

Estimates of the extent of depression among doctors: associated factors and in-depth analysis

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Abstract

Background: Depression is a common mental illness worldwide. More than 264 million people are facing its devastating consequences. It is more common among doctors than the general population. Physicians are vulnerable to depression, because of their exposure to high levels of occupational stress and work load, which plays a devastating consequence over the quality of health care systems, making more medical errors and decline their professional performance. The majority of the physicians are unaware of their mental sickness and reluctant to seek mental health treatment due to fear of social stigma and failure to find reliable and trustful health care provider. As a result, the incidence of suicidal tendency has increased among physicians. Therefore, the psychological well-being of physicians is mandatory for the general population.

Objectives: To estimate the extent of depression among doctors who responded to an online based survey and to correlate it with their demographic characteristics.

Methods: A cross-sectional study in the form of online based survey was conducted among doctors who were working in different hospitals (both government and private) in Bangladesh, from June 2019 to December 2019. A preformed questionnaire was sent to the doctors through internet with Standardized PHQ-9 inventory. Demographic characteristics of the participants were recorded as independent variables; depression scores being outcome variables. Data analysis was done via SPSS-23.

Results: During the study period 502 doctors agreed to participate and filled up the online form. Minimal depression was present in 3.1%, mild in 5.5%, moderate in 32.5%, moderately severe in 27.2% and severe depression in 31.8% of the respondent doctors. Around 39 (8.6%) had none or only mild depression. Association between sex and PHQ-9 depression stages was significant ($\chi^2=21.30, p<0.001$). Males were less likely to be depressed than females. Association with place of job, physical assault and PHQ-9 depression stages were significant but association between age categories and depression stages determined by PHQ-9 scoring was not significant. Similarly, marital status, having children and distance of work place, living with family did not show significant association with depression.

Conclusions: The prevalence of depression is high among the doctors of Bangladesh. They must be promptly screened and managed at all medical institutions.

Declaration of interest: None

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Keywords: Health care professional; physician; developing countries; psychological stress

Introduction

Depression is a common mental illness worldwide. More than 264 million people are facing its devastating consequences.¹ Globally, the burden of depression is increasing, it will be the second leading contributor to the global burden of disease by 2030.² Estimated global prevalence of depression varies from 3.2% to 4.7%.^{3,4} Depression is more common in doctors^{5,6} than the general population worldwide. Recent meta-analyses of

global studies estimated an overall prevalence of depression to be 29% in registrars and up to 60% in practicing doctors.⁷ These figures differ widely between countries and specialties because of the use of different tools for diagnosing depression. For instance, a Cape Town study using a self-administered Beck's Depression Inventory revealed depression in 30% of public primary health care doctors,⁸ while an Australian study⁴ found that 18% of medical students and 21% of doctors had previously

been diagnosed with depression.⁷ In USA, prevalence of depression or depressive symptoms (15–43.2%) is significantly higher in medical students and registrars/residents than in the general population.⁹ Another study documented a high prevalence of anxiety and depression among family practitioners in Karachi.² Using Aga Khan University Anxiety and Depression Scale (AKUADS), it was found that 155 (39%) family practitioners had anxiety and depression.¹⁰ The prevalence of depression among physicians is significantly higher in Indian resident doctors, average prevalence of depression being 27.71%.¹¹ Physicians are vulnerable to depression, because of their exposure to high levels of occupational stress and work load, which plays a devastating consequence over the quality of health care systems and make more medical errors and decline the professional performance.⁶ Therefore, psychological well-being of physicians is mandatory for general population and researchers are interested to find out the prevalence of depression and factors influencing depression in physicians. The majority of the physicians are unaware of their mental sickness and reluctant to seek mental health treatment due to fear of social stigma and failed to find reliable and trustful health care provider. As a result the incidence of suicidal tendency has increased day by day among physicians.⁶ Prevalence of depressive disorders in Bangladeshi adult population is 6.7 (5.8-7.6%).¹² But only few data is available to see the prevalence of depression in working doctors. One study was conducted at the Department of Psychiatry of Bangabandhu Sheikh Mujib Medical University, Bangladesh, found 11.5% of the residents had depressive disorders, 11% had anxiety disorders and 10.5% had stress disorders.¹³ Another study showed mild to moderate depression in 40.8% of undergraduate medical students.¹⁴ This study was anticipated to reveal yielding results in estimating the extent of depression among doctors serving in hospitals in Bangladesh, with considerable analysis of the contributory factors.

Methods

A cross-sectional, non-interventional study was conducted from June 2019 to December 2019 among 502 doctors. The sample size was calculated using Cochran's formula and the current prevalence of depression among adults in Bangladesh was used. To estimate the extent of depression, PHQ-9 was used. The Patient Health Questionnaire (PHQ) is a self-report version of the Primary Care Evaluation of Mental Disorders (PRIME-MD) diagnostic tool for common mental disorders. The PHQ-9 is a brief, 9-item scale that includes only the depression-related items from the PHQ. The preformed questionnaire was provided to the doctors who were active in social media and working all over the country. Participation in the study was completely voluntary. Househ M found that 90% of the doctors use some forms of social media.¹⁵ All doctors who replied were included in the study. Those who did not return their answer through internet after more than 7 days of distribution were excluded from the study. A semi-structured pro-forma containing sociodemographic data including the basic information such as age, sex, marital status, postgraduate branch, accommodation,

working environment, history of threat and physical assault were included. Ethical approval was taken from Dhaka Medical College. Participants were informed that they could pull out the study at any time if they wanted. Statistical analysis was performed using SPSS. Chi-square test was applied to examine the association of depression, with demographic characteristics as well as postgraduate training-related factors and personal factors. $P < 0.05$ was considered to be statistically significant.

Results:

Prevalence of depression according to grading showed minimal depression in 3.1%, mild in 5.5%, moderate in 32.5%, moderately severe in 27.2% and severe depression in 31.8% respondents. Among the doctors, 414 (91.4%) were suffering from at least moderate level of depression, and 144 (31.8%) were suffering from severe depression. Only 49 (9.8%) had no depression.

Table 1: PHQ-9 depression score among the participants (N=502)

PHQ-9 depression score	Frequency (n)	Percentage (%)
Minimal	14	3.1
Mild	25	5.5
Moderate	147	32.5
Moderately severe	123	27.2
Severe	144	31.8
Moderate depression	414	91.4
No depression	49	9.8

Most of 502 respondents were in 25-34 years age group (92.1%), followed by 35-44 years age group being the second largest one. Association between age categories and depression stages determined by PHQ-9 scoring was not significant ($\chi^2=5.65$, $p=0.685$). Similarly, marital status ($\chi^2=6.58$, $p=0.582$), having children ($\chi^2=1.22$, $p=0.875$), distance from work place ($\chi^2=9.05$, $p=0.06$) and living with family ($\chi^2=6.53$, $p=0.162$) did not show any significant association with depression. Out of 451 respondents, 53.2% respondents were females and 46.8% (211) were males. Males were 0.655 times less likely to be moderately depressed than females (OR = 0.65, CI = 0.33-1.27).

Table 2: Association between demographic characteristics and depression scores of the participants (N=502)

	Total N (%)	Minimal n (%)	Mild n (%)	Moderate n (%)	Moderately severe n (%)	Severe n (%)	P
Age (year)							
25-34	423 (93.4)	14 (3.1)	25 (5.5)	137 (30.2)	113 (24.9)	134 (29.6)	0.685
35-44	29 (6.4)	-	-	10 (2.2)	9 (2)	10 (2.2)	
45-54	1 (0.2)	-	-	-	1 (0.2)	-	
Sex							
Male	211 (46.8)	6 (1.3)	16 (3.5)	88 (19.5)	45 (10)	56 (12.4)	0.001
Female	240 (53.2)	8 (1.8)	9 (2)	59 (13.1)	77 (17.1)	87 (19.3)	
Marital status							
Divorced	5 (1.1)	-	-	-	3 (0.7)	2 (0.4)	0.582
Married	265 (58.8)	11 (2.4)	15 (3.3)	88 (19.5)	69 (15.3)	82 (18.2)	
Unmarried	181 (40.1)	3 (0.7)	10 (2.2)	59 (13.1)	50 (11.1)	59 (13.1)	
Having children							
	117 (26.1)	4 (0.9)	4 (0.9)	33 (7.3)	38 (8.5)	38 (8.5)	0.875
Live near work							
	257 (57.2)	8 (1.8)	20 (4.5)	91 (20.3)	65 (14.5)	73 (16.3)	0.060

Overall, out of 468 respondents, almost three-fourth (76.9%) were in government service (including government residents) followed by nearly one-fifth (16.7%) in private service. There was no significant association of job status with depression, ($\chi^2=16.39$, $p=0.174$) (Table 3).

Table 3: Association between job status and depression severity of the respondents (N=468)

Type of employer	Total N (%)	Minimal n (%)	Mild n (%)	Moderate n (%)	Moderately severe n (%)	Severe n (%)	P
Government	327 (76.9)	12 (2.8)	21 (4.9)	117 (27.5)	81 (19.1)	96 (22.6)	0.174
Intern doctor	19 (4.5)	-	-	3 (0.7)	7 (1.6)	9 (2.1)	
Private hospital	71 (16.7)	2 (0.5)	2 (0.5)	19 (4.5)	23 (5.4)	25 (5.9)	

Out of total 451 respondents, 56.8% respondents mentioned that they were at least sometimes afraid while doing their job, followed by 20.4% respondents who reported being afraid often. While 48 10.6% respondents were always afraid, and 12.2% respondents were never afraid ($\chi^2=48.05$, $p<0.001$). Risk estimates could not be determined. Out of total 446 respondents, 37.7% respondents had been threatened during duty at least for once. The association was significant ($\chi^2=12.45$, $p=0.014$), (OR=1.36, CI=0.62-2.84). Out of 447 respondents, 72 (16.1%) had been assaulted during duty and the association with depression was significant ($\chi^2=16.41$, $p=0.003$) (Table 4).

Table 4: Association between job experience and depression severity of the respondents (n=446)

	Total N (%)	Minimal n (%)	Mild n (%)	Moderate n (%)	Moderately severe n (%)	Severe n (%)	P
Afraid while in duty							
Always	48 (10.6)	1 (0.2)	-	10 (2.2)	12 (2.7)	25 (5.5)	0.000
Never	55 (12.2)	4 (0.9)	9 (2)	21 (4.7)	15 (3.3)	6 (1.3)	
Often	92 (20.4)	2 (0.4)	4 (0.9)	23 (5.1)	20 (4.4)	43 (9.5)	
Sometime	256 (56.8)	7 (1.6)	12 (2.7)	93 (20.6)	76 (16.9)	68 (15.1)	
Ever threatened during duty	168 (37.7)	6 (1.3)	6 (1.3)	52 (11.7)	36 (8.1)	68 (15.2)	0.014
Ever insulted during duty	305 (68.1)	7 (1.6)	14 (3.1)	86 (19.2)	79 (17.6)	119 (26.6)	0.000
Ever assaulted during duty	72 (16.1)	-	1 (0.2)	20 (4.5)	15 (3.4)	36 (8.1)	0.003
Criticized unduly during duty	331 (74.4)	8 (1.8)	14 (3.1)	99 (22.2)	88 (19.8)	122 (27.4)	0.000

Out of 447 respondents, majority of the respondents (89.3%) thought clinical line was more stressful than others. Most of the respondents (59.1%) also thought condition of the living quarters could be better. Among 448 respondents, 54.5% thought that post-graduation hampered personal life and the association was significant, ($\chi^2= 11.88$, $p=0.018$) (Table 5).

Table 5: Opinion of the respondents about their residence, working environment and personal life (N=447)

	Total N (%)	Minimal n (%)	Mild n (%)	Moderate n (%)	Moderately severe n (%)	Severe n (%)	P
Residence environment							
Filthy	157 (34.9)	8 (1.8)	5 (1.1)	44 (9.8)	39 (8.7)	61 (13.6)	0.081
Could be better	266 (59.1)	5 (1.1)	19 (4.2)	95 (21.1)	77 (17.1)	70 (15.6)	
Acceptable	27 (6.0)	1 (0.2)	1 (0.2)	8 (1.8)	7 (1.6)	10 (2.2)	
Working environment							
Not ideal	307 (68.5)	8 (1.8)	19 (4.2)	100 (22.3)	88 (19.6)	92 (20.5)	0.000
Ideal	35 (7.8)	3 (0.7)	2 (0.4)	14 (3.1)	9 (2.0)	7 (1.6)	
Personal life affected by profession							
Maybe	124 (27.7)	2 (0.4)	8 (1.8)	43 (9.6)	32 (7.2)	39 (8.7)	0.000
No	75 (16.8)	2 (0.4)	14 (3.1)	33 (7.4)	15 (3.4)	11 (2.5)	
Yes	248 (55.5)	10 (2.2)	3 (0.7)	68 (15.2)	75 (16.8)	92 (20.6)	
Profession causing depression	253 (56.3)	5 (1.1)	5 (1.1)	70 (15.6)	71 (15.8)	102 (22.7)	0.000
Thinks post-graduation hampers personal life	242 (54.5)	6 (1.4)	8 (1.8)	72 (16.2)	66 (14.9)	90 (20.3)	0.018

Discussion

In our study, we found that young doctors are severely depressed than any age group. In this age group most of the doctors are struggling to build up their carrier and various factors like job insecurities, urge for post graduations, family disharmony all can contribute to high incidence of depression. In china, one study showed 28.1% had depressive disorder among the 2641 physicians working in public hospitals in Shenzhen in southern China.¹⁶ In India, 22.5% in medical students suffered from depression.¹⁷ Interestingly our findings are higher than prevalence of depression among the general students. In one study conducted in a public university in Bangladesh, showed the prevalence of moderate to extremely severe levels of depression were 52.2%, which is lower than our findings (91.5%).¹⁸ Another study conducted among the general population in Bangladeshi urban people, showed 36.6% of the adolescents reported depressive symptoms, with a greater prevalence among females (42.9%) than males (25.7%).¹⁹ Depression is more common in chronic disease. The chronicity of the disease and economical burdens make people depressed. But our doctors are even more depressed than the diseased populations. An urban hospital-based study reported that, 47% patients with stroke and 54% of cancer patients had depression.²⁰ Another hospital-based study found that 56.6% of cancer patients suffered from major depressive disorders.²¹

In our study, 53.2 respondents were female in comparison to 46.8% being male. Clearly female respondents were larger in number than the males. Association between sex and PHQ9 depression stages, was significant.²² Family conditions, marital status, living with family, number of children all have a great impact on human mind. All of the demographic factors failed to show any positive association with depression.

Job security is a predictor for well-being and depression. Job status, salary, working environment, distance from home and working security make job secured. Various studies showed a direct relationship between job insecurity and mental health impairment. A recent study showed men in low job security group showed significantly higher hazard ratios (HRs) for depression (HR 1.27, 95% CI 1.01–1.60).²³ Employees at risk of losing their jobs showed higher levels of perceived depression.^{24,25} Job loss and unemployment can trigger the chain of adversity: financial and relational strain, loss of personal control and these can lead to depression and even suicide.^{26,27} Type of posting can interfere the various factors of healthy living. Family life, career, children's education and social life are very much dependent on a suitable posting. A private doctor can change job placement easily but it is more difficult for government doctors in Bangladesh. An unfavorable posting can hamper the quality of life of a doctor. In Bangladesh, psychological and physical harassment are commonly reported in the periphery as well as urban hospitals. These unwanted situations create an unsecured work environment and have a negative impact on family and social interactions.

There are established correlations between a high level of occupational stress and a wide range of mental health problems.²⁸ Recently, several longitudinal studies reported an important role of psychological work stress in developing clinically diagnosed mood disorders. An epidemiological study revealed that work stress can be an independent risk factor for the development of major depressive disorder.²⁹ The social environment at workplace can predict the prevalence and severity of depression in most occupational groups. But there is lack of social respect towards doctors' community. Violence, threatening, bullying and sexual harassment are not uncommon here. Negative attitudes by public and social media persist here. All of these factors have a negative impact on mental health of health workers. The level of social support can modulate the effect of work stress on depression.³⁰ Experiencing work-related threats and violence are strong risk factors for both males and females.³⁰ Working environment is not good enough in Bangladesh due to mismanagement and bureaucratic problems. An unhealthy working environment and lack of professional security have great impact on mental health and ultimately make doctors depressed. Doctors who are afraid of their job environment are more severely depressed than others. Respondents who had been threatened during duty at least for once and assaulted were more depressed. Doctors molested by public is very much common in Bangladesh. Most of the doctors are afraid of their personal security. Various factors related to job security make doctors more depressed.

Conclusions

To our knowledge, this was the first study to determine depression specifically among the doctors of Bangladesh, as a group. However, the data were collected over internet, with the help of google forms and only the participants who had access to internet and adequate expertise to participate were enrolled. The sensitivity and specificity of PHQ-9 in ONLINE survey are not known. The sampling method was convenient sampling, so bias might be present in various forms, as randomization could not be done. As the study was self-funded by the authors, and obvious unavoidable monetary constraints were present, any proprietary scoring systems could not be employed to screen the participants for depression. The sample size was small compared to the calculated size, which does not allow generalization of the findings. A large number of doctors did not agree to participate in the study even though they were informed about the study procedure, objectives, anonymity of data, and their right to withdraw from the study at any time. Despite these limitations, this study revealed that prevalence of at least moderate level of depression is much high (91.6%) among Bangladeshi doctors. Mainly job-related bad experiences such as, threats, assaults, intimidation, undue interference in executing duties by non-medical entity, undue criticism are mostly associated with development of depression. Among the doctors, 73.3% want to move abroad and leave this country, 53.6% contemplated career switching and 89.3% thought that clinical line is more stressful than any other occupation. A larger-scale study should be undertaken to validate the findings of the present study.

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