DEPRESSION AND ALCOHOL USE IN UNDERGRADUATE MEDICAL STUDENTS IN A PRIVATE MEDICAL COLLEGE

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ABSTRACT

BACKGROUND

Depression can significantly hamper academic performance and can also lead to substance use and abuse. The various causes leading to depression in medical students along with the multiple factors for alcohol use, needs to be assessed in view of rising levels of psychiatric morbidity.

Aim- To study the relationship between depression and alcohol use among undergraduate medical students.

MATERIALS AND METHODS

A cross-sectional study was done on 428 undergraduate students in a private medical college in Karnataka. They were assessed using a semi-structured proforma, Beck Depression Inventory and Alcohol Use Disorders Identification Test.

RESULTS

Majority of the students were between 17 - 20 years, females, studying in second year, had never failed earlier, stayed in hostel with roommate (s), were not in a relationship, 13.6% of the students had moderate depression, 8.4% had severe depression and 2.8% had extreme depression. 49.1% had consumed alcohol at least once. 15.7% had hazardous level of drinking, while 3.7% had dependence level of drinking. Common stressors were - need to do well academically and vast amount of content to be learned. Coping measures used by the students were using TV/ internet/ music to relax and seeking out friends for conversation and support.

CONCLUSION

Depression and alcohol use are highly prevalent in undergraduate medical students. Many of them reported stressors in the academic, relationship and adjustment domains and used various coping strategies to deal with them. Since there is proof that depression or alcohol use during undergraduate medical training foresees future predicaments in physicians, effective measures need to be taken up.

KEYWORDS

Undergraduate Medical Students, Depression, Alcohol Use.

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BACKGROUND

The Medical Council of India stipulates four and a half years of undergraduate (UG) medical training followed by a year of compulsory rotating internship. Throughout the course of study, the medical students unavoidably deal with various demanding situations which can have an impact on their mental health. Depression is the second most common mental health problem among medical students.[1] Medical trainees have higher rates of suicidal ideation and suicide attempts compared to the general population.[2] Alarmingly, on an average one physician commits suicide every day in the US.[3] There has also been a surge in the number of suicides in medical students in India in the past few years, which has left many wondering about the reasons for the drastic steps taken by the future healers of the society.[4,5,6,7]

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Few medical students with depression actually seek out treatment; when asked for reasons, they cite lack of time (48%), lack of confidentiality (37%), stigma (30%), cost (28%) and fear of documentation on their records (24%).[8]

Depression among medical students also places a greater risk for problems such as substance use or abuse. This assumes a special significance among the medical students who are the future medical practitioners and have a potential role in treating and counselling the patients of substance use disorders. A study by Seshadri S[9] reported that the prevalence of alcohol use among UGs was 9%. Sohail N[10] observed a general acceptance among UGs that alcohol could provide positive reinforcement. In view of the fact that mental health conditions such as depression and alcohol use among doctors can directly hamper patient care, this study was undertaken.

The aim of this study was to study the relationship between stress and depression and alcohol use among undergraduate medical students. The objectives were: (1) To screen for the prevalence of depression and alcohol use among undergraduate medical students, (2) To establish the relationship between the prevalence of depression and alcohol use.

MATERIALS AND METHODS

This was a cross-sectional study conducted in a private medical college in South India between November 2015 and April 2016. All undergraduate students were included in the study, while all interns and those refusing to give consent were excluded. A total of 428 students fulfilling the inclusion criteria participated in the study. Written informed consent was taken from the participants after explaining the nature of the study. To ensure anonymity, students were asked not to mention their name anywhere in the questionnaire.

Study Tools Used

1. A self-administered, semi-structured proforma questionnaire compiled by the authors pertaining to students' demographic variables and 12 closed and open ended questions.
2. **Beck Depression Inventory (BDI)[11]:** It is used for measuring the severity of depression and consists of 21 groups of statements. Participants are asked to grade from 0 - 3 on how they have been feeling during the previous two weeks. Based on the total score it is divided into: Mild mood disturbance (11 - 16), Borderline clinical depression (17 - 20), Moderate depression (21 - 30), Severe depression (31 - 40) and Extreme depression (> 40).
3. **Alcohol Use Disorder Identification Test (AUDIT)[12]:** AUDIT helps to identify alcohol dependence and some specific consequences of harmful drinking. There are 10 questions and a maximum score of 40. Total scores between 8 and 19 indicate hazardous drinking and scores > 20 indicate dependence level.

Statistical Analyses

Data was analysed using SPSS 20 (IBM). Proportion was compared using Chi-square test.

RESULTS

		Total (N=428)	
		n	%
Age	17-20 yrs.	231	54.0
	21-23 yrs.	173	40.4
	24-26 yrs.	24	5.6
	Mean ± SD	20.4 ± 1.803	
Gender	Male	212	49.5
	Female	216	50.5
Year	First	102	23.8
	Second	131	30.6
	Third	106	24.8
	Final	89	20.8
Failures in the Previous Terms	Never Failed	253	59.1
	Failed Once	135	31.5
	Failed Twice	29	6.8
	Failed Thrice	9	2.1
	Failed Four Times	1	.2
	Failed Five Times	1	.2
Living Arrangement	Hostel- Alone	46	10.7
	Hostel with Roommate	274	64.0
	Rent- Alone	26	6.1
	Rent with Roommate	24	5.6
	With Parents	58	13.6
Relationship Status	In a Relationship	108	25.2
	Others	320	74.8
Domicile	Urban	368	86.0
	Rural	60	14.0
Selection/ Choice of Course	Forced by Parents	50	11.7
	Own Choice	378	88.3

Table 1. Socio-Demographic Details of the Students (N=428)

BDI	Frequency	Percent
No depression	183	42.8
Mild mood disturbance	90	21.0
Borderline clinical depression	49	11.4
Moderate depression	58	13.6
Severe depression	36	8.4
Extreme depression	12	2.8
Total	**428**	**100.0%**

Table 2. Prevalence of Depression in the Students as assessed by BDI (N=428)

*BDI- Beck Depression Inventory. Depression is categorised into: No depression (≤ 10), Mild mood disturbance (11 - 16), Borderline clinical depression (17 - 20), Moderate depression (21 - 30), Severe depression (31 - 40), Extreme depression (> 40).

	Total (N=428)	
	n	%
Academic Domain		
Getting poor marks	215	50.2%
Facing death of the patients	101	23.6%
Unjustified grading process	177	41.4%
Heavy workload	280	65.4%
Lack of recognition for work done	164	38.3%
Lack of guidance from teacher	111	25.9%
Difficulty to answer questions from teachers	167	39.0%
Vast amount of content to be learnt	303	70.8%
Need to do well	306	71.7%
Poor motivation to learn	140	32.7%
Difficulty in understanding the content of the course	150	35.0%
Others	40	9.3%
Relationship Domain		
Relationship difficulties with parents/ friends/significant others	136	31.8%
Lack of time for family and friends	165	38.6%
Conflicts with other students	96	22.4%
Others	54	12.6%
Adjustment Domain		
Problems with food	251	58.6%
Parental separation/ bereavement	117	27.3%
Managing transition	153	35.7%
Others	110	25.7%
Emotions Domain		
Loneliness and homesickness	165	38.6%
Lack of self-confidence or low self esteem	151	35.3%
Feeling of incompetence	131	30.6%
Self injury	45	10.5%
Suicidal thoughts	39	9.1%
Others	30	7.0%
Personal Management Domain		
Worries about self appearance	141	32.9%
Issues around sex and sexuality	25	5.8%
Others	61	14.3%

Table 3. Table showing the Perceived causes of Depression among Students (N=428)*

*Multiple answers.

	Total (N=428)	
	n	%
Use internet/ TV/ music to relax	357	84.6%
Use humour to take the edge off	185	44.7%
Seek out friends for conversation and support	266	63.8%
Maintain a healthy diet	158	36.9%
Get involved in a hobby or interest that help me unwind and enjoy myself	229	53.5%
Just ignore the problem and hope it will go away	216	50.5%
Pray or meditate	151	35.3%
Go out shopping	144	33.6%
Confront the source of depression and work to change it	161	37.6%
Sleep more than usual	228	53.3%
Get irritable and take it out on those around	166	38.8%
Withdraw emotionally and just go through the motions of the day	140	32.8%
Seek professional help	69	16.1%
Drink alcohol	76	17.8%
Smoke a cigarette	55	12.9%
Others	16	3.8%

Table 4. Table showing the Coping Measures used by the Students to deal with Depression (N=428)*

*Multiple answers.

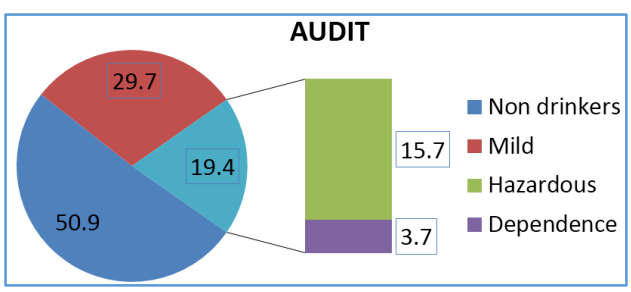

Figure 1. Prevalence of Alcohol Consumption in the Students as assessed by AUDIT (N=428)

*AUDIT- Alcohol Use Disorder Identification Test. Non-drinkers- 0, Mild: 1 - 7, Hazardous: 8 - 19, Dependence: ≥ 20.

Reason for Initiation	n	%
Friend's influence	65	15.2%
Party	75	17.5%
Social gathering	42	9.8%
Curiosity	84	19.6%
Others	14	3.3%

Table 5. Reason for Initiation of Alcohol Consumption (N=210)*

*Multiple answers.

Reason for Drinking	n	%
Enjoyment	135	31.5%
To take mind off other issues	41	9.6%
Socialisation	63	14.8%

Table 6. Reason for Drinking (N=210)*

*Multiple answers.

Type of Alcohol	n	%
Beer	118	27.6%
Whisky	71	16.6%
Rum	57	13.3%
Brandy	34	8.0%
Vodka	88	20.6%
Wine	55	12.9%
Breezer	70	16.4%

Table 7. Type of Alcohol Consumed (N=210)*

*Multiple answers.

Family Member	n	%
Father	94	44.7%
Mother	8	3.8%
Brother	57	27.1%
Sister	10	4.7%

Table 8. Alcohol Consumption in Family Members of Student Who Drink (N=210)*

*Multiple answers.

Family Member	n	%
Father	29	13.3%
Mother	3	1.4%
Brother	15	6.9%
Sister	1	0.5%

Table 9. Alcohol Consumption in Family Members of Student Who Do Not Drink (N=218)*

*Multiple answers.

Parameter	Category	Beck Depression Inventory												P value
		Normal (N=183)		Mild (N=90)		Borderline (N=49)		Moderate (N=58)		Severe (N=36)		Extreme (N=12)		
		n	%	n	%	n	%	n	%	n	%	n	%	
Age	17-20 yrs.	103	56.3%	56	62.2%	25	51.0%	25	43.1%	15	41.7%	7	58.3%	0.081
	21-23 yrs.	74	40.4%	31	34.4%	20	40.8%	25	43.1%	18	50.0%	5	41.7%	
	24-26 yrs.	6	3.3%	3	3.3%	4	8.2%	8	13.8%	3	8.3%	0	0.0%	
Gender	Male	91	49.7%	40	44.4%	20	40.8%	32	55.2%	22	61.1%	7	58.3%	0.362
	Female	92	50.3%	50	55.6%	29	59.2%	26	44.8%	14	38.9%	5	41.7%	
Year	First	47	25.7%	27	30.0%	9	18.4%	11	19.0%	5	13.9%	3	25.0%	0.452
	Second	57	31.1%	22	24.4%	17	34.7%	18	31.0%	13	36.1%	4	33.3%	
	Third	46	25.1%	26	28.9%	11	22.4%	13	22.4%	6	16.7%	4	33.3%	
	Final	33	18.0%	15	16.7%	12	24.5%	16	27.6%	12	33.3%	1	8.3%	

Failures	Never failed	118	64.5%	59	65.6%	26	53.1%	31	53.4%	14	38.9%	5	41.7%	0.202
	Failed once	51	27.9%	25	27.8%	18	36.7%	20	34.5%	16	44.4%	5	41.7%	
	Failed twice	10	5.5%	5	5.6%	4	8.2%	5	8.6%	4	11.1%	1	8.3%	
	Failed thrice	4	2.2%	0	.0%	0	0%	2	3.4%	2	5.6%	1	8.3%	
	Failed four times	0	.0%	1	1.1%	0	.0%	0	.0%	0	.0%	0	.0%	
	Failed five times	0	.0%	0	.0%	1	2.0%	0	.0%	0	.0%	0	.0%	
Living	Hostel- alone	17	9.3%	14	15.6%	8	16.3%	3	5.2%	4	11.1%	0	.0%	0.070
	Hostel with roommate	113	61.7%	57	63.3%	32	65.3%	42	72.4%	23	63.9%	7	58.3%	
	Rent- alone	16	8.7%	2	2.2%	1	2.0%	5	8.6%	1	2.8%	1	8.3%	
	Rent with roommate	4	2.2%	8	8.9%	3	6.1%	3	5.2%	4	11.1%	2	16.7%	
	With parents	33	18.0%	9	10.0%	5	10.2%	5	8.6%	4	11.1%	2	16.7%	
Marital Status	In relationship	40	21.9%	25	27.8%	14	28.6%	12	20.7%	15	41.7%	2	16.7%	0.159
	Others	143	78.1%	65	72.2%	35	71.4%	46	79.3%	21	58.3%	10	83.3%	
Domicile	Urban	159	86.9%	79	87.8%	41	83.7%	47	81.0%	32	88.9%	10	83.3%	0.838
	Rural	24	13.1%	11	12.2%	8	16.3%	11	19.0%	4	11.1%	2	16.7%	
Selection/ Choice of Course	Forced by parents	8	4.4%	15	16.7%	6	12.2%	8	13.8%	11	30.6%	2	16.7%	0.001
	Own choice	175	95.6%	75	83.3%	43	87.8%	50	86.2%	25	69.4%	10	83.3%	

Table 10. BDI Parameters

Parameter	**Category**	**AUDIT**								**P value**
		Non-Alcoholic (N=218)		**Mild (N=127)**		**Hazardous (N=67)**		**Dependence (N=16)**		
		n	%	n	%	n	%	n	%	
Age	17-20 yrs.	142	65.1%	61	48.0%	23	34.3%	5	31.3%	<0.001
	21-23 yrs.	73	33.5%	57	44.9%	34	50.7%	9	56.3%	
	24-26 yrs.	3	1.4%	9	7.1%	10	14.9%	2	12.5%	
Gender	Male	75	34.4%	72	56.7%	51	76.1%	14	87.5%	<0.001
	Female	143	65.6%	55	43.3%	16	23.9%	2	12.5%	
Year	First	64	29.4%	28	22.0%	10	14.9%	0	0.0%	<0.001
	Second	68	31.2%	38	29.9%	19	28.4%	6	37.5%	
	Third	53	24.3%	38	29.9%	11	16.4%	4	25.0%	
	Final	33	15.1%	23	18.1%	27	40.3%	6	37.5%	
Failures	Never failed	152	69.7%	73	57.5%	25	37.3%	3	18.8%	<0.001
	Failed once	59	27.1%	39	30.7%	28	41.8%	9	56.3%	
	Failed twice	5	2.3%	11	8.7%	11	16.4%	2	12.5%	
	Failed thrice	2	0.9%	3	2.4%	2	3.0%	2	12.5%	
	Failed four times	0	0.0%	1	0.8%	0	0.0%	0	0.0%	
	Failed five times	0	0.0%	0	0.0%	1	1.5%	0	0.0%	
Living Arrangement	Hostel- alone	23	10.6%	14	11.0%	9	13.4%	0	0.0%	0.241
	Hostel with roommate	142	65.1%	80	63.0%	42	62.7%	10	62.5%	
	Rent- alone	8	3.7%	10	7.9%	7	10.4%	1	6.3%	
	Rent with roommate	12	5.5%	5	3.9%	4	6.0%	3	18.8%	
	With parents	33	15.1%	18	14.2%	5	7.5%	2	12.5%	
Relationship Status	In a relationship	42	19.3%	41	32.3%	21	31.3%	4	25.0%	0.032
	Others	176	80.7%	86	67.7%	46	68.7%	12	75.0%	
Domicile	Urban	189	86.7%	110	86.6%	58	86.6%	11	68.8%	0.251
	Rural	29	13.3%	17	13.4%	9	13.4%	5	31.3%	
Selection/ Choice of Course	Forced by parents	23	10.6%	12	9.4%	13	19.4%	2	12.5%	0.190
	Own choice	195	89.4%	115	90.6%	54	80.6%	14	87.5%	

Table 11. AUDIT: Parameters

DISCUSSION

In this study, an attempt was made to study the prevalence of depression and alcohol use in undergraduate medical students of a private medical college. We have also attempted to find the relationship between depression and alcohol use.

Depression

In this study it was found that a total of 36.2% students had depression, which is higher than that of another similar study where the overall prevalence of depression among the students was 29.78%.[13] Though it was not statistically significant, the prevalence of severe and extreme depression was higher in males (61.1% and 58.3% respectively) as compared to females (38.9% and 41.7%, respectively). This is similar to a study by Kumar and Jain, which showed a higher prevalence of depression in males.[14] However, another study by Yadav, Gupta and Malhotra found contrasting results, wherein females had higher prevalence of depression than males.[15] Second year students had the highest prevalence of severe (31%) and extreme (33.3%) depression. It was also observed that those students who had never failed and those who had failed once had the highest prevalence of extreme depression (7.1%).

Various studies reported that academic difficulties exert pressure on undergraduate medical students, which cause emotional disturbances in them.[16-20] Similar findings were obtained in this study. Though students reported stressors in every domain, maximum was seen in academic domain where 71.7% of the students reported that a constant need to do well was distressing them, while 70.8% reported vast amount of content to be learned and 65.4% reported heavy workload as the cause for depression.

Relationship difficulties such as lack of time for friends, family and significant others (38.6%) were also cited as reasons. As many students were studying in a different place with different culture and were staying away from their friends and family for the first time, adjustment problems also proved to be distressing for the students. 58.6% had problems with food, while 27.3% were affected by parental separation and 35.7% reported managing transition as the main stressor. In the personal domain 32.9% reported worries about their self appearance, while 5.8% had issues around sex and sexuality. Emotional difficulties such as loneliness or homesickness (38.6%), lack of self-confidence (35.3%) and feeling of incompetence (30.6%) were also reported as stressors by the students. Table 3 shows that 10.5% had indulged in self injurious activities, while 9.1% had suicidal thoughts. It is quite alarming that students who are being trained as future healers, who have to help others with physical and/or mental problems are harbouring suicidal thoughts. This, in addition to individual torment may unconstructively affect patient care.

Coping

Students use various coping mechanisms to process stress. Strategies such as problem solving, positive reinterpretation and expression of emotion facilitate student adaptation, which reduces depression and their effects on mental wellbeing and physical health. Studies reported that extracurricular activities involving music and physical exercise have been associated with decreased burnout levels in medical students.[21,22,23] We found that majority of students (84.6%) use internet/ TV/ music to relax. Some (63.8%) sought out friends for conversation and support, while 56.3% tried to focus on the things they can control and accept the things that they cannot. They also used various coping methods such as maintaining a healthy diet (36.9%), shopping (33.6%) and alcohol (17.8%). It was interesting to note that only 16.1% reported to have sought professional help.

Alcohol

It was found in our study that 49.1% students had consumed alcohol at least once in their lives. Age, gender, academic year, failures and relationship status were statistically associated with drinking. Hazardous and dependence level of drinking were seen more in males than females (76.1% and 87.5% respectively), which is similar to findings from other studies.[24,25,26] While hazardous drinking was more prevalent in final year (40.3%), dependence was equally present in second and final year. Hazardous (41.8%) and dependence (56.3%) level of drinking were seen more in those students who had failed once since joining the course. It was also significantly prevalent in those who were not in a relationship (p value 0.032). Most of the students started consuming alcohol between the ages of 18 to 20, which was older than the finding by Devi[27] which revealed that most of the medical students started drinking by the age of 16 years. There was however one student who tried alcohol for the first time at age 9. Curiosity (40%) appears to be the most common reason for initiating alcohol consumption. 64.2% claimed that they were drinking for enjoyment, while only 19.5% drank to take their mind off other issues. A similar finding was noticed by Devi[27] and Apoorva.[28]

Similar to a result from a multicentric cross-sectional study[26] done earlier, this study found that the most commonly consumed alcoholic beverage among the students was beer (56.2%), closely followed by vodka (41.9%). Among girls vodka was more popular followed by breezer. 36.2% of those who consumed alcohol had thought about quitting at some point of time citing various reasons such as health issues, pressure from parents, not liking the taste etc. 5.7% responded that alcohol had affected their concentration, while 9.5% reported that alcohol had affected their attendance to class with some claiming that alcohol had made them unable to get up in the next morning. This was reported less by girls as compared to boys. Leavy and Alexander[29] recorded that 49% of medical students had missed morning lectures due to drinking. In the Delk and Meilman study,[30] 56.2% maintained that they had missed a class as a consequence of their drinking. It is worth mentioning that alcohol might be a convenient scapegoat. It can be speculated that questionnaires which ask about drinking behaviour and then about attendance and concentration may unwittingly provide a link which the student is willing to follow.

A startling 46.2% claimed that alcohol had reduced depression in their lives. Many females responded that they have tried alcohol, but had given up by the time this study was undertaken. The reasons given by them were: (1) They did not like the taste of alcohol, (2) They had tried only once or twice out of curiosity, (3) Because of the stigma associated with alcohol consumption in girls.

Various literatures[26,27,31,32] have cited the influence of family members on a person's drinking with family history of

alcohol consumption leading to increased likelihood of drinking. This is supported by the present study, which noted that 44.7% of students who were using alcohol had fathers with history of alcohol consumption. On the other hand, 13.3% of students who were not drinking alcohol had fathers with history of alcohol consumption. As shown in Table No. 8 and 9, similar trend was seen in mothers, brothers and sisters.

We also found a strong positive correlation between alcohol use and depression (p value < 0.001; R 0.415), which was similar to a finding by Sherina et al.[33]

As this was a cross-sectional study, conclusions about the direction of observed relationships cannot be drawn. Anonymity served as both strength as well as a limitation in our study. As strict anonymity was offered, students had no hesitation in filling up the questionnaires. On the other hand as the students were anonymous and could not be identified, those who needed help e.g. those with suicidal thoughts, those with AUDIT score of > 20, etc. could not be given the help they needed.

CONCLUSION

This study suggests that depression and alcohol use are highly prevalent in undergraduate medical students. Since there is proof that depression or alcohol use during undergraduate medical training foresees future predicaments in physicians, effective measures must be taken up by concerned authorities. Medical students would benefit from greater assurance that the use of mental health services is confidential and completely separate from academic records.

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