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RESEARCH PAPER

# Literacy and Stigma of Suicide among Medical Students of Bangladesh: Status and Associated Factors

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## Abstract

***Background*:** Literacy and stigma of suicide have been poorly assessed across the groups in Bangladesh even though they affect help-seeking behavior and have an enduring effect on suicide prevention.

***Objectives*:** We aimed to determine the status of literacy and stigma of suicide along with associated factors among medical students of Bangladesh.

*Methods*: This study was conducted from January to June 2022 among 172 undergraduate medical students in Bangladesh by *Google form*. Literacy and stigma were assessed by the Bangla literacy of suicide scale (LOSS-B), and the Bangla stigma of suicide scale (SOSS-B).

***Results*:** The mean age of the participants was 22.81 ± 1.8 (range 19-28) years, 64% were females, and 95% were unmarried. The LOSS-B score ranged from 0-10 with a mean of 4.72 ± 1.97. The literacy was significantly higher in married students, students with chronic physical illness and psychiatric disorder, lifetime suicidal thoughts, and suicidal thoughts in the past year while stigma was significantly lower among females, with mental disorders, with a family history of suicide attempts, and students with suicidal thoughts in a lifetime and past year.

***Conclusions*:** The study determines the level of suicide literacy and stigma towards suicide among medical students of Bangladesh. Having history of previous mental health services consumption of mental health services and past suicidal behavior revealed a better level that indicates the effectiveness of mass media campaigns for raising awareness and reducing stigma.

**Keywords:** Suicide literacy, stigma, suicide in Bangladesh, medical students, stigma reduction

## Introduction

Suicide is a multifactorial event causing premature end of life happening across the globe.[1] As per the World Health Organization (WHO) report, more than 703,000 deaths happened in 2019 by suicide.[1] Several inter-related factors interact complexly in suicide deaths. Therefore, precise estimation of risk factors for suicide in challenging.[2] However, psychiatric disorders have been identified as a major risk factor and it has been well accepted that with proper care and services suicide is preventable.[2] Culture, religion, legal status affect the suicidal behavior as well as it's prevention as risk factors may vary from culture to culture. Additionally, existing stigma towards suicide, mental health/or suicide literacy, and availability of mental health services affect the help seeking for suicidal behaviors.[3-6]

Suicide is an under prioritized public mental health problem in Bangladesh with lacking of standard suicide reporting, central suicide surveillance, adequate preventive measure, mental health support system and manpower.[7,8] Additionally, it is considered as a criminal offense in the country.[3,7] In contrast to the western countries, there is a lower prevalence of psychiatric disorder among suicides along high impact of social factors like immediate life-events, sexual abuse, premarital love affair, extramarital relationship, and exam failure.[9,10] The case-control psychological autopsy study of Dhaka reported that 61% of suicide had at least one psychiatric disorder whilst major

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depressive disorder was the most prevalent diagnosis (44%).[9] Analysis of the same data revealed that about 86% of the suicides would be prevented if the life-events could be omitted.[10] Therefore, the identification of warning signs of suicide and information about suicide prevention are supposed to facilitate suicide prevention in any specific country. Literacy and stigma of suicide is a relatively newer concept in Bangladesh albeit, these are vital elements for suicide prevention.[11] Therefore, estimation of suicide literacy and stigma among various groups would help to identify the level and considering the appropriate prevention strategy for the specific group. It should be considered that today's medical students are the future physicians of the country. Therefore, an expected literacy and a lower stigma would increase the referral of persons with suicidal risk to the mental health services channels which in turn will prevent suicide. Additionally, adequate knowledge would also facilitate the suicide prevention as a gatekeeper in the society.[2] Therefore, we aimed to determine the status of literacy and stigma of suicide along with associated factors among medical students of Bangladesh so that the potential areas of improvement could be identified and improved.

## Materials and Methods

*Study place and procedure*: This cross-sectional study was conducted from January to June 2022 among undergraduate medical students of Bangladesh. We created the questionnaire in *Google form* and distributed the link among the medical students through social media like *Messenger*, *WhatsApp*, and *Viber*. We reached the participants conveniently. Due to the design of the survey, medical students across the region of the country participated without specifying a few institutions. Native Bangla-speaking and having Bangladeshi citizenship adult medical students were included in the study. We conducted the initial phase of the study among students including a medical school i.e. *Enam Medical College (EMC)*.[11] In the current study, EMC was excluded. Foreign medical students studying in medical schools in Bangladesh, and Bangladeshi students studying in overseas medical schools were excluded. The first author performed the data cleaning and after that data were processed in *Microsoft Excel* for windows version 2010. The responses were collected in a de-identified manner where 173 participants responded. Among them, only one student didn't provide consent which resulted in premature termination. Therefore, we finally included 172 responses. Duplicates were aimed to identify by age and email address, but we didn't see any duplicate responses.

*Questionnaire for sociodemographic variables*: This was the first part of the questionnaire consisting of data of age, gender, nuptiality, highest educational qualification, affiliated medical school, completed year, religion, permanent resident, personal income, monthly family income, chronic physical disease, psychiatric illness, regular medications, family history of suicidal attempt and suicide.

*Questionnaire for suicidility*: This was the second part of the questionnaire consisting of items on suicidal ideation in the whole life and in the past year, any previous plan for suicide, non-fatal attempt, and sharing of suicidal thoughts to others.

*Bangla literacy of suicide scale (LOSS-B)*: This was the third part of the questionnaire consisting of twelve items with three options for response i.e. yes, no, and don't know. We validated it in Bangla in our initial part of the study.[11] The correct answer is marked as a score of one resulting in the total score from 0-12. The twelve items literacy of suicide is assessed in four dimensions: *signs and symptoms* (three items), *nature of suicide* (four items), *risk factors* (three items), and prevention of suicide (two items).[11]

*Bangla stigma of suicide scale (SOSS-B)*: This was the fourth part of the questionnaire consisting of 13 items in three domains i.e. stigma (five item), isolation (four item), and glorification (four item) of stigma towards suicide. The scale was validated in the initial phase of the study.[11]

*Data analysis*: We included 172 responses and processed them by *Statistical Package for the Social Science* version 28.0 software and *Microsoft Excel* for Windows version 2010. Socio-demographic characteristics and suicidality variables were uttered in frequency and percentages. We performed the independent *t*-test to determine the association between the groups. We performed the Pearson's correlation to assess the relationship between the literacy and stigma of suicide.

## Results

The mean age of the participants was 22.81 ± 1.8 (range 19-28) years, 110 (63.95%) were females, 164 (95.35%) were unmarried, and 153 (88.95%) were Muslim (Table I). The majority of the participants were enrolled in first year (44.18%) followed by fourth year (18.02%), fifth year (17.44%), third year, and second year (Table I).

**Table I:** Sociodemographic variables of respondents (n=172)

| Variable | Category | n (%) |
|---|---|---|
| Sex | Male | 61 (35.46) |
| | Female | 110 (63.95) |
| | Others | 1 (0.58) |
| Marital Status | Unmarried | 164 (95.35) |
| | Married | 8 (4.65) |
| Religion | Islam | 153 (88.95) |
| | Others | 19 (11.05) |
| Study year | 1st year | 76 (44.18) |
| | 2nd year | 14 (8.14) |
| | 3rd year | 21 (12.21) |
| | 4th year | 31 (18.02) |
| | 5th year | 30 (17.44) |
| History of mental illness | Yes | 24 (13.95) |
| Family history of suicide attempt | Yes | 24 (15.11) |
| Family history of suicide | Yes | 9 (5.23) |
| History of suicidal attempt | Yes | 19 (11.04) |
| Total | | 172 (100) |

Among the 172 medical students, 24 (13.95%) had history of psychiatric disorder, 24 (15.11%) had family history of suicidal attempt, 9 (5.23%) family history of suicide, and 19 (11.04%) had past non-fatal attempts (Table I). The LOSS-B score ranged from 0-10 with a mean of 4.72 ± 1.97 where 48.25% of the participants had the score 0-4 and the rest 51.75% had a score from 5-10. The literacy was significantly higher in married students, students with chronic physical illness and psychiatric disorder, lifetime suicidal thoughts, and suicidal thoughts in the past year while stigma was significantly lower among females, with mental disorders, with a family history of suicide attempts, and students with suicidal thoughts in a lifetime and past year.

The distribution of item wise correct response of LOSS-B has been mentioned in table II. Item 1 was responded correctly by the least number of participants (3.5%) whilst highest correct response was noted in item 9 (77.3%) (Table II).

**Table II:** Correct responses to items of the literacy of suicide scale

| Item No. | Item | Dimension | Correct response (n, %) |
|---|---|---|---|
| 1 | If assessed by a psychiatrist, everyone who suicides would be diagnosed as depressed (F) | Cause/nature | 6, 3.5 |
| 2 | Seeing a psychiatrist or psychologist can help prevent someone from suicide (T) | Treatment/ prevention | 127, 72.8 |
| 3 | Most people who suicide are psychotic (F) | Risk factor | 51, 29.65 |
| 4 | There is a strong relationship between alcoholism and suicide (T) | Risk factor | 108, 62.8 |
| 5 | People who talk about suicide rarely kill themselves (F) | Sign/ symptom | 45, 26.2 |
| 6 | People who want to attempt suicide can change their mind quickly (T) | Sign/ symptom | 63, 36.6 |
| 7 | Talking about suicide always increases the risk of suicide (F) | Cause/nature | 38, 22.1 |
| 8 | Not all people who attempt suicide plan their attempt in advance (T) | Sign/ symptom | 105, 61 |
| 9 | People who have thoughts about suicide should not tell others about it (F) | Treatment/ prevention | 133, 77.3 |
| 10 | Very few people have thoughts about suicide (F) | Cause/nature | 61, 35.5 |
| 11 | Men are more likely to suicide than women (F) | Risk factor | 38, 22.1 |
| 12 | A suicidal person will always be suicidal and entertain thoughts of suicide (F) | Cause/nature | 38, 22.1 |

The study revealed a positive correlation between stigma and isolation (r=0.4; *p*=<.001) and negative correlations between stigma and literacy (r= -0.151; *p*=0.048), stigma and glorification (r=-0.251; *p*=0.001) (Table III). Domain wise assessment revealed that the cause and nature marked as lowest corrected and treatment and prevented domain was revealed as highest corrected domain (Table III).

The literacy was significantly higher in married students, students with chronic physical illness and psychiatric disorder, lifetime suicidal thoughts, and suicidal thoughts in past year while stigma was significantly lower among females, with mental disorders, with family history of suicide attempt, and students with suicidal thoughts in life time and past year (Table IV).

**Table III:** Correlation between LOSS-B and three subscales of SOSS-B

| Correlations | LOSS | Stigma | Isolation | Glorification | |
|---|---|---|---|---|---|
| LOSS | Pearson Correlation | -.151 | 0.096 | 0.131 | |
| | Sig. (2-tailed) | 0.048 | 0.209 | 0.087 | |
| Stigma | Pearson Correlation | -.151 | | 0.473 | -.251 |
| | Sig. (2-tailed) | 0.048 | | 0.000 | 0.001 |
| Isolation | Pearson Correlation | 0.096 | .473 | | 0.029 |
| | Sig. (2-tailed) | 0.209 | 0.000 | | 0.7 |
| Glorification | Pearson Correlation | 0.131 | -.251 | 0.029 | |
| | Sig. (2-tailed) | 0.087 | 0.001 | 0.7 | |

Bold values indicate *p*=<0.05

**Table IV:** Association between demography and LOSS-B and SOSS-B score measured by independent t test

| Variable | n (%) | LOSS Mean (±SD) | p value | Stigma Mean (±SD) | p value | Isolation Mean (±SD) | p value | Glorification Mean (±SD) | p value |
|---|---|---|---|---|---|---|---|---|---|
| Total | | 4.72 (±1.97) | | 11.48 (±3.56) | | 13.6 (± 3.81) | | 8.79 (± 2.89) | |
| Sex | | | | | | | | | |
| Male | 61 (35.5) | 4.69 (±2.12) | 0.9 | 12.43 (±3.95) | **0.001** | 13.70 (±3.79) | 0.16 | 8.76 (±2.91) | 0.48 |
| Female | 110 (63.9) | 4.73 (±1.91) | | 10.96 (±3.25) | | 11.75 (±4.06) | | 9.5 (±2.51) | |
| Marital Status | | | | | | | | | |
| Unmarried | 164 (95.35) | 4.65 (±1.96) | **0.038** | 11.6 (±3.57) | 0.054 | 13.38 (±4.05) | 0.59 | 9.02 (±2.96) | 0.79 |
| Married | 8 (4.65) | 6.13 (±1.81) | | 9.13 (±2.64) | | 13.74 (±3.57) | | 9.15 (±3.28) | |
| Religion | | | | | | | | | |
| Islam | 153 (88.95) | 4.73 (±1.93) | 0.75 | 11.63 (±3.57) | 0.13 | 13.69 (±3.78) | 0.43 | 8.76 (±2.85) | 0.74 |
| Others | 19 (11.05) | 4.58 (±2.32) | | 10.32 (±3.32) | | 12.95 (±4.17) | | 9 (±3.28) | |
| Permanent Resident | | | | | | | | | |
| City | 106 (61.6) | 4.8 (±2.03) | 0.43 | 11.49 (±3.47) | 0.95 | 14.05 (±3.67) | **0.046** | 8.59 (±2.99) | 0.31 |
| Others | 65 (37.8) | 4.55 (±1.89) | | 11.52 (±3.74) | | 12.85 (±3.98) | | 9.06 (±2.72) | |
| Having chronic physical illness | | | | | | | | | |
| Yes | 24 (13.95) | 5.88 (±1.8) | **0.002** | 11.75 (±3.89) | 0.66 | 14.46 (±3.31) | 0.24 | 9.04 (±2.91) | 0.65 |
| Others | 147 (85.46) | 4.54 (±1.94) | | 11.40 (±3.5) | | 13.488 (±3.89) | | 8.75 (±2.91) | |
| History of mental illness | | | | | | | | | |
| Yes | 24 (13.95) | 5.5 (±1.74) | **0.035** | 9.79 (±3.5) | **0.008** | 14.21 (±3.67) | 0.4 | 9.21 (±3.09) | 0.4 |
| Others | 147 (85.46) | 4.59 (±1.99) | | 11.81 (±3.46) | | 13.5 (±3.85) | | 8.68 (±2.83) | |
| Family history of suicide attempt | | | | | | | | | |
| Yes | 26 (1512) | 4.65 (±1.85) | 0.86 | 9.77 (±2.7) | **0.007** | 12.88 (±4.21) | 0.3 | 8.65 (±2.58) | 0.79 |
| No | 146 (84.89) | 4.733 (±2) | | 11.79 (±3.62) | | 13.73 (±.74) | | 8.82 (±2.95) | |
| Lifetime suicide ideation | | | | | | | | | |
| Yes | 80 (46.51) | 5.08 (±1.89) | **0.025** | 10.64 (±3.38) | **0.003** | 13.88 (±3.83) | 0.39 | 8.94 (±2.61) | 0.53 |
| Others | 92 (53.49) | 4.4 (±1.99) | | 12.22 (±3.57) | | 13.37 (±3.8) | | 8.66 (±3.13) | |
| Suicide ideation during last year | | | | | | | | | |
| Yes | 49 (28.49) | 5.27 (±1.92) | **0.02** | 10.18 (±3.55) | **0.002** | 14.61 (±3.83) | **0.028** | 9.1 (±3.12) | 0.37 |
| Others | 123 (71.51) | 4.5 (±1.96) | | 12 (±3.45) | | 13.20 (±3.75) | | 8.67 (±2.8) | |
| History of suicidal attempt | | | | | | | | | |
| Yes | 19 (11.05) | 4.79 (±1.51) | 0.86 | 10.32 (±4.08) | 0.13 | 13.63 (±4.7) | 0.97 | 9.89 (±2.85) | 0.078 |
| Others | 153 (88.95) | 4.71 (±2.03) | | 11.63 (±3.48) | | 13.60 (±3.71) | | 8.65 (±2.88) | |

Bold values indicate *p*=<0.05

## Discussion

Increased literacy and reduced stigma are important components to consider while formulating the suicide prevention strategy that gets recent attention in Bangladesh. This study utilized validated instruments and assessed the level of suicide literacy and stigma towards suicide among 172 medical students of Bangladesh. The mean age of the participants was 22.81±1.8 years, majority of the participants were females (63.95%), unmarried (95.35%), and Muslim (88.95%). A similar distribution of age (22.86±1.8), nuptiality (unmarried 92.63%), and religion (Islam 83.7%) was identified in the initial phase of the study; however, more females were participated in the current study.[11] Among the participants, 13.95% had history of mental illness, 15.11% had family history of suicidal attempt, 5.23% family history of suicide, and 11% had past non-fatal attempts. The findings are similar to our previous study conducted in a similar study population.[11] It reported past non-fatal attempts, a family history of suicide attempts, and a family history of suicide in 12.1%, 9.6%, and 5.6% respectively.[11] A study among students of Jordan found past suicide attempt and a family history of suicide 11.3% each whilst suicide attempt was 12.6% and family history of suicide attempt was 8.5% Turkish university students, and 10.7% among the college students of China.[12-14]

The mean literacy score was 4.72 in a scale of 0-12 measured by LOSS-B. The findings suggest the lowest literacy status related to the *cause and nature* of suicide whilst the highest status was found in *treatment and prevention* domain. The very similar level (4.27) and domain wise distribution was noted in our previous study.[11] These two studies conducted in university students indicating an extremely low literacy on depression and suicidality and a good knowledge on role of mental health professionals in suicide prevention.[11] Similar close values of suicide literacy have been reported across the countries mentioned as 5.63 in Jordan and 5.83 in China.[12,14] It is stipulated that lack of literacy awareness program and contents in the academic curriculum could be the potential reasons of low literacy. On the other hand, criminal legal status, and enduring religious views on suicide in the country could be potential reasons for the stigma level. However, further studies are warranted to indentify any precise relationship. Universal educational strategies for the general population involving the mass media could be helpful. Additionally, selected and indicated strategies for medical students such as inclusion elements in academic curriculum should have a high return in suicide prevention of the country. Previous studies also indicated that psychoeducation could play an important role while educating the people and improving the status quo.[5,6]

The literacy was significantly higher in married students, students with chronic diseases and psychiatric disorder, lifetime suicidal thoughts, and suicidal thoughts in past year while stigma was significantly lower among females, with mental disorders, with family history of suicide attempt, and students with suicidal thoughts in life time and past year. Our previous study identified a higher literacy and a lower stigma among the females whilst this study lower stigma in female but no variation in literacy.[11] Therefore, indicated strategies to improve the status should focus on the males. Additionally, it would have further return in a patriarchal social structure like Bangladesh where improved literacy status is likely to increase the help seeking behaviour of all family members. Both of the study identified that a significantly increased level of suicide literacy and decreased level of stigma among the participants who have exposer to mental health system and/or past behaviour. It indicates perhaps the applicability of intervention programs to improve the status quo.

The study revealed a positive correlation between stigma and isolation (r=0.4; $p$=<.001) and negative correlations between stigma and literacy (r= -0.151; $p$=0.048), stigma and glorification (r=-0.251; $p$=0.001). Our previous study identified the association between stigma and isolation domain (r=0.6; $p$=<.001).[11] It is revealed in this replicative study that higher level of stigma causes higher level of isolation among students in Bangladesh.

The study results have implications in several aspects. It tests the applicability of previously validated scales assessing the suicide literacy and stigma towards suicide in Bangladesh. Although the sample was collected in a similar group of the population it is expected that the instruments would be applicable to other groups in the country. The findings reveal that medical students with previous consumption of mental health services and exposed to suicidal behavior had a lower stigma and higher literacy. Such finding indicates that awareness program in mass media in the general population would be an effective strategy to improve the literacy and stigma of suicide in the

country. Incorporating the stigma and literacy components into the academic curriculum would be helpful to improve the status among the medical students and future doctors in the country that in turn increasing referral to the mental health services bolstering suicide prevention in Bangladesh.

Several limitations should be considered while generalizing the study results. Data were collected from medical students representing a single striatum of the whole population. The participants were approached conveniently without any randomization which may create selection biases.

## Conclusion

The study identifies a similar level of suicide literacy revealed in a previous study among Bangladeshi university students with different statuses of stigma towards suicide. It replicates a lower status of suicide literacy among university students in Bangladesh. The literacy was significantly higher in married students, students with chronic physical illness and psychiatric disorder, lifetime suicidal thoughts, and suicidal thoughts in the past year while stigma was significantly lower among females, with mental disorders, with a family history of suicide attempts, and students with suicidal thoughts in a lifetime and past year. Having a history of previous mental health services consumption of mental health services and past suicidal behavior revealed a better level indicating the effectiveness of mass media campaigns for raising awareness and reducing stigma.

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