Original Article

Why MBBS Students are Taking to Substance Abuse ? — A Retrospective Study on the Pattern and Causes of Substance Abuse among the MBBS Students of West Bengal

Aditi Chaudhuri[1], Siddalingaiah HS[2], Ranjita Santra[3], Debasis Bhattacharyya[4]

Background : Substance abuse is an important health hazard and also a major preventable cause of morbidity and mortality. This habit not only affects health, education and occupational career, but also incurs huge financial and social burden to the society specially when the doctors are involved in it.

Aims and objectives : To estimate the prevalence of substance abuse, its pattern and causes among the MBBS students of West Bengal.

Methods : A questionnaire based cross-sectional retrospective study was designed to collect data from the Medical Officers of the State to record their experience of substance abuse during their MBBS course.

Results : The prevalence of substance abuse was 22% among the study participants. Smoking Tobacco was most common (16.67%). 76% of the subjects with substance abuse spend Rs1000 or less per month. The prevalence was 25% in upper class and 22.22% among those who belonged to lower class of socio-economic status as per BG Prasad Classification. Curiosity was the reason as per 34.5% of the subjects followed by depression (23.25%), peer pressure (13%) study pressure by 15%; media influence by 11%; to cope with home problems by 10.75% and parental influence by 2.25% of the study subjects.

Conclusion : The institution should keep a Psychological Counselor who can guide the students who suffer from problems related to Depression, Peer pressure, Study pressure that may lead to substance abuse. Allotting, hobbies, sports and recreation would help in keeping away from substance abuse.

[*J Indian Med Assoc* 2022; **120(8):** 28-33]

Key words **: Substance abuse, Tobacco smoking, Medical students, Alcohol abuse, Mental health.**

Psychoactive substance abuse is an important health hazard and a major preventable cause of morbidity and mortality. Despite the fact that the hazards of substance abuse are well known, the number of young people abusing psychoactive substances seems to be on the increase[1-6]. It is very important to study the pattern and proportion of substance abuse among the youth as the consequences of substance abuse are multifaceted. This habit not only affects health, education and occupational career, but also incurs huge financial and social burden to the society[2].

As the saying goes-today's young people are tomorrow's future, the growth of a nation depends on the health of youth. Professionals, particularly medicos with habit of substance abuse might be dangerous for others, as they might lose a sound judgment, fail in responsibility and cause harm to the service receivers. Situation could be disastrous when the addicted doctors become the decision makers of human lives and well beings[7].

A recent WHO estimate shows a burden of Worldwide psychoactive substance abuse of around 2 billion alcohol users, 1.3 billion smokers and 185 million drug abusers[6]. Studies conducted worldwide including India have estimated a prevalence rate of substance abuse to be around 20-40% among students from various streams including the medical field, however, these restrict themselves to tobacco or alcohol use and many of these are gender biased[3,4,6,8,9]. Previous studies have already found the reasons for drug usage which include peer pressure,

Editor's Comment :

- Substance abuse affects health, education, career of an individual and incurs huge financial and social burden to the society specially when the doctors are involved in it. The causes behind substance abuse are curiosity, depression and peer pressure which can be addressed by counselling and motivating students for more physical activities.

[1]MBBS, MD, PGDGM, FAIMER Fellow, Associate Professor, Department of Community Medicine, Deben Mahata Government Medical College & Hospital, Purulia 723147 and Corresponding Author

[2]MD, Assistant Professor, Department of Community Medicine, Shridevi Institute of Medical Sciences and Research Hospital, Karnataka 572106

[3]MD, Associate Professor, Department of Pharmacology, Deben Mahata Government Medical College & Hospital, West Bengal 723147

[4]MD, PhD, Professor, Director of Medical Education & Director, Institute of Health & Family Welfare, Kolkata 700 091

Received on : 17/06/2022

Accepted on : 27/07/2022

depression, curiosity, media influence, parental influence, coping with home problems or study/ academic pressure[6,8,10-17].

With the above background, the present study was undertaken with the following objectives:

(1) To estimate the prevalence of substance abuse and its pattern among the students of all Medical Colleges of West Bengal.

(2) To determine the causes of substance abuse among the study population.

Materials and Methods

The study was conducted at Apex Training Institute of West Bengal which is the centre for induction training of freshly recruited Medical Officers in West Bengal. An observational, descriptive, cross-sectional study was conducted on the Medical Officers between October 2020 to September 2021. Since substance abuse is a sensitive issue, the sample size for conducting the present study was not determined before the study considering the uncertainty about the number of who will consent to the study. We decided on complete enumeration and included all 264 Medical Officers of the West Bengal Health Service who attended training during the study period and gave consent to participate in the study. Informed written consent was taken from the participants and they were administered a pre-designed, structured, validated and pre-tested questionnaire. Validation was done by 3 experts in this field. Study variables included socio-economic background, Age, Sex, Religion, Type of family, Number of family members, Residence, Per capita monthly income, Educational status – Mother, Father, Occupation – Mother, Father, Family history of substance abuse and behavioural characteristics such as addiction – Tobacco, Alcohol or any other. The participants were asked to recall about their experience of substance abuse if any during their MBBS period. Since all participants were freshly recruited in service after passing MBBS, their period of recall was not more than 7 years.

The study on substance abuse and its patterns among the study population was conducted with the following working definitions:

Substance Abuse : *Substance Abuse is defined as self-administration of a substance for eg. Tobacco smoking, Alcohol, Cannabis or any drug for non-medical reasons in quantities and frequencies which may impair an individual's ability to function effectively and which may result in social, physical, or emotional harm*[18].

Tobacco Smoking : *Inhalation of the smoke of burning Tobacco encased in Cigarettes, Bidis, Pipes etc. which cause physical addiction to Tobacco products.*

Smokeless Tobacco : *Tobacco products such as Chewing tobacco, Snuff, Creamy snuff, Tobacco gum and Gutka which deliver nicotine without smoke.*

Alcohol: Heavy drinking is defined, for instance, as drinking more than 40 grams of pure Alcohol per day for men and 20 grams of pure Alcohol per day for women[19].

Data Entry & Analysis : Data was entered in MS EXCEL sheet and analysis was done.

Ethics : The study was approved by the Institutional Ethics Committee prior to data collection.

Results

Table 1 shows the distribution of socio-demographic characteristics among the study population. It shows that 70% were male, 30% female. All subjects were in the age range of 18 to 23 years when they started substance abuse. Almost 75% belonged to Hindu religion and about 70% were Urban residents. Nearly 63% were hostellers and about 80% hailed from nuclear families with about 83% from families having 6 or less members. About 75% had Fathers with graduation or above education and about 54% with a Mother qualified with graduation or above. Most study subjects reported their Father to be a professional or in service or a businessman and majority reported their Mother to be a home maker. Nearly 77% of the study subjects belonged to upper or upper-middle class as per BG Prasad Scale for assessing socio-economic status. 21.97% reported a history of substance abuse in their families.

Fig 1 shows that the prevalence of substance abuse in the study population was 22%, with 59 subjects having substance abuse for one or more substances.

Fig 2 shows the prevalence of abuse of various different individual substances among the study population. Here, it can be seen that smoking Tobacco was prevalent among 16.67% subjects, which was the most abused substance and Alcohol abuse was prevalent among 12.5% of the study population. However, Cannabis and Smokeless tobacco were also being abused with a prevalence of 3% and 1.14% respectively among the study population.

Fig 3 shows the average range amount of money (in Rupees) spent by study subjects on substance abuse every month. It is evident that nearly three fourth (76%) of the subjects with substance abuse spend Rs 1000 or less per month and about one fourth (24%) spend more than Rs 1000 on their substance abuse behaviours.

Table 2 shows the prevalence of substance abuse

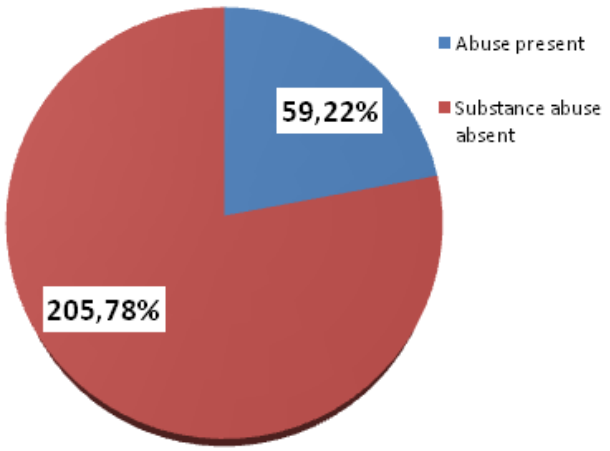

Fig 1 — Prevalence of substance abuse among study subjects (N=264)

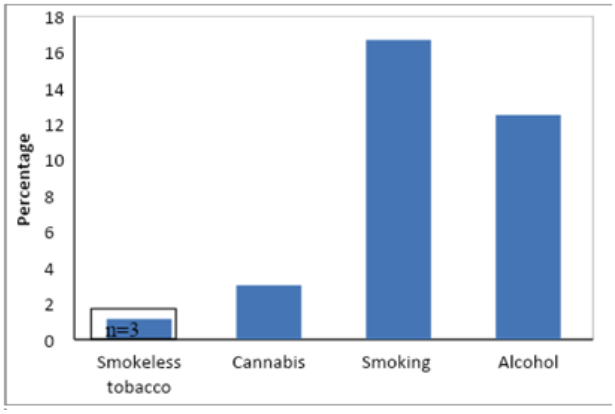

Fig 2 — Different substance wise prevalence of abuse among study participants (N=264)

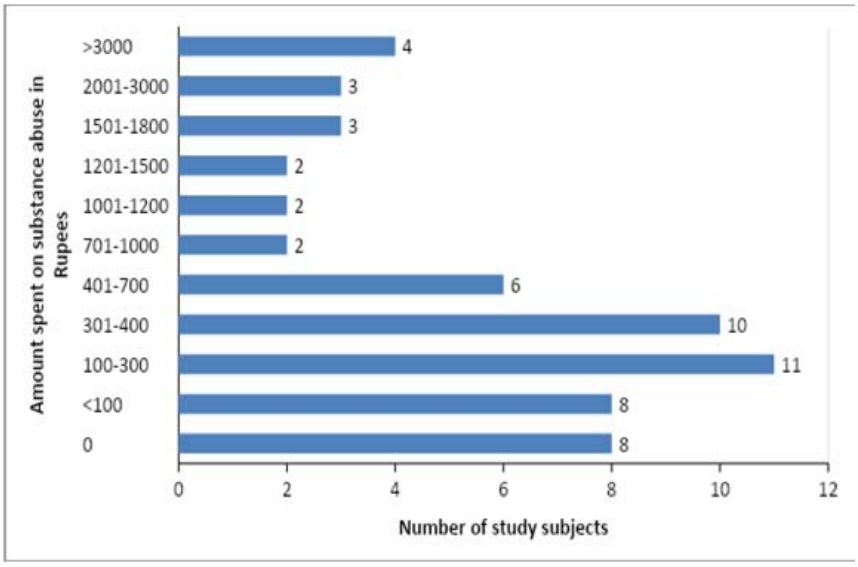

Fig 3 — Monthly expenditure (Rs.) on substance abuse by study participants (N=59)

among various categories of socio-demographic variables. It is evident that in males substance abuse was 27.56% when compared to females, which was 10.12%. This study included subjects in the age range of 19 to 23 years and the prevalence was highest in the age of 21, which was 32.35%. The prevalence was slightly higher in Hindu subjects at 23.5% than Muslim subjects, which was 18.65%. Prevalence of 60% among Christian subjects is probably due to very low representation in our study and hence cannot be commented.

It is evident from the Table 2 that the prevalence in subjects from Urban backgrounds was 22.95%. It is also evident that the prevalence was 28.20% in subjects who had joined in the year 2015. Prevalence was 23.35% among hostellers and 23% in those hailed from joint families. The prevalence of substance abuse when Father's and Mother's educational level is graduation or postgraduation is 22% and 22.76% respectively[20].

The prevalence of substance abuse was 30.8% among subjects with businessman Father and it was 23.81% when Mother was a professional. The prevalence was 21.97% in groups with family history of substance abuse. The prevalence was 25% in upper class and 22.22% among those who belonged to lower class of socio-economic status as per BG Prasad classification.

Table 3 shows that prevalence of Alcohol abuse was 12.5% among the study population. Initiation of Alcohol was in 19-21 age group for 54.55% of the study subjects. Nearly 72% consumed more than 100ml of Alcohol per day.

Table 4 shows that prevalence of Smoking was 16.67% among the study population. Initiation of Smoking was maximum (34.09%) in 17-19 age group for the study subjects. Nearly 52% smoked more than 3 cigarettes per day.

Fig 4 shows the reasons quoted by our study participants for the abuse of various substances of addiction. Curiosity was the reason as per 34.5% of the subjects; Depression was the reason quoted by 23.25%; peer pressure by 13%; study pressure by 15%; Media influence by 11%; to cope with Home problems by 10.75% and Parental influence by 2.25% of the study subjects.

Table 1 — *Socio-demographic characteristics of the study population (N=264)*

Parameter	Category	N	%
Sex	Male	185	70.07
	Female	79	29.93
Age (in years) when substance abuse started	18	16	6.06
	19	48	18.18
	20	83	31.44
	21	68	25.76
	22	31	11.74
	23	18	6.82
Religion	Hinduism	200	75.75
	Islam	59	22.35
	Christianity	2	0.75
	Others (Jain,Sikh,Buddhist)	3	1.15
Place of residence	Urban	183	69.32
	Rural	81	30.68
Year of admission in MBBS course	2010	76	28.79
	2011	117	44.32
	2012	71	26.89
Living arrangement	Hosteller	167	63.26
	Day scholar	97	36.74
Type of family	Nuclear	213	80.68
	Joint	51	19.32
Number of family members	≤3	70	26.52
	4-6	151	57.20
	7-9	27	10.23
	10-12	4	1.51
	13-15	5	1.89
	16-18	2	0.76
	19-21	4	1.51
	22 & above	1	0.38
Father's Education	Illiterate	5	1.89
	Pre-primary	0	0
	Primary	9	3.41
	Middle school	12	4.55
	High school	13	4.92
	Higher secondary	25	9.47
	Graduate or postgraduate	200	75.76
Mother's Education	Illiterate	7	2.65
	Pre-primary	2	0.76
	Primary	10	3.79
	Middle school	24	9.09
	High school	27	10.23
	Higher secondary	49	18.56
	Graduate or postgraduate	145	54.92
Father's occupation	Business	54	20.45
	Service	101	38.26
	Professional	75	28.41
	Skilled	32	12.12
	Unskilled	2	0.76
Mother's occupation	Business	1	0.38
	Service	34	12.88
	Professional	21	7.95
	Home-maker	208	78.79
Per capita monthly income (in Rupees)/ Socio-economical condition [B G Prasad scale]	<811 (Class V)	9	3.42
	812-1569 (Class IV)	21	7.95
	1570-2651 (Class III)	28	10.6
	2652-5356 (Class II)	39	14.77
	>5357 (Class I)	167	63.26
History of Substance Abuse in family	Yes	58	21.97
	No	206	78.03

Table 2 — *Distribution pattern of substance abuse among various categories of socio-demographic variables of study population (n=59)*

Variable	Category	Substance abuse present (n)	Prevalence (%)
Sex	Male	51	27.56
	Female	8	10.12
Age	18	1	6.25
	19	11	22.91
	20	13	15.66
	21	22	32.35
	22	7	22.58
	23	5	27.78
Religion	Hinduism	47	23.5
	Islam	11	18.64
	Christianity	1	50
	Others	0	0
Residence background	Urban	42	22.95
	Rural	16	19.75
Year of joining MBBS	2016	7	9.21
	2015	33	28.20
	2014	19	26.76
Stay arrangement	Hosteller	39	23.35
	Day scholar	20	20.61
Family type	Joint family	49	23
	Nuclear family	10	19.25
Educational level of father	Graduate and postgraduate	43	22
	Higher Secondary	8	32
	High School	2	15.38
	Middle School	3	25
	Primary	1	11.11
	Illiterate	3	60
Educational level of mother	Graduate and Postgraduate	33	22.76
	Higher Secondary	11	22.45
	High School	8	29.63
	Middle School	6	25
	Primary	0	0
	Illiterate	1	14.28
Father's occupation	Business	17	30.8
	Service	20	19.8
	Professional	16	21.3
	Skilled	5	16.7
	Unskilled	1	50
Mother's occupation	Home-maker	49	23.55
	Service	5	14.71
	Professional	5	23.81
Family history of substance abuse	Present	13	21.97
	Absent	46	22.33
Socio-economical condition [B G Prasad scale]	I(upper class)	42	25
	II(upper middle class)	5	12.82
	III(middle class)	5	17.65
	IV(lower middle class)	5	23.81
	V(lower class)	2	22.22

Discussion

We conducted a cross sectional study where the participants were asked to recall about their experience of substance abuse if any during their MBBS period. In the light of above results it can be said that one

Table 3 — *Prevalence and pattern of alcohol abuse ever among the study subjects (n=33)*

Parameter	Category	N	%
Alcohol abuse prevalence	Alcoholic	33	12.5
	Non alcoholic	231	87.5
Age of initiation of alcohol	<15	1	3.03
	15-17	6	18.18
	17-19	5	15.15
	19-21	18	54.55
	>21	3	9.09
Amount of alcohol consumed per day(ml/day)	<75	7	21.88
	75-100	2	6.25
	100-200	8	25
	200-500	10	31.25
	>500	5	15.62

Table 4 — *Pattern of smoking tobacco among the study subjects (n=44)*

Parameter	Category	N	%
Smoking history	Smokers	44	16.67
	Non-smokers	220	83.33
Age of initiation of smoking (years)	<15	3	6.8
	15-17	8	18.18
	17-19	15	34.09
	19-21	12	27.27
	>21	6	13.63
Number of cigarettes consumed per day	1-3	21	47.72
	4-7	10	22.7
	8-11	6	13.63
	12-15	3	6.8
	16-19	1	2.27
	≥ 20	3	6.8

fourth of the participants in our study were involved in substance abuse. Further, it can be said that male and hostellers were more prone to involve in substance abuse. Smoking and Alcohol were found to be the commonest form of substance abuse. Major causes for substance abuse were found to be curiosity to explore new things and depression due to several causes.

Our study population had an overall prevalence of 22% of abusing at least one or more of the harmful substances with higher rates among hostellers. In other studies[3] on Indian population, substance use was reported between 32.5% to as high as 81.2% among medical students, interns and house physicians. Mir *et al*[19] found in his study that the prevalence of substance abuse among the students were 25.9% and 76.6% of hostellers used harmful substances. The higher rate among hostellers may be due to lack of parental monitoring while staying away from home. The present study showed that the average monthly expenditure made on substance abuse by about three fourth of addicted individuals was up to about Rs.1000. In a study by Mohanty *et al*[8] 36.8% of abusers spent $7.39 to 14.79 a month on substance abuse.This points

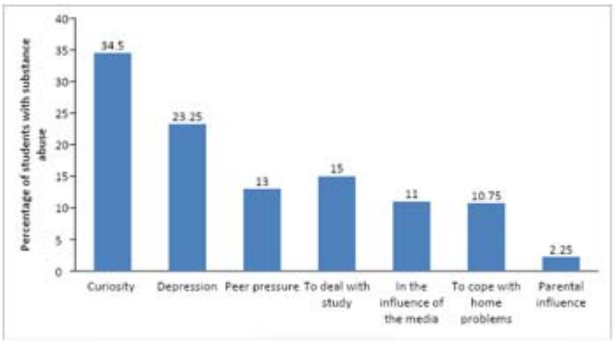

Fig 4 — Reasons for substance abuse among subjects with substance abuse (n=59, multiple answer type)

to easy availability of money with the students. Our study showed that Tobacco smoking was the most common method of substance abuse with 16.67% of the study population involved. Interestingly, 34.09% of the subjects started to abuse Tobacco smoking at the age of around 17 to 19 years. This probably indicates the increasing peer influences and course related stress among the study subjects as they moved beyond their 1st year of study. Similarly, according to Kumar[4] the most prevalent habit was consumption of smokeless tobacco substances. However, Mir *et al*[8] found that Alcohol was the single most preferred substance of abuse used by 36.40% of students. The present study revealed that curiosity was the most important reason for about one third of the subjects followed by Depression and Peer pressure. Similarly a study in Karnataka[21] showed that curiosity for experience (42.4%) was major reason for initiation of substance abuse. According to Basu and Kumar[3] stress due to situational, personal and professional issues, abuse and family history of Alcoholism were the major risk factors for substance abuse. Studying and understanding these factors are important as it might have a role in planning health promotion strategies for young adults especially in the initial years of professional courses, where the risk of onset of substance abuse is maximum.

Limitations of our study includes the possibility of recall bias and social desirability bias. The study includes doctors as participants and hence the results might have to be generalised with caution to other groups of adolescents and adults including general population. However, since substance abuse is a sensitive issue, the participants were more likely to give unbiased data at matured stage (medical officers) than when they were students. Also since we have a mixed pool of study population covering the students from various Medical Colleges of the state, the results can be generalised to the medical fraternity of the

state. Herein lies the novelty of the study.

Conclusion

As Depression and Peer Pressure is the very cause of substance abuse, this can be dealt with indulging more time in physical activities, hobbies, sports and recreation. The institutions should keep a Psychological Counselor so that if Students suffered from Peer-pressure, Depression or other issues they may share it with the Counselor and overcome the situation with proper guidance. Programs for raising awareness about ill effects of substance abuse needs to be organised for students and their parents as well. Students who are dependent on addiction both physically and psychologically should be recommended to visit rehabilitation center of psychiatric OPD. The victims can be counseled with Information, Education and Communication (IEC) and Behavior Change Communication (BCC) to bring the needed change in their behaviour.

References

1 Arora A, Kannan S, Gowri S, Choudhary S, Sudarasanan S, Khosla PP — Substance abuse amongst the medical graduate students in a developing country. *Indian J of Med Research* 2016; **143:** 101-3.

2 Basu D, Mattoo SK — Epidemiology of substance abuse in India : methodological issues and future perspectives. *Indian J of psychiatry* 1999; **41:** 145-53.

3 Kumar P, Basu D — Substance abuse by medical students and doctors. *J of Indian Medical Association* 2000; **98:** 447-52.

4 Kumar S, Mehrotra D, Mishra S, Goel MM, Kumar S, Mathur P, *et al* — Epidemiology of substance abuse in the population of Lucknow. *Journal of Oral Biology and Craniofacial Research* 2015; **5:** 128-33.

5 Younger DS — Central Nervous System Vasculitis Due to Substance Abuse. *Neurologic clinics* 2019; **37:** 425-40.

6 World Health Organization — Management of substance abuse Geneva: World Health Organization; 2019 [cited 2019 14/06/2019]. Available from: https://www.who.int/substance_abuse/facts/en/.

7 Bhan A — Substance abuse among medical professionals: a way of coping with job dissatisfaction and adverse work environments? *Indian J of Medical Sciences*. 2009; **63:** 308-9.

8 Mohanty S, Tripathy R, Palo SK, Jena D — Socioeconomic, demographic study on substance abuse among students of professional college in a southern town, Berhampur of Odisha state (India). *Journal of Forensic and Legal Medicine* 2013; **20:** 1057-62.

9 Mohan D, Desai NG, Chopra A, Sethi H — A rapid survey on substance abuse disorders in the urban slums of New Delhi. *Indian J of Med Research* 1992**; 96:** 122-7.

10 Andersen SL — Stress, sensitive periods, and substance abuse. *Neurobiology of Stress* 2019; **10:** 100-40.

11 Duggal HS, Khess CR — Substance abuse in children and adolescents. *Indian J of Pediatrics* 2001; **68:** 182.

12 Malhotra S, Kumar H, Aneja S, Arora SK, Malhotra J — Substance abuse: knowledge and perception in adolescents. *Indian Pediatrics* 1990; **27:** 488-91.

13 Rajpal H — Prevention of substance abuse: the Indian experience. World Psychiatry 2005; **4:** 35.

14 Saddichha S, Prakash R, Sinha BN, Khess CR — Perceived reasons for and consequences of substance abuse among patients with psychosis. Primary care companion. *Journal of Clinical Psychiatry* 2010; **12(5):** PCC.09m00926. doi: 10.4088/PCC.09m00926gry PMCID: PMC3025999

15 Sharp A, Young MS, Moore KA — Relationship Between Substance Use, Bullying, and Other Delinquent Behaviors Among High School Students: a Secondary Analysis of the Florida Youth Substance Abuse Survey. The journal of behavioral health services & research. 2019: 1-16.

16 Tripathi BM, Lal R — Substance abuse in children and adolescents. *Indian Journal of Pediatrics* 1999; **66:** 569-75.

17 Barlow J, Sembi S, Parsons H, Kim S, Petrou S, Harnett P, *et al* — A randomized controlled trial and economic evaluation of the Parents Under Pressure program for parents in substance abuse treatment. *Drug and Alcohol Dependence* 2019; **194:** 184-94.

18 McLellan AT — Substance Misuse and Substance use Disorders: Why do they Matter in Healthcare? *Trans Am Clin Climatol Assoc* 2017; **128:** 112-30. PMID: 28790493; PMCID: PMC5525418.

19 Rehm J — The risks associated with alcohol use and alcoholism. *Alcohol Res Health* 2011; **34(2):** 135-43. PMID: 22330211; PMCID: PMC3307043.

20 https://revivingindianeducation.wordpress.com/about/levels-or-stages-of-education-in-india-today/. Accessed on 24.7.2022

21 Mir RA, Mahesh SH, Rajanna MS, Ashok, Singh D — Substance abuse pattern among medical college students in Tumkur, Karnataka, India: a cross sectional study. International *J of Com Med And Pub Health* 2016; **4(1):** 238-42.