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Research Paper

A cross-cultural analysis of adolescent suicidal behavior in southern India and the united states of America

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ABSTRACT

This paper will focus on the cross-cultural analysis of the trends and dynamics including risk factors, the neurological impact of the risk factor, protective factors, and prevention strategies of suicidal behavior between adolescents in Southern India and the United States of America. It will also discuss the limitations, and future implications of these suicidal behaviors in adolescents.

Keywords: *Adolescent suicidal behavior, Mental disorders*

Human beings are born with an inner drive for survival; however, this drive can be disrupted. The leading cause of this disruption is suicidal and self-injurious behavior, and this likelihood can vary depending on genetics, religion, gender, social environment, socio-economic status, and ethnicity. Unfortunately, there is a vast disparity in our understanding of suicidal and self-injurious behavior between developing and developed countries.

According to the Institute of Medicine, suicidal and self-injurious behavior involves a number of variables. Suicidal deation is a thought of engaging in suicidal behavior. Deliberate self-harm (DSH) includes non-suicidal self-injury (NSSI), like cutting oneself with a knife or razor with no intention to die. Suicidal attempts include DSH, like poisoning or hanging oneself, with an intention to die (O'Carroll, et al., 1996*)*. The intent to die is at the core of what differentiates self-directed violent behavior from any other form of death or even between the various forms of this behavior (World Health Organization, 2002).

Trends and dynamics of suicidal behavior

In the United States (US), suicide is one of the leading causes of death for adolescents between 10 to 18 years (Center for Disease Control and Prevention, 2010). In 2009, according to the National Youth Risk Behavior Survey (YRBS), 19.8% of the adolescents had seriously considered committing suicide but only 6.3% of these children attempted to do so within a 12-month period (Center for Disease Control and Prevention, 2010). So, there is evidence that more adolescents consider committing suicide than those that actually do so.

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Additionally, the incidence of youth suicide rates has been declining over the last decade in the US (8.2 per 100,000 for 15-19 year olds) (Gould, et al., 2003).

Within the US, adolescent suicide rates vary depending on an individual's ethnic background. Amongst all ethnic groups, adolescents of Native American and Native Alaskan descent have the highest rates of fatal suicidal behavior. Whereas, White and Latino youth have the highest rates of suicide ideation and deliberate self-harm (Joe, Canetto, & Romer, 2008).

Even though suicide rates are declining among adolescents in developed countries like the US, they are increasing in developing countries like India. In Southern India, the suicidal rate for girls between 15 to 19 years was 148 per 100,000, which is 50-70 times higher than the rates in the US and 58 per 100,000 in boys, which is four times higher than the US. These statistics also reflect that suicide is the leading cause of death within this age group of adolescents in Southern India (Gould, Greenberg, Velting, & Shaffer, 2003).

Risk Factors

The primary influencers in an adolescents development are their immediate family, friends, and teachers. Additionally, the social and cultural factors like religious beliefs, socio-economic status, gender and ethnicity that form an adolescent's identity are essential in their psychological development. There is an increased risk of suicidal behavior and DSH in adolescents when there is external pressure from these factors (Nock, et al., 2008). However, due to the extremely lethal nature of suicide, most adolescents are fearful of it.

Adolescents capability to commit suicide are due to three factors: (a) feeling like a burden on loved ones (b) social alienation, and (c) learned fearlessness (Gandhi, et al., 2016). This could stem from a variety of factors including familial factors, education systems, mental disorders, gender, psychological factors and access to lethal means.

Familial Factors

From decades of research, family cohesion has proved to be a protective factor for the development of children and adolescents. However, factors that disrupt family relationships, including family history of suicidal behavior, family discord, loss of a parent to death or divorce, poor parent-child relationships, and maltreatment or physical or sexual abuse by a parent, increase the risk of suicidal behavior in adolescents significantly (Bridge, Goldstein, & Brent, 2006). The probability of adolescents committing suicide is 5 times more likely if a parent has committed suicide (Nazeer, 2015).

Research has also demonstrated a clear link of severe depression in children due to the inconsistent or withdrawn parenting styles with low supervision on the child. These familial factors may aggravate both suicidal behaviors and physical aggression towards the adolescents peers due to internalized hostile attribution styles, which can lead to learned fearlessness and social alienation (Stark, et al., 2012; Leadbeater, Way 2007; Barnes, et al., 2006).

There is a disparity between the collectivistic familial culture in the East, (in places like India) and the individualistic familial culture in the West (in places like the US). However, the social structure in India is rapidly changing as it is adapting to modernization. The large joint family system is breaking down to a more nuclear family-oriented system. This has led

to a loss of emotional support for a lot of Indians. This effect of modernization with increasing disparities in the socioeconomic structure due to privatization and liberalization of the economy has added additional stress on adolescents transitioning into adulthood. These changes may be associated with the increased risk of suicidal behaviors and ideation in adolescents (Amitai, Apter, 2012; Vijaykumar, 2007).

Education System

Education in India is founded upon 'guru-chel'/ 'shisya parampara', which means the teacher is responsible for the literacy, knowledge and personality development of the child. However, this has been modified over time and become achievement-oriented rather than child-oriented. Today, mark sheets and grades determine how intelligent you are because they are the only factors that towards higher education, not the actual work done or made to obtain those grades. This approach does not address the child's needs to develop skills and become empowered to prosper in this world (Srikala, Kishore, 2010).

South India is known for the higher and more reformed education system within the country. However, in a nationally representative study on 'Suicide Mortality in India', Patel et al. (date) found that suicidal behavior and ideation are more prevalent in the Southern part of India, especially in the higher educated sectors as compared to the sectors that have only received primary education. The strong competition and pressure faced by adolescents in the educational sector from the age of 13 due to the rigorous commencement of annual examinations may be a primary cause (Patel, et al., 2012).

Additionally, there is also a lack of sex education, especially in the rural areas of India, leading to social problems like illegitimate pregnancy, which is another major risk factor for suicidal behavior in adolescent girls. (Patel, et al., 2012; Kumar, et al., 2013).

In contrast, in the US, adolescents with lower education are at a higher risk of suicidal behavior potentially due to the additional economic pressures (Toumbourou, et al., 2016).

Mental disorders and Suicidal Behavior

More than 90% of adolescents who have attempted suicide have at least one diagnosed psychiatric disorder (Nazeer, 2016). The more severe and chronic the mental disorder, the higher the risk for suicidal behavior. Mood disorders, especially depression, which is the most prevalent psychiatric disorder among adolescents, continue to be a major precipitant for suicide. According to a study conducted in the US by Nazeer and colleagues (2016) on the 'Public Health Aspects of Suicide in Children and Adolescents', more than 60% of the adolescents with depression had a history of suicidal ideation and 30% of these adolescents attempted suicide. Other disorders like substance use disorder, anxiety and posttraumatic stress disorder are highly comorbid with mood disorders like depression and have reported to be associated with an increased risk of suicide (Nerves, Leanza, 2014). However, the rates of adolescent suicide are decreasing in the US partly because of the increased prescription of SSRIs like Prozac and Zoloft in the adolescent population (Amitai, Apter, 2012).

The majority (82.2%) of the reports and studies of the effect of mental disorders as a risk factor for suicidal behavior stem from North America and Europe and only 1.3% of these reports are from developing countries like India or Sri Lanka (Bertolote, et al., 2003). This may be partly due to the country-wide stigma in relation to mental health, especially in the rural parts and a few urban parts of these developing countries like India. This can be seen as

participants in a few studies did not even conceptualize depression or psychosis as a 'real medical issue' (Kermode, et al., 2009).

Gender

In Western countries, the rate of suicide across ethnicities is higher in adolescent boys than adolescent girls (ratio of 5:1), whereas the rates of suicidal ideation are higher in girls (3:1) (Nock, 2009). This could be due to the negative stereotypes linked to boys acquiring mental health support in middle and high school, making it difficult for them to ask for help or even accept their own situation (Levi, et al., 2008). Additionally, boys use more violent methods and have a higher prevalence of antisocial disorders and substance abuse disorder than girls. This gender gap has also been increasing in the ethnic minority boys due to the vulnerability to stressors (Brent, et al., 1999).

In India, adolescent girls are at a higher risk of committing suicide than boys. With the rapidly changing social environment, there has been an increase in intergenerational and gender conflicts in the traditional agricultural society as it is moving towards an egalitarian industrial society. The patriarchal mindset is still ingrained within the mindset of the India population. So, girls are facing more challenges, especially in the rural parts of India due to the older belief in repressive education for the girl child. Additionally, India has the highest number of girls enrolled in out-of-school education (Amitai, Apter, 2012).

Psychological factors

Psychosocial factors associated with adolescent suicidal behavior are shared across both cultures. These factors include social isolation, bullying (perpetrators or victims), peer victimization, school failure, and social media (King, et al., 2001). A study conducted in the USA by Hacker and colleagues (date) on 'Developmental Differences in Risk Factors on Suicide Attempts Between 9th and 11th Graders', found evidence to support that girls who were victims of bullying and cyber-bullying have a higher risk of suicidal behavior than perpetrators of bullying. Whereas, for boys, either being the victim or the perpetrator increases the likelihood of suicidal behavior (Klomek, et al., 2005; Mann, 2009). Additionally, having a friend who attempted to commit suicide, significantly increases the risk of suicidal thoughts for both adolescent girls and boys (Bearman, Moody, 2004).

Access to lethal means, alcohol and drugs

The most common way for adolescents to commit suicide in India is by ingesting pesticide, resulting in poisoning from organophosphates. This is higher in the agricultural areas than the urban areas due to the higher availability and ease of access to pesticides in these areas of India. Statistics show that 31% of males and 48% of females have used this method to harm themselves in India. Furthermore, the lack of education and medical conditions for the farmers also increases the deaths due to pesticide poisoning (Patel, et al., 2012; Kumar, et al., 2013).

Secondly, even though social drinking is not prevalent in India, alcohol dependence and abuse by the husband, who is the head of the family in India's patriarchal system, has driven wives and eventually children to commit suicide in some cases. The odds ratio for alcoholism was 8.25 in Chennai and 4.49 in Bangalore (two big cities in South India) (Gururaj, et al., 2004).

On the contrary, in the US, there is research that shows the presence of lethal means like firearms in the house increases the risk of suicidal behavior due to the ease of access. Additionally, alcohol abuse is linked to the increased risk of suicide death among adolescents due to heavy episodic drinking (HED). Early HED can lead to poor behavioral inhibition, decision making and cognitive precociousness, which is causally related to increased suicidal behaviors. This is prevalent in adolescents around 13 years of age (Nock, 2009).

Non-Suicidal Self Injury (NSSI)

NSSI is defined as the 'intentional destruction of one's own body tissue without any suicidal issue' (Nock, Favazza, 2009). However, this can lead to more fatal suicidal behaviors because these adolescents can fall into a spiral of guilt and shame due to these behaviors. NSSI also has a interpersonal and intrapersonal reinforcement due to its effect that helps adolescents diverge from unpleasant thoughts and feelings as well as escape from undesirable situations (Nock, 2009). This can lead to further isolation because these adolescents are in fear of rejection, punishment or even stigmatization in society, especially in India (Turner, et al., 2014). Internally, this could increase the risk of the adolescents suicidal behaviors due to the perceived burden on their loved ones. Even though, Walsh claims that NSSI and suicide are entirely distinct psychological and behavioral phenomenon's, there are studies that have shown that 70% of the adolescents that engage in NSSI will attempt to commit suicide at least once in their lifetime (Nock, et al., 2006).

Neurological Impact of the Risk Factors

The hypothalamic-pituitary-adrenal (HPA) axis is the central stress response center of the brain. The activation of the HPA axis leads to release of cortisol, which is a hormone that causes arousal in response to stress. Cortisol also binds to the glucocorticoids receptors in the hippocampus to inhibit further simulation of the HPA axis in a negative feedback loop (Lupien, McEwen, Gunnar, & Heim, 2009; Heim, et al. 2010).

Infancy and childhood are critical time periods in the development of the HPA axis. Exposure to early life adversities like abuse, neglect, maternal separation or depression, or traumatic incidents during this period, leads to long-term perturbations in the functioning of the HPA axis leading to hypersensitivity to future stressors (Levine, 2005). This can also increase the vulnerability to mental disorders like depression or anxiety due to the increased sensitivity to stress and predisposition to internalizing behaviors, which is an established risk factor for suicidal behaviors in adolescents (Gutman, Nemeroff, 2002). The risk of adversity in childhood has been found to increase the risk of suicide in adolescents by 2 to 5 fold (Dube, et al., 2001).

Protective Factors

Besides therapy, medication or undergoing any treatment like CBT, there are ways to protect adolescents from suicidal behavior and suicidal ideation. These include family and social support, religious beliefs, and school based system of support.

Religion

Religion is a big protective factor, especially in India. The Hindu philosophy teaches you that the soul never dies. This belief in afterlife, reduces the feelings of hopelessness as Hindus believe that even if the physical body is dead, the soul is still alive. The majority of the population has some spiritual or religious belief system. The positive religious coping

mechanism motivates adolescents to get through stressful situations as they feel that God is trying to strengthen them through this test. Religious coping also moderates the influence of impulsivity among adolescents with suicidal thoughts (Grover, et al., 2016).

The adolescents that engage in suicidal behaviors, irrespective of the presence of other psychiatric disorders, tend to use negative religious coping mechanisms. A study conducted by Pargament, et al. (date), on the 'Psychometric Status of a Short Measure of Religious Coping' in India, shows that a negative religious coping mechanism is one where individuals feel abandoned by God or the place of worship, which enhances the urge to harm themselves. They feel the stressful situation is an act of a devil and it is a punishment they deserve and hence engage in suicidal behaviors (Paragament, et al. 2011).

However, in the US the religious beliefs have different implications. A study conducted by Gearing and Lizarding on 'Religion and Suicide', proves that religion aims to create an existential reason for existence and condemns suicide, especially in African American youths. Another benefit from the religious belief systems is the opportunity to meet like-minded people and find a social support system in the individualistic culture (Gearing, Lizardi, 2009).

On the contrary, LGBTQ youth feel religious beliefs hold a prejudice against homosexuality. This increases their difficulties as they may internalise the homophobia and face conflicts between religion and sexuality, which increases the risk of suicidal behaviors. For example, Christian and Muslim fundamentalism is associated with this prejudice (Barnes, Meyer, 2012; Anderson, Koc, 2015; Ream, Savin-Williams, 2005).

Social and Family Support

Adolescents who claim to have a strong emotional support from their family due to family cohesion are 3 to 5 times less likely to engage in suicidal behaviors than peers with the same levels of mood psychopathology and life stress (Nazeer, 2016). There is emerging data to prove that subsequent caregiving conditions within the home and family environment can moderate the adverse effects of early stressful environments. It reverses the early alterations on the HPA axis of the brain and reduces the corticosterone response to acute stress (Kaufman, et al., 2000).

School - Based Protective Factors

School-based clinicians are often the first to identify signs of suicidality and comprehensive school-based programs have been shown to be successful in reducing adolescent suicide (Institute of Medicine, 2002). It has been demonstrated that the ability to problem solve in eleventh graders has been associated with safer decision making and proves to be a protective factor against suicidal behaviors (Cha, Nock, 2009).

However, school based learning is predicted to be more effective in developed countries than in developing countries. This is because there is a large population of adolescents in India that only receive primary education. India also has the highest number of girls enrolled in out-of-school education as families are struggling for basic necessities like food and shelter India has the highest number of girls enrolled in out-of-school education (Amitai, Apter, 2012). This may be one cause of the higher rates of suicidal behavior in girls in India.

Prevention Strategies

Suicide is a growing public health issue globally. It is one of the top three causes of death in adolescents in India and the US. In 2012, 0.25 million deaths due to suicide were reported in India and most of these were in youth between 15 to 29 years (World Health Organization, 2014a). Additionally, there is increasing evidence to suggest that suicidal behavior relies on a continuum. This behavior may begin with non-suicidal self-injury (NSSI), which then becomes critical and can have fatal implications (see Fig. 1.) (Gandhi, et al. 2016). So, to seek preventive measures to combat suicidal behavior and DSH in adolescents before it is life-threatening, it is necessary to understand this pattern.

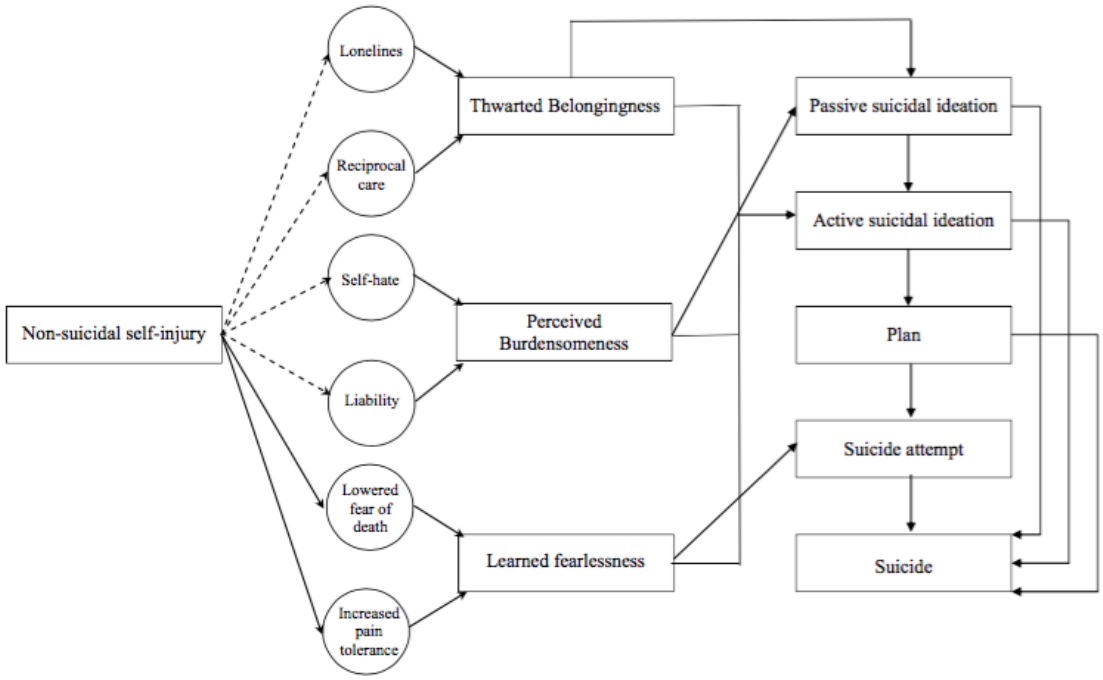

Fig. 1. Path from NSSI to suicidal behaviors (process-based model of Joiner, et al., 2012; Baca-Garcia, et al., 2011).

Committing suicide is a permanent solution to a temporary problem. To combat this public health issue, it is necessary to interfere during the intermediate stage when the adolescent feels like a burden on their loved ones, feels socially alienated or has repeatedly injured themselves deliberately, which has made them fearless over time (Gandh, et al., 2016). However, different prevention strategies need to be adopted in India and the US due to the difference in mindset and responsiveness as a result of the collectivistic and individualistic cultures.

Prevention Strategies for Adolescents in the US

To reduce the suicidal behavior in adolescents, early detection of suicidal ideation is key to prevention. One strategy is implementing comprehensive school programs to reduce the risk of suicide in adolescents (Fried, et al., 2012). Teachers or other professionals, like a school nurse can serve as 'gatekeepers', which means that they can be trained to help identify students who are disturbed (Freedenthal, 2010). Currently, only one-tenth of school teachers and one-third of school counselors can identify students who are at-risk of suicide in the US (Nazeer, 2016). So, if these teacher or professionals in schools are trained to do so, they can refer these adolescents to mental health services in the early stages. Recent research has

shown that most suicidal youth do not receive any mental health support and do not talk to any adult about their suicidal thoughts, which may enhance their suicidal behaviors and physical aggression (Amitai, Apter, 2012).

Additionally, a strategy that can be adopted as a school-wide program is to include cognitive and behavioral skills training with an emphasis on problem solving in the curriculum (Nazeer, 2016). There is statistical evidence to prove that problem solving and coping mechanism skills in adolescents is a protective factor against suicidal behaviors. This strategy is preferred over curriculum-based programs in schools that would directly teach adolescents about suicide prevention strategies because there is factual evidence to prove that this would cause at-risk adolescents to become more distressed, reducing their probability of seeking help (Cha, Nock, 2009).

Prevention Strategies for Adolescent in India

Mental health problems are overlooked in India as it struggles to compete with major public health problems like access to basic education, healthcare and nutrition. However, there is an urgent need to combat suicide mortality in adolescents because of evidence that it is increasing. Today, non-governmental organizations (NGO's) are stepping in to provide external emotional support, especially in the rural parts of India. These NGO's like SEWA (Self Employed Women's Association) are helping spread awareness about mental health concerns and serving as an entry point for further professional services (Vijaykumar, 2007).
Secondly, similar to the prevention strategies in the US, in certain urban parts of India, school-based prevention strategies can be adapted because of the availability of resources. Thus, it is possible to incorporate the school-wide program, which includes cognitive and behavioral skills training.

Limitations in Research

Limitations in India

India is a subcontinent in itself. The adolescent population in India is among one of the largest in the world (World Health Organization, 1997). Children under the age of 18 contribute 37% of India's population, which is 1.3 billion (Census of India, 2011). Each state within India has its own language, values, culture and religious beliefs. There is also a huge disparity between the privileged and underprivileged, and the mindset varies vastly across the country.

This huge disparity coupled with the lack of a centralized system to collect data on suicide leads to differences in data collection and risk factors for suicidal behaviors in different parts of India. Each study conducted in India will have varied results due to regional imbalances within the country. This poses as a big limitation while conducting research within a sample in the population. Even if the data in the study is statistically significant, it is hard to make a generalization of the adolescent suicidal behavior patterns across the country due to the lack of a uniform data collection system for suicide rates. This makes it harder to implement preventive strategies to combat this public health issue.

Indian Laws

Another big limitation to collecting data and implementing preventive strategies in India is the laws related to suicidal behavior. Section 309 of the Indian Penal Code states, "whoever attempts to commit suicide and does any act towards the commission of such an offense shall be punished with simple imprisonment for a term which may extend to one year or

with a fine or with both". Additionally, deaths due to suicide of adolescent married women is an especially a sensitive issue because the husband and/or his family are potentially held responsible if this occurs within 7 years of the marriage (Patel, et al., 2012; Vijaykumar, 2007). These factors lead to skewed data collection and increasing information gaps because many suicide attempt and death cases are reported as accidents to avoid the judicial system and expense that follows.

Thus, suicide rates are underestimated in India because of the lack of data banks for suicide cases and under reported cases of adolescent suicidal behavior due to the rigid laws (Kumar, et al., 2013). A study done by Sachil Kumar, et al. (date) on 'Trends in Rates and Methods of Suicide in India', shows that a higher education level in adolescents in Southern India increases the risk of suicidal behavior but a severe limitation of this study was the lack of suicidal data from the rural areas in Southern India (Kumar, et al. 2013). Often the lack of available data makes it difficult to draw firm conclusions.

Health Seeking Facilities

As a developing country, rather than focusing on the mental health problems, a large proportion of the adolescent population in India has other problems to deal with. These adolescents are in competition for meager resources, like having three meals a day and obtaining a basic education for survival. Additionally, there are only 3500 psychiatrists in the country for a population of over a billion people (Vijaykumar, 2007). Hence, the limited resources, coupled with multiple barriers to recognition due to severe stigmatization and rigid mindsets, prevent many adolescents from recognizing or receiving any mental health support in India.

Limitations in the US

In comparison with a developing country, there are fewer significant limitations for research related to suicidal behaviors in adolescents in the US. The strongest of these limitations is that less is known about suicidal behavior amongst the ethnic minority groups. Most of the research conducted is focused on White youth (Amitai, Apter, 2012). For example, Native Americans are an ethnic minority group which is culturally heterogeneous. There over 500 federally recognized American Indian tribes that differ in language, social structure, emphasis on individuality and collectivity, gender roles, and conceptualization of death. The suicide rates amongst adolescents vary widely across the 500 different communities (May, VanWinkle, 1994; Shaffer, 1998; Shore, 1975).

Secondly, research has been done on the impact of stress on brain development but minimal research has been done on the neurobiological sequelae of child abuse, which is a risk factor for suicidal behavior.

Lastly, there are limited studies with evidence of successful preventive measures to combat suicidal behavior in adolescents. Despite the known risk factors, there are limitations in the prevention strategies due to the minimal control the adolescent has over it. However, this now being worked on through school-based prevention systems (Amitai, Apter, 2012).

Future implications

India

The patriarchal system in India is still very powerful today. Even though there is social upheaval in the country due to liberalization and modernization, this patriarchal belief is

engrained in the mindset of the Indian population. A girl child and women, specifically in the rural communities, face the repercussions of this system. For example, they are prevented from obtaining a higher education as they are expected to take on the role of a housewife, which tends to keep them entrapped in the poverty cycle. Additionally, these patriarchal constraints increase women and children's vulnerability to abuse due to the power dynamic it creates. In rural India, most women and children have accepted these patriarchal norms by considering this a normal way of life and continue living in fear. This directly correlates to increasing mental health problems, and thus increases suicidal behaviors amongst adolescents.

Unlike in developed countries, the educational system in India lacks the necessary structures needed to combat the rising suicide rates in adolescents. Hence, it is more effective to spread mental health literacy by reaching out to the families in the rural population in person. If parents gain an understanding of the relationship between mental health and suicidal behaviors, it will not only combat the suicidal attempts amongst adolescents but also help enhance family cohesion and support. Furthermore, reducing the stigmas associated with mental health would be the first step to initiate this change in mindset.

While this method could face challenges due to the limitations in reaching and successfully communicating with the rural populations because of language barriers across the 'sub-continent', it is a starting point to get to the core of this big problem.

The US

The United States of America is known to be the land of immigrants because of its ethnically and racially diverse population. Mental health and self-care is given great importance in the individualistic culture of the US. However, the ethnic minority groups have been underrepresented in research related to adolescent suicidal behaviors and mental disorders. An emphasis on these groups being included in study samples could lead to finding potentially different risk and protective factors due to the varied social and cultural norms. The 'Hispanic paradox' is an example of one such finding. Even though it is highly debated, it is found that the Hispanic or Latino population have health outcomes that are better than their non-Hispanic White counterparts, like a lower mortality rate, despite lower income and education. This could also alter the preventive measures that need to be taken to combat the risk of suicidal behaviors in adolescents.

CONCLUSION

Suicidal behavior in adolescents is a major public health issue today, which needs to be focused on in the developing and the developed world because the youth are the future of the world.

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Conflict of Interest

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