Suicidal ideation among people with disabilities during the COVID-19 pandemic in Bangladesh: prevalence and associated factors

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Background

Evidence from pandemic and pre-pandemic studies conducted globally indicates that people with disabilities (PWDs) have a higher risk for suicidality. However, none of these studies has assessed suicidality among PWDs in Bangladesh.

Aims

The purpose of this study was to determine the prevalence of and factors associated with suicidal ideation among PWDs during the COVID-19 pandemic in Bangladesh.

Method

Using a snowball sampling technique, a cross-sectional survey was conducted from February to April 2021 among PWDs from six districts in the northern region of Bangladesh. Information related to sociodemographic factors, clinical characteristics, behavioural factors and suicidal ideation was collected. Chi-squared test and logistic regression were used to describe the data and explain the relationship of factors associated with suicidal ideation.

Results

The prevalence of COVID-19-related past-year suicidal ideation was 23.9%. The factors associated with suicidal ideation included: age above 35 years, being female, acquiring a disability later in life, lack of sleep and current substance use. In addition, higher education appeared to be a protective factor against suicidal ideation.

Conclusions

This study highlighted that PWDs had an increased risk of suicide; that is, one-fourth of them had past-year suicidal ideation. This may have been because of COVID-19-related restrictions and stressors. Thus, the government and policy makers need to pay more attention to developing effective suicide assessment, treatment and management strategies, especially for at-risk groups, to minimise the impact of the COVID-19 outbreak.

Keywords

COVID-19; suicidal ideation; suicidality; people with disabilities; Bangladesh.

The COVID-19 pandemic has become a global threat to all aspects of life, hampering social stability, economic development and health security. A daunting effect on people's mental health and psychological state has been reported, owing to pandemic-related issues affecting aspects of mental health including fear, anger, sleep difficulties, boredom, hopelessness and frustration.[1] These pandemic-related effects have appeared to reduce physical movement and activity, increase food and harmful junk food consumption, and increase mental health symptoms such as those of depression, anxiety, and post-traumatic stress disorder across various groups.[2,3] Furthermore, the combination of these stressors with mental health effects may contribute to suicidal ideation.[4,5]

Suicidal behaviours among PWDs

Suicide is a major public health issue. As per the World Health Organization's recent estimate, there is an annual suicide rate of about 700 000 suicide worldwide, of which 77% of cases occur in low- and middle-income countries such as Bangladesh. Suicide rates are higher among vulnerable groups, including people with disabilities (PWDs), compared with the general population, as people in these groups experience discrimination such as being treated less favourably and not receiving the same facilities as others. This represents a pressing and complex public health issue.[6,7] In a recent systematic review, suicidal ideation and death by suicide were reported to be associated with functional disability; the highest rate of suicide was reported in people with multiple sclerosis, followed by those with spinal cord injury and intellectual disability.[6] Associations have also been found in people with other disabilities including autism spectrum disorders and Huntington disease.[8,9]

Suicidal behaviours in the context of the COVID-19 pandemic among PWDs

A recent study found that PWDs experienced increased symptoms of depression (56.6% v. 28.7%), substance use (38.8% v. 17.5%) and suicidal ideation (30.8% v. 8.3%) compared with people without disabilities during the COVID-19 pandemic.[10] Two other studies from the UK and USA also found an increased prevalence of suicidal ideation among PWDs compared with those without disabilities during the COVID-19 pandemic (30.1% v. 6.9%, a twofold increase from pre-pandemic estimates, and 20.7% v. 4.1%, respectively).[11,12] Despite such high rates of suicidal ideation among PWDs, relatively little research has examined the risk factors for suicidal ideation within and across populations.

On 15 March 2020, the first suicide case attributed to fear of COVID-19 in Bangladesh occurred.[13] Later, a systematic review from Bangladesh identified the factors that lead to actual suicide completion and the prevalence of and risk factors associated with suicidal behaviors.[5] The prevalence of suicidal ideation was reported to range from 5% to 19% across different cohorts, and the rate of suicidal ideation increased over time due to the COVID-19 pandemic.[5] Minor- and PWD-related homicide–suicide has been reported in the context of the pandemic. For instance, a case

study reported the alleged infanticide of a 6-month-old baby with the suicide of an Indian 30-year-old mother in Saudi Arabia due to fear of infection.[14] In addition, a triadic suicide pact was reported in India, where a disabled son and his parents had been alleged to die by mutual suicide (note, there was no evidence of homicide).[15] However, no actual suicide occurrence among PWDs during the COVID-19 pandemic has been reported to the authors' best knowledge.

Study objectives

Bangladesh hosts a huge number of PWDs; 16 million or 10% of the country's population has some type of disability.[16] A recent qualitative study conducted in Bangladesh among PWDs suggested that the COVID-19 pandemic created critical disruptions to the economy and decreased their food security, social security, and physical and mental health.[17] As discussed above, people with mental issues are more prone to suicidality,[4,5] and it is anticipated that PWDs might be at higher risk of suicidal behaviours. However, no other epidemiological study has been conducted in Bangladesh among PWDs considering suicidal behaviours during the COVID-19 pandemic. Thus, there is a need for research on suicidal ideation to clarify the associated factors in order to develop suicide prevention strategies. This study uses a cross-sectional survey to address these research gaps and examines the prevalence of COVID-19-related suicidal ideation and associated factors among Bangladeshi PWDs.

Method

Study area

This cross-sectional study was conducted from February to April 2021 in the districts of Kurigram, Lalmonirhat, Dinajpur, Nilphamari, Panchagarh and Gaibandha (under the Rangpur division located in the northern region of Bangladesh). These six districts were purposively selected. From these six districts, 15 Upazilas (the smallest administrative units of the local government) were randomly selected, and at least one Upazila was selected from each district to collect the data.

Study population and inclusion criteria

The target population was people with various disabilities (physical disability, hearing disability, visual disability, leprosy and multiple impairments). Disability types described previously[18,19] were assessed. In brief, people with locomotor disability, amputation that causes loss or absence or inactivity of the whole or part of the hand or leg, paralysis or deformity of joints affecting the normal ability to move self or objects were considered to be physically disabled. People with serious difficulties seeing, even when wearing glasses, were considered to be visually impaired. Similarly, people with hearing difficulties, even if using a hearing aid, were included in the hearing disability category. People screened for leprosy and currently undergoing treatment were recruited as the leprosy group. Finally, people who suffered from more than one of the aforementioned disabilities were considered to have multiple impairments. PWDs aged ≥18 years were selected for this study. Of note, PWDs who were critically ill during the survey, unable to respond to the questionnaires, or had pre-existing depression, anxiety or sleep disorder were excluded from the study.

Ethical consideration

The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, as revised in 2008. All procedures involving human subjects or patients were approved by the Patuakhali Science and Technology University's Human Research Ethics Committee (approval number: BFA: 10/01/2021:02). To participate in this study, written consent was required from either the participants or their caregivers. Participants were aware that this publication was intended while taking part in the study.

Sampling technique and data collection

The final required sample size was 423 with a 95% confidence interval, 10% non-response rate and an assumption of a 50% (owing to the lack of published literature) prevalence of suicidal ideation among the study subjects using the single proportion formula ($n = z^2 pq / d^2$). A total of 410 PWDs were recruited. The snowball sampling method was applied to access the PWDs where team members identified additional participants based on the information given by the previous participants. Data were collected through face-to-face interviews by trained interviewers in participants' homes using a pre-tested structured questionnaire, including sociodemographic information, clinical characteristics and behavioural characteristics. If any participants did not understand the consent process, caregivers were interviewed and answered our questions on behalf of the participants. Importantly, participants with hearing disability used hearing aids to improve their hearing and speech comprehension while participating in the survey.

Measures

Sociodemographic measures

Sociodemographic factors included age, locality (rural or urban), marital status (married, unmarried or divorced/widowed/separated), religion (Islam or Hinduism), educational level (uneducated, up to 5 standards, 6–10 standards, 10–12 standards, graduate or postgraduate or above), occupation (unemployed, business, cultivator, housewife, student or employed) and living situation (with parents, with partners, with friends/relatives or alone). Socioeconomic status was classified as follows: less than 15 000 Bangladeshi Taka (≈177 $), 15 000–30 000 Bangladeshi Taka (≈177–354 $) or more than 3000 Bangladeshi Taka (≈354 $).

Clinical and behavioural measures

Clinical and behavioural measures included type of impairment (multiple, physical, hearing, visual or leprosy), onset of impairment (from birth, from childhood or later in life), comorbidity (yes or no), testing positive for COVID-19 (yes or no), COVID-19 symptoms (yes or no) (COVID-19 symptoms at the time of the survey), current substance use (yes or no) and increased substance use because of COVID-19 (yes or no). Sleeping hours were divided into three categories: normal (7–9 h), less than normal (<7 h), or more than normal (>9 h).

Mental health measures

The Bangla version of the Depression, Anxiety, and Stress Scale (DASS-21) was used in this study.[20] This scale is composed of 21 questions divided into three subscales, with seven items per subscale: depression, anxiety and stress, with scored using a four-point Likert scale ranging from 0 ('never') to 3 ('always'). Predefined thresholds used for depression, anxiety and stress in the present study were normal (depression 0–9, anxiety 0–7 and stress 0–14), mild (depression 10–13, anxiety 8–9 and stress 15–18), moderate (depression 14–20, anxiety 10–14 and stress 19–25), severe (depression 21–27, anxiety 15–19 and stress 26–33) and extremely severe (depression ≥28, anxiety ≥20 and stress ≥34). The Cronbach's

alpha values for depression, anxiety and stress were 0.70, 0.73 and 0.79, respectively (the overall Cronbach's alpha for DASS-21 was 0.86); these values were acceptable.

Fear of COVID-19 measures

The Bangla version of the fear of COVID-19 scale (FCV-19S)[21] was used to measure the level of fear of COVID-19. This tool for assessment of fear of COVID-19 comprises seven items on a five-point Likert scale ranging from 1 ('strongly disagree') to 5 ('strongly agree') with scores ranging from 7 to 35. Scores of 0–21 are considered to indicate low COVID-19 fear, and scores of 22–35 are considered to indicate high COVID-19 fear.[22] The Cronbach's alpha for fear was 0.84 in the present study, which was good.

COVID-19-related suicidal ideation measure

Suicidal ideation related to COVID-19 was determined by a single question with a binary response ('yes'/'no') based on the previous study[5] (i.e. 'Do you think about committing suicide and are these thoughts persistent and related to COVID-19 issues?'). As the COVID-19 pandemic started on March 2020 in Bangladesh, and this study was conducted 1 year later, the suicidal ideation assessment timeframe was past-year.

Statistical analysis

Data were analysed using the SPSS version 26 (IBM Corp). Simple descriptive analyses (i.e. frequencies, percentages and means) were used to summarise the sociodemographic and clinical characteristics. Chi-squared tests and unadjusted and adjusted logistic regression models were developed to assess the associations of the main outcome (suicidal ideation) with independent variables. The

multicollinearity of variables was also assessed before regression analysis. Variables with $P < 0.25$ in the unadjusted model were entered into the multivariable analysis. Model fitness was checked using the Hosmer–Lemeshow goodness of fit test ($P = 0.701$). Odds ratios and 95% confidence intervals were calculated for each variable included in the regression models with a P-value less than 0.05.

Results

Sociodemographic characteristics and suicidal ideation

Table 1 summarises the sociodemographic characteristics and their relationship with suicidal ideation. Of the total participants ($N = 410$; mean age = 30.73 ± 10.85 years), 67.3% were male, 44.5% were unmarried, 77.8% were rural, 58.0% were from lower economic status, 81.2% were Muslim, 24% were students and 44.1% were living with parents. About 23.9% of the participants reported experiencing COVID-19-related suicidal ideation ($n = 98$), defined as past-year suicidal ideation related to the COVID-19 pandemic and associated issues. Age, gender, marital status, education level and living situation were significantly associated with suicidal ideation. Regarding age groups, a 38.3% suicidal ideation rate was found among PWDs aged over 35 years, compared with 17.9% for those aged 18 to 35 years; this difference was statistically significant ($\chi^2 = 19.42$, $P < 0.001$). Females were more likely to report suicidal ideation compared with their male counterparts (38.8% v. 16.6%; $\chi^2 = 24.31$, $P < 0.001$). PWDs also reported higher suicidal ideation when their marital status was divorced/widowed/separated ($\chi^2 = 142.07$, $P < 0.001$), their education level was 'uneducated' ($\chi^2 = 14.77$, $P = 0.011$) or they lived alone ($\chi^2 = 77.60$, $P < 0.001$).

Table 1 Distribution of sociodemographic characteristics and suicidal ideation of participants ($N = 410$)

Variable	Categories	Total n	Total %	No n	No %	Yes n	Yes %	χ^2	P-value
Age	Mean ± s.d. (30.73 ± 10.85)								
Age group	18 to 35 years	290	70.7	238	82.0	52	17.9	19.42	<0.001
	Above 35 years	120	29.3	74	61.6	46	38.3		
Gender	Male	276	67.3	230	83.3	46	16.6	24.31	<0.001
	Female	134	32.7	82	61.2	52	38.8		
Locality	Rural	319	77.8	241	75.5	78	24.4	0.24	0.626
	Urban	91	22.2	71	78.0	20	21.9		
Marital status	Unmarried	182	44.4	153	84.0	29	15.9	142.07	<0.001
	Divorced/widowed/separated	47	11.5	3	6.38	44	93.6		
	Married	181	44.1	156	86.2	25	13.8		
Socioeconomic status (BDT)	Up to 15 000	238	58.0	173	72.7	65	27.3	4.49	0.106
	15 000 to 30 000	129	31.5	102	79.0	27	20.9		
	More than 30 000	43	10.5	37	86.0	6	13.9		
Religion	Islam	333	81.2	256	76.8	77	23.1	0.59	0.442
	Hindu	77	18.8	56	72.7	21	27.2		
Education level	Up to 5 standards	59	14.4	48	81.3	11	18.6	14.77	0.011
	6 to 10 standards	86	21.0	71	82.5	15	17.4		
	10 to 12 standards	120	29.3	90	75.0	30	25.0		
	Graduate	30	7.3	26	86.6	4	13.3		
	Postgraduate or above	28	6.8	23	82.1	5	17.8		
	Uneducated	87	21.2	54	62.0	33	37.9		
Occupation	Unemployed	56	13.7	42	75.0	14	25.0	7.01	0.220
	Business	97	23.7	77	79.3	20	20.6		
	Cultivator	63	15.4	51	80.9	12	19.0		
	Housewife	50	12.2	31	62.0	19	38.0		
	Student	98	23.9	76	77.5	22	22.4		
	Employed	46	11.2	35	76.1	11	23.9		
Living situation	With parents	181	44.1	140	77.3	41	22.6	77.60	<0.001
	With partner	168	41.0	144	85.7	24	14.29		
	With friends/relatives	22	5.4	20	90.91	2	9.09		
	Alone	39	9.5	8	20.51	31	79.49		

Clinical and behavioural characteristics and suicidal ideation

Table 2 presents various clinical and behavioural characteristics and their associations with suicidal ideation. About 57.3% of respondents had physical impairments, 53.9% had impairment from birth, 60.2% had comorbid illnesses, 62.0% slept less than normal, 2.4% tested positive for COVID-19, 6.8% had COVID-19 symptoms, 52.0% were currently using substances and 38.3% reported increased substance use because of COVID-19. Moreover, findings from this study revealed that the majority of the respondents, that is, 85.4%, 87.3% and 77.3%, experienced depression, anxiety and stress, respectively. Furthermore, fewer than half of the participants (40.5%) reported high fear during the COVID-19 pandemic. The onset of impairment, sleeping hours, testing positive for COVID-19, COVID-19 symptoms, current substance use, increased substance use because of COVID-19 and fear of COVID-19 were significantly associated with suicidal ideation.

Among participants who reported becoming disabled later in life, a higher proportion (38.3%) experienced suicidal ideation compared with those who had impairment onset in early childhood and from birth (22.3% and 19.0%, respectively; $\chi^2 = 12.95$, $P = 0.002$). Those who reported sleeping for less than 7 h reported a higher suicidal ideation rate than those sleeping for normal or longer than normal lengths of time ($\chi^2 = 21.34$, $P < 0.001$). Those who tested positive for COVID-19 (80.0% v. 22.5%; $\chi^2 = 17.73$, $P < 0.001$) and had current COVID-19 symptoms (39.3% v. 22.7%; $\chi^2 = 3.91$, $P = 0.048$) were more likely to have suicidal ideation. In addition, PWDs who were substance users ($\chi^2 = 28.64$, $P < 0.001$) and reported an increment in substance use after the pandemic ($\chi^2 = 21.52$, $P < 0.001$) had higher suicidal ideation compared to those who did not meet these criteria. Finally, none of the mental disorders was significantly associated with suicidal ideation, but for fear of COVID the association was $\chi^2 = 5.93$ ($P = 0.015$). That is, 30.12% of PWDs who had high COVID-19 fear reported suicidal ideation, compared with 19.67% for those with low fear of COVID-19.

Risk factors of suicidal ideation

Multivariate logistic regression (Table 3) analyses were performed using sociodemographic, clinical and behavioural predictors to reveal the risk factors for suicidal ideation. The results showed

Table 2 Distribution of clinical and behavioural characteristics and suicidal ideation of participants ($N = 410$)

Variable	Categories	Total n	Total %	No n	No %	Yes n	Yes %	χ^2	P-value
Type of impairments	Multiple impairments	37	9.0	24	64.8	13	35.1	4.92	0.296
	Hearing impairment	66	16.1	49	74.2	17	25.7		
	Visual impairment	44	10.7	31	70.4	13	29.5		
	Leprosy	28	6.8	23	82.1	5	17.8		
	Physical impairment	235	57.3	185	78.7	50	21.2		
Time of impairment	Later in life	86	21.0	53	61.6	33	38.3	12.95	0.002
	Early childhood	103	25.1	80	77.6	23	22.3		
	From birth	221	53.9	179	81.0	42	19.0		
Comorbid illness status	Yes	247	60.2	185	74.9	62	25.1	0.49	0.484
	No	163	39.8	127	77.9	36	22.0		
Sleep status (h)	Above normal (>9)	34	8.3	31	91.1	3	8.8	21.34	<0.001
	Below normal (<7)	254	62.0	174	68.5	80	31.5		
	Normal (7–9)	122	29.8	107	87.7	15	12.3		
Positive for COVID-19	Yes	10	2.4	2	20.0	8	80.0	17.73	<0.001
	No	400	97.6	310	77.5	90	22.5		
Current COVID-19 symptoms	Yes	28	6.8	17	60.7	11	39.3	3.91	0.048
	No	382	93.2	295	77.2	87	22.7		
Current substance use	Yes	213	52.0	139	65.2	74	34.7	28.64	<0.001
	No	197	48.0	173	87.8	24	12.1		
Drug use increment during the pandemic	Yes	157	38.3	100	63.7	57	36.3	21.52	<0.001
	No	253	61.7	212	83.8	41	16.2		
Type of substance use	Alcohol	88	21.5	54	61.4	34	38.6	52.71	<0.001
	Tobacco/cigarettes	111	27.1	82	73.9	29	26.1		
	Marijuana	15	3.7	3	20.0	12	80.0		
	None	196	47.8	173	88.3	23	11.7		
Depression	Normal	41	10.0	34	82.9	7	17.1	5.18	0.269
	Mild	19	4.6	14	73.7	5	26.3		
	Moderate	74	18.0	60	81.1	14	18.9		
	Severe	125	30.5	87	69.6	38	30.4		
	Extremely severe	151	36.8	117	77.5	34	22.5		
Anxiety	Normal	38	9.3	31	81.6	7	18.4	3.83	0.430
	Mild	14	3.4	11	78.6	3	21.4		
	Moderate	61	14.9	51	83.6	10	16.4		
	Severe	52	12.7	40	76.9	12	23.1		
	Extremely severe	245	59.8	179	73.1	66	26.9		
Stress	Normal	72	17.6	58	80.6	14	19.4	2.56	0.633
	Mild	21	5.1	16	76.2	5	23.8		
	Moderate	36	8.8	30	83.3	6	16.7		
	Severe	150	36.6	112	74.7	38	25.3		
	Extremely severe	131	32.0	96	73.3	35	26.7		
Fear of COVID-19	Low fear	244	59.5	196	80.33	48	19.67	5.93	0.015
	High fear	166	40.5	116	69.88	50	30.12		

For depression, anxiety and stress, the use of a binary category (normal versus depressed/anxious/stressed) had non-significant relationships with suicidal ideation.

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Table 3 Risk factors of suicidal ideation among PWDs

Variable	Categories	Unadjusted model		Adjusted model (Nagelkerke's R^2 = 0.396)	
		P-value	COR [LL-UL]	P-value	AOR [LL-UL]
Age group	Above 35 years	**<0.001**	2.85 [1.77–4.57]	**0.007**	2.65 [1.31–5.37]
	18 to 35 years		Reference		Reference
Gender	Female	**<0.001**	3.17 [1.98–5.07]	**<0.001**	5.14 [2.28–11.56]
	Male		Reference		Reference
Locality	Rural	0.626	1.15 [0.66–2.01]	NA	NA
	Urban		Reference		
Socio-economic status (BDT)	Up to 15 000	0.070	2.32 [0.93–5.75]	0.062	2.83 [0.95–8.45]
	15 000 to 30 000	0.318	1.63 [0.62–4.27]	0.403	1.62 [0.52–5.06]
	More than 30 000		Reference		Reference
Religion	Islam	0.442	0.80 [0.46–1.41]	NA	NA
	Hinduism		Reference		
Education level	Up to 5 standards	**0.014**	0.37 [0.17–0.82]	0.053	0.36 [0.13–1.01]
	6 to 10 standards	**0.003**	0.35 [0.17–0.70]	**0.009**	0.28 [0.11–0.72]
	10 to 12 standards	**0.047**	0.55 [0.30–0.99]	0.126	0.48 [0.18–1.23]
	Graduation	**0.018**	0.25 [0.08–0.79]	**0.001**	0.06 [0.01–0.31]
	Post-graduation or above	0.056	0.36 [0.12–1.03]	**0.039**	0.15 [0.02–0.91]
	Uneducated		Reference		Reference
Occupation	Unemployed	0.899	1.06 [0.43–2.63]	0.801	0.82 [0.18–3.75]
	Business	0.655	0.83 [0.36–1.91]	0.677	1.36 [0.32–5.86]
	Cultivator	0.539	0.75 [0.30–1.89]	0.959	1.04 [0.22–4.88]
	Housewife	0.140	1.95 [0.80–4.73]	0.447	0.55 [0.12–2.59]
	Student	0.845	0.92 [0.40–2.11]	0.539	1.58 [0.37–6.73]
	Employed		Reference		Reference
Types of impairments	Multiple impairments	0.067	2.00 [0.95–4.22]	0.502	1.38 [0.54–3.54]
	Hearing impairment	0.440	1.28 [0.68–2.42]	0.260	1.58 [0.71–3.48]
	Visual impairment	0.231	1.55 [0.76–3.18]	0.763	1.16 [0.45–2.99]
	Leprosy	0.675	0.80 [0.29–2.22]	0.269	0.47 [0.12–1.80]
	Physical impairment		Reference		Reference
Time of impairment	Later in life	**<0.001**	2.65 [1.53–4.60]	**0.018**	2.35 [1.16–4.78]
	Early childhood	0.487	1.23 [0.69–2.17]	0.686	1.16 [0.57–2.34]
	From birth		Reference		Reference
Comorbid illness	Yes	0.484	1.18 [0.74–1.89]	NA	NA
	No		Reference		
Sleep status (hours)	Above normal (>9)	0.577	0.69 [0.19–2.54]	0.793	0.82 [0.19–3.52]
	Below normal (<7)	**<0.001**	3.28 [1.80–5.99]	**0.003**	3.12 [1.49–6.52]
	Normal (7–9)		Reference		Reference
Current COVID-19 symptoms	Yes	0.053	2.19 [0.99–4.86]	0.369	1.67 [0.54–5.12]
	No		Reference		Reference
Current substance use	Yes	**<0.001**	3.84 [2.30–6.40]	**0.015**	2.98 [1.23–7.21]
	No		Reference		Reference
Drug use increment during the pandemic	Yes	**<0.001**	2.95 [1.85–4.70]	0.275	1.58 [0.69–3.60]
	No		Reference		Reference
Depression	Normal	0.452	0.71 [0.29–1.74]	0.940	0.95 [0.23–3.96]
	Mild	0.711	1.23 [0.41–3.66]	0.891	0.89 [0.18–4.45]
	Moderate	0.536	0.80 [0.40–1.61]	0.242	0.55 [0.20–1.50]
	Severe	0.139	1.50 [0.88–2.58]	0.663	0.85 [0.41–1.76]
	Extremely Severe		Reference		Reference
Anxiety	Normal	0.268	0.61 [0.26–1.46]	0.500	1.55 [0.43–5.55]
	Mild	0.651	0.74 [0.20–2.73]	0.914	1.10 [0.19–6.51]
	Moderate	0.092	0.53 [0.26–1.11]	0.933	0.96 [0.35–2.59]
	Severe	0.566	0.81 [0.40–1.65]	0.266	1.74 [0.66–4.64]
	Extremely Severe		Reference		Reference
Stress	Normal	0.248	0.66 [0.33–1.33]	0.334	1.84 [0.53–6.31]
	Mild	0.779	0.86 [0.29–2.51]	0.549	1.57 [0.36–6.82]
	Moderate	0.219	0.55 [0.21–1.43]	0.711	1.26 [0.37–4.26]
	Severe	0.792	0.93 [0.55–1.59]	0.581	1.22 [0.60–2.49]
	Extremely Severe		Reference		Reference
Fear of COVID-19	Low Fear	**0.016**	0.57 [0.36–0.90]	0.123	0.58 [0.29–1.16]
	High Fear		Reference		Reference

AOR = Adjusted odds ratio, LL = Lower limit, UL = Upper limit, NA = Not applicable for multivariate analysis.

that participants aged above 35 years were 2.65 times more likely to have suicidal ideation (adjusted odds ratio (AOR) = 2.65, 95% CI = 1.31–5.37) than those aged from 18 to 35 years. Regarding gender, females had a 5.14-times elevated suicidal ideation risk compared with male participants (AOR = 5.14, 95% CI = 2.28–11.56). Moreover, compared with participants who were uneducated,

those having completed 6–10 standards (AOR = 0.28, 95% CI = 0.11–0.72), having graduated (AOR = 0.06, 95% CI = 0.01–0.31) and having postgraduate education (AOR = 0.15, 95% CI = 0.02–0.91) were less likely to have suicidal ideation.

Table 3 also reports the clinical and behavioural predictors of SI obtained by multivariate analysis. Based on these findings, the odds

of having suicidal ideation were 2.35 times higher among participants who developed a disability later in life than in those who had a disability from birth (AOR = 2.35, 95% CI = 1.16–4.78). Respondents who slept less than normal were 3.12 times more likely to have suicidal ideation than those who slept normally (AOR = 3.12, 95% CI = 6.50–7.52). Respondents currently using drugs had 2.98 times more suicidal ideation (AOR = 2.98, 95% CI = 1.23–7.21) compared with their counterparts.

Discussion

This study investigated for the first time the magnitude of and factors associated with suicidal ideation among PWDs in Bangladesh. About 23.9% past-year suicidal ideation related to the pandemic was reported during the COVID-19 pandemic, a very high prevalence rate. Factors significantly associated with suicidal ideation included age above 35 years, female gender, being uneducated, having developed disability later in life, reporting less sleep and current substance misuse. Unfortunately, to the best of the authors' knowledge, no previous studies have been conducted among Bangladeshi PWDs to explore suicidality. Hence, this study's findings were compared with those of earlier studies involving diverse cohorts, methods and cultures conducted inside and outside Bangladesh during or before the COVID-19 pandemic.

A recent pre-pandemic systematic review including studies of PWDs concluded that the prevalence of suicidal ideation was 10.2% to 12.7% (past month) and 1.4% to 27.7% (past year).[23] During the pandemic, in the USA (April to May 2020) and UK (February to March 2021), prevalences of 30.6% and 20.7% for suicidal ideation, respectively, were found among PWDs.[10,12] Notably, this study found the prevalence of past-year suicidal ideation related to the COVID-19 pandemic to be 23.9%. In the recent systematic review of COVID-19-related studies, the suicidal ideation rate ranged from 5% to 19% across different Bangladeshi populations; thus, this study's suicidal ideation prevalence rate appears very high.[5] However, the present study covered a longer timescale than the previous Bangladeshi studies, and the cohort appears to be mentally vulnerable. Therefore, we conclude that a large proportion of PWDs are at risk of suicidality, requiring emergency mental health support to prevent suicide during the post-COVID-19 pandemic period.

Suicidal ideation was higher in this study among older PWDs (i. e. a 2.65-times higher risk of suicidal ideation among participants aged more than 35 years participants compared with those aged less than 35 years), consistent with previous studies.[23] During the COVID-19 pandemic, this finding was also in line with those of another study conducted among disabled adults,[10] although two other studies did not find such an association.[11,12] The higher rate of suicidal ideation in middle-aged and older adults could be explained by the fact these individuals are less likely to express suicidal ideation before their death, have greater determination and are less likely to be rescued owing to physical frailty; this could reduce the prevention of suicide as well as limiting opportunities for intervening with those who have suicidal behaviour. However, only two age categories were considered in this study, and the relationship of age with suicidal ideation might therefore have been overestimated. Thus, the relationship between age and suicidal ideation among PWDs is still unclear, especially regarding suicidal thoughts and suicide attempts; this requires further elucidation.

Gender plays an important part in suicide and suicidality. As estimated by the World Health Organization, higher rates of deaths by suicide occur among males, for instance, 13.7 deaths per 100 000 population compared with 7.5 for females.[24] However, suicidal behaviours appear to be prevalent among female,[25] and the prevalence of suicidal ideation as a way to cope with stress or emotions is higher among females than among males. For example, a US study among PWDs conducted during the COVID-19 pandemic focusing on different aspects of psychological health found that 37.4% of the male participants had seriously considered suicide, compared with 22.6% of the females.[11] However, more studies are recommended to investigate which gender is at higher risk of suicide and suicidality, to better understand gender-based suicide risk and prevention.

Consistent with this study's findings, Rahman et al and Meltzer et al found lower educational attainment to be a potential risk factor for suicidal ideation among PWDs,[26,27] although the effect of lack of education still remains controversial.[28] Individuals with lower educational levels may be at a higher risk of suicide owing to early-life factors both decreasing educational opportunities and increasing mental health difficulties. Another notable finding of this study was that participants who had been disabled from birth were less likely to report suicidal ideation. This could be explained by the fact that individuals disabled from birth might develop coping mechanisms from an early age, find the support system that they need, and increase their acceptance after many years of struggling to cope with life, although further studies are needed to reach more robust conclusions.

Consistent with the findings of the present study, it has been well established that there is a strong relationship between suicidal ideation and sleeping problems.[5,11] In the systematic review of Bangladeshi studies, a wide range of psychopathological factors including depression, anxiety, stress, sleep problems, history of suicidal behaviour and family history of suicide were found to increase the risk of suicidality during the COVID-19 pandemic.[5] Notably, this study found no significant difference in suicidal ideation rates based on whether the PWDs experienced depression, anxiety and stress, similar to the findings of other studies,[29,30] suggesting that depression, anxiety and stress might not strongly contribute to the increased rate of suicidal ideation among PWDs. This is a very unusual finding in the context of the pandemic or otherwise; thus, the psychopathological factors in suicidality among PWDs should be further investigated.

To better understand the indirect consequences of the COVID-19 pandemic, variables directly related to the COVID-19 pandemic were included in this study; we found that PWDs who had tested positive for COVID-19 had more thoughts of suicidal ideation, as documented earlier. The pandemic-related variables that were estimated to increase the risk of suicide in Bangladesh included lower knowledge about COVID-19, practicing fewer preventive behaviours related to COVID-19, having elevated levels of fear of COVID-19, residing in COVID-19-prone areas, experiencing economic problems and experiencing COVID-19-related deaths of family members or relatives.[15] As aforementioned, the first case of COVID-19-related suicide in Bangladesh was attributed to fear of COVID-19.[13] Later, an Indian study reported that COVID-19 fear was the factor with the greatest effect on suicide, accounting for 21 deaths out of 69.[31] Consistent with other pandemic studies, the present study identified fear of COVID-19 as a prominent stressor for suicidal ideation, possibly owing to the increasing number of infections, uncertainty and phobia.[13,15] The suicidality-related factors identified in this study and elsewhere should be considered when planning further studies or any preventive actions.

Substance misuse and associated disorders have increased after the pandemic. For instance, a US longitudinal study found a 13–36% increase in problems related to alcohol or illicit substance use across three groups, adults without children, parents, and adolescents, after the inception of the pandemic.[32] In addition, a hospital registry analysis reported a 5.90% rate of substance use disorders among Ugandan adolescents, which showed a non-significant

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increase to 9.80% after the pandemic.[33] In this study, 38% of PWDs noted an increase in their drug use, and drug use in general appeared as a risk factor for suicidality. Consistent with previous studies,[10–12] these findings demonstrate a higher prevalence of substance use as well as a higher risk of suicidal ideation to cope with stress and emotions during the COVID-19 pandemic.

The present study had some limitations that are worth noting. This study was cross-sectional; therefore, the data cannot be used to infer causality. In addition, this study did not assess changes in disability status and suicide-related outcomes over time owing to its cross-sectional nature. Thus, further studies are warranted to determine how disability is associated with suicide-related outcomes over time. Besides, suicidal ideation was measured using a single-item question with a binary response (i.e. yes or no). Future studies are needed to understand the continuum between suicidal ideation and suicidal planning before attempting suicide completion using a longitudinal study design. Moreover, this study did not include a number of other important factors related to suicidal ideation, including history of suicidality among friends and family, social support, loneliness and self-esteem.[34] Further studies with larger sample sizes and including people with other forms of disabilities could shed more light on this important public health issue.

In this study, PWDs tended to have a number of sociodemographic, clinical and behavioural factors associated with suicidal ideation. The findings provide essential baseline information on suicidal ideation among PWDs during the COVID-19 pandemic, which could direct preventive programmes or further studies inside and/or outside Bangladesh. About 23.9% of the suicidal ideation was reported within 1 year of the pandemic, which appears to be a very high prevalence rate; this could be attributed to the massive lockdown measures and curfew situations. Thus, care of this vulnerable population should be focused on accommodating and targeting their specific needs while planning for any lockdown situation (previous studies strongly recommend adopting cohort-specific plans and preventive strategies[35–38]). In addition, health education and awareness-related programmes in communities to increase knowledge about COVID-19 could help to reduce the incidence of COVID-19-related suicide. Finally, the public health system should consider long-term screening and treatment interventions to help prevent suicide-related issues during the COVID-19 pandemic.

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