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Community Mental Health Journal

ISSN 0010-3853
Volume 52
Number 2

Community Ment Health J (2016)
52:245-250
DOI 10.1007/s10597-015-9937-6

Springer

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ORIGINAL PAPER

Problem-Solving Coping and Social Support as Mediators of Academic Stress and Suicidal Ideation Among Malaysian and Indian Adolescents

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Received: 23 February 2014 / Accepted: 2 September 2015 / Published online: 23 October 2015

Abstract This study examined whether productive coping styles and social support were significant mediators of the relationship between academic stress and suicidal ideation. The survey was performed on a sample of 300 Malaysian and 300 Indian college students. The participants completed psychological assessments of productive coping styles, social support, academic stress, and suicidal ideation. Significant cultural and demographic differences emerged. Indian students reported higher suicidal ideation and academic stress than did Malaysian students, and Malaysian students received more social support and had better problem-solving coping styles than did Indian students. Overall, students who were male, non-religious, and from low-income families reported more academic stress and more suicidal ideation. Productive coping styles and overall social support strongly affected the relationship between academic stress and suicidal ideation among both countries' participants.

Keywords Coping · Social support · Suicide · Stress · Students

Introduction

There is a visible increase in the incidence of psychological problems leading to stress and the effects of stress, especially among those in emerging adulthood (as cited in Khan 2013, p. 1286), which is characterized as the period of transition occurring at 18–25 years of age. Arnett (2000) referred to such individuals as *emerging adults*; at this age, they face many challenges, such as moving away (physically and/or emotionally) from their childhood home and family. Emerging adults also experience biological and psychosocial changes that can lead to developmental crises (Erikson 1980).

Nearly 4 million adolescents attempt suicide annually (WHO 2005). Published studies on this topic from different countries are abundant (Callahan et al. 2013; Schmidt et al. 2002; Thomson et al. 2013). Globally, suicide is the second or third most frequent cause of death among youth 15–24 years old (Centre for Disease Control and Prevention 1995; Commonwealth Department of Health and Family Services 1997; Schmidt et al. 2000; United Nations 1996), and increases in the absolute number of suicide cases in this age group have been reported among Asian societies (Cheung et al. 2009; Chia 1999; Ung 2003). In India, more than 100,000 people lost their lives to suicide in 2006; this number represents 10 % of suicides worldwide. Officials found that youths between 15 and 19 years old accounted for the largest fraction (37.8 %) of these suicides (Times of India 2010). The Indian Penal Code System (IPCS) in the ministry of Law and Justice has classified attempted suicide as a crime (as Cited in Yadwad and Gouda 2005). The government of India has formulated several national policies since 2000 for preventing suicide attempts. These policies notwithstanding, adolescent suicide rates in India continue to rise, according to several epidemiological studies (Patel et al. 2012; Accidental deaths and Suicides deaths in India 2005, 2007; Lalwani et al. 2004). Self-harm and academic pressures have been linked to suicidal ideation among Indian youth (Krishnakumar et al. 2005; Verma et al. 2002). Academic

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problems and unsupportive home environments are associated with both perception of life as a burden and higher rates of suicidal ideation (Arun and Chavan 2009). The Indian literature has also reported that stress leads to suicide among Indian adolescents (Rubenstein et al. 1989; Singh and Joshi 2008).

Relative to India, there are fewer studies on adolescent suicide in the Malaysian population. The existing literature shows that nearly 7 % of adolescent students (12–19 years of age) have experienced suicidal ideation and 4.6 % have attempted suicide (Chen et al. 2005). Kok and Goh (2011) reported those aged 16–25 years as being the highest-risk group for suicide in Malaysia. The country's Ministry of Health (2009) reported the following ethnic breakdown for the 245 known suicide cases between 2007 and 2009: Chinese, 131 persons (53.5 %); Indian, 67 persons (27.3 %); Malay, 34 persons (13.5 %), other bumiputera, 11 persons (4.5 %), and others, 2 persons (0.8 %) (Hayati and Abdullah 2008), these numbers reinforce the pattern of higher suicide rates in Indian versus Malaysian groups (Maniam 1995). In contrast, the Chinese newspaper Nanyang Siang Pao reported 445 cases in Malaysia in 2010, involving 347 males and 98 females (a ratio of more than 3:1). The Malaysian Psychiatric Association estimated that seven people in Malaysia kill themselves daily, and that most are youths and young adults (Aishvarya et al. 2013).

Frydenberg and Lewis (1993) identified three categories of the stress coping response: problem solving, which involves working on a problem and remaining optimistic; reference to others, which involves turning to others for support; and non-productive coping, which involves ignoring the problem, worrying, and wishful thinking. The present study focuses on the first two categories. Regarding productive coping strategies, studies have reported that family attachment and support affect adolescents' suicidal behaviors (Eskin 1995).

Adolescents with high levels of parental attachment have a lower risk of suicide attempts. Social control theories can explain this relationship through their emphasis on the social support of parents and family members in the form of both direct and indirect control in preventing adolescents' engagement in deviant behaviors (Hirschi 1969; Sampson and Laub 1993). Another form of social support comes from the living environment. Bronfenbrenner's ecological systems theory (1979) views human behavior as embedded within particular environmental contexts and as the product of both direct and interactive social effects in these contexts.

In summary, poor problem-solving skills and deficits in social support from family, friends, and others may increase adolescents' academic stress, which could lead to suicidal behaviors. Thus, adequate coping skills and a range of other individual and adaptive skills, including positive beliefs and strong supportive systems, are important buffers against suicidal behavior among youth (Beautrais 2001). The present study attempts to describe various pathways whereby coping failures and poor social support may trigger stress that leads to suicidal ideation. A secondary aim is to examine whether these pathways are applicable to different countries with distinct cultural contexts.

The following hypotheses will be tested:

1. Indians have higher rates of suicidal ideation than Malaysians do.
2. Problem-solving skill and social support are associated with lower academic stress and lower rates of suicidal ideation.

This paper also demonstrates that multiple regression analyses can be used to test for mediation effects. A multiple mediation framework is proposed to demonstrate that coping and social support networks mediate the influence of academic stress on suicidal ideation.

Methods

Subjects

The sample comprised 300 students in Malaysia (140 male and 160 female; 40 % Malay, 49.2 % Chinese, and 9.8 % Indian) and 300 students on the Indian subcontinent (150 male and 150 female). Participants' ages ranged from 18 to 25 years ($M = 20.9$). The researchers selected two colleges in Kuala Lumpur, Malaysia and two colleges from New Delhi, India. Within each college, random sampling was used to select students.

Procedure

Participants were asked to provide written consent for participation. All questionnaires were translated into the local languages of each country (Bhasa Malay for Malaysian students and Hindi for the Indian students). Participants were assured that their responses would remain confidential and would be used only for research purposes.

Measures

The following measures were used:

1. *Scale for Academic Stress* (*SAS*), originally developed by Sinha et al. (2001). This 30-item scale measures presence or absence of indicators of academic stress and has been reported to have a split-half reliability

coefficient of .75 (Sinha et al. 2001). The Cronbach's alpha values for our Indian and Malaysian participants were .86 and .81, respectively.

2. *Adolescent Coping Scale* (*ACS*) (Frydenberg and Lewis 1993). This scale consisted of six items from the *Solving the Problem* subscale from the short version of the ACS. Higher scores on this subscale indicate more positive coping strategies. Reliability coefficients of .51 to .61 have been reported (Frydenberg and Lewis 1993a). Cronbach's alpha values for our Indian and Malaysian participants were .79 and .86.
3. *Suicide Behavior Questionnaire-Revised* (*SBQ-R*) Osman et al. (2001). This questionnaire consists of four items measuring suicidal ideation among clinical and non-clinical groups, with reported alpha reliability ranging from .76 to .88 (Osman et al. 2001). Cronbach's alpha values were .91 and .85 for the Indian and Malaysian participants in the present study.
4. *Multidimensional Scale of Perceived Social Support* (Zimet et al. 1988). This scale comprises 12 items rated on a 7-point response scale, with reported Cronbach's alpha = .87, .85 and .91 for the Family, Friends and Significant Others subscales, each of which contains four items. Reliability (α) with our Indian and Malaysian participants for each of the subscales were: Family ($\alpha = .83$), ($\alpha = .91$); Friends ($\alpha = .92$), ($\alpha = .89$) and Significant Others ($\alpha = .82$) ($\alpha = .90$). Cronbach's alpha values for the total scores of Indian and Malaysian participants were .92 and .89.

Data Analysis

Descriptive statistics, one-way ANOVA and hierarchical multiple regression, and structural equation modeling were used to test for the significance of the association between the variables of coping and social support and the outcomes of academic stress and suicidal ideation.

Results

The F tests showed significantly higher levels of suicidal ideation for Indian males (mean = 6.98, SD = 2.80) than for Indian females (mean = 4.34, SD = .81) ($F = 6.72$, $p < .01$). The level of suicidal ideation was significantly higher for participants who did not belong to a religious group (mean = 7.39, SD = 2.42) ($F = 6.72$, $p < .01$), than for those who did (mean = 4.21, SD = 1.74), ($F = 14.34$, $p < .001$), and for those from economically disadvantaged families (mean = 8.43, SD = 3.42) versus wealthier families (mean = 4.98, SD = 1.98) ($F = 15.32$, $p < .001$).

These patterns of results were mirrored by the Malaysian participants: more suicidal ideation for males (mean = 14.39, SD = 5.98) than female (mean = 7.11, SD = 3.44) ($F = 19.84$, $p < .001$), for those without a religious group affiliation (mean = 16.78, SD = 3.55) than those belonging to religious groups (mean = 8.05, SD = 2.73), ($F = 18.33$, $p < .001$), and for those from low-income families (mean = 15.45, SD = 6.53).

To answer the research question of whether coping strategy modifies the relationship between academic stress and suicidal ideation in the combined sample of Malaysian and Indian students, hierarchical multiple regression analyses were performed. These analyses showed that problem-solving strategies and social support both have a significant relationship to academic stress and suicidal ideation ($p < .01$). For Indian students, problem-solving coping style was a predictor of both academic stress and suicidal ideation ($p < .01$). For these students, academic stress also was significantly linked to suicidal ideation ($\beta = .44$, $p < .01$), and coping strategies and social support both played a role in mediating the relationship between academic stress and suicidal ideation. For Malaysian students, academic stress was a predictor of suicidal ideation ($\beta = .32$, $p < .01$), and problem-solving strategies and social support both were related to academic stress and to suicidal ideation. Therefore, across the two cultures, problem-solving coping strategies and social support played a significant role in the relationship between academic stress and suicidal ideation. These results were further confirmed by testing the mediation model between the Malaysian and Indian samples using AMOS structural equation modeling software. The results confirm that there were significant differences in the extent to which coping strategy and social support mediated the effect of academic stress on suicidal ideation [$\chi^2(3, N = 600) = 28.94$, $p > .01$; PCFI = .9; RMSEA = .03; TLI = .96].

Discussion

The results revealed greater suicidal ideation and academic stress among Indian and Malaysian individuals who were male, non-religious and from low-income families. Asian cultural context suggests that men should work outside the home so that they can take care of all family members, and that the female's primary task is to look after the household. This cultural expectation may generate higher stress for success among men than among women. Previous studies have shown increasing rates of male completed suicide (Conner et al. 2005; Horton 2000; Yang et al. 2005), which clearly depict men's stress. Findings also

showed that religious Indian and Malaysian participants experienced less suicidal ideation and academic stress. Religious involvement has been documented as a protective factor against suicidal ideation (Zuraida and Ahmad 2007). Past studies have argued that religious activity among Malaysian participants may result in a feeling of being protected by a divine power and thereby render some capability for dealing with negative life challenges (Gururaj et al. 2004; Majid 2003).

Our data showed that financially poor Indian and Malaysian participants scored higher on academic stress and suicidal ideation. Previous studies concur that financial hardship is one of the strongest stress-related predictors of suicidal ideation (Gururaj et al. 2004; Kim et al. 2006; Kadapatti and Vijayalaxmi 2012). The pattern of association between demographic characteristics, suicidal ideation and academic stress is also consistent with results from Sakamoto et al. (2006).

The Indian participants in our study reported higher suicidal ideation and academic stress than did the Malaysians, which is consistent with our Hypothesis 1 and with findings of previous research that noted particularly high rates of stress and suicidal ideation among Indian students (Arun and Chavan 2009; Augustine et al. 2011). This difference may be explained by the idea that Malaysian participants were receiving more social support and had better problem-solving strategies than did Indian students (consistent with our Hypothesis 2). Previous studies have also supported the argument that low levels of family support increase levels of stress and suicidal ideation (Blum et al. 2012; Friedlanderet et al. 2007; Rigby and Slee 1999). The lack of attachment and social integration among youth in their living environment, community and colleges have been proposed as catalysts for academic stress (Hobson et al. 1998 and Vivona 2000).

Higher suicidal ideation among Indian versus Malaysian participants may reflect cross-cultural differences (Colucci 2006). Nadesan (1999) has reported that Malaysia has a population of 20 million, of which 59 % are Malay (with a 3.6 % suicide rate); 26 % are Chinese (with a 38.1 % suicide rate); and 8 % are Indian (with a 48.8 % suicide rate). These data clearly show that Indians in Malaysia have the highest suicide rate, and native Malays have the lowest rate; i.e., it is evident that suicide is not a widespread problem among the Malays (As cited Nadesan 1999, p 98). Indians are the most vulnerable group where suicidal ideation is concerned (Kok 1988 and Vijayakumar 2010). India's Hindu cultural belief in a cycle of rebirth (As cited Kok 1988, p 236) may at least partly explain higher suicidal ideation among Indian Hindus, because a distressed individual may see suicide as a route to a better life in the future. In contrast, the majority of Malaysian participants were Muslims. Their religion considers suicide a sin, and the act is strictly forbidden (Bertolote and Fleischmann 2002), which may help explain the lower rates of suicidal ideation in this group.

The development and socio-economic growth of the two countries are also different in terms of implied expectations, pressures, and demands experienced by their residents. For example, Malaysia seeks to achieve developed nation status by 2020. Therefore, there is a strong urgency for human capital development. Many graduates are still unemployed (Hirschman 1982) and the pressure they experience to compete in the limited Malaysian market can cause a great deal of stress (Al-Dubai et al. 2011). The existence of relatively higher levels of problem-solving strategies and social support may have the effect of reducing this stress or moderating its effects. Other potentially important factors that may be studied in the future (e.g., agricultural setting (Mishra 2006), emotional disturbance, career problems, unsuccessful personal relationships and death of loved ones, might play a role in higher rates of academic stress and suicidal ideation (Patil and Singh 2011).

Although the data cannot speak conclusively on causality, the multiple mediation framework has been effective in supporting the argument that the support of parents and family members is important for mediating academic stress and suicidal ideation (our Hypothesis 2). The current study also provides empirical evidence that the proposed model fits the data better than the two reasonable alternative models (Tang and Oei 2011).

Skill in problem solving, as well as a range of other individual and adaptive strategies, including positive beliefs and strong social support, are necessary to buffer against suicidal behavior among youth (Beautrais 2001; Brown et al. 2012). Justin (2010) found that individuals living in families with stronger sources of social supports and integration had lower risks of suicide specifically. Current research also supports the view that social support from family, friends and others is a significant protective factor against stress more generally (Altiere and Kluge 2009; Cohen and Wills 1985; Gaylord-Harden et al. 2010).

There is need for future study to determine the applicability of problem-solving coping strategies and social support in different cultures. Rural and urban differences can be observed in terms of suicidal ideation and academic stress especially in the context of the Indian subcontinent. Future studies should also be conducted on non-student populations and different age groups. In addition, although the measures used in this study appear to have adequate reliability and validity, additional research is necessary to verify this.

In university life, adolescents often feel pressure to perform well because they perceive their worth as being evaluated in terms of their academic performance. This pressure might be owing to the relatively strong cultural focus on academic achievement among Indians and

Malaysians. However, Malaysian and Indian cultural factors also appear to contribute to differences in suicide ideation and academic stress. To reduce suicidal ideation in students, counselors and educators should teach effective coping skills to ensure that adolescents can overcome life challenges, including academic stress.

Limitations

This study is limited by its reliance on a small sample; therefore future research on larger and more diverse samples is required to determine the generalizability of the findings. Another limitation is that suicide attempts were not assessed. Further studies can be performed by taking measures to identify an extensive range of suicidal behaviors for adolescents in a cross-cultural setting. Additionally, the scope of stress studied should be widened to other possible variables, most importantly, academic failure, urbanization, and poverty (Cutler et al. 2001), all of which could contribute to the explanation of suicide in Asia. A qualitative follow-up study should be conducted to gather richer data.

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