

# Prevalence and Predictors of Suicidal Behavior Among Adolescents in Brunei Darussalam

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**Background:** Suicide is a major public health concern among adolescents. This study examines the prevalence and predictors of suicidal behavior among adolescents in Brunei Darussalam using secondary data from the 2019 Global School-based Student Health Survey (GSHS). **Methods:** A cross-sectional study was conducted using GSHS data. The sample comprised 2,400 adolescents aged 13 to 17 years. Descriptive statistics, chi-square tests, and multivariate logistic regression were used to analyze the relationships between suicidal behavior and demographic, psychological, behavioral, and social factors. **Results:** The prevalence of suicide attempts among adolescents was 12.3%. Female adolescents had a significantly higher risk (16.6%) compared to males (7.7%). Psychological factors such as suicidal ideation (AOR = 13.17, 95% CI = 8.03-21.61) and suicide planning (AOR = 6.18, 95% CI = 3.99-9.58) were the strongest predictors. Other significant risk factors include bullying, loneliness, sleep disturbances, alcohol use, and lack of close friendships. Protective factors included strong parental monitoring and supportive peer relationships. **Conclusion:** Suicide attempts among adolescents in Brunei Darussalam are influenced by psychological distress, risky behaviors, and social relationships. Early identification of at-risk individuals and targeted interventions are crucial for prevention.

**Keywords:** adolescent suicide, suicidal behavior, Brunei Darussalam, mental health, risk factors, protective factors

## Introduction

Suicide is a tragic act in which an individual intentionally takes their own life (WHO, 2013). It often results from intense distress, depression, or underlying mental health conditions (Idham et al., 2019). According to the World Health Organization (WHO), approximately 703,000 people die by suicide annually, equivalent to one life lost every 45 seconds (WHO, 2023b). Suicidal behavior encompasses three primary categories: suicidal ideation (thoughts about ending one's life), suicide planning (developing specific strategies for self-harm), and suicide attempts (self-harming behaviors with varying degrees of intent to end life) (Shahedifara et al., 2020).

Data from the Centers for Disease Control and Prevention (CDC) indicate that more than 13.2 million people have seriously considered suicide, 3.8 million have planned an attempt, and 1.6 million have attempted suicide (CDC, 2024). Various risk factors contribute to suicidal behavior in adolescents, including psychological distress, social influences, and behavioral risks (SAMHSA, 2020). Addressing these risk factors through targeted interventions is critical for improving adolescent mental well-being.

Suicide was the fourth leading cause of death among individuals aged 15–29 years worldwide in 2019 (WHO, 2023b). Notably, the suicide rate among adolescents aged 10–24 years increased by 57.4%, rising from 6.8 per 100,000 in 2007 to 10.7 per 100,000 in 2018 (Curtin, 2020). Adolescents undergo significant biological, cognitive, and psychosocial changes that may contribute to suicidal behavior (Bonnie et al., 2019). While the majority of suicides (76% in 2012 and 79% in 2019) occur in low- and middle-income countries (WHO, 2023b), high-income nations such as Brunei Darussalam are also affected. Multiple risk factors, including psychological distress, low self-esteem, academic challenges, and strained relationships, contribute to adolescent suicidal behavior (Anjani et al., 2023).

Recognizing the urgency of suicide prevention, early detection of at-risk adolescents is crucial. This study examines the predictors of suicidal behavior among adolescents in Brunei Darussalam, utilizing secondary data

from the 2019 Global School-based Student Health Survey (GSHS) (WHO, 2023a). The findings aim to inform early intervention strategies for adolescents aged 13 to 17 years in junior and senior high schools.

## Methods

### Study Design and Data Source

This study utilizes data from the 2019 Global School-based Student Health Survey (GSHS), which collects information on adolescent health behaviors and protective factors (WHO, 2023a). The GSHS employs a two-stage cluster sampling design. First, schools are selected using probability proportional to student enrollment. Second, classes are randomly chosen, and all students in the selected classes are eligible to participate. The survey consists of self-administered questionnaires covering topics such as alcohol consumption, mental health, tobacco use, diet, and violence.

### Ethical Considerations

All responses in the GSHS survey were collected anonymously. Written consent was obtained from participating schools and homeroom teachers. In Brunei Darussalam, adolescents aged 18 years or older provided independent informed consent, while younger students required parental or guardian approval (Shahedifara et al., 2020).

### Dependent Variable

The primary outcome of interest was suicide attempts, measured as a binary variable (Yes/No). Students were asked, "During the past 12 months, how many times have you actually attempted suicide?" Responses were classified as "No" (zero attempts) or "Yes" (one or more attempts).

### Independent Variables

The independent variables included demographic factors (age, gender), psychological issues (bullying, loneliness, sleep disturbances, suicidal ideation, and suicide planning), risky health behaviors (alcohol use, tobacco use, unhealthy diet, sedentary lifestyle), and social relationships (friendship quality, parental involvement).

### Statistical Analysis

Descriptive statistics were used to summarize the characteristics of the study population. Chi-square tests were performed to examine bivariate associations between independent variables and suicide attempts. Multivariate logistic regression analysis was conducted to identify significant predictors of suicidal behavior, with adjusted odds ratios (AOR) and 95% confidence intervals (CI) reported. A p-value of  $<0.05$  was considered statistically significant.

## Results

The analysis of suicidal behavior among adolescents, based on a sample of 2,400 respondents, reveals several critical patterns. As detailed in Table 1, the age distribution of the participants was nearly balanced, with 47.1% being 14 years or younger, among whom 11.5% attempted suicide. In contrast, 52.9% were 15 years or older, with a slightly higher prevalence of 13.2% reporting a suicide attempt. A striking gender difference was also observed, where 47.7% of the sample were male, and 7.7% of them had attempted suicide. Meanwhile, among the 52.0% of respondents who were female, a significantly higher 16.6% reported a suicide attempt. These figures underscore that female adolescents are at a heightened risk of engaging in suicidal behavior compared to their male peers.

Psychological factors played a crucial role in predicting suicidal behavior. As presented in Table 2, adolescents who had experienced violence, whether through physical attacks, involvement in fights, severe injuries, or bullying—were significantly more likely to attempt suicide. Emotional distress, particularly feelings of loneliness and sleep disorders, also emerged as strong predictors, with 29.4% of lonely adolescents and 30.0% of those suffering from sleep disorders reporting suicide attempts. However, the most profound psychological risk factors were suicidal ideation and suicide planning. Adolescents who experienced suicidal ideation were over 13 times more likely to attempt suicide (AOR = 13.17, 95% CI = 8.03-21.61), while those who had made a suicide plan were six times more likely (AOR = 6.18, 95% CI = 3.99-9.58). These findings suggest that early identification of suicidal thoughts and plans is crucial in suicide prevention efforts.

Risky health also showed a strong association with suicidal behavior. Adolescents who reported current alcohol use were nearly three times more likely to attempt suicide (AOR = 2.61, 95% CI = 1.02-6.69). Engaging in sexual activity, particularly with multiple partners, also increased the risk of suicide attempts (AOR = 2.05, 95% CI = 0.30-13.91). Additionally, dietary and lifestyle factors such as frequent hunger, inadequate fruit consumption, excessive soft drink intake, and sedentary behavior were linked to an elevated risk of suicide attempts, highlighting the need for broader health interventions that address both mental and physical well-being.

**Table 1. Predictors of suicidal behavior in adolescents Suicidal Behavior**

| Variables                                            | Sample n (%) | Suicide Attempt n (%) | P-value | AOR (95% CI)       |
|------------------------------------------------------|--------------|-----------------------|---------|--------------------|
| All                                                  | 2400 (100)   | 296 (12.3)            |         |                    |
| Age ≤ 14 years                                       | 1131 (47.1)  | 129 (11.5)            | 0.214   |                    |
| Age ≥ 15 years                                       | 1269 (52.9)  | 167 (13.2)            |         |                    |
| Male                                                 | 1145 (47.7)  | 88 (7.7)              | 0.001   | 0.59 (0.37-0.93)   |
| Female                                               | 1249 (52.0)  | 206 (16.6)            |         |                    |
| Physically attacked                                  | 784 (32.7)   | 151 (19.3)            | 0.001   | 1.37 (0.86-2.16)   |
| Getting into a fight                                 | 536 (22.3)   | 111 (20.9)            | 0.001   | 1.52 (0.92-2.52)   |
| Severe injury                                        | 655 (27.3)   | 135 (20.8)            | 0.001   | 1.23 (0.78-1.94)   |
| Bullied                                              | 549 (22.9)   | 119 (21.8)            | 0.001   | 1.47 (0.92-2.35)   |
| Loneliness                                           | 462 (19.3)   | 135 (29.4)            | 0.001   | 1.19 (0.76-1.88)   |
| Sleep disorder                                       | 368 (15.3)   | 110 (30.0)            | 0.001   | 1.19 (0.74-1.91)   |
| Suicidal ideation                                    | 464 (19.3)   | 234 (50.5)            | 0.001   | 13.17 (8.03-21.61) |
| Suicide plan                                         | 396 (16.5)   | 208 (52.9)            | 0.001   | 6.18 (3.99-9.58)   |
| Skipping class/school                                | 814 (33.9)   | 128 (15.8)            | 0.001   | 1.40 (0.93-2.13)   |
| Frequent hunger                                      | 195 (8.1)    | 35 (18.1)             | 0.016   | 1.12 (0.59-2.11)   |
| Not eating fruit                                     | 342 (14.2)   | 58 (17.0)             | 0.008   | 0.70 (0.40-1.22)   |
| Current alcohol use                                  | 88 (3.7)     | 25 (28.4)             | 0.001   | 2.61 (1.02-6.69)   |
| Ever had sexual intercourse                          | 133 (5.5)    | 34 (25.8)             | 0.001   | 1.14 (0.50-2.57)   |
| Ever had sex with different people                   | 22 (0.9)     | 8 (36.4)              | 0.005   | 2.05 (0.30-13.91)  |
| Sitting for more than 3 hours per day                | 1383 (57.6)  | 202 (14.7)            | 0.001   | 0.83 (0.54-1.30)   |
| Drinking soft drinks more than 3 times a day         | 262 (10.9)   | 49 (18.7)             | 0.002   | 1.29 (0.68-2.45)   |
| Eat fast food more than 3 times a week               | 406 (16.9)   | 72 (17.8)             | 0.001   | 1.32 (0.80-2.18)   |
| Currently smoking                                    | 370 (15.4)   | 70 (19.1)             | 0.001   | 1.13 (0.63-2.03)   |
| No close friends                                     | 103 (4.3)    | 37 (35.9)             | 0.001   | 6.67 (3.18-14.00)  |
| Social problems due to alcohol                       | 30 (1.3)     | 12 (40.0)             | 0.001   | 1.13 (0.22-5.65)   |
| Surrounded by good and helpful friends               | 1201 (50.0)  | 132 (11.1)            | 0.046   | 0.88 (0.59-1.33)   |
| Parents who worry and understand children's problems | 528 (22.0)   | 33 (6.3)              | 0.001   | 0.70 (0.36-1.33)   |
| Parents who monitor children's daily activities      | 1031 (43.0)  | 85 (8.3)              | 0.001   | 0.89 (0.56-1.40)   |

Social relationships further influenced suicidal behavior. Adolescents who lacked close friendships were six times more likely to attempt suicide (AOR = 6.67, 95% CI = 3.18-14.00). The presence of social problems related to alcohol consumption further exacerbated this risk. Conversely, strong parental support—encompassing active monitoring and understanding—was associated with a lower prevalence of suicide attempts. Although the protective effect of parental support was evident, it was not as strongly predictive as other risk factors.

The overall predictive model yielded an  $R^2$  value of 0.57, indicating a moderate explanatory power in assessing suicidal behavior among adolescents. These findings highlight the intricate interplay between psychological distress, risky behaviors, and social relationships in shaping suicidal tendencies. Addressing these risk factors through targeted interventions, including psychological support, risk behavior reduction programs, and strengthened social connections, may be instrumental in mitigating adolescent suicide risk.

## Discussion

This study examined the prevalence and factors associated with suicide attempts among school-attending adolescents in Brunei Darussalam. The findings revealed that 12.3% of adolescents had attempted suicide, a rate lower than those reported in low- and middle-income countries, particularly in the Western Africa and Pacific regions (17%) (Uddin et al., 2019), and slightly lower than Ghana (13.8%) (Smith et al., 2021). However, it remains significantly higher than the 5.9% prevalence reported in Brunei Darussalam in 2014 (Shahedifara et al., 2020).

Gender disparities were notable, with a higher prevalence of suicide attempts among females (16.6%) compared to males (7.7%). In contrast, findings from Uganda reported a slightly lower rate among females (15.3%) but a higher rate among males (12.8%) (Boduszek et al., 2021). Age also played a role, with 11.5% of adolescents aged  $\leq 14$  years attempting suicide, which is significantly higher than the 2.3% reported in Indonesia (Smith et al., 2021). Similarly, the 13.2% prevalence among adolescents aged 15-18 years was much higher than the 1.6% reported in Laos (Campisi et al., 2020). The higher rates in Asia may be influenced by social expectations, educational pressures, and interpersonal relationships among adolescents.

Psychological issues emerged as strong predictors of suicide attempts. Factors such as suicidal ideation, suicide plans, bullying, fighting, serious injury, loneliness, sleep disturbances, and skipping classes were significantly associated with suicide attempts. Suicidal ideation is particularly concerning, as it often precedes suicide attempts (Shain et al., 2016). Neurobiological factors, including the role of the ventromedial prefrontal cortex, may also contribute to suicidal behavior (Morese & Longobardi, 2020). Research has suggested that suicidal ideation and attempts often occur impulsively, reinforcing the importance of early detection and intervention (Idham et al., 2019).

Since 1994, Lewinsohn has emphasized the need for training professionals to recognize early warning signs of suicide (Birmaher & Axelson, 2005). Identifying suicidal ideation and planning at an early stage may help prevent attempts. Furthermore, exposure to violence, including fights and bullying, increases the risk of suicide attempts (Idham et al., 2019). A meta-analysis by Gunn & Goldstein (2017) confirmed that bullying significantly contributes to suicidal ideation and attempts, as well as self-harm behaviors. Repeated exposure to bullying may also desensitize individuals to pain and fear, increasing their likelihood of acting on suicidal thoughts (Gunn & Goldstein, 2017).

Other psychological stressors, such as serious injury, contribute to increased suicidal ideation and attempts. Feelings of helplessness, depression, and hopelessness are significant risk factors for suicidal behavior (Marchetti et al., 2023; Ribeiro et al., 2018). When individuals experience prolonged distress, their ability to seek help diminishes, increasing the risk of suicide (Valentina & Helmi, 2016).

School-related factors also play a role. A study in Indonesia found that problems within the school environment, including skipping classes, negatively impact adolescent mental health (Karisma et al., 2024). Skipping class is linked to depression, anxiety, and suicidal ideation (Chen et al., 2023). Additionally, sleep problems, often associated with rumination and cognitive difficulties, can exacerbate suicidal thoughts (Koyawala et al., 2015). Loneliness is another significant predictor of depression, further increasing the risk of suicide attempts (Marthoenis et al., 2022). According to the Interpersonal Suicide Theory, the most dangerous suicidal ideation arises from a sense of failure and hopelessness (Van Orden et al., 2010).

Risky health behaviors also contribute to suicide risk. Smoking has been found to double the risk of suicide attempts in individuals with psychosis (Sankaranarayanan et al., 2015). Substance use impairs cognitive function, leading to impulsive decision-making and increased vulnerability to suicidal behavior (Littlefield et al., 2012; Mizoguchi & Yamada, 2019). Risky sexual behaviors, including multiple sexual partners, further impact adolescents' mental health, increasing the risk of suicidal thoughts and behaviors (Maurya et al., 2023). Early sexual activity may also contribute to distress and vulnerability, particularly among female adolescents (Smith et al., 2021).

Additional risk factors include unhealthy diets and sedentary behavior, which are associated with depressive symptoms, psychological distress, and low self-esteem (Ashdown-Franks et al., 2019; Vancampfort et al., 2019).

Regional differences may also explain variations in suicide risk. The content of fast food varies across regions, potentially influencing its association with multiple suicide attempts. Additionally, differences in physical activity levels, such as participation in group sports versus household chores, may impact suicide risk.

Social relationships are another key factor. Adolescents without close friends or experiencing social isolation are at an increased risk of suicide due to a lack of support and connection (Ati et al., 2021). Excessive alcohol use further exacerbates emotional distress and impulsivity, impairing rational decision-making. However, positive peer support serves as a protective factor, reducing stress and emotional difficulties (Bazrafshan et al., 2016). Parental influence also plays a role. Overprotective parenting may contribute to increased suicidal behavior by restricting adolescents' autonomy and independence (Romanelli et al., 2022).

Despite these insights, the study has limitations. The data were collected from school-attending adolescents, meaning findings may not be generalizable to all adolescents, particularly those not in school. Additionally, the cross-sectional design limits the ability to establish causality. Future research should explore suicidal behavior through longitudinal studies and incorporate additional psychosocial factors.

## Conclusion

This study found that 12.3% of adolescents in Brunei Darussalam had attempted suicide, with key risk factors including suicidal ideation, planning, bullying, serious injury, loneliness, sleep disturbances, and skipping classes. Risky behaviors such as substance use, unhealthy diets, and physical inactivity further contributed to suicide risk. Enhancing mental health awareness, implementing targeted psychological interventions, strengthening social support, and promoting healthy lifestyles are essential strategies for reducing adolescent suicide attempts.

## Acknowledgments

This paper uses data from the Global School-based Student Health Survey (GSHS). The GSHS is supported by the World Health Organization and the U.S. Centers for Disease Controls.

## Funding

None

## Availability of Data

The dataset used during this study is available from the WHO GSHS website: <https://extranet.who.int/ncdsmicrodata/index.php/catalog/940>

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