$F(2, 1528) = 3.05$	.048	$\eta^2 = .004$
Other Backward Caste	100	0.46	0.66			
Scheduled Caste/Tribe	420	0.44	0.62			

Demographic Characteristic	*n*	Intrinsic Importance[a]		Test Statistic	*p*	Effect Size
		M	*SD*			
Annual household income						
0-49,000 rupees	472	0.53	0.61	$F(3, 1755) = 10.19$	< .001	$\eta^2 = .017$
50,000-99,000 rupees	504	0.34	0.65			
100,000-299,000 rupees	561	0.36	0.61			
≥300,000 rupees	222	0.37	0.6			
Degree						
Arts	419	0.48	0.65	$F(2, 1802) = 6.04$	.002	$\eta^2 = .007$
Commerce	972	0.36	0.59			
Science	414	0.41	0.64			
Future plans after college						
Study further	996	0.40	0.60	$F(3, 1777) = 2.64$	.048	$\eta^2 = .004$
Get a job	151	0.37	0.63			
Join family business	50	0.17	0.56			
Work and study	584	0.42	0.65			

Note. M = mean; *SD* = standard deviation.
[a]Higher scores reflect greater importance of intrinsic aspirations relative to the individual's total aspirations score.
[b]Hedges' *g* for unequal group sizes

Table 4

Means and Standard Deviations of Predictor Variables as a Function of Suicidal Behavior History

	No SB history			SB history				
Variable	*n*	*M*	*SD*	*n*	*M*	*SD*	*t*	*df*
Economic stress	1552	4.84	2.80	225	6.53	2.87	- 8.53***	1775
Familial stress[a]	1568	2.86	2.57	226	4.66	3.44	- 7.57***	262
Social stress[a]	1553	1.78	1.72	228	2.67	2.05	- 6.23***	276
Psychological distress[a]	1565	6.78	4.30	223	11.03	5.23	- 11.56***	267
Extrinsic importance	1564	- 0.23	0.74	228	- 0.19	0.82	- 0.84	1790
Intrinsic importance[a]	1569	0.39	0.61	227	0.47	0.70	- 1.63	278

Note. SB = suicidal behaviors. *Extrinsic importance* and *intrinsic importance* are abbreviations for relative importance of extrinsic goals and intrinsic goals, respectively.
[a]Based on Welch's test for unequal variances.
*** $p < .001$

Table 5

Summary of Intercorrelations for Scores on Measures of Stress, Psychological Distress, Goal Importance, and Suicidal Behavior History

Measures	1	2	3	4	5	6	7
1. Economic stress	-	.35**	.30**	30**	-.03	.009	.20**
2. Familial stress		-	.43**	.31**	.06**	-.03	.22**
3. Social stress			-	.28**	.02	-.04*	.17**
4. Psychological distress				-	.03	-.02	.30**
5. Extrinsic importance					-	-.62**	.02
6. Intrinsic importance						-	.04*
7. Suicidal behaviors							-

[a]Values for suicidal behaviors are point-biserial coefficients.
** $p < .01$ level, one-tailed. * $p < .05$ level, one-tailed.

Table 6

Logistic Regression Analysis for Variables and their Interactions with Extrinsic Goal Importance as Predictors of Suicidal Behaviors

Variable	Unadjusted OR [95% CI]	*p*	Adjusted OR [95% CI]	*p*
Male	0.88 [0.66, 1.16]	.359	0.93 [0.67, 1.30]	.670
Annual household income (in Rupees)				
Less than 49,000	Reference		Reference	
50,000 – 99,000	0.64 [0.44, 0.94]	.021	0.81 [0.53, 1.24]	.325
100,000 – 299,000	0.67 [0.47, 0.96]	.029	0.75 [0.50, 1.13]	.168
More than 300,000	0.74 [0.46, 1.18]	.204	1.03 [0.60, 1.77]	.919
Academic program				
Commerce	Reference		Reference	
Arts	2.20 [1.60, 3.04]	< .001	1.77 [1.22, 2.58]	.003
Science	1.26 [0.88, 1.81]	.206	1.12 [0.74, 1.70]	.599
Economic stress	1.23 [1.17, 1.30]	< .001	1.12 [1.05, 1.19]	< .001
Familial stress	1.22 [1.17, 1.27]	< .001	1.06 [0.99, 1.12]	.077
Social stress	1.28 [1.19, 1.37]	< .001	1.08 [0.98, 1.17]	.198
Psychological distress[a]	1.20 [1.16, 1.24]	< .001	1.17 [1.12, 1.21]	<. 001
Extrinsic importance[b]	1.10 [0.91, 1.32]	.322	0.90 [0.50, 1.64]	.727
Economic stress × extrinsic importance	1.00 [0.97, 1.03]	.799	1.03 [0.95, 1.10]	.510
Familial stress × extrinsic importance	0.98 [0.94, 1.02]	.223	0.93 [0.86, 1.01]	.071
Social stress × extrinsic importance	1.09 [1.01, 1.17]	.031	1.23 [1.09, 1.39]	.001
Psychological distress × extrinsic importance	0.99 [0.97, 1.01]	.294	0.99 [0.95, 1.03]	.591

Note. OR = odds ratio; CI = confidence interval.
[a]a higher score indicates a greater level of non-specific distress.
[b]a higher score indicates greater importance of extrinsic goals relative to all other goals

Table 7

Logistic Regression Analysis for Variables and their Interactions with Intrinsic Goal Importance as Predictors of Suicidal Behaviors

Variable	Unadjusted OR [95% CI]	*p*	Adjusted OR [95% CI]	*p*
Male	0.88 [0.66, 1.16]	.359	0.97 [0.70, 1.35]	.855
Annual household income (in Rupees)				
Less than 49,000	Reference		Reference	
50,000 – 99,000	0.64 [0.44, 0.94]	.021	0.86 [0.56, 1.31]	.486
100,000 – 299,000	0.67 [0.47, 0.96]	.029	0.81 [0.53, 1.22]	.305
More than 300,000	0.74 [0.46, 1.18]	.204	1.12 [0.65, 1.91]	.691
Academic program				
Commerce	Reference		Reference	
Arts	2.20 [1.60, 3.04]	.004	1.70 [1.17, 2.48]	.006
Science	1.26 [0.88, 1.81]	.206	1.17 [0.78, 1.78]	.448
Economic stress	1.23 [1.17, 1.30]	< .001	1.09 [1.01, 1.17]	.022
Familial stress	1.22 [1.17, 1.27]	< .001	1.04 [0.96, 1.11]	.339
Social stress	1.28 [1.19, 1.37]	< .001	1.14 [1.02, 1.27]	.027
Psychological distress[a]	1.20 [1.16, 1.24]	< .001	1.19 [1.14, 1.24]	<. 001
Intrinsic importance[b]	1.18 [0.95, 1.46]	.145	1.63 [0.81, 3.28]	.173
Economic stress × intrinsic importance	1.07 [1.04, 1.11]	< .001	1.04 [0.95, 1.13]	.398
Familial stress × intrinsic importance	1.13 [108, 1.18]	< .001	1.08 [0.99, 1.18]	.079
Social stress × intrinsic importance	1.07 [0.99, 1.15]	.089	0.82 [0.71, 0.94]	.006
Psychological distress × intrinsic importance	1.05 [1.03, 1.08]	< .001	0.96 [0.91, 1.01]	.121

Note. OR = odds ratio; CI = confidence interval.
[a]a higher score indicates a greater level of non-specific distress.
[b]a higher score indicates greater importance of intrinsic goals relative to all other goals.

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CHAPTER 5

Conclusion

Summary of Research Results

The World Health Organization estimates that India has one of the highest suicide rates in the 15 to 29-year age group in the world (World Health Organization, 2014b). In India, roughly one out of every three suicides in India is a young person in this age group (National Crime Records Bureau, 2015) but no official data are available for suicidal behaviors and NSSI. Additionally, there is little knowledge of the risk factors for these behaviors. Recent official statistics show that about 40% of all suicides by young adults aged 18 to 29 years are attributed to socioeconomic or familial problems whereas only 5% of cases in this age group occur in the context of a mental disorder (National Crime Records Bureau, 2015). Given the cultural salience of socioeconomic and interpersonal stress in precipitating suicides, these factors merit attention as potential determinants of suicidal behaviors as well as NSSI in the Indian context.

The present research therefore aimed to investigate the prevalence and psychosocial determinants of NSSI and suicidal behaviors in a community-based sample of college youth. Guided by social-ecological perspectives (Bronfenbrenner & Morris, 2006; Gratz et al., 2012; Heilbron et al., 2014), the premise of this research was that risk pathways for suicidal behaviors and NSSI emerge via interactions between individual characteristics, and environmental factors, all of which are dynamic and evolving. This research included two separate studies, each of which followed a distinct line of inquiry. Study 1 focused primarily on NSSI while Study 2 focused on suicidal behaviors. Data for both studies was collected from 1,817 students enrolled in undergraduate programs in colleges in Ahmedabad, in the Western Indian state of Gujarat.

Results from Study 1 showed that about 7.8% of participants reported using NSSI as a coping strategy (that is, deliberately used to reduce distress). No gender differences were found in NSSI prevalence, number of methods reported or type of method used. The only exception was self-cutting, which was reported more frequently by women. Psychosocial correlates of NSSI were determined through logistic regression analysis. Controlling for demographic variables, NSSI risk was increased for those who lived alone and experienced high levels of familial stress and psychological distress.

Western studies have found that NSSI frequency and severity generally increases the risk for suicidality. To test this hypothesis, NSSI frequency and severity along with variables that have been associated with suicidality in the Indian context, were entered into a logistic regression model. Results showed that among those with a history of NSSI, economic stress and psychological distress independently predicted risk for suicide ideation. In addition, women self-injurers were at greater risk for suicidal thoughts. Interestingly, NSSI-related variables were not found to increase risk for suicidal thoughts, suggesting that NSSI may not always be a gateway to suicidal behavior; the relationship to suicidality may involve an interactive complex of other intrapersonal and contextual factors.

Results from Study 1 warranted further investigation of psychosocial stressors as potential risk factors for suicide ideation as well as attempt among the overall study sample. In keeping with a social-ecological view of suicidal behaviors, there was interest in investigating not only individual-level factors but also stressors related to the wider ecological context. Of particular interest was the influence of aspirations, which are linked to mental health outcomes through their impact on basic need satisfaction, (e.g., Kasser, 2002; Kasser & Ryan, 1993; Ryan et al., 1999), and in turn, on stress and coping (Weinstein & Ryan, 2011). Study 2 thus also

sought to extend the SDT framework to the Indian cultural setting and test the hypotheses that valuing either extrinsic or intrinsic goals would differentially moderate the relationship between psychosocial stress and suicidal behaviors. Results of logistic regression analysis indicated that suicidal behavior risk was predicted by economic stress, social stress, and psychological distress. When the moderating role of aspirations was tested, placing greater importance on extrinsic aspirations was found to increase the risk of suicidal behavior in the presence of social stress while valuing intrinsic aspirations buffered against risk. Although aspirations did not similarly moderate the effect of familial stress, economic stress, psychological distress on suicidal behaviors, the results overall support the SDT contention that aspirations influence mental health outcomes. Situating the interaction of these factors in the wider context of rapid sociocultural change, the study results underscore the need for suicide prevention efforts at various levels of an individual's functioning, in keeping with a social-ecological perspective.

Contributions of the Research

Study 1 is among the first in India to investigate NSSI epidemiology in sample of students. Our current understanding of NSSI has relied predominantly on literature from developed nations in Europe or North America, which may not be generalizable to the Indian setting. Part of the difficulty in conducting NSSI studies in India has also been the lack of consensus on terminology and definitions. To overcome some of these difficulties, a widely-used and accepted NSSI definition was utilized in Study 1. The prevalence of NSSI ascertained using this definition provides preliminary evidence for the cultural validity of NSSI in the Indian context, and highlights suicidal behaviors as distinct from suicidal behaviors. The use of a standard definition in this study will also facilitate comparisons with data from other nations. Study 1 is also the first to examine the relationship between NSSI and suicidal thoughts in Indian

youth, and shows that there may be cultural variations in this relationship. Specifically, it draws attention to the relevance of family-related factors in suicide ideation risk among self-injurers, which has not been shown before in previous Indian DSH studies.

Results from Study 2 add to knowledge of non-clinical, psychosocial determinants of suicidal behavior among college youth, a population that has scarcely been the focus of suicidal behavior research in India. The findings highlight the salience of economic and social stress in determining suicidal behavior risk in this particular cultural context, even when controlling for sub-clinical anxiety and depression. Importantly, this study also makes original contributions to SDT research. Study 2 is the first to explore the role of aspirations in moderating suicidal behavior risk. Results provide preliminary support for the role of basic need satisfaction in mental health among Indian youth. However, the finding that aspirations did not moderate risk similarly for all types of stressors nor moderate risk in the presence of psychological distress indicates that the manner in which aspirations relate to basic psychological needs may vary culturally. This finding challenges some of the assumptions of SDT— particularly, the universality of the purported role of extrinsic and intrinsic aspirations in either thwarting or fulfilling basic psychological needs. Results therefore underscore the need for cultural perspectives on the relationship between goal pursuits and mental health.

Collectively, this research provides epidemiological knowledge on suicidal behaviors and NSSI from a community-based sample rather than a hospital-based clinical population which has been the source of most previous DSH and suicidal behavior data. Given the growing recognition of the need for a cultural approach in clinical psychology (Ryder & Chentsova-Dutton, 2014) and specifically for the need to attend to contextual factors in suicidal behavior (Colucci, 2006; Hjelmeland, 2013) and NSSI (Gholamrezaei et al., 2015) consideration of the

local social and cultural context was central to the design and selection of measures. This overarching conceptual framework motivated the exploration of locally relevant stressors at individual, as well as social and familial levels and importantly, in the context of macro-level influences such globalization. Taken together, results of this research contribute to local mental health knowledge and add to international epidemiology of NSSI and suicidal behaviors.

Clinical Implications

Findings from the two studies have several implications for mental health professionals in areas such as student mental health service development, clinical practice, and suicide prevention. The vast majority of previous DSH studies have not distinguished between behaviors with and without suicide intent primarily because of a lack of unambiguous and standardized terminology, and also the misreporting or under-reporting of suicide intent by patients (in the case of hospital-based studies). Such reporting patterns may have hampered accurate data collection, which in turn, may have influenced academic and clinical understanding of suicidal behaviors and NSSI. The recent decriminalization of attempted suicide in India is encouraging for youth as well as mental health professionals as it engenders a more compassionate view of individuals reporting these behaviors in general. It is hoped that this move will also remove legal barriers to disclosure, facilitate honest self-report, leading to better assessment and management of these behaviors. Importantly, the decriminalization allows for greater accuracy in documenting NSSI and suicidal behaviors thereby improving the quality of epidemiological research on these behaviors. In light of the developments in mental health legislation and, possibly, a softening of judgmental attitudes toward self-harming behaviors, this research comes at an important time. The current studies increase awareness of self-harm behaviors in community settings, highlighting the need to develop community-based intervention

and prevention measures. The present studies may also stimulate greater academic interest, which in turn may generate more research that builds on the results of these studies.

The findings of the present research show that when suicide intent is elicited from individuals, NSSI and suicidal behavior can be distinguished. For college-based counsellors or even faculty, who may be the first point of contact for those engaging in self-injurious behaviors, recognizing the type of self-harming behavior may guide initial evaluation and any further referral decisions. In the context of a clinical assessment, mental health professionals may find it useful to ascertain suicide intent since interventions for NSSI from suicidal behavior may entail different strategies. For example, for individuals engaging in NSSI, the focus of psychotherapy or other interventions may be on developing more positive and adaptive ways of coping with tension or social stressors, while for suicidal individuals interventions may involve focusing on the individual's resilience, and reasons to live.

The salience of familial factors in determining NSSI risk in this cultural setting is not unexpected given that the family is one of the strongest institutions in Indian society. Those living alone were also at greater risk for NSSI engagement. While the reasons for this association are not clear, perhaps lack of familial support or other social networks may adversely impact young people's abilities to cope with stress. In the West, feelings of social isolation have been associated with DSH repetition among those who lived alone (Haw & Hawton, 2011) and it is possible that such feelings may be experienced particularly acutely in a more sociocentric culture. In a college setting, students may benefit from initiatives aimed at fostering greater parental support, and creating a supportive environment for students who live alone, away from their families. College administration or counselors may develop initiatives such as psychoeducation for parents; provision of counselors at student hostels; creating peer-mentoring

or peer-support programs; encouraging students to ask for and feel comfortable receiving help; and promoting positive coping strategies.

Although the purported relationship between NSSI severity and suicide ideation was not substantiated in Study 1, an assessment of suicide risk may still be relevant for certain at-risk students. Given the strong relationship between psychological distress, economic adversity and suicidal behaviors in the Indian context (e.g., Chowdhury et al., 2010; Parkar et al., 2006; Pillai et al., 2009) counselors or teachers working with students who self-injure need to pay attention to signs of anxiety or depression and indications that the student is under stress, particularly financial strain. As results of Study 2 also show, these factors increased risk for suicidal behaviors, regardless of NSSI history. Female students who had a history of NSSI were at greater risk for suicidal thoughts, indicating the need for counselors and teachers to closely monitor women who self-injure.

The buffering effect of intrinsically motivated goals revealed in this study also has clinical implications. Therapeutic interventions that are focused on changing the quality of motivation and therefore supporting the pursuit of activities that fulfil basic psychological needs may be useful in reducing suicidality. There is evidence that techniques such as motivational interviewing (MI), because of its congruence with the principles of SDT (Markland, Ryan, Tobin, & Rollnick, 2005), may be particularly effective in reducing acute suicide ideation (Britton, Patrick, Wenzel, & Williams, 2011; Britton, Williams, & Conner, 2008).

Collectively, results from this research indicate that risk for NSSI and suicidal behaviors is conferred by a constellation of risk factors spanning individual, familial, societal and wider cultural levels, underscoring the need for multipronged prevention and intervention strategies that are aligned with these micro and macro contexts. There is growing consensus that risk

trajectories for suicidal behaviors (e.g., Chu et al., 2010; Colucci & Lester, 2012) and psychopathology in general (e.g., Kirmayer & Ryder, 2016) are shaped by cultural contexts. Research from the West indicates that intervention and prevention efforts aligned with the cultural context of the specific target community are culturally meaningful for the group, and therefore more likely to be effective (e.g., Chandler & Lalonde, 1998; Goldston et al., 2008; Kirmayer, Boothroyd, Laliberté, & Simpson, 1999; Muehlenkamp, Marrone, Gray, & Brown, 2009). In the Indian setting too, culturally meaningful approaches to help students at risk for suicidal behavior, including those who also have a history of NSSI, may be developed at both the individual as well as institutional level, consistent with a social-ecological model for suicide prevention. Individual counselling for students may be provided on campus by counselors if available. Given the acute shortage of counselors (Arulmani, 2007), teachers may also be trained to identify students who appear to be anxious, depressed or under severe stress, and provide appropriate referrals. The role of teachers in identifying at-risk students has also been highlighted in the recent guidelines issued by the University Grants Commission (UGC) to all universities and colleges in India (University Grants Commission, 2015b).

Future Research Directions

With no national registry to document NSSI and suicidal behaviors, there is a dearth of accurate data. Research efforts, whether in the form of large epidemiological surveys or hospital-based studies, need to be stepped up. Specifically, research exploring NSSI and suicidal behavior as distinct behaviors is urgently needed to clarify definitions and disambiguate terminology in Indian research and practice. While the DSM-5 has tentatively recognized NSSI as a clinical disorder, the current version of the ICD-10 (WHO, 1992) does not. The ICD-10 lists intentional self-harm and its variations but does not provide for the differentiation of self-

injurious behaviors based on suicidal intent. Given that both these diagnostic systems are widely used in India, there is an urgent need to add Indian perspectives through research. Indian studies would help provide insights into pertinent issues such as the validity and feasibility of NSSI diagnosis. These insights are valuable as the psychiatrization of NSSI has implications for youth in India, where issues such as social stigma and lack of culturally appropriate assessment and intervention are well-known deterrents to mental health service use.

This research provides preliminary evidence for NSSI as distinct from suicidal behaviors. However, some observations (e.g., endorsement of NSSI but no self-report of NSSI methods) indicate the need to further explore cultural meanings of NSSI and whether they fit into Western operational definitions. There is therefore also a need to evaluate whether Western "standardized" measures adequately capture local meanings of NSSI in a non-Western context. Many Indian DSH studies observe that self-poisoning is a common self-harm method even in cases of low suicidal intent (where intent was specifically elicited) (Sarkar et al., 2006). Non-suicidal self-poisoning may perhaps also be an important area for research in the Indian context. An important aspect of developing and using culturally appropriate measures would involve validating the measures prior to use. Although time, logistical, and budgetary constraints limit tool standardization (as was the case in the current research), conducting local validation studies whenever feasible would certainly improve reliability and validity of locally developed measurement tools. Another important methodological issue that could also be addressed in future research is the need to ensure that participation is entirely voluntary. The high participation rate observed in the current research suggests that to some degree, participation may have been influenced by wider cultural dynamics such as a general deference to authority.

Future researchers could minimize any perceived pressure to participate by emphasizing participants' rights to deny or withdraw participation as part of the informed consent procedure.

The salience of locally relevant stressors noted in this research indicate the need for more qualitative research and cultural approaches in epidemiological research to broaden our understanding of contextual influences. In fact, given the vast cultural heterogeneity *within* India, regional perspectives are also needed to inform region-specific strategies to aid NSSI and suicide prevention. Indeed, the very high prevalence of NSSI noted in a Southern Indian study (Kharsati & Bhola, 2015) in contrast to the prevalence observed in the current research, suggests that local influences may contribute to regional differences in NSSI prevalence.

In general, there is a great need for cultural reflexivity in future NSSI and suicidal behavior research. Situating individuals within their immediate social worlds would enable researchers to gain greater insights into how people understand their situations and life circumstances and their own mental health and well-being (Aronowitz, Deener, Keene, Schnittker, & Tach, 2015). Future research using mixed-method designs—a combination of quantitative and qualitative components (Curry & Nunez-Smith, 2014)—could yield richer, more nuanced narratives about why individuals engage in self-harming behaviors, and from a prevention perspective, reveal what works (or does not) and why. Qualitative research may also serve to pilot larger quantitative studies or even be used to simultaneously explain quantitative findings as they emerge in mixed-methods studies (Aronowitz et al., 2015).

The lens of cultural reflexivity may be particularly useful in exploring gender differences in future work. While the prevalence of both NSSI and suicidal behavior did not vary across men and women in the current research, patterns such as increased self-cutting among women and a greater risk for suicidal thoughts for women who self-injure point to the need for a

contextualized, gender-specific examination of risk pathways. Previous ethnographic work has shown that gender differences in various spheres such as educational and employment opportunities, household and community entitlements, and certain forms of victimization create vulnerabilities for men and women, but along different pathways. Moreover, the experience, manifestation and expression of the resulting mental health difficulties are also gender-specific (Parkar, Fernandes, & Weiss, 2003). Understanding how risk pathways differ for men and women has important implications for suicide prevention. Strategies would likely need to be tailored differently for men and women, with different types of supports at the familial, institutional, and wider social levels.

The lack of an association between NSSI and suicidal behaviors observed in Study 1 provide the impetus for further research on this relationship given that NSSI and suicidal behaviors shared certain risk factors such as psychological distress. Future efforts need to be focus on identifying other common denominators and comparing NSSI sub-groups (groups with and without a history of suicidal behaviors) on a variety of indices. Identifying common as well as differentiating factors can better inform assessment and interventions specific to each sub-group.

Although the hypothesized relationship between aspirations and suicidal behaviors in Study 2 were only partially supported, results highlight areas for future research. One important area is the association of mental health outcomes with each of the specific psychological needs of autonomy, competence and relatedness. The rather weak positive association of goal pursuits with stressors and the unexpected positive correlation between intrinsic pursuits and suicidal behavior suggest that there is a need to further examine these constructs in the Indian setting. More specifically, future studies may test whether aspirations relate to basic psychological needs

in the same way as observed in other cultures. Testing the core assumptions of SDT in the Indian cultural context can shed light on their universality and perhaps generate alternate conceptualizations of the links between self-determined behavior and mental health.

Young people are most directly affected by globalization. However, the mental health implications of globalization have been largely neglected in psychology (Marsella, 2012). The current research focused on the motivation of individual goal pursuits which is just one aspect of individual functioning and behavior influenced by globalization-related social change. In the context of globalization, core determinants associated with mental health outcomes in developing countries like India such as deepening poverty and inequalities; migration, rapid and uncontrollable sociocultural change, and identity diffusion (S. Sharma, 2016), are also important avenues for future research. As mental health determinants, these areas may be further explored specifically in relation to NSSI and suicidal behaviors. Knowledge from such studies would be useful to the development of multilevel and multisectoral strategies aimed at helping youth and their communities cope with the stresses of a rapidly globalizing society.

Concluding Remarks

Young people in India are at high risk for suicidal behavior and as recent studies show, also at risk for NSSI. These personal acts impose a huge social, emotional, as well as financial cost to families and communities. The absence of a national policy to prevent suicidal and non-suicidal behaviors is surprising, and is associated with a dearth of research. Since youth are the primary productive human resource, the reduction of self-destructive behaviors and the promotion of positive mental health in this population needs to be accorded greater importance in the nation's youth development agenda. It is hoped that the government's commitment to promote positive mental health and reduce suicide, as enshrined in the new Mental Healthcare

Act 2017 (http://lawmin.nic.in/Legis.htm), will stimulate more research on NSSI and suicidal behaviors. With the world largest youth population and a fast-growing economy, India is poised to reap the benefits of a "demographic dividend". However this dividend can only be realized if there is sustained investment not only in education and socioeconomic development, but also in the mental health and well-being of youth in India.

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Appendix A

Informed Consent for Participants (English Version)

SMBD - Jewish General Hospital
Department of Psychiatry
Laurence J. Kirmayer, Prinicipal Investigator

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 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 B

Informed Consent for Participants (Gujarati Version)

જયુઈશ જનરલ હોસ્પિટલ, મનો વિજ્ઞાન વિભાગ,
લોરેન્સ જે કિર્માયર, મુખ્ય ચિકિત્સક.

અ નુ મ તિ પ ત્ર

અમદાવાદની કોલેજોનાં વિધાર્થીઓમાં માનસિક તણાવ.

અમદાવાદની કોલેજોના વિધાર્થીઓમાં તણાવના મુળ શોધવા માટે તૈયાર કરવામાં આવેલા સંશોધન અભ્યાસમાં ભાગ લેવા આપને આમંત્રણ આપવામાં આવે છે. આ અભ્યાસ સુ.શ્રી યોગીની નાથ ધ્વારા, ડો. લોરેન્સ જે કિર્માયરની દેખરેખ હેઠળ કેનેડાની મિન્ટ્રીયલ ખાતેની મેકગીલ યુનિવર્સિટીમાં પોતાના અનુસ્નાતક કક્ષાના થીસીસ પ્રોજેકેટ (મહાનિબંધ)ના એક ભાગ તરીકે હાથ પર લેવામાં આવ્યો છે. આ સંશોધન અભ્યાસમાં સંકળાયેલા હેતુ અને પધ્ધતિઓ અને આ સંશોધનના સંભવિત ફાયદા, જોખમો, વળતર અને અસુવિધાઓ વિશે જાણવાનો તમારો અધિકાર છે.

આ સંશોધનમાં ભાગ લેવા માટે આપ સંમતિ આપો તે પહેલાં નીચે દર્શાવેલી વિગતો વાંચવી મહત્વની છે અને જો આપ ભાગ લેવાનું નકકી કરો તો આપને શું શું પુછવામાં આવશે તે સમજવા માટે જરૂરી હોય તેટલા પ્રશ્નો પુછી શકો છો. આ અભ્યાસમાં ભાગ લેવો ફરજીયાત નથી તે સમજી લેવું પણ મહત્વનું છે. અભ્યાસમાં ભાગ લેવા માટે તમારી લધુતમ વયમર્યાદા ૧૮ વર્ષની હોવી જરુરી છે.

ભારતના વિધાર્થી ઘણી બાબતો સબંધે તણાવનો ભોગ બનતા હોય છે. આ અભ્યાસનો હેતુ, ભારતના વિધાર્થીમાં જન્મતા તણાવના કારણો અને વિધાર્થીઓ તણાવ મુકત બનાવો અને પરિસ્થિતિઓમાંથી રસ્તો કાઢવા માટેના કેવા ઉપાયો કરે છે તે આકારવાનો છે. આપ, જો આ અભ્યાસમાં ભાગ લેવાનું નકકી કરો તો આપને આ સાથે જોડેલી પ્રશ્નાવલી ભરવાની રહેશે. જેને માટે અંદાજે ૧૦-૧૫ મીનીટ લાગશે. પ્રશ્નાવલી ભરી દીધા બાદ ગોપનીયતા જળવાઈ રહે તે માટે તમારે પ્રશ્નાવલી ડ્રોપ બોક્ષમાં નાંખી દેવાની રહેશે.

અભ્યાસની આ પ્રશ્નાવલી ભરવાના કોઈ દેખીતા જોખમ સ્થાન નથી. અમુક પ્રશ્નો સંવેદનશીલ પ્રકારના છે તથા તેનાથી માનસિક દ્વિધા અનુભવાશે. આ અભ્યાસમાં ભાગ લેવાના કોઈ દેખીતા ફાયદા કે વળતર મળવાનું નથી, પરંતુ આ અભ્યાસના પરિણામો એવી માહિતી પુરી પાડશે જે ભવિષ્યમાં અન્ય વિધાર્થીઓને મદદરૂપ થશે. આ અભ્યાસમાં આપની ભાગીદારી સંપુર્ણ સ્વૈચ્છિક છે. આપ હાલ ભાગ લેવાનું નકકી કર્યા બાદ પછીથી ગમે તે સમયે નિર્ણય બદલી પણ શકો છો. માંગવામાં આવતી માહિતી બેનામી ધોરણે અજ્ઞાત રાખવાની હોવાથી અભ્યાસ પ્રશ્નાવલીના ફોર્મ પર આપને આળખી શકાય તેવી કોઈ નિશાની કરવી નહીં. અભ્યાસની ફાઈલો ૧૦ વર્ષ સુધી ડો. કિર્માયરની દેખરેખ હેઠળ મેકગીલ યુનિવર્સિટી ખાતે તાળાચાવીમાં જાળવવામાં આવશે. આ અભ્યાસના પરિણામોને પ્રકાશિત અથવા અન્ય રીતે જાહેર કરવામાં આવશે, તેમ છતાં કોઈપણ અહેવાલો કે પ્રકાશનોમાં વ્યકિતગત ઓળખ થઈ શકે તેવી કોઈ માહિતી જાહેર કરવામાં આવશે નહીં.

આ સાથે જોડેલી પ્રશ્નાવલી ભરીને પરત કરશો તો તેનો અર્થ એવો થશે કે આપે ઉપરોકત માહિતી વાંચી છે, આપના પ્રશ્નોનો, આપને સંતોષ થાય તેવા ઉત્તરો મળ્યા છે, અને આપની ભાગીદારી સ્વૈચ્છિક છે તે આપ સમજો અને આપ આ અભ્યાસમાંથી ગમે તે સમયે કોઈપણ કારણો આપ્યા વગર જ ખસી જઈ શકો છો.

કેનેડામાં મોન્ટ્રીયલ ખાતેની જયુઈશ જનરલ હોસ્પિટલની રીસર્ચ એથીકસ ઓફીસ (સંશોધનોની નિતિમત્તા નકકી કરતી કચેરી) ધ્વારા આ અભ્યાસની સમાલોચના તથા તેની મંજુરી આપવામાં આવી છે અને ગુજરાત રાજયના શિક્ષણ વિભાગે પણ તેને માન્યતા આપી છે. આ સંશોધન વિશે હાલમાં કે પછીથી આપને કોઈ પ્રશ્નો પુછવાના હોય તો આપ કુ.અમી મહેરા,(પ્રોફેસર સેન્ટ ઝેવીર્યસ કોલેજ (૯૮૯૮૦૨૮૯૭૩) પર સંપર્ક કરી શકો છો. સંશોધનના સહભાગી તરીકેના આપના હકકો વિશે જો આપને કોઈ પ્રશ્નો પુછવાના હોય તો આપ જયુઈશ જનરલ હોસ્પિટલના દર્દીઓના પ્રતિનિધી સુ.શ્રી લોરી બર્લીનનો ફોન નં. +૧ ૫૧૪ ૩૪૦ ૮૨૨૨ એકટેન્શન ૫૮૩૩ પર સંપર્ક કરી શકો છો.

Appendix C

Stress among Students Questionnaire (English Version)

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

The following questions ask about your personal and family 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**
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 D

Stress among Students Questionnaire (Gujarati Version)

<u>પ્રશ્નોતરીઃ માનસિક તણાવનો સામનો</u>.

<u>૧. નીચે દર્શાવેલી માહિતી આપીને પ્રશ્નાવલીનો આરંભ કરો.</u>

૧. ઉંમરઃ-

૨. જાતિઃ-

☐ સ્ત્રી ☐ પુરૂષ

૩. વર્તમાન વૈવાહિક સ્થિતિઃ

☐ અપરિણિત
☐ પરિણિત/સાથીદાર સાથે રહો છો.
☐ છુટાછેડા/વિભાજિત

૪. હાલ આપ કોની સાથે રહો છો ?

☐ એકલા રહો છો.
☐ માતાપિતા સાથે રહો છો.
☐ સાથીદાર/પતિ સાથે રહો છો.
☐ અન્ય સબંધીઓ/મિત્રો સાથે રહો છો.

૫. આપ શહેરી વિસ્તારમાં રહો છો કે ગ્રામીણ ?

☐ શહેરી ☐ ગ્રામીણ

૬. આપનો ધર્મ કયો છે ?

☐ કોઈ નહી
☐ હિન્દુ
☐ જૈન
☐ મુસ્લિમ
☐ શીખ
☐ પારસી
☐ ખ્રિસ્તી
☐ બૌધ
☐ અન્ય (અહીં દર્શાવો).....

૭. આપની જ્ઞાતિ કઈ છે ?

☐ ખબર નથી / લાગુ પડતું નથી
☐ અનુસૂચિત જાતિ/અનુસુચિત જનજાતિ
☐ અન્ય પછાત વર્ગ
☐ સવર્ણ

૮. આપ આપના ધર્મસ્થળની મુલાકાત કેટલીવાર લો છો ?

☐ ઓછામાં ઓછું અઠવાડીયે એકવાર
☐ આશરે મહિનામાં એકવાર
☐ આશરે વર્ષમાં ૨-૩ વાર
☐ આશરે વર્ષમાં એક વાર
☐ લગભગ ક્યારેય પણ નહીં

૯. આપના કુટુંબની વાર્ષિક આવક કેટલી છે ?

- ☐ ૦-૫૦,૦૦૦ રૂ. પ્રતિવર્ષ
- ☐ ૫૦,૦૦૦-૯૯,૦૦૦ રૂ. પ્રતિવર્ષ
- ☐ ૧ લાખ-૧,૯૯,૦૦૦ રૂ. પ્રતિવર્ષ
- ☐ ૨ લાખ-૨,૯૯,૦૦૦ રૂ. પ્રતિવર્ષ
- ☐ ૩ લાખ-૩,૯૯,૦૦૦ રૂ. પ્રતિવર્ષ
- ☐ ૪ લાખ-૬,૯૯,૦૦૦ રૂ. પ્રતિવર્ષ
- ☐ ૭ લાખ- ૯,૯૯,૦૦૦ રૂ. પ્રતિવર્ષ
- ☐ ૧૦ લાખ અને તેનાથી વધારે.

૧૦. આપના ઘરમાં કેટલી વ્યકિત રહે છે ? .....

૧૧. આપનું ઘર અંદાજે કેવડું છે? શયનખંડની સંખ્યાઃ..... બાથરૂમની સંખ્યાઃ.....

તમે હાલમાં શાનો અભ્યાસ કરો છો?

૧૨. ડીગ્રી/ડીપ્લોમા (દા.ત. બી..એ., બી.એસ.સી).....

૧૩. અભ્યાસનું વર્ષ (પ્રથમ, તૃતિય).....

૧૪. મુખ્ય વિષય (દા.ત. અર્થશાસ્ત્ર) .....

૧૫. કોલેજ પસાર કર્યા બાદ તમારૂ શું આયોજન છે ?

- ☐ વધુ અભ્યાસ કરશો
- ☐ નોકરી મેળવશો
- ☐ કુટુંબના વ્યવસાયમાં જોડાશો
- ☐ કામ કરતાં કરતાં અભ્યાસ કરશો.
- અન્ય (વિગતે જણાવો) .....

<u>૨. નીચે દર્શાવેલા ૬ પ્રશ્નોની સાથેની સુચનાને વાંચો અને શકય હોય તેટલા સાચા અને ચોકકસ જવાબ આપો.</u>

<u>પ્રશ્ન-૧</u>

નીચે આપેલા પ્રશ્નો, શૈક્ષણિક અને સામાજિક જીવનના જુદા જુદા ક્ષેત્ર પ્રત્યેની આપની લાગણી સબંધિત છે. દરેક પરિસ્થિતિ તમારા જીવનમાં કેટલો તણાવ ઉભો કરે છે તે યોગ્ય કોલમના આંકડા ઉપર વર્તુળ દોરીને દર્શાવો.

પરિસ્થિતિ	કોઈ તણાવ નહીં	થોડો તણાવ	સામાન્ય તણાવ	અત્યંત તણાવ
૧. શૈક્ષણિક સફળતા માટે સહાધ્યાયીઓ અથવા મિત્રો સાથે હરિફાઇ	૦	૧	૨	૩
૨. શિક્ષણના ક્ષેત્રની પસંદગી (દા.ત.વિજ્ઞાન,વિનયન,વાણિજ્ય)	૦	૧	૨	૩
૩. સ્નાતક થયા બાદ નોકરી મેળળવી	૦	૧	૨	૩
૪. અભ્યાસની પોતાની ફી ચુકવવી	૦	૧	૨	૩
૫. અનુસ્નાતક કક્ષા માટે અરજી (દા.ત.માસ્ટર્સ, પી.એચ.ડી, એમ.બી.એ)	૦	૧	૨	૩
૬.અભ્યાસ કરતાં કરતાં નોકરી શોધવી અથવા (જો તમે પહેલેથી જ કામ કરતા હો) કામ કરતાં કરતાં અભ્યાસ કરવો.	૦	૧	૨	૩

૭.માતા પિતા અપેક્ષા રાખે છે તેટલી શૈક્ષણિક સફળતા હાંસલ કરવી.	૦	૧	૨	૩
૮.શૈક્ષણિક અને સામાજિક જીવન વચ્ચે સંતુલન. સામાજિક પ્રવૃતિઓ અને હળવાશ તથા અભ્યાસ માટે સમય કાઢવો.	૦	૧	૨	૩
૯.પરીક્ષામાં અનુતિર્ણ થવું.	૦	૧	૨	૩
૧૦. અન્યની દાદાગીરી અથવા રેગીંગ	૦	૧	૨	૩

નીચેના પ્રશ્નો આપને આપનાં કુટુંબ જીવન વિશે પુછે છે. દરેક પરિસ્થિતિ તમારા જીવનમાં કેટલો તણાવ ઉભો કરે છે તે યોગ્ય કોલમમાં આંકડા ઉપર વર્તુળ દોરીને દર્શાવો..

પરિસ્થિતિ	**કોઈ તણાવ નહીં**	**થોડો તણાવ**	**સામાન્ય તણાવ**	**અત્યંત તણાવ**
૧૧. સંયુકત કુટુંબમાં રહો છો? (જો આપ સબંધીઓ તથા માતાપિતા અને ભાઈભાડું સાથે રહેતા હો તો જ જવાબ આપવો)	૦	૧	૨	૩
૧૨. મારા માતાપિતાની સંસ્કૃતિ અપનાવવી.	૦	૧	૨	૩
૧૩. મારા મોટાભાગના મહત્વના નિર્ણયો મા-બાપ અથવા સગા સબંધી લે તેને માન્ય રાખું છું.	૦	૧	૨	૩
૧૪. માત્ર માતાપિતા અને અથવા ભાઈભાંડુવાળા ''ન્યુકલીયર'' (સ્વતંત્ર) કુટુંબમાં રહેવું. (જો તમે માત્ર માતાપિતા અને ભાઈભાંડું સાથે રહેતા હો તો જ જવાબ આપો)	૦	૧	૨	૩
૧૫. મારા કુટુંબને ટેકો આપવો	૦	૧	૨	૩
૧૬. પરીક્ષામાં અનુતિર્ણ થયા બાદ માતાપિતાનો સામનો કરવો.	૦	૧	૨	૩
૧૭. કુટુંબ પાસેથી સહાય મેળવવી.	૦	૧	૨	૩
૧૮. પ્રેમ સબંધ માટે સાથીદાર શોધવો	૦	૧	૨	૩
૧૯. પ્રેમ સબંધ રાખવા માટે માતાપિતાની સંમતિ મેળવવી.	૦	૧	૨	૩
૨૦. પ્રેમ સબંધ ચાલુ હોય તેવી સ્થિતિ	૦	૧	૨	૩
૨૧. મારા માતાપિતા અથવા સબંધીઓની અપેક્ષા મુજબનો જીવનસાથી શોધવો.	૦	૧	૨	૩
૨૨. લગ્ન માટે જાતે જીવનસાથી શોધવો.	૦	૧	૨	૩
૨૩. સાસરીયા સાથે જીવવું (આપ જો પરિણિત હો તો જ જવાબ આપશો)	૦	૧	૨	૩

આ વિભાગમાં આપના સમાજ જીવન વિશે પ્રશ્નો પુછવામાં આવ્યા છે. આગળ જવાબ આપ્યા તે મુજબ જ જવાબ આપો.

પરિસ્થિતિ	**કોઈ તણાવ નહીં**	**થોડો તણાવ**	**સામાન્ય તણાવ**	**અત્યંત તણાવ**
૨૪. આધુનિક વલણો સાથે રહેવું. (દા.ત. ફેશનેબલ કપડાં પહેરવાં, મોબાઈલ ફોન રાખવો)	૦	૧	૨	૩
૨૫. ધુમ્રપાન માટે દબાણ	૦	૧	૨	૩

૨૬. નશીલા પીણા (આલ્કોહોલ) પીવાનું દબાણ.	૦	૧	૨	૩
૨૭. નશીલા દ્રવ્યો (ડ્રગ્સ) લેવાનું દબાણ	૦	૧	૨	૩
૨૮. મિત્રો પાસેથી સહાય મેળવવી.	૦	૧	૨	૩
૨૯. મિત્રોને સહાય કરવી.	૦	૧	૨	૩

<u>પ્રશ્ન-૨</u>

નીચેના પ્રશ્નો, આપનાં જીવનમાં બની હોય તેવી ઘટનાઓ વિશે પુછે છે. દરેક ઘટના માટે આપને તેનો અનુભવ થયો છે કે નહીં અને તેનાથી તમને કેટલા તણાવનો અનુભવ થયો હતો તે યોગ્ય કોલમમાંના આંકડા પર વર્તુળ દોરીને દર્શાવો. જો તમારા જીવનમાં આવી ઘટના ન બની હોય તો "મારી સાથે બન્યુ નથી" વિકલ્પ પસંદ કરો.

ઘટના	મારી સાથે બન્યું નથી	જરા પણ તણાવ નથી	થોડો તણાવ	સામાન્ય તણાવ	અત્યંત તણાવ
૧) ગત વર્ષ દરમ્યાન માંદગી અથવા રીરિક અપંગતા.	૦	૧	૨	૩	૪
૨) ગત વર્ષ દરમિયાન નશીલા ણાં/દ્રવ્યોથી સમાસ્યા.	૦	૧	૨	૩	૪
૩) ગત વર્ષ દરમિયાન મેં ગવેલા ભાવનાત્મક/માનસિક આરોગ્યલક્ષી સમસ્યાઓ.	૦	૧	૨	૩	૪
૪) ધાર્મિક અથવા રાજકીય માન્યતા બાબતે સમાજમાં સંઘર્ષ	૦	૧	૨	૩	૪
૫) મારી જ્ઞાતિના કારણે મારી સાથે ભેદભાવ.	૦	૧	૨	૩	૪
૬) જ્ઞાતિ બાબતે સમાજમાં સંઘર્ષ	૦	૧	૨	૩	૪
૭) કુટુંબમાં ભાવનાત્મક અથવા માનસિક આરોગ્ય સબંધી સમસ્યા ધરાવતી વ્યકિત હોવી.	૦	૧	૨	૩	૪
૮) માંદગી અથવા અપંગતા ધરાવતી હોય તેવું કોઈ કુટુંબી.	૦	૧	૨	૩	૪
૯) પુર, ભુકંપ જેવી કુદરતી આપત્તિઓ	૦	૧	૨	૩	૪
૧૦) તાજેતરમાં થયેલું નાણાંકીય નુકશાન	૦	૧	૨	૩	૪

પ્રશ્ન-૩

નીચે આપવામાં આવેલા પ્રશ્નોમાં છેલ્લા ૩૦ દિવસ દરમિયાન આપને કેવી લાગણીઓ થઈ રહી હતી તે અંગે પુછવામાં આવ્યું છે. દરેક જવાબ માટે આપને આ લાગણી કેટલી વખત થઈ હતી તે સારી રીતે પ્રદર્શિત થતું હોય તે આંકડા પર વર્તુળ દોરો.

છેલ્લા ૩૦ દિવસોમાં.....	ક્યારેય પણ નહી	થોડો જ સમય	ક્યારેક	મોટો ભાગના સમયે	(સતત) બધાજ સમયે
૧).....માં હતોત્સાહ ની લાગણી અનુભવી છે	૦	૧	૨	૩	૪
૨).....માં નિરાશા અનુભવી છે.	૦	૧	૨	૩	૪
૩)..... માં અજંપો અથવા બેચેની અનુભવી છે.	૦	૧	૨	૩	૪
૪).....માં એટલી નિરાશા અનુભવી છે કે કોઈપણ બાબત મને આનંદીત ન કરી શકે.	૦	૧	૨	૩	૪
૫).....માં એવું અનુભવ્યું કે સઘળી બાબતો એક પ્રયત્ન(આયાસ) છે.	૦	૧	૨	૩	૪
૬)... માં, હું નકામો છું એવી લાગણી થઈ છે.	૦	૧	૨	૩	૪

પ્રશ્ન-૪

યુવાનો ઘણા તણાવનો સામનો કરતાં હોય છે અને તેને પહોંચી વળવા માટે વિવિધ પ્રકારના ઉપાયો અજમાવતાં હોય છે. નીચે આપેલા પ્રશ્નો આપ તણાવનો કેવી રીતે સામનો કરો છો તેને સબંધીત છે. સાથે આ ઉપાયોનો ઉપયોગ કેટલી વાર કરો છો તે યોગ્ય કોલમમાંના આંકડા પર વર્તુળ દોરી દર્શાવો.

ઉપાય	કદી નહી	એકવાર	ક્યારેક	વારંવાર
૧) એકાંતમાં સમય પસાર કરો છો	૦	૧	૨	૩
૨) કુટુંબ અથવા મિત્રો સાથે આ અંગે વાત કરો છો	૦	૧	૨	૩
૩) પ્રાર્થના કરો છો અથવા ધાર્મિક પ્રવૃતિઓ કરો છો.	૦	૧	૨	૩
૪) દારૂ અથવા ડ્રગ્ઝ લો છો.	૦	૧	૨	૩
૫) સંગીત સાંભળો છો	૦	૧	૨	૩
૬) ધુમ્રપાન કરો છો	૦	૧	૨	૩
૭) વાંચન કરો છો	૦	૧	૨	૩
૮) જોખમી કૃત્યો જેવા કે ચોરી, બેફામ ડ્રાઈવીંગ, અસુરક્ષિત જાતીય સબંધ જેવી પ્રવૃતિઓ કરો છો?	૦	૧	૨	૩
૯) ખોરાક લો છો.	૦	૧	૨	૩
૧૦) ખોરાક લેવાનું છોડી દો છો	૦	૧	૨	૩
૧૧) કુટુંબીઓ અથવા મિત્રો સાથે બહાર ફરવા જાવ છો	૦	૧	૨	૩
૧૨) ઉંઘી જાવ છો	૦	૧	૨	૩

૧૩) સલાહકાર, સમાજસેવક અથવા આરોગ્ય સબંધી અન્ય નિષ્ણાંતો સાથે ચર્ચા કરો છો.	૦	૧	૨	૩
૧૪) પોતાની જાતને હેતુપૂર્વક શારિરીક નુકશાન પહોચાડો છે	૦	૧	૨	૩
૧૫) આત્મહત્યા અંગે વિચારો છો	૦	૧	૨	૩
૧૬) તણાવને પહોંચી વળવા માટે આપે ઉપયોગ કર્યો હોય તેવા કોઈપણ ઉપાયો અત્રે દર્શાવો.				

<u>પ્રશ્ન-૫</u>

નીચેના વિભાગમાં " પોતાની જાતને હેતુપૂર્વક શારિરીક નુકશાન પહોંચાડું છું " અને " આત્મહત્યા અંગે વિચારૂ છું " જેવા ઉપાયો અંગે વિગતવાર પુછવામાં આવ્યું છે. દરેક પ્રશ્નના જવાબમાં યોગ્ય કોલમમાં એક આંકડા પર વર્તુળ દોરો.

	હા	**ના**
ક) શું તમે કદી આત્મહત્યા કરવા અંગે ગંભીરતાપૂર્વક વિચાર કર્યો છે ?	૧	૦
ખ) શું તમે છેલ્લા ૧૨ મહિના દરમ્યાન આત્મહત્યા કરવા અંગે ગંભીરતાપૂર્વક વિચાર કર્યો છે ?	૧	૦
ગ) શું તમે કદી આત્મહત્યા કરવાનો પ્રયત્ન કર્યો છે ?	૧	૦
ઘ) શું તમે છેલ્લા ૧૨ મહિના દરમ્યાન આત્મહત્યા કરવાનો પ્રયત્ન કર્યો છે ?	૧	૦
ચ) શું તમે છેલ્લા ૧૨ મહિના દરમ્યાન તમારા ઘરમાં કોઈ કુટુંબીનું આત્મહત્યાના લીધે અવસાન થયું છે ?	૧	૦
છ) શું છેલ્લા ૧૨ મહિના દરમિયાન તમારા ઘરની ન હોય એવા તમારા કુટુંબી અથવા નજીકના મિત્રોમાંથી કોઈ આત્મહત્યાથી અવસાન પામ્યું છે ?	૧	૦
નીચેના વિભાગમાં તમારી પોતાની જાતને (જીવ લેવાના ઈરાદા સિવાય) શારિરીક ઈજા પહોંચાડવા વિશે વિગતવાર પ્રશ્નો પુછવામાં આવ્યાં છે.		
જ) શું તમે તમારૂ કાંડું, હાથ અથવા શરીરના અન્ય ભાગ પર કાપા મુક્યા છે ?	૧	૦
ઝ) શું તમારી જાતને દઝાડી છે ?	૧	૦
ટ) શું તમે જાતે તમારા શરીર પર લોહી નીકળે અથવા ડાઘ પડે તે રીતે ઉઝરડા ભર્યા છે ?	૧	૦
ઠ) શું તમે એટલી હદે તમારૂ માથું એવી રીતે અથડાવ્યું છે કે જેથી શરીરને ઈજા થાય ?	૧	૦
ડ) શું તમે સોળ પડી જાય એટલી હદે તમારી જાતને અથવા ભૌતિક ચીજોને નુકશાન/ઈજા પહોંચાડી છે?	૧	૦
ઢ) અન્ય સ્વપિડનની વર્તણુંક (સ્પષ્ટતાપુર્વક દર્શાવો)		

પ્રશ્ન-૬

આ વિભાગ આપને ભવિષ્યના આપના ધ્યેય વિશે પુછે છે. દરેક ધ્યેય આપના માટે કેટલું મહત્વનું છે તે દર્શાવવા એક આંકડા પર વર્તુળ દોરો. દરેક બાબતને માપવા માટે સમગ્ર માપદંડનો ઉપયોગ કરવા પ્રયત્ન કરો. એટલે કે આપના જવાબો નીચે દર્શાવેલા માપદંડની શરૂઆતમાં, મધ્યમાં અથવા અંતમાં હોઈ શકે છે.

૧. મારી સંભાળ લેવા માટે હંમેશ કોઈને કોઈ હશે જ.

મહત્વ	૧	૨	૩	૪	૫	૬	૭	૮	૯
	સ્હેજપણ નહી		થોડું		સામાન્ય		ઘણું		અત્યંત

૨. મારી છાપ એવી હોય જે અન્યોને પસંદ પડે.

મહત્વ	૧	૨	૩	૪	૫	૬	૭	૮	૯
	સ્હેજપણ નહી		થોડું		સામાન્ય		ઘણું		અત્યંત

૩. હું વૈશ્વિક આધ્યાત્મિક પ્રશ્નો (જેવા કેઃ પરમ તત્વ જેવું કંઈ છે ? મૃત્યુ પછી જીવન છે ? જીવનનો અર્થ શો છે?) નો જવાબ જાતે શોધી લઉ.

મહત્વ	૧	૨	૩	૪	૫	૬	૭	૮	૯
	સ્હેજપણ નહી		થોડું		સામાન્ય		ઘણું		અત્યંત

૪. હું જરૂરીયાતમંદ લોકોને તેમની પાસેથી બદલો માંગ્યા વગર જ મદદરૂપ થઉં.

મહત્વ	૧	૨	૩	૪	૫	૬	૭	૮	૯
	સ્હેજપણ નહી		થોડું		સામાન્ય		ઘણું		અત્યંત

૫. જીવનમાં ધકેલાયે જવા કરતાં મારે શું કરવું તે હું પસંદ કરૂ.

મહત્વ	૧	૨	૩	૪	૫	૬	૭	૮	૯
	સ્હેજપણ નહી		થોડું		સામાન્ય		ઘણું		અત્યંત

૬. લોકો મારા પ્રત્યે લાગણી દર્શાવે અને હું તેમના પ્રત્યે લાગણી દર્શાવુ.

મહત્વ	૧	૨	૩	૪	૫	૬	૭	૮	૯
	સ્હેજપણ નહી		થોડું		સામાન્ય		ઘણું		અત્યંત

૭. મારી વ્યકિતગત સુરક્ષાને નહી જેવું જોખમ હશે.

મહત્વ	૧	૨	૩	૪	૫	૬	૭	૮	૯
	સ્હેજપણ નહી		થોડું		સામાન્ય		ઘણું		અત્યંત

૮. મારૂ જીવન સરળ, પ્રેમીઓ અને ગીતોથી હર્યુ ભર્યુ હશે.

મહત્વ	૧	૨	૩	૪	૫	૬	૭	૮	૯
	સ્હેજપણ નહી		થોડું		સામાન્ય		ઘણું		અત્યંત

૯. મારી પાસે ઘણી મોંઘી વસ્તુઓ હોય.

મહત્વ	૧	૨	૩	૪	૫	૬	૭	૮	૯
	સ્હેજપણ નહી		થોડું		સામાન્ય		ઘણું		અત્યંત

૧૦. ઘણા લોકો મારી પ્રશંસા કરે.

મહત્વ	૧	૨	૩	૪	૫	૬	૭	૮	૯
	સ્હેજપણ નહી		થોડું		સામાન્ય		ઘણું		અત્યંત

૧૧. હું વિવેકી તથા આજ્ઞાંકિત હોઉ.

મહત્વ	૧	૨	૩	૪	૫	૬	૭	૮	૯
	સ્હેજપણ નહી		થોડું		સામાન્ય		ઘણું		અત્યંત

૧૨. મારૂ જાતિય જીવન અદભુત હોય.

મહત્વ ૧ ૨ ૩ ૪ ૫ ૬ ૭ ૮ ૯

સ્હેજપણ નહી થોડું સામાન્ય ઘણું અત્યંત

૧૩. મારા જીવનમાં માર્ગદર્શન માટે હું નીતિમત્તા અને/અથવા નૈતિકતાના ધારાધોરણો વિકસાવીશ.

મહત્વ ૧ ૨ ૩ ૪ ૫ ૬ ૭ ૮ ૯

સ્હેજપણ નહી થોડું સામાન્ય ઘણું અત્યંત

૧૪. મારી ભોજન, આશ્રય અને કપડાની પ્રાથમિક જરૂરીયાતો પુરી થાય.

મહત્વ ૧ ૨ ૩ ૪ ૫ ૬ ૭ ૮ ૯

સ્હેજપણ નહી થોડું સામાન્ય ઘણું અત્યંત

૧૫. મને એવું પ્રતિત થાય કે એવા ઘણા લોકો છે જે મને ચાહે છે.

મહત્વ ૧ ૨ ૩ ૪ ૫ ૬ ૭ ૮ ૯

સ્હેજપણ નહી થોડું સામાન્ય ઘણું અત્યંત

૧૬. હું મુકિતનો અહેસાસ કરૂ.

મહત્વ ૧ ૨ ૩ ૪ ૫ ૬ ૭ ૮ ૯

સ્હેજપણ નહી થોડું સામાન્ય ઘણું અત્યંત

૧૭. હું જે કાર્યો કરૂ તે અન્યોના જીવનને બહેતર બનાવે.

મહત્વ ૧ ૨ ૩ ૪ ૫ ૬ ૭ ૮ ૯

સ્હેજપણ નહી થોડું સામાન્ય ઘણું અત્યંત

૧૮. મારૂ નામ ઘણા લોકો જાણતા હોય.

મહત્વ ૧ ૨ ૩ ૪ ૫ ૬ ૭ ૮ ૯

સ્હેજપણ નહી થોડું સામાન્ય ઘણું અત્યંત

૧૯. હું શારીરિક રીતે ચૂસ્ત હોઉ.

મહત્વ ૧ ૨ ૩ ૪ ૫ ૬ ૭ ૮ ૯

સ્હેજપણ નહી થોડું સામાન્ય ઘણું અત્યંત

૨૦. હં સંતોષ આપે તેવી ધાર્મિક અને/ અથવા આધ્યાત્મિક પ્રવૃત્તિઓ શોધુ.

મહત્વ ૧ ૨ ૩ ૪ ૫ ૬ ૭ ૮ ૯

સ્હેજપણ નહી થોડું સામાન્ય ઘણું અત્યંત

૨૧. હું મારા સમાજની અપેક્ષાઓ અનુસાર જીવું.

મહત્વ ૧ ૨ ૩ ૪ ૫ ૬ ૭ ૮ ૯

સ્હેજપણ નહી થોડું સામાન્ય ઘણું અત્યંત

૨૨. હું કેવો/કેવી આકર્ષક દેખાઉ છું તેવી લોકો ટિપ્પણી કરે.

મહત્વ ૧ ૨ ૩ ૪ ૫ ૬ ૭ ૮ ૯

સ્હેજપણ નહી થોડું સામાન્ય ઘણું અત્યંત

૨૩. હું નાણાંકીય રીતે સફળ થાઉ.

મહત્વ ૧ ૨ ૩ ૪ ૫ ૬ ૭ ૮ ૯

સ્હેજપણ નહી થોડું સામાન્ય ઘણું અત્યંત

૨૪. મારા જીવનમાં અઢળક ઉત્તેજના હોય.

મહત્વ ૧ ૨ ૩ ૪ ૫ ૬ ૭ ૮ ૯

સ્હેજપણ નહી થોડું સામાન્ય ઘણું અત્યંત

૨૫. મારા જીવનમાં ઘટતી ખરાબ ઘટના અંગે મને ચિંતા ન હોય.

મહત્વ ૧ ૨ ૩ ૪ ૫ ૬ ૭ ૮ ૯

સ્હેજપણ નહી થોડું સામાન્ય ઘણું અત્યંત

૨૬. દુનિયાને સમજવામાં મને મદદરૂપ થાય તેવી ધાર્મિક અથવા આધ્યાત્મિક માન્યતા મને સાંપડે.

મહત્વ ૧ ૨ ૩ ૪ ૫ ૬ ૭ ૮ ૯

સ્હેજપણ નહી થોડું સામાન્ય ઘણું અત્યંત

૨૭. મને ઓળખતી દરેક વ્યકિત મને મોટે ભાગે પસંદ કરે.

મહત્વ ૧ ૨ ૩ ૪ ૫ ૬ ૭ ૮ ૯

સ્હેજપણ નહી થોડું સામાન્ય ઘણું અત્યંત

૨૮. મારી ક્ષમતાઓ અંગે મારામાં હકારાત્મક લાગણી હોય.

મહત્વ ૧ ૨ ૩ ૪ ૫ ૬ ૭ ૮ ૯

સ્હેજપણ નહી થોડું સામાન્ય ઘણું અત્યંત

૨૯. હું સાપેક્ષ રીતે માંદગી મુકત રહું.

મહત્વ ૧ ૨ ૩ ૪ ૫ ૬ ૭ ૮ ૯

સ્હેજપણ નહી થોડું સામાન્ય ઘણું અત્યંત

૩૦. મારી ઈચ્છાઓ અને પસંદગી અન્ય લોકો જેવી જ હોય.

મહત્વ ૧ ૨ ૩ ૪ ૫ ૬ ૭ ૮ ૯

સ્હેજપણ નહી થોડું સામાન્ય ઘણું અત્યંત

૩૧. મારે જે જોઈતુ હોય તે તમામ વસ્તુ ખરીદવા માટે મારી પાસે પુરતા પૈસા હોય.

મહત્વ ૧ ૨ ૩ ૪ ૫ ૬ ૭ ૮ ૯

સ્હેજપણ નહી થોડું સામાન્ય ઘણું અત્યંત

૩૩. ખાસ લોકો માટે હું મારો પ્રેમ પ્રદર્શિત કરૂં.

મહત્વ ૧ ૨ ૩ ૪ ૫ ૬ ૭ ૮ ૯

સ્હેજપણ નહી થોડું સામાન્ય ઘણું અત્યંત

૩૪. હું જે કરૂ છું તે શા માટે કરૂ છું તે હું સમજી શકું.

મહત્વ ૧ ૨ ૩ ૪ ૫ ૬ ૭ ૮ ૯

સ્હેજપણ નહી થોડું સામાન્ય ઘણું અત્યંત

૩૫. હું વિશ્વને વધુ સારૂ બનવામાં મદદરૂપ થાઉં.

મહત્વ ૧ ૨ ૩ ૪ ૫ ૬ ૭ ૮ ૯

સ્હેજપણ નહી થોડું સામાન્ય ઘણું અત્યંત

૩૬. હું ભરપૂર માત્રામાં જાતિય આનંદ પામું.

મહત્વ ૧ ૨ ૩ ૪ ૫ ૬ ૭ ૮ ૯

સ્હેજપણ નહી થોડું સામાન્ય ઘણું અત્યંત

૩૭. મારૂ જીવન અને કર્મ મારી ધાર્મિક/આધ્યાત્મિક માન્યતા સાથે સુસંગત હોય.

મહત્વ ૧ ૨ ૩ ૪ ૫ ૬ ૭ ૮ ૯

સ્હેજપણ નહી થોડું સામાન્ય ઘણું અત્યંત

૩૮. હું એક આત્મીય અને સમપર્ણ ભર્યો સબંધ રાખીશ.

મહત્વ	૧	૨	૩	૪	૫	૬	૭	૮	૯
	સ્હેજપણ નહી		થોડું		સામાન્ય		ઘણું		અત્યંત

૩૯. મને સારો પગાર મળે તેવી એક નોકરી હોય.

મહત્વ	૧	૨	૩	૪	૫	૬	૭	૮	૯
	સ્હેજપણ નહી		થોડું		સામાન્ય		ઘણું		અત્યંત

૪૦. હું અન્યો સાથે હળીમળી જઉં.

મહત્વ	૧	૨	૩	૪	૫	૬	૭	૮	૯
	સ્હેજપણ નહી		થોડું		સામાન્ય		ઘણું		અત્યંત

૪૧. હું ફેશન તથા વાળ આધુનિક ફેશન મુજબ રાખું.

મહત્વ	૧	૨	૩	૪	૫	૬	૭	૮	૯
	સ્હેજપણ નહી		થોડું		સામાન્ય		ઘણું		અત્યંત

૪૨. લોકો મને ખરેખર આદર આપે.

મહત્વ	૧	૨	૩	૪	૫	૬	૭	૮	૯
	સ્હેજપણ નહી		થોડું		સામાન્ય		ઘણું		અત્યંત

૪૩. હું મારા કુટુંબ પ્રત્યેની જવાબદારીઓ નિભાવું.

મહત્વ	૧	૨	૩	૪	૫	૬	૭	૮	૯
	સ્હેજપણ નહી		થોડું		સામાન્ય		ઘણું		અત્યંત

૪૪. હું સારો/સારી વાલી બનું.

મહત્વ	૧	૨	૩	૪	૫	૬	૭	૮	૯
	સ્હેજપણ નહી		થોડું		સામાન્ય		ઘણું		અત્યંત

૪૫. હું સારી શૈક્ષણિક/વ્યાયસિક લાયકાતો ધરાવું.

મહત્વ	૧	૨	૩	૪	૫	૬	૭	૮	૯
	સ્હેજપણ નહી		થોડું		સામાન્ય		ઘણું		અત્યંત

---------- પ્રશ્નાવલી સમાપ્ત ----------

આ ભા ૨

Appendix E

CFA for Stressors Scale: Model Development

Domains of stressful life situations and their corresponding stressors

Domain	Variable	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~~	~~Finding a marriage partner who meets family expectations∗~~
	~~Stress 23~~	~~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	Being in a romantic relationship
	Stress 21	Finding a marriage partner who meets family expectations∗
	Stress 22	Choosing own marriage partner
	~~Stress 24~~	~~Keeping up with the latest trends~~
	~~Stress 25~~	~~Pressure from others to smoke~~
	~~Stress 26~~	~~Pressure from others to drink alcohol~~
	~~Stress 27~~	~~Pressure from others to use drugs~~
	~~Stress 28~~	~~Getting support from friends~~
	~~Stress 29~~	~~Providing support to friends~~

∗ indicates overlap in another domain

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), The overall model fit is similar in either case, but some of the loadings on the other variables on the ACADEMIC factor are a 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 other fit indices were used

Appendix F

CFA of Stressors Scale: 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