Original Article

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Assessment and Analysis of Mental Stress and Perceived Factors using DASS-21 Questionnaire among the Government Doctors of Bangladesh

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ABSTRACT

Background: *Mental health problems, such as depression, anxiety and stress (DAS) among the government doctors of Bangladesh are a substantial public health issue & might induced by various perceived mental stressors, such as relationship conflict, financial constraints, concern regarding professional integrity, to be established, insecurity, coping incapability, lack of guidance & suffering with NCD.* ***Objective****: The study aimed to find out status of DAS & predict the perceived factors for DAS.* ***Methods & materials****: A cross-sectional study was conducted among the government doctors (n=217) of Bangladesh utilizing DASS 21 questionnaire & convenient sampling technique to measure the depression, anxiety and stress status & ordered logistic regression analysis was performed to find out the associated significant perceived predictors.* ***Results****: The prevalence of depression, anxiety, and stress were 42.9%, 53% and 43.8% respectively. Middle aged doctors (84.8%) are more prone to develop depression. The most significant predictors found responsible for depression, anxiety and stress were concern over professional integrity (b = 0.8), to be established (b = 0.75, 1.58, 1.26), insecurity (b = 0.71, 0.66) and relationship conflict (b = 1.03). 35.5% (77 individuals) were suffering with various non-communicable diseases, notably Hypertension, DM, IHD & Bronchial Asthma. The alarming situation is that Hypertension affected 54 individuals (≈25%).* ***Conclusion****: The study revealed that a substantial percentage of government doctors of Bangladesh have been suffering from depression, anxiety or stress symptoms and predominantly affected the middle-aged. In addition to academic, personal & professional stress, the significant perceived predictors responsible for creating DAS are concern about professional integrity & to be established, insecurity & familial and/ personal relationship conflict. Another alarming situation is the presence of Hypertension & other NCDs which deserves special attention to discern association with DAS related disorders. The policy-makers and the concerned authorities should come forward and take initiative to trace, identify and address the professionally challenging perceived risk factors in order to mitigate or dissolve the growing mental health issues among the government doctors of Bangladesh.*

Keywords*: DASS-21, Depression, Anxiety, Stress.*

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INTRODUCTION

Mental well-being is a state in which an individual realizes own abilities, deals effectively with the normal stresses of life, works productively and is able to make a contribution to the community [1–4]. The condition is also understood as the presence of positive mental states, e.g. coping with various life stress issues, absence of relationship conflicts, justifiably optimistic, practicing self and family care, be mindfulness etc. as well as the absence of negative mental states like depression, anxiety and stress (DAS) status [2,5]. Thus good mental health contributes to overall well-being, and can protect against mental health challenging issues. Contrary to that, mental health disorders are associated with disturbances in thinking, emotional regulation and/or behaviour that may be expressed in the form of DAS [1,2]. The various ongoing and/or past mentally stressful life events and/or its cumulation, depending on the life-activities might act as the precipitants and predictors for development of DAS as because it is evidenced that the risk of developing any mental health condition is intricately tied to our life circumstances [6]. The physical consequence of DAS might be serious and deteriorating that may eventually culminate into various non-communicable diseases (NCD) [7] and disrupt daily life by causing fatigue, impaired concentration and raising relationship conflict [8,9]. The expression of having substantial DAS may emerge mentally as cognitive as well as

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memory decline, less or poor professional performance, distorted personal life, burnout and risk of suicide [9,10].
Few professional groups are prone to be exposed frequent mentally stressful events with consequence of DAS and among those, doctors are very much susceptible for facing emotional strain, high pressure and difficult work environments contributing to mental health struggles [11–13]. In Bangladesh, doctors working within the government sectors face different adverse situations and suffer with different job constraints along their career path contributing to the development of DAS of varying degrees and severity [14–17]. The perceived mental stressors responsible for development of DAS among the government doctors might be personal, professional, academic or administrative-related and/or their combination [15,18]. Whatever it may be, excessive or chronic mental stress may impair their cognitive functions like decision-making, memory and attention, which may culminate into the grave consequences of DAS [11,12,15]. On the other hand, if the mental stressors persist over an extended period, may lead to cumulative physiological and psychological effects, increasing the risk of cardiovascular disease, anxiety, and depression [7,19]. DAS and its consequent intrinsic agony are almost hidden among the doctors most of the time. The barriers for doctors for seeking help with psychological illness issues are the stigma over psychological management, fear of professional deferment or non-confidentiality and ongoing professional stresses [12]. Previous studies performed in Bangladesh and other countries citing various mental stressors for doctors, such as academic stress, issues with work-life balance, poor senior guidance or support, female doctor, financial constraints, uncertainty about the future and professional establishment, need to be successful and lack of job satisfaction have been described [15,16,18,20–22].

The trend of mental stress inducing factors among the doctors may be shuffled with time or it may vary in terms of country-context & whether serving under government or as private. In context of Bangladesh, the government doctors faces different service constraints within their service period & career advancement that might create DAS being explored through various studies [14–17,22]. They might expect to shine their professional life maintaining a state of integrity, acquire due professional establishment in time, face justified career competition, having secured dignified status, free from financial constraints & relationship conflict & expect to develop career without involvement of politics [16,23,24]. The lack of fulfilment of these expectations along the career path of a physician might act as perceived responsible factors for development of DAS [15,16,18,20–22]. There have been previous studies being performed in Bangladesh addressing DAS & their risk factors among the doctors [15,16,25–27]. New trends are emerging in regard to development of DAS due to the changing nature, scope & demand of service to be delivered by a government doctor [11,28–31].

The stressful professional path, along with the country's politically driven administrative complications as per prevailing, may compel a government doctor to become mentally upset and thus act as perceived responsible factors (predictors) for creating DAS. The perceived predictors for creating DAS might be various anticipated and observed factors, such as relationship conflict, financial constraints and coping incapability, concern over integrity, insecurity, politicization of profession, having NCDs etc. being studied [7,11,12,15,16,27]. It is essential to assess and explore these perceived predictable factors responsible for DAS and make prediction among the government doctors to take necessary steps to prevent or treat any psychiatric morbidity.

Organized mental health counselling services for government doctors at the state level is not yet available in Bangladesh. If the mental stressors could be removed, simply the verbal counselling to develop resilience and constructive tolerance might be sufficient to reduce the development, duration and progression of DAS and their consequences. Thus the development of DAS among the government doctors could be lessened with an aim to cope stressful life experiences more healthfully and produce personalities that could better withstand stress. Thus the study aims to assess the DAS status among the government doctors of Bangladesh and make prediction about the responsible perceived factors for DAS.

METHODS & MATERIALS

The study employed a cross-sectional design among the doctors serving in different government health facilities of Bangladesh from 1st Oct, 2025 to 30th April, 2026. Ethical approval been taken from the Institutional Review Board of the Gopalganj Medical College (memo no. IRB/GgMC/2025/01). The details of the study presented before the participants to take consent. Participants were convinced that the information will be kept confidential and used purely for academic purpose. Participants were informed that they can pull out the study at any time if they want. A total of 217 government doctors participated voluntarily and convenient sampling technique [27]. The study utilized a semi-structured data collection instrument, which included questions to gather respondents' socio-demographic information (e.g. age, gender, level of education (MBBS only/MBBS with post-graduation), marital status, engagement of spouse in employment and average monthly family income); a part to elicit the perceived predictor variables (dichotomous-yes/no) responsible for creating DAS for the purpose of prediction analysis; symptom severity associated with DAS were measured using the validated tool, the DASS 21 Bangla version questionnaire [32] and a part containing the 'consent form' in Bangla. Data were analyzed using IBM SPSS Statistics version 27. Here, since the outcome variable is categorized and ranked, we performed an Ordinal Logistic Regression analysis. We set the alpha = 0.05 and the hypothesis as follows; H_0: there is no statistically significant perceived factors that influence the level of depression, anxiety and stress; H_1: there is at least one statistically significant perceived factor that influence the level of DAS. Verification of the assumptions to run the ordinal logistic regression were ensured.

RESULTS

Regarding socio-demographic information, it was revealed that almost equal percentage of the respondents (≈42%) belongs to <40 years and 40 – 50 years age group followed by >50 years (15.2%) (*Table I & II*). In regard to gender, 64.1% of respondents were male whereas 35.9% respondents were female. Regarding level of education 24% were only MBBS and 76% were MBBS with post-graduation. Almost ≈95% respondents were married, 3.7% unmarried, 0.9% widow/widower and one person divorced. Among the married couples almost ≈73% were with spouse employed. Regarding average monthly family income almost ≈75% of the respondents have an income of >100000, ≈10% have 50000 – < 75000, ≈10% have 75000 – 100000, ≈5% have <50000 BDT and one respondent didn't want to disclose.

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Table I: SPSS output shows cross-tabulation between age of the respondents and level of depression showing <40 years and 40 – 50 years age group are more prone to develop depression in terms of frequency

age of respon * Level of depression Crosstabulation							
Count							
		Level of depression					
		Normal	Mild	Moderate	Severe	Extremely severe	Total
age of respon	<40 years	50	15	12	11	5	93
	40 to 50 years	56	11	16	5	3	91
	>50 years	18	3	10	2	0	33
Total		124	29	38	18	8	217

Table II: Levels of depression among the respondents (SPSS output)

Case Processing Summary (depression)			
		N	Marginal Percentage
Level of depression	Normal	124	57.1%
	Mild	29	13.4%
	Moderate	38	17.5%
	Severe	18	8.3%
	Extremely severe	8	3.7%
Valid		217	100.0%
Missing		0	
Total		217	

Descriptive statistics regarding the status of DAS, it was revealed that on average the total score of the respondents for depression is 9.57, anxiety 8.76 and for stress is 13.96; minimum and maximum mark for depression is 0 and 36, 0 and 38 for anxiety and 0 and 42 for stress. It was revealed that the majority of the respondents (57.1%) have a normal level of depression (Table II); although the second highest category (17.5%) belongs to those who have a moderate level of depression followed by mild (13.4%), severe (8.3%) and extremely severe (3.7%) variety. With regard to anxiety it seems that the majority of the respondents (47%) have a normal level of anxiety (Table III); the second highest category (23.5%) belongs to those who have a moderate level of anxiety followed by severe (12.9%), mild (9.2%) and extremely severe (7.4%) variety (*Table III*).

Table III: Levels of anxiety among the respondents (SPSS output)

Case Processing Summary (anxiety)			
		N	Marginal Percentage
Level of anxiety	Normal	102	47.0%
	Mild	20	9.2%
	Moderate	51	23.5%
	Severe	28	12.9%
	Extremely severe	16	7.4%
Valid		217	100.0%
Missing		0	
Total		217	

With regard to stress it seems that the majority of the respondents (56.2%) have a normal level of stress (Table IV) followed by mild (19.8%), moderate (14.7%), severe (7.4%) and extremely severe (1.8%) variety. Thus prevalence of depression assumed 42.9%, anxiety 53% and stress 43.8%.

Table IV: Levels of stress among the respondents (SPSS output)

Case Processing Summary (stress)			
		N	Marginal Percentage
Level of stress	Normal	122	56.2%
	Mild	43	19.8%
	Moderate	32	14.7%
	Severe	16	7.4%
	Extremely severe	4	1.8%
Valid		217	100.0%
Missing		0	
Total		217	

Regarding the perceived factors might associated with DAS revealed that, only 16.6% of the respondents have mentioned that they have familial and/or personal relationship conflict while 83.4% responded negative. Only 35% have mentioned that they face financial constraints with the ongoing life while 65% responded negative. Only 17.5% have mentioned that they feel coping incapability with the ongoing life while 82.5% responded negative. Regarding worried about intense career

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competition 48.8% responded 'yes' while 51.2% responded 'no'. Almost ≈48% mentioned that they feel lack of due guidance from seniors while almost ≈52% responded 'no'. Regarding 'concern about professional integrity' almost ≈45% responded 'yes', while almost ≈55% responded 'no'. Regarding worries about professional establishment almost ≈59% responded 'positive' while almost ≈41% responded negative. Regarding professional insecurity 64.5% felt so while 35.5% did not. Regarding politicization of medical profession 88% were worried while 12% did not. Among the respondents, 35.5% (77 individuals) were suffering with non-communicable disease while 64.5% were not. Among the persons having non-communicable disease (NCD), nine individuals have Hypertension with DM, 43 individuals have only hypertension, two individuals have Hypertension with Bronchial Asthma, one individual have IHD with Bronchial Asthma, nine individuals have Bronchial Asthma, one with Dyslipidemia, one with IHD plus DM plus Bronchial Asthma plus Chronic Kidney Disease (CKD), one with Hypertension plus DM plus IHD, one with Mitral Valvular Prolapse, 8 individuals with DM only and one have Hypertension with IHD. Among the respondents suffering with NCDs, hypertension affected 54 individuals.

An ordinal logistic regression analysis was conducted to investigate the relationship between levels of DAS (each measured on an ordinal scale) and ten perceived predictors (independent variables): relationship conflict, financial constraints, coping incapability, intense career competition, lack of guidance, professional integrity, establishment and insecurity, politicization of profession and suffering with NCD. The model fit was statistically significant (Table III,) (χ^2 = 36.24, p < .001 for depression (Table V), χ^2 = 44.34, p < .001 for anxiety (Table VI) and χ^2 = 52.18, p < .001 for stress (Table VII)) suggesting that the model was effective in differentiating among levels of depression, anxiety and stress individually based on the predictors. Goodness of Fit test indicated a 'good fit' for depression [Pearson χ2 (486) = 453, p = >0.05], stress [Pearson 2 (486) = 467, p = >0.05] and anxiety [Deviance χ2 (486) = 397, p = >0.05]. The Pseudo R-Square values for depression (Cox & Snell = .15 and Nagelkerke = .17), anxiety (Cox & Snell = .18 and Nagelkerke = .2) and stress (Cox & Snell = .21 and Nagelkerke = .23) suggest a substantial relationship between the predictors and status of depression, anxiety and stress each.

Table V: Model Fitting Information from SPSS to run Ordinal Logistic Regression (depression)

Model Fitting Information (depression)				
Model	-2 Log Likelihood	Chi-Square	Df	Sig.
Intercept Only	433.914			
Final	397.672	36.242	10	.000
Link function: Logit.				

Table VI: Model Fitting Information from SPSS to run Ordinal Logistic Regression (anxiety)

Model Fitting Information (anxiety)				
Model	-2 Log Likelihood	Chi-Square	Df	Sig.
Intercept Only	500.118			
Final	455.725	44.393	10	.000
Link function: Logit.				

Table VII: Model Fitting Information from SPSS to run Ordinal Logistic Regression (stress)

Model Fitting Information (stress)				
Model	-2 Log Likelihood	Chi-Square	Df	Sig.
Intercept Only	428.412			
Final	376.225	52.186	10	.000
Link function: Logit.				

In terms of individual predictors, 'Parameter Estimates' from SPSS output revealed that, worried about professional integrity (b = 0.80, SE = 0.32, Wald = 6.04, p <0.05), establishment (b = 0.75, SE = 0.35, Wald = 4.58, p <0.05) and insecurity (b = 0.71, SE = 0.33, Wald = 4.5, p <0.05) was the most significant factor for depression (Table VIII), with a positive relationship suggesting that these three predictors are associated most with depression; and we would say that one unit increase in these predictors, we expect a 0.8, 0.75 and 0.71 increase in the ordered log odds of being in a higher level of depression for the predictors respectively, given all of the other variables in the model are held constant.

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Table VIII: Parameter Estimates after ordinal logistic regression analysis (depression)

Parameter Estimates (level of depression)								
							95% Confidence Interval	
		Estimate	Std. Error	Wald	df	Sig.	Lower Bound	Upper Bound
Threshold	[lvldep = 1]	.839	.442	3.597	1	.058	-.028	1.705
	[lvldep = 2]	1.509	.451	11.189	1	.001	.625	2.392
	[lvldep = 3]	2.742	.480	32.577	1	.000	1.800	3.683
	[lvldep = 4]	4.079	.564	52.215	1	.000	2.973	5.185
Location	[ProfInteg=1]	.798	.325	6.040	1	.014	.162	1.434
	[ProfInteg=2]	0a	.	.	0	.	.	.
	[ProfEstab=1]	.753	.352	4.583	1	.032	.064	1.442
	[ProfEstab=2]	0a	.	.	0	.	.	.
	[ProfInsec=1]	.709	.334	4.496	1	.034	.054	1.364
	[ProfInsec=2]	0a	.	.	0	.	.	.
Link function: Logit.								
a. This parameter is set to zero because it is redundant.								

For anxiety, worried about establishment (b = 1.58, SE = 0.34, Wald = 21.24, p <0.001) and insecurity (b = 0.66, SE = 0.313, Wald = 4.43, p <0.05) was the most significant factor (Table IX) suggesting that these two predictors are associated most for anxiety; thus we would say that one unit increase in these two predictors, we expect a 1.58 and 0.66 increase in the ordered log odds of being in a higher level of anxiety for the predictors respectively, given all of the other variables in the model are held constant.

Table IX: Parameter Estimates after ordinal logistic regression analysis (anxiety)

Parameter Estimates (level of anxiety)								
							95% Confidence Interval	
		Estimate	Std. Error	Wald	df	Sig.	Lower Bound	Upper Bound
Threshold	[lvlanx = 1]	1.410	.469	9.029	1	.003	.490	2.329
	[lvlanx = 2]	1.854	.477	15.136	1	.000	.920	2.788
	[lvlanx = 3]	3.128	.504	38.561	1	.000	2.141	4.115
	[lvlanx = 4]	4.363	.549	63.271	1	.000	3.288	5.438
Location	[ProfEstab=1]	1.581	.343	21.245	1	.000	.909	2.253
	[ProfEstab=2]	0a	.	.	0	.	.	.
	[ProfInsec=1]	.660	.313	4.434	1	.035	.046	1.274
	[ProfInsec=2]	0a	.	.	0	.	.	.
Link function: Logit.								
a. This parameter is set to zero because it is redundant.								

And for stress worried about establishment (b = 1.26, SE = 0.36, Wald = 12.07, p <0.001), relationship conflict (b = 1.03, SE = 0.48, Wald = 8.0, p <0.05) and insecurity (b = 0.66, SE = 0.34, Wald = 3.77, p = 0.05) was the most significant factor (Table X), suggesting an association in regard to stress.

Table X: Parameter Estimates after ordinal logistic regression analysis (stress)

Parameter Estimates (level of stress)								
							95% Confidence Interval	
		Estimate	Std. Error	Wald	df	Sig.	Lower Bound	Upper Bound
Threshold	[lvlstr = 1]	1.455	.479	9.219	1	.002	.516	2.395
	[lvlstr = 2]	2.549	.500	25.959	1	.000	1.568	3.530
	[lvlstr = 3]	3.824	.540	50.107	1	.000	2.765	4.883
	[lvlstr = 4]	5.596	.707	62.703	1	.000	4.211	6.981
Location	[RelaConflict=1]	1.034	.367	7.945	1	.005	.315	1.753
	[RelaConflict=2]	0a	.	.	0	.	.	.
	[ProfEstab=1]	1.265	.364	12.076	1	.001	.551	1.978
	[ProfEstab=2]	0a	.	.	0	.	.	.
	[ProfInsec=1]	.661	.340	3.777	1	.052	-.006	1.328
	[ProfInsec=2]	0a	.	.	0	.	.	.
Link function: Logit.								
a. This parameter is set to zero because it is redundant.								

Thus we would say that one unit increase in these three predictors, we expect a 1.26, 1.03 and 0.66 increase in the ordered log odds of being in a higher level of stress for the predictors respectively, given all of the other variables in the model are held constant. Other perceived factors, however, was not found to be a significant predictor responsible for DAS.

DISCUSSION

The study was conducted among the 217 doctors of different government health facilities of Bangladesh using convenient sampling technique to assess the prevalence of DAS, make prediction for DAS as response variable of ordinal category based on certain perceived predictor variables as contributory factor by applying ordinal logistic regression and also eliciting

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some socio-demographic information. The demographic profile of the respondents reveals that the respondents predominantly of middle-aged and having high earning potential with 84.8% of participants under the age of 50 and middle aged doctors (<40 and 40 – 50 years age group) are more prone to develop depression symptoms (Table I).

This finding might be, in this age group, the government doctors struggle to attain post-graduation, be established and to maintain professional integrity and it is similar to a study done in our country [15]. The gender split shows a male majority (64.1%), which seems to be insignificant due to incorporation of convenient sampling. Almost ≈76% have attained post-graduation, indicating a trend to be specialized at an early age of the career. It seems that, socially, the government doctors are very stable, with 95% being married. Interestingly, 73% of these married respondents have employed spouses, suggesting dual-income households are the norm. Almost ≈75% of the respondents have an income of >100000 Tk. The combination of high individual earning power (≈75%) and dual-income status points toward attaining a high purchasing power as well as professional and mental stability.

For our study, in case of all the three components of DAS, majority of the respondents have a normal level of depression (57.1%), anxiety (47%) and stress (56.2%). This is followed by mild (13.4%), moderate (17.5%), severe (8.3%) and extremely severe (3.7%) for depression; for anxiety, it was moderate (23.5%), severe (12.9%), mild (9.2%) and extremely severe (7.4%); and for stress, it was mild (19.8%) to moderate (14.7%) to severe (7.4%) and extremely severe (1.8%). At a glance, it seems that 42.9% are suffering with depression, 53% with anxiety disorder and 43.8% with stress disorder. The data would not be regarded as prevalence of DAS due to small sample size and the convenient sampling method employed. But the pattern of finding is almost similar to study utilizing DASS 21 scale [10] done among Brazilian health professionals comprising nurses, doctors, pharmacists and dentists. Finding from another study done in Bangladesh among the resident doctors revealed 11.5% had depressive disorders, 11% anxiety disorders, and 10.5% stress disorders [33]. The same study reveals severity distribution of the disorders as 6% had severe to extremely severe depression, 3.5% severe to extremely severe anxiety, and 6.5% severe to extremely severe stress disorder, which is near to similar to our study finding. A study done among the Pakistani postgraduate medical trainees revealed about 60% were suffering with depression and of them, about 34% were moderate to markedly depressed, which is quite higher than the present study. This difference might be due to different study set up, different instrument, method of data collection and different culture.

Regarding the perceived factors might associated with DAS revealed that, 16.6% have relationship conflict, 35% face financial constraints, 17.5% feel coping incapability, 48.8% are worried about career competition, 48% feel lack of guidance, 45% are concerned over professional integrity, 59% worried about professional establishment, 64.5% feel professional insecurity and 88% are worried about politicization of medical profession. Lastly, 35.5% (77 individuals) were suffering with various non-communicable diseases. Among those, about 56% (43 individuals) were suffering with hypertension; followed by with or without DM or IHD or Bronchial Asthma or CKD or dyslipidemia and Mitral Valvular Prolapse. The alarming situation is that among those affected with various NCDs, 54 individuals (≈25%) are suffering with Hypertension.

From the 'Parameter Estimates' of ordinal logistic regression analysis indicate that worried about professional integrity, to be established and insecurity are the significant predictors for depression. The finding is similar to a study done in Bangladesh and other studies [27]. For anxiety, worried about to be established [12] and insecurity are the significant predictors and for stress worried about establishment, relationship conflict and insecurity are the significant predictors. The role of other perceived factors in predicting depression, anxiety and stress was not supported. The role of financial constraints being studied as perceived factor for depression [12], but in our study and another study [27], it has been found that doctors are less likely to experience depression if their income is lower but it deserves more research to rule out this association. In essence, the results of ordinal logistic regression analysis indicate that the significant perceived predictors responsible for creating depression, anxiety and stress are concern about professional integrity, to be established, insecurity and relationship conflict.

CONCLUSION

The study revealed that a substantial percentage of government doctors of Bangladesh have been suffering from any of the three disorders (depression, anxiety or stress symptoms) and predominantly affected the middle-aged. In addition to academic, personal and professional stress, the significant perceived predictors responsible for creating depression, anxiety and stress are concern about professional integrity, to be established, insecurity and familial and/ personal relationship conflict contributed to the rise of depression, mental stress and anxiety among the government doctors of Bangladesh. Among the respondents, 35.5% of the government doctors are suffering with various NCD's which needs immediate attention from the policy makers to discern about any link to depression, anxiety or stress disorders. A large-scale multicenter study is necessary to validate the findings of the present study and to carry on further researches among the government doctors to find ways for improvement of medical service, prevention of mental stress, sought for care & cure.

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