Knowledge and attitude of college students towards cannabis use in urban India: A comparative perspective of users and non-users

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ABSTRACT

Background. We aimed to assess the knowledge and attitude about cannabis use among college students in India, compare the perspective among users and non-users and lay a framework for development of effective primary prevention strategies in future.

Methods. This cross-sectional study was done in different colleges of Mumbai. Two hundred and sixty students of both sexes aged between 18 and 25 years were selected by systematic random sampling. Participants had to fill a sociodemographic questionnaire and a self-administered questionnaire that was analysed using the Statistical Package for the Social Sciences software.

Results. About 11.2% of the participants were users of cannabis and around 15% of them expressed a desire to take cannabis in the future. About 72% users were introduced to cannabis by their friends. The most common reasons for consumption of cannabis were peer pressure (29.6%), followed by stress reduction (23.5%) and experimentation (21.9%). The majority of participants (81%) did not favour legalization of cannabis use. However, more than half the participants were unaware of cannabis-related legal issues. Non-users considered cannabis to be more harmful and addictive than users who held a more permissive view regarding effects of taking cannabis.

Conclusion. The knowledge regarding harmful and legal implications of cannabis is relatively low amongst college students. Peer pressure, stress reduction and experimentation remain the commonest reasons for consumption. Imparting knowledge in early adolescence remains crucial in mitigating ignorant attitudes towards harmful cannabis use.

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INTRODUCTION

Cannabis remains the most commonly used illicit psychoactive substance, both in India[1,2] and globally.[3] Psychoactive substances are consumed in all age groups with adult men, in particular, being among the larger group.[3] The problem is further compounded by present trends ominously predicting rising prevalence rates of cannabis use and cannabis-related hospitalizations among adolescents and young adults.[4] Considering the future trends and the present figures of disability-adjusted life years (DALYs), cannabis-related problems could be an important societal problem for classes of society unless tackled effectively.[5]

The steadily increasing trend of cannabis use in India is a complex phenomenon having various social-cultural, biological, geographic and economic aspects.[6] Drug use, misuse or abuse is also primarily due to the nature of the drug abused, the personality of the individual and the individual's immediate environment.[7] Public perceptions of harms associated with cannabis use have varied considerably over time[8,9] and such variations in perceptions are consistently associated with changes in the prevalence of cannabis use.[10] Understanding public perceptions, knowledge and attitude is thus, not only imperative from a theoretical perspective but also serves as an important foundation from which concerned authorities can design effective interventions to address cannabis use among initial users and non-dependent users.

Young adults (aged 18–25 years) are the most dynamic yet fragile fragment of the population. Special focus needs to be placed upon their attitudes and beliefs about use of cannabis. They are more prone for developing substance use problems compared to the general population, as youth is a time for experimentation and identity formation. Their understanding of harms and benefits of cannabis consumption should be assessed and emphasized for forming policies and guidelines regarding cannabis use.

The assessment of knowledge, attitudes and beliefs of young adults towards cannabis use is lacking in the Indian literature. A handful of studies have focussed on the attitude of youth/

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general population towards substance use in general, or attitude of healthcare workers towards medicinal cannabis. Few Indian studies have assessed knowledge and attitude of young adults towards cannabis use. Recent scientific research regarding cannabis use emerging from India overall is small.[10] We examined the attitudes and beliefs held by the Indian youth regarding cannabis use and offer insights into how adults respond to cannabis use and related problems. A deeper understanding of the larger cultural context, coupled with a greater public awareness of effective preventive opportunities may offer a pathway for improved outcomes for adolescents.

METHODS

Our cross-sectional study was done between May and December 2019 among college students, across the city of Mumbai, India. Students from three colleges were considered for the study. The Institutional Ethical Committee clearance and scientific committee approval were taken before the study. The study questionnaire was distributed to all the students who were present on that day. The assessor visited the college twice every week for interviewing the participants.

Inclusion criteria

Male and female students aged between 18 and 25 years and willing to participate in the study who signed the informed consent form after understanding the study model, both cannabis users and non-users, were included.

Exclusion criteria

Students taking substances other than alcohol, cannabis and tobacco were excluded from the study.

Systematic sampling method was used where every third consenting individual was selected. They were informed of the research objectives and assured of confidentiality. Interviewers attended a 10-minute briefing session on the content and structure of the questionnaire. The average length of time taken to complete each questionnaire-based interview was 20 minutes.

Nine hundred participants were approached for participation in the study (300 from each college), of which 108 did not consent for inclusion citing reasons such as lack of interest in the subject and shortage of time. The remaining 792 students were considered for inclusion, and a list was prepared with their names arranged alphabetically. Every 3rd participant was contacted telephonically and an appointment at the college was fixed. Of 792 consenting students, 264 were included in the study by systematic random sampling. However, 4 students did not finish the questionnaire limiting the final sample size to 260 students.

Questionnaire

The participants were asked to fill up a sociodemographic questionnaire that included questions on age, sex, religion, marital status, occupation, family and socioeconomic status. A self-rated, semi-structured questionnaire assessing cannabis use was administered based on the lines of research done by Resk Stella, Bryan *et al*. and Johnson *et al*.[11–13] The questionnaire had 24 items and a small field trial was conducted so that the scale measures what it purports to measure and subsequently it was evaluated in detail by two experts in the field of mental health and only those questions relevant to the Indian context were used with ethical committee approval.

The first part of the questionnaire enquired regarding the practice of cannabis use, and its associated factors such as whether they already took cannabis, want to try cannabis in future and who had introduced them to cannabis. The participants were classified into cannabis users and non-users by the information obtained from the first part of the questionnaire.

The second part assessed the knowledge, attitude and beliefs about cannabis use in both the groups. Cannabis use parameters and experiences were stratified according to the sociodemographic parameters, while knowledge and attitudes regarding cannabis use were compared in cannabis users and non-users.

Statistical analysis

The data were entered and analysed using the Statistical Package for the Social Sciences software version 14. Quantitative data are presented as mean (standard deviation [SD]). Unpaired t-test was used to compare variables and find association. $p \leq 0.05$ was considered statistically significant.

RESULTS

We included 260 consenting participants with almost equal representation of male and female students. The mean age of the participants was 20.35 years. Over 90% participants were unmarried and resided in urban areas. More than half the participants were Muslims (Table I).

Around three-fourth of the participants reported that they were aware of cannabis, out of which awareness was more in males, religions other than Muslims, those living in a nuclear family and among cannabis users. 11.2% of the participants were users of cannabis, while around 89% had not used cannabis in the past. Approximately 15% of participants expressed a desire to take cannabis in the future, of which participants who were presently using cannabis were significantly higher (Table II). Around 72% users were introduced to cannabis by their friends.

The most common reasons for consumption of cannabis were peer pressure (29.6%), followed by stress reduction (23.5%), experimentation (21.9%) and enjoyment (15.4%) whereas the least common reasons were to look modern (10.8%) and to enhance academic performance (10%). Experimenting with cannabis and to look modern was the reason cited significantly more in low-income groups compared to high income groups. Younger participants felt that cannabis reduces stress as compared to older participants. About 73.1% of the participants agreed that cannabis is harmful to them whereas 9.2% believed it to be beneficial. Non-users considered cannabis to be more harmful than users who held a more neutral view regarding effects of cannabis (Table II).

The knowledge, attitude and beliefs about cannabis use expressed by participants are provided in Table III. One-third of the participants stated that cannabis users had more friends and about a quarter believed that they look more macho and attractive and have greater intellectual ability after cannabis use. No significant difference was seen between users and non-users. Smoking in the form of joint (47%) was reported to be the safest way to use cannabis followed by vaporiser (26.2%). No significant difference was reported between users and non-users.

The majority of participants (81%) did not favour legalization

TABLE I. Sociodemographic parameters of the study participants (*n*=260)

Parameter	Frequency	Percentage
Age (years)		
<20	161	61.9
≥20	99	38.1
Mean (SD) age (years)	20.3 (1.6)	
Sex		
Male	122	46.9
Female	138	53.1
Residence		
Rural	28	10.8
Urban	232	89.2
Religion		
Hindu	103	39.6
Muslim	143	55.0
Others	14	5.4
Occupation		
Unemployed	257	98.8
Employed	3	1.2
Marital status		
Married	4	1.5
Single	256	98.5
Type of family		
Joint	121	46.5
Nuclear	139	53.5
Monthly income in ₹		
> ₹ 10 000	219	84.2
< ₹ 10 000	41	15.8

of cannabis use. Among those who thought otherwise, cannabis users were a larger number. However, more than half of the participants reported to be unaware of cannabis-related legal issues. Around 88% of the participants did not know about synthetic cannabinoids. More than two-third participants (68%) said that they were aware of the all-harmful properties of cannabis. No significant association was reported between users and non-users.

Just over one-third (38.5%) of the participants had seen messages on social media promoting cannabis. This too was more in cannabis users than non-users. However, 71.9% participants reported cannabis smoke to be as dangerous as tobacco smoke. Around two-third participants viewed cannabis to be fatal, considered drug addicts to be dangerous and would not prefer living near drug addicts. Cannabis users had a more permissive view of living near drug addicts. Almost half the participants viewed occasional use of cannabis to be dangerous, considered it addictive on first use and advocated tougher sentence for drug addicts to be a solution to this problem. More cannabis non-users viewed cannabis to be addictive in its very first use than users (Table III).

DISCUSSION

Our study was done to examine the attitudes and beliefs held by urban Indian youth regarding cannabis use. Special focus was placed on them as they are the most dynamic yet fragile segment of the population, considering their propensity to experiment with drugs amid peer pressure. We found that most participants were aware of cannabis and its harmful effects, yet approximately 11% used cannabis. Most participants cited peer pressure and stress reduction as the reason for starting cannabis, although majority did not favour legalization of cannabis use. Our study highlights a trend towards cannabis use across the country which calls for urgent attention and intervention.

We found that 75% of the participants knew about cannabis and its various forms in contrast to a study in Ireland where 97.4% of the participants were aware about cannabis.[12] This may be linked to socio-cultural differences and more general awareness related to substance use in western countries. Males were significantly more aware of cannabis in our study as compared to females probably due to higher drug seeking behaviour in males.[14] A lower proportion of Muslim participants were aware and had actually used cannabis; may be due to differences in cultural and religious beliefs of the community where any form of intoxicant is forbidden.[15] Similar to previous studies, participants belonging to a nuclear family had more awareness about cannabis. This may be due to the lack of parental support, increased vulnerability to stress and poor coping skills.[16] Cannabis users had more awareness about cannabis than non-users was reported in a study from New York.[17] It suggested that around 11% of the study population had actually tried cannabis which is in line with a study done in Ireland.[12] However, a study done in New York found that around half the participants had indulged in cannabis use which can be attributed to a wave of legalization in the USA.[17] No significant difference in gender was observed which corroborates with a study done by Heckman.[18]

A small proportion of respondents (14.6%) expressed the wish to try cannabis in the future. Cannabis users had a more permissive view about cannabis use than non-users which is in line with a Canadian study.[19] This is an important area of intervention where awareness programmes and educating youth about the harmful effect and addictive properties of the substance can be considered to mitigate this problem. Almost half the respondents were made aware of cannabis by friends and around 35% by unknown people. More male participants and cannabis non-users were made aware of cannabis by people who were not well known to them in contrast to cannabis users who knew about cannabis through friends. This is in line with the studies done by Heckman *et al*. and Drapalski *et al*.[18,20]

The most common reason for taking cannabis was peer pressure followed by stress reduction, experimentation and enjoyment and least common was to look modern and to enhance academic performance. Previous studies have noted that the use of cannabis among the youth was centred on the perceived benefits such as peer acceptance, enabling them to study, to do hard work, to get rid of shyness, ameliorate stress and to attain a state of ecstasy.[21,22] We found that low-income groups wanted to indulge in cannabis to experiment and look modern, whereas younger participants wanted to try it to reduce stress which substantiates the findings of De Anda *et al*.[23]

The majority of cannabis non-users considered its use to be harmful in comparison to cannabis users who had neutral views about cannabis. This is in line with the finding of Leos *et al*.[19] Neutral views about cannabis were also seen more in those belonging to a nuclear family, and religious groups other than Hindus or Muslims. This may be due to religious and sociocultural differences as cited in the study done by Abdul Rahman and Sarkar.[15,16] Keyhani *et al*. found that 81% of the youth believe that cannabis is beneficial in one form or the other which is in contrast with our study where only 9.3% of the

TABLE II. Cannabis use practices among study participants (n=260)

Question	Total (%)	Age (%)		Sex (%)		Religion (%)			SES (%)		Family type (%)		Cannabis use (%)	
		<20	≥20	Male	Female	Hindu	Muslim	Others	<10 000	>10 000	Joint	Nuclear	Yes	No
Do you know about cannabis?														
Yes	183 (70.4)	72	67.7	77.5	62.3	79.6	62.2	85.7	70.7	70.3	63.6	76.3	93.1	67.5
No	77 (29.6)	28	32.3	22.5	37.7	20.4	37.8	14.3	29.3	29.7	36.4	23.7	6.9	32.5
p value		0.45		0.007			0.006		0.95		0.02		0.004	
Do you take cannabis?														
Yes	29 (11.2)	11.8	10.6	13.9	8.7	17.5	5.6	21.4	14.6	10.5	14	8.6	–	–
No	231 (88.8)	88.2	89.2	86.1	91.3	82.5	94.4	78.6	85.4	89.5	86	91.4	–	–
p value		0.67		0.18			0.006		0.44		0.16		–	–
Will you try cannabis in the future?														
Yes	48 (14.6)	15.5	13.1	15.6	13.8	19.4	11.2	14.3	14.6	14.6	18.2	11.5	62.1	8.7
No	222 (85.4)	84.5	86.9	84.4	86.2	80.6	88.8	85.7	85.4	85.4	81.8	88.5	37.9	91.3
p value		0.59		0.68			0.19		0.99		0.12		<0.001	
How do you know about cannabis														
Friends	122 (47)	49.7	43.4	43.4	50.7	43.7	44.8	66.3	50.7	46.2	43.8	50.4	72	44.6
p value		0.32		0.24			0.33		0.548		0.290		0.004*	
Family	47 (18)	17.4	19.2	14.8	21.0	29.1	11.8	16.3	15.6	18.7	15.7	18.7	14.2	17.3
p value		0.71		0.19			0.002		0.53		0.52		0.63	
Others	91 (35)	32.9	37.4	41.8	28.3	27.2	43.4	18.4	33.7	35.1	40.5	30.9	13.8	38.1
p value		0.56		0.021			0.008		0.90		0.10		0.02	
Reason for trying cannabis														
Peer pressure	77 (29.6)	27.3	33.3	27.9	310.2	34	250.2	420.9	170.1	32	31.4	28.1	24.1	30.3
p value		0.30		0.56			0.17		0.05		0.55		0.49	
To be modern	28 (10.8)	9.3	13.1	14.8	7.2	8.7	12.6	7.1	19.5	9.4	13.2	8.6	3.4	11.7
p value		0.33		0.05			0.57		0.049*		0.23		0.17	
Avoid stress	61 (23.5)	29.2	14.1	24.6	22.5	29.1	19.6	21.4	24.4	23.3	24	23	27.6	22.9
p value		0.005*		0.68			0.21		0.87		0.85		0.57	
Enjoyment	40 (15.4)	12.4	20.2	18.9	12.3	18.4	11.9	28.6	19.5	14.6	17.4	13.7	20.7	14.7
p value		0.09		0.14			0.13		0.42		0.41		0.40	
Experimenting	57 (21.9)	24.2	18.2	23	21	14.6	26.6	28.6	34.1	19.6	21.5	22.3	31	20.8
p value		0.25		0.70			0.06		0.03*		0.87		0.20	
Better academic performance/creativity	26 (10)	11.2	8.1	11.5	8.7	5.8	12.6	14.3	12.2	9.6	7.4	12.2	13.8	9.5
p value		0.41		0.45			0.18		0.61		0.19		0.47	
Influence of cannabis in peoples' lives														
Benefitted	24 (9.2)	11.2	6.1	9.8	8.7	10.7	8.4	7.1	7.3	9.6	10.7	7.9	13.8	8.7
p value		0.16		0.75			0.79		0.64		0.43		0.36	
Harmed	191 (73.1)	68.9	79.8	73.8	72.5	74.8	74.1	50	78	72.1	76.9	69.8	55.2	75.3
p value		0.05		0.81			0.13		0.43		0.20		0.02*	
Neutral	42 (16.2)	17.4	14.1	12.3	19.6	14.6	14.7	42.9	9.8	17.4	9.9	21.6	34.5	13.9
p value		0.48		0.11			0.02*		0.22		0.01*		0.004*	

SES socioeconomic status

participants shared this view.[24] This may be because of cultural differences in the two countries and increased acceptance of cannabis in the USA due to legalization in many states. This is an important area of intervention where we should educate youth about the harmful and addictive potential of cannabis. Our study population were much more aware of the harmful effect of cannabis and considered it equally harmful as tobacco smoke, recognised its addictive potential and its propensity to be fatal.

People consuming cannabis often think that it helps them to have more friends and a good social circle. Some of them believe that cannabis makes them more attractive and macho, while also helping in intellectual ability.[25] We had similar findings where participants had such misconceptions related to cannabis use. Cannabis awareness programmes and mass media campaigns are required to ameliorate these ideas which encourage youth to use cannabis.

There are ongoing debates regarding the legalization of the use of cannabis in different countries. Almost half the study participants were aware of the legal issues related to cannabis whereas only 18.8% favour legalization of cannabis. Recreational cannabis has become increasingly decriminalized and legalized in many countries including Canada and in many parts of USA such as Colorado and California. Proponents of legalization are of the view that it will help in eradicating the marijuana black market, improve quality and safety control, improve the availability of medical cannabis and increase tax revenues. Conversely, opponents of legalization stress on the concerns of the addictive potential, second-hand cannabis exposure, potential exacerbation of underlying and established mental illnesses as well as alterations in perception and attitudes towards cannabis, particularly those that affect safety and driving.[26] Recreational use of cannabis has not been legalized in India and medical use of cannabis is almost non-existent.

TABLE III. Knowledge, attitude and beliefs regarding cannabis use among users and non-users

Parameter	*n* (%)	Cannabis user (*n*=29) (%)	Cannabis non-user (*n*=231) (%)	p value
What do you think of people who take cannabis?				
Successful/macho	62 (23.8)	9 (31)	53 (22.9)	0.33
Have more friends	85 (32.7)	12 (41.4)	73 (31.6)	0.29
Increases intellectual ability	54 (20.8)	7 (24.1)	47 (20.3)	0.63
Look attractive	65 (25)	11 (37.9)	54 (23.4)	0.08
Safest way to use cannabis				
Vaporiser	68 (26.2)	9 (31.0)	59 (25.5)	0.55
Joint	122 (46.9)	15 (51.7)	107 (46.3)	
Direct eating	41 (15.8)	2 (6.9)	39 (16.9)	
Smoking pipes	29 (11.2)	3 (10.3)	26 (11.3)	
Should cannabis be legalised				
Yes	49 (18.8)	12 (41.4)	37 (16)	0.001
No	211 (81.2)	17 (58.6)	194 (84)	
Are you aware of the legal issues related to cannabis?				
Yes	119 (45.8)	15 (51.7)	104 (45)	0.49
No	141 (54.21)	14 (48.3)	127 (55)	
Do you know about synthetic cannabinoids?				
Yes	31 (11.9)	6 (20.7)	25 (10.8)	0.12
No	229 (88.1)	23 (79.3)	206 (89.2)	
Are you aware of the harmful effects of cannabis?				
Yes	178 (68.5)	19 (65.5)	159 (68.8)	0.71
No	82 (31.5)	10 (34.5)	72 (31.2)	
How does social media project cannabis use?				
Good	100 (38.5)	16 (55.2)	84 (36.4)	0.05
Bad	160 (61.5)	13 (44.8)	147 (63.6)	
Is cannabis smoke as dangerous as tobacco smoke				
Yes	187 (71.9)	16 (55.2)	171 (74)	0.03
No	73 (28.1)	13 (44.8)	60 (26)	
Is it possible to fatally overdose cannabis				
Yes	178 (68.5)	19 (65.5)	159 (68.8)	0.71
No	82 (31.5)	10 (34.5)	72 (31.2)	
Do you consider drug addicts dangerous?				
Yes	173 (66.5)	19 (65.5)	154 (66.7)	0.90
No	87 (33.5)	10 (34.5)	77 (33.3)	
Would you prefer to live near drug addicts?				
Yes	60 (23.1)	17 (58.6)	43 (18.6)	0.001
No	200 (76.9)	12 (41.4)	188 (81.4)	
Occasional use of cannabis is dangerous				
Yes	151 (58.1)	14 (48.3)	137 (59.3)	0.25
No	109 (41.9)	15 (51.7)	94 (40.7)	
Do you think if you try cannabis once then you are hooked to it?				
Yes	117 (45)	8 (27.6)	109 (47.2)	0.04
No	143 (55)	21 (72.4)	122 (52.8)	
Are tougher sentences for cannabis abuse a solution to this problem				
Yes	122 (46.9)	11 (37.9)	111 (48.1)	0.30
No	138 (53.1)	18 (62.1)	120 (51.9)	

More than a third of the participants believed that social media encourages cannabis use by promoting benefits of cannabis which is contrary to 61.5% of the respondents who reported having encountered messages about harmful effect of cannabis. However, those with prior cannabis use had seen more permissive posts about cannabis on social media which is similar to studies done by Lamy and Ouellette.[27,28] In line with this data, it is seen that media has an informative and persuasive effect on the students regarding cannabis use/misuse, and thus, media organizations and mass media publications should be more sensitive, careful and refrain from publicizing wrong, encouraging and enticing news.

Around two-thirds of the participants considered cannabis users to be dangerous and would avoid living in their vicinity, whereas cannabis users have a more permissive view on living with drug addicts as compared to non-users, akin to an Irish study by Bryan *et al*.[12] Around half the participants agreed that tougher sentences to defaulters can be a solution to increased cannabis use which contradict the Irish study that prefer giving treatment options instead of legal consequences. Interventions and laws pertaining to legal punishment for consuming cannabis and awareness of the strict legal actions might prevent the youth from taking cannabis, compared to treatment options which are more helpful in rehabilitation and integration within the society.

Our study is one of the few evaluating the knowledge and attitude about cannabis and differences between users and non-users. Strengths of the study include random selection of the sample, inclusion of youth (more susceptible to cannabis use) and detailed insights about beliefs and attitudes.

Limitations

The small sample from a single urban centre is a limitation. Further, the inclusion of only English-speaking students from different colleges in a single centre, and use of self-reporting questionnaire, with chances of reporting bias, limits the generalization of the results. The exact frequency of cannabis consumption was not assessed and its cross-sectional nature does not allow us to assess the change in attitude over time. However, our study provides essential insights into beliefs of youth regarding cannabis which can be further worked on in the future to develop guidelines targeting preventive aspects.

Conclusion

Cannabis continues to be the most commonly used illicit substance among Indian youth. The knowledge regarding harmful effects and legal implications of Cannabis is relatively low amongst college students. Peer pressure, stress reduction and experimentation remain the commonest reasons for consumption of Cannabis.

Imparting knowledge in early adolescence remain crucial in mitigating ignorant attitudes towards harmful cannabis use. Preventive drug education programmes can deter or delay drug use through changes in knowledge and attitude of the youth, making them better equipped to deal with peer pressure and other stressors.

Conflicts of interest. None declared

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