Review article

Adolescent suicide and suicidal behavior: a review

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Abstract

Suicide among adolescent has emerged as a major public health issue in many low and middle-income (LAMI) countries. Suicidal behavior including ideation and attempt are the most important predictors of completed suicide and offer critical points for intervention. This article reviews recent population and national data based studies of adolescent suicide and suicide attempters for analyzing risk factors for adolescent suicide and suicidal behavior. According to WHO estimates, 800,000 suicide deaths occurred worldwide in 2016 and it is the third leading cause of death for 15-19 year olds. The suicide rate in Bangladesh was 5.9 per 100,000 population in 2016 (4.7 for males and 7.0 for females). Approximately, 90 percent of suicide cases meet criteria for a psychiatric disorder, particularly major depression, substance abuse and prior suicide attempts are strongly related to adolescent suicides. The relationship between psychiatric disorders and adolescent suicide is now well established. Factors related to family adversity, social alienation and precipitating problems also contribute to the risk of suicide. The main target of effective prevention of adolescent suicides is to reduce suicide risk factors. Recognition and effective management and control of psychiatric disorders, e.g. depression, are essential in preventing adolescent suicides. Research on the treatment of diagnosed depressive disorders and of those with suicidal behavior is reviewed.

Keywords: Adolescent, suicide, suicidal behavior,epidemiology, risk factors, prevention and control.

Introduction

Suicide is a global public health problem, specially among adolescent that can have lasting harmful effects on communities, provinces and entire countries.[1] Suicide is the third leading cause of death among adolescents,[2] which accounts for more than a quarter of suicides in the world[3].

Suicide defined as the act of intentionally ending one's own life. Suicidal behaviors are classified more specifically into three categories: suicide ideation, which refers to thoughts of engaging in behavior intended to end one's life; suicide plan, which refers to the formulation of a specific method through which one intends to die; and suicide attempt, which refers to engaging in potentially self-injurious behavior in which there is at least some intent to die.[4-6]

Suicidal thoughts are common during adolescence,[7] which is considered the peak time for suicidal ideation.[8] The point prevalence of suicidal ideation in adolescence is approximately 15-25%, ranging in severity from thoughts of death and passive ideation to specific suicidal ideation with intent or plan.[9] Lifetime estimates of suicide attempts among adolescents range from 1.3-3.8% in males and 1.5-10.1% in females, with higher rates in females than males in the older adolescent age range.[10]

Suicidal behavior tends to be recurrent, and may be a harbinger of suicide completion. Estimates of the risk of repetition of suicidal behavior range from 10% upon a 6-month follow-up to 42% upon 21-month follow-up, with a median recurrence rate of 5-15% per year.[11] Completed suicides are high suicide rates among adolescent males; although the rates vary between countries.[12]

This article briefly reviews the epidemiology of suicide among adolescents, risk factors for suicide and suicidal behavior. This paper therefore reviews preventive approaches studies of adolescent suicidal behavior. Finally, research on the effects of interventions aiming at reducing further suicidal behavior in these individuals are reviewed.

Epidemiology

It is estimated by WHO that around 79% of global suicides occur in low and middle-income (LAMI) countries.[13] In richer countries, three times as many men die of suicide than women do, but in LAMI countries the male to

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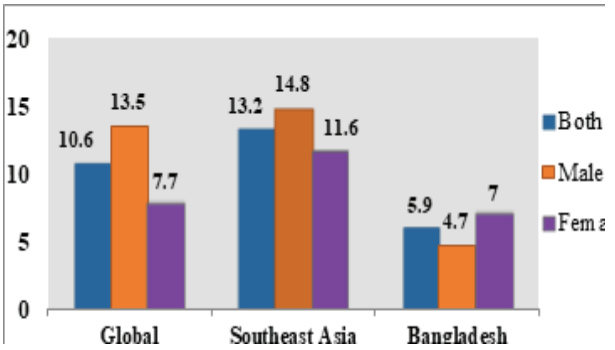
female ratio is much lower at 1.5 men to each woman. Globally, suicides account for 50% of all violent deaths in men and 71% in women.[14] The Southeast Asia region alone accounts for 40% of the global suicide deaths, with China and India being the leading contributors.[15]

Figure 1. Suicide deaths occur in adolescents and adult of all ages in 2016 (Crude suicidal deaths per 100,000 population)[16]



Suicide is rare in childhood and early adolescence, and becomes more frequent with increasing age. Suicide is the third leading cause of death in 15-19 year olds.[13] The mean worldwide annual rates of suicide per 100,000 were 0.5 for females and 0.9 for males among 5-14 year olds, and 12.0 for females and 14.2 for males among 15-24 year olds, respectively in 2000.[17] The lifetime prevalence of suicide attempts in this age group has been estimated to be 7.1% (10.1% for females and 3.8% for males) in 2016.[18]

The suicide mortality rate is an indicator of target 3.4.2 of the Sustainable Development Goals by 2030, to reduce by one third premature mortality from noncommunicable diseases through prevention and treatment, and promote mental health and well-being.[13]

Table 1. Epidemiology of Suicide and Suicidal Behavior[13,19]

Trend	Global suicide mortality rates decreased in 2000-2016 by 16% in men and 20% in women.
Geographical distribution	The highest suicide mortality rates were seen in the WHO European Region for men and in the South-East Asia Region for women.
Age distribution	In men, suicide rates increased with age. In women, suicide rates increased with age from 30 years, but peaked among those aged 15-29 years.
Sex distribution	Globally, suicide mortality rates were twice as higher in men than in women (13.5 for male and 7.7 for female deaths per 100,000 population, respectively) in 2016.
Methods of suicide	It is estimated that around 20% of global suicides are due to pesticide self-poisoning, most of which occur in rural agricultural areas in LAMI countries. Other common methods of suicide are hanging and firearms.
National income	Higher suicide mortality rates were seen in high-income countries (for men) and LAMI countries (for women).

Demography of Suicide in Bangladesh

Suicide is an under attended preventable public health problem in Bangladesh.There is no central suicide database, no national suicide surveillance system as well as the paucity of research on suicide is also prevailing in the country. Furthermore, suicide is considered as a criminal offense in the legal system of the country.[21-23] Legal consequences of suicide are perceived as miserable and problematic to community people. Religious factors are also responsible to hide the suicide disclosures as about 90% of the population of Bangladesh are Muslims.[24]

Social factors play role to under identification and under registration of suicides and many times families do not disclose the true nature of the act for fear of harassment by police and/or effects of social stigma.[23] People used to hide the suicidal news of their near and dear ones by mentioning suicides as accident or sometimes homicide.[24] It's very hard to get strictly scientific information regarding suicide/ suicidal behavior in the country as reports from police, media, forensic settings, hospitals, courts and such institutions are considered as sources of data.[25] According to WHO global health estimates, the suicide rate in Bangladesh was 5.9 per 100,000 population (4.7 for males and 7.0 for females) in 2016.[16]

Suicide is under studied social issue in Bangladesh. Young females are more vulnerable in the country as repeated studies revealed more females are committing suicides than male counterparts. Female predominance can be explained by the patriarchal society pattern, child marriage, low literacy, socio-economic independence, pattern of marital involvement and relationship. Some studies found the risk factors prevail within the family, such as marital conflicts, spousal violence, familial disharmony, affair related issues, exam fail, not fulfillment of immediate demands.[20-21,23]

Risk Factors

Although there are variations in trends and risk factors of suicide among countries in the Southeast Asia region. Several studies have attemped to delineate those factors that place an adolescent at higher risk for attempting suicide. If one can identify the suicidal adolescent at the earliest possible stage, one is more likely successful in

preventing loss of life through appropriate intervention. The identified risk factors have been grouped into psychiatric disorders, psychosocial factors and biological factors. These identified risk factors include the diagnosis of affective and antisocial disorders, borderline personality disorders, alcohol and drug abuse, and disruptive behavioral problems. Psychosocial factors associated with precipiting suicidal behavior, including long term stressors, specially those incidents involving a loss, a history of physical and sexual abuse, school failure, bullying, internet and game addiction, and a chaotic non-supportive family background. The characteristics, psychopathological status, and histories of adolescent families are specially important in identifying possible predisposing factors to subsequent suicidal behaviors. Several studies have provided findings suggestive a biological or genetic link to self-destructive and suicidal behavior.[13,20-21,26-28]

Psychopathology

Psychiatric disorder is present in up to 80-90% of adolescent suicide victims and attempters from both community and clinical settings.[11] Both in completed and attempted suicide, the most common psychiatric conditions are mood, anxiety, conduct, and substance abuse (alcohol and drug) disorders. Comorbidity of psychiatric disorders, particularly of mood, disruptive, and substance abuse disorders, significantly increases the risk for youth suicide and suicidal behavior.

Depression

The most frequent psychiatric diagnosis observed in adolescents who attempt or committed suicide in some form of depression.[1,4-6,13,18,20-21,26-28] Psychological autopsy studies have shown a substantial link between clinical depression and suicide in adolescence globally, with up to 60% of adolescent suicide victims having a depressive disorder at the time of death.[12,29,30] Similarly, between 40-80% of adolescents meet diagnostic criteria for depression at the time of the attempt. In clinically, up to 85% of patients with major depressive disorder (MDD) or dysthymia (i.e., chronic, but less severe depression) will have suicidal ideation, 32% will make a suicide attempt sometime during adolescence or young adulthood, 20% will make more than one attempt, and by young adulthood, 2.5% to 7% will commit suicide in worldwide.[27]

Aggression and Impulsivity

Multiple epidemiologic, clinical, retrospective, prospective, and family studies have identified a strong link between aggression and suicide.[31,32] Suicide attempts are often impulsive and many studies have identified impulsivity as a common correlate and risk factor for suicidal behavior.[33-35]

Sexual and Physical Abuse

Exposure to child sexual abuse and child physical abuse leads to a significant increase in the occurrence of a variety of poor mental health outcomes, including suicidal ideation and behavior. The exposure to child sexual abuse had a more deleterious effect on mental health outcomes than exposure to only child physical abuse.[13,26,27,36]

Prevention and Control

Suicide is a serious public health problem; however, suicides are preventable with timely, evidence-based and often low-cost interventions. For national responses to be effective, a comprehensive multisectoral suicide prevention strategy is needed.There are a number of measures that can be taken at population, sub-population and individual levels to prevent suicide and suicide attempts.[13,14,26] These include: reducing access to the means of suicide (e.g. pesticides, firearms, certain medications); reporting by media in a responsible way; school-based interventions; introducing alcohol policies to reduce the harmful use of alcohol; early identification, treatment and care of people with mental and substance use disorders, chronic pain and acute emotional distress; training of non-specialized health workers in the assessment and management of suicidal behavior; follow-up care for people who attempted suicide and provision of community support.

In the control and treatment of suicidal behaviors, Cognitive-Behavioral Therapy for Suicide Prevention (CBT-SP) and dialectic therapy, play an important role.[37,38] Another approach to the primary prevention of suicide has been through crisis centers and hotlines.[26]

Conclusion

There is no single explanation of why people die by suicide. However, many suicides happen impulsively and in such circumstances, easy access to a means of suicide. Suicide is a complex issue and therefore suicide prevention efforts require coordination and collaboration among multiple sectors of society, including the health sector and other sectors. These efforts must be comprehensive and integrated as no single approach alone can make an impact on an issue as complex as suicide.

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