International Journal of Community Medicine and Public Health
Rajaseharan D et al. Int J Community Med Public Health. 2021 Feb;8(2):593-596
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: https://dx.doi.org/10.18203/2394-6040.ijcmph20210038

Original Research Article

Caffeine dependence among medical interns of a tertiary teaching hospital

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Received: 13 March 2020
Revised: 10 December 2020
Accepted: 28 December 2020

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ABSTRACT

Background: Consumption of caffeine in adequate quantities has no adverse effects, but prolonged consumption makes it addictive. Medical students especially Interns due to their long working hours often indulge in excessive caffeine consumption. Objectives were to assess the knowledge of caffeine addiction among the medical interns, to assess the pattern of caffeine dependence among them and to calculate the caffeine dependence among them.
Methods: It is a cross sectional descriptive study conducted among 124 medical interns of Trichy SRM Medical College Hospital and Research Centre using a pre-tested, self-administered questionnaire.
Results: High level of knowledge was found in 47 (37.90%) participants, moderate level in 34 (27.41%) participants and low level of knowledge was found in 47 (34.67%) participants. The most preferred beverage was coffee 70 (56.45%) persons and second was tea 32 (25.80%). Majority of the study population 110 (88.7%) started consuming caffeinated products only after 5 years of age. Head ache 51 (41.12%) and exam durations 50 (40.32%) were common occasions of high caffeine intake. Among the study population, major group had either no 99 (79.83%) or just thirst 10 (8.06%) as withdrawal symptoms. Only 19.35% of them had caffeine dependence.
Conclusions: Though the dependence level is low, the magnitude of the problem is big and self-awareness of this dreadful habit is necessary. Thus, prompt recognition of symptoms of dependence, tolerance and intoxication is necessary to avoid them falling a prey to this habit in the future.

Keywords: Caffeine, Knowledge, Dependence, Tolerance, Withdrawal, Intoxication

INTRODUCTION

Caffeine is one of the well-known central nervous system (CNS) stimulants. It is popular for its cheap cost and instant action. In contrast to other such stimulants, caffeine acts by indirect effect on CNS. Caffeine is a psychoactive drug is due to its stimulant properties, which depends on its ability to reduce adenosine transmission in the brain. Caffeine acts as an antagonist to both Adenosine A1 and adenosine A2 receptors.[1] Dependence consisted of a maladaptive pattern of substance use with clinically significant impairment manifested by 3 or more symptoms within a 12-month period. These symptoms included: 1) tolerance, 2) withdrawal, 3) substance used in larger amounts or over a longer period than intended, 4) a persistent desire or unsuccessful effort to control use, 5) a great deal of time spent obtaining, using, or recovering from the substance, 6) forgoing important activities because of the substance, 7) and substance use continued despite knowledge of having a persistent or recurrent physical or psychological problem likely to be caused or exacerbated by the substance (i.e., 'use despite harm').[2] Students generally prefer caffeine over other commonly available psychoactive drugs is that it

increases wakefulness and overall concentration.[3] Medical interns work late due to their long shift hours and necessity to stay awake consume stimulants. Hence this study was conducted with the following objectives.

Objectives

Objectives were 1) to assess the knowledge of caffeine addiction among the medical interns 2) to assess the pattern of caffeine dependence among them 3) to calculate the caffeine dependence among them.

METHODS

Study type

It is a Cross sectional descriptive study conducted from February 2019 to March 2019

Study setting

The study was conducted in a tertiary care teaching hospital, Trichy SRM Medical College Hospital and Research Centre, Irungalur.

Sample size

Since we have included only one medical college, (Universal Sampling) All 134 CRRIs (Compulsory rotatory residential internship) doing their internship during the period from March 2018 to March 2019 were included in this study.

Inclusion criteria

Those who consumed any type of caffeinated product within the last one year which came to 124.

Exclusion criteria

Those who did not consume any type of caffeinated product within the last one year and who did not give consent.

Ethical approval

Ethical approval was got from the Institutional Ethics Committee.

Data collection and analysis

A list of all the medical interns who were doing their internships during March 2018 to March 2019 was collected from the college administration. Two medical interns collected the data for a period of one month based on their availability in the respective departments at a time convenient to them. Written and informed consent was obtained from the participants before the survey. After giving adequate information data was collected using a self-administered questionnaire. The questionnaire was framed after studying all the variables carefully from the literature. Medical interns not belonging to this period of internship and members who did not give consent to participate in the study were excluded from the study.

The following operational definitions were modified and used due to feasibility reasons after studying the review of literature.

Knowledge level

Participants answering all 3 questions designed to assess the knowledge correctly were considered to have high knowledge level. Participants answering 1-2 questions correctly were considered to have moderate knowledge and participants answering none of the questions correctly were considered to have low level of knowledge.

Dependence

Dependence consisted of a maladaptive pattern of substance use (Caffeine) with clinically significant impairment manifested by 3 or more symptoms within a 12-month period. Not all 7 components of DSM – 3 was included (withdrawal, tolerance, intoxication were included).[4]

RESULTS

The most preferred caffeinated product was coffee 70 (56.45%). Majority of them had 60 (48.38%) had moderate and 47 (37.90%) had high level of knowledge regarding caffeine dependence.

Table 1: Demographic details of the study participants (N=134).

Variables	Frequency	Percentage
Age (in years)		
≤23	70	52.2
>23	64	47.8
Sex		
Male	75	56
Female	59	44

Table 2: Types of caffeine products commonly preferred among medical interns (N=124).

Responses	Frequency (n=124)	Percentage
Commonly preferred caffeine product in the last year		
Coffee	70	56.45
Tea	32	25.80
Colas	10	8.06
Dark chocolate	10	8.06
Nothing	2	1.61

Table 3: Features of caffeine withdrawal symptoms among medical interns (N=124).

Responses	Frequency (N=124)	Percentage
What happens if you miss routine schedule of caffeinated product?		
Nothing	96	77.4
Just thirsty	10	8.06
Drowsy and sleepy	9	7.25
Headache and irritable	8	6.45
Tremors and depression	1	0.80

Table 4: Features of development of tolerance towards caffeine products among medical interns (n=124).

Responses	Frequency	Percentage
Usual hours of sleep		
Less than 5 hours	5	4.13
5 To 8 hours	101	81.45
8 Hours or more	18	14.51
Do you feel sleepy during day, even after taking caffeinated products?		
Yes	20	16.12
No	103	83.06

Table 5: Symptoms of impending caffeine intoxication among medical interns (n=124).

Responses	Frequency	Percentage
Impending caffeine intoxication symptoms.		
Sleep disturbance only	10	8.06
GI disturbance	2	1.6
Hot flushes	3	2.4
Palpitation	2	1.6
Breathlessness	4	3.2
Aggression	1	0.8
Not experienced any of these	101	81.45

Table 6: Dependence and knowledge level about caffeine addiction (n=124).

Knowledge level	Frequency	Percentage
High	47	37.90
Moderate	60	48.38
Low	17	13.70
Dependence		
Yes	24	19.35
No	100	80.65

Only 13 (10.48%) members were considered to have caffeine dependence. About 96 (77.4%) had no withdrawal symptoms, 101 (81.5%) did not have any in toxification features, 103 (83.06%) developed no tolerance towards caffeine products (Tables 1-6).

DISCUSSION

As anticipated, among various available caffeinated products, the most preferred one was coffee 70 (56.45%) persons and second highest was tea with 32 (25.80%) respondents. In a study done by Ahmad et al among medical and non-medical students of Lahore Pakistan the preferred one was soft drinks followed by tea and then coffee which varies with our results.[5] In a similar study by Jochebed et al among undergraduate dental students, the results were similar to our results with coffee being most preferred followed by tea.[6]

Majority of the study population 110 (88.7%) started consuming caffeinated products only after 5 years of age. Of which 59 (53.63%) persons commenced only in their adolescence after 15 years of age. This is consistent with the findings of Gera et al.[7,8] Evidently, habit of drinking coffee developed in their adolescence, where they have many challenges such as handling peer pressure and board exams. As they enter adulthood, they are more exposed to the real-world problems and these may be the probable reasons for starting to take a caffeinated product. In our study, among various occasions demanding higher extent of caffeine intake, head ache 51 (41.12%) and exam durations 50 (40.32%) tops the list. This agrees with the findings of Edward et al.[9-12]

Among 124 subjects who participated in the study, about 13 (10.48%) members were considered to have caffeine dependence. About 96 (77.4%) had no withdrawal symptoms, 101 (81.5%) did not have any in toxification features, 103 (83.06%) developed no tolerance towards caffeine products. In a study done by AtikahRamli1 et al 28.3% students were caffeine dependent. This contradicts with our study.[13] The study population and the variables used are different in our study which might be the probable reasons.

The strength of our study is that we used a validated tool and privacy was maintained as it was a self-administered questionnaire. Only one medical college was included and all items in the DSM -4 questionnaire was not used. These are be the limitations of this study.

CONCLUSION

Though the dependence level is low, the magnitude of the problem is big and self-awareness of this dreadful habit is necessary. Thus, Prompt recognition of symptoms of dependence, tolerance and intoxication is necessary to avoid them falling a prey to this habit in the future.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Rajaseharan D, Shanu JEJ, Thulasiraman S. Caffeine dependence among medical interns of a tertiary teaching hospital. Int J Community Med Public Health 2021;8:593-6.