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Research Article

**ASSESSING THE PREVALENCE OF CAFFEINATED
BEVERAGES AMONG ADULTS: A NATION-WIDE STUDY**Asma Arshad¹, Fatima Maqbool¹, Sabd-i-Zar², Iqra Maryam³¹Quaid e Azam Medical College Bahawalpur-Pakistan²Rashid Latif Medical College, Lahore-Pakistan³University of the Punjab, Lahore-Pakistan

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Abstract:

Introduction: The mostly consumed psychoactive culprit among adults is caffeine. Whether caffeine has a positive and negative side effects still has been in a lengthy debate. The growing market of caffeinated beverages has caused concern about excessive caffeine intakes, dependence and potential adverse effects caused by its consumption, particularly among adults.

Aim: The current study aimed at assessing the prevalence of consumption of caffeinated beverages among adults in Pakistan and their dependence on it. Adverse effects caused by its consumption also studied.

Study design: A cross-sectional study. **Place and duration of the study:** University of the Punjab, Pakistan; for six months duration from December 2019 to May 2020.

Methods: Data was collected from online survey. Data from a sample of 200 respondents aged between 18 to 65 from a consumer were taken by means of a questionnaire. Among participants 59% were males and 37.5% females.

Results: Among caffeinated beverages tea consumption was 58.5%, coffee 15.5% and other caffeinated beverages such as coke etc were 20.5%. 53.5% of population consume 2 to 4 times. Upon withdrawal decreased activeness in 38%, decreased energy in 26.5%, headache in 21% and fatigue in 14% of population occur. 60% are dependent and 40% are not dependent on it. 54.5% experience adverse effects and 45.5% not. 46% mild and 35% experience acute adverse effects.

Conclusion: Among respondents, the tendency towards the consumption of caffeinated beverages increased to such an extent that they start depending on caffeine and cannot perform their activities without it. Several adverse effects have been caused on their health mostly were mild.

Key Words: Caffeine, Caffeinated beverages, coffee, Tea, Energy

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INTRODUCTION:

We absorb certain harmful substances from food and we are vulnerable to certain chemicals in our daily lives [1]. Due to their mentally stimulating effect caffeinated beverages are the most frequently imbibed beverages by adults. The most coveted drink in the world is caffeine [2]. It is the chemical substance that stimulate the central nervous system by passing through the blood brain barrier [3]. In many brain areas by modifying the activity of neurotransmitters including dopamine and acetylcholine [4,5,6,7]. Caffeine includes a variety of compounds such as tea, cocoa, colanuts, chocolate, pain relievers, energy drinks and caffeine belong to the family of alkaloids [8]. Caffeine is well known due to the presence of powerful antioxidants such as polyphenol present in it [9]. After absorption by small intestine and stomach, caffeine is equally distributed throughout the body, Caffeine is both water soluble and fat soluble [10]. According to recent studies, caffeine is found in most body fluids, as it is diffused throughout the whole organism after its assimilation [1]. Whether caffeine consumption is good or bad on human health has been doubtful for many years. Caffeinated products consumed by some people to improve their mood, to make themselves more alert, to work in night shifts and to boost their energy. Although there are many benefits of caffeine on the human body, to study its effects a number of experiments have done that showed a number of adverse effects such as nervousness, anxiety, hypertension and lack of sleep [11]. Previous studies show various reasons due to which participants use caffeine such as social consumption, academic purposes and preference for taste. Among these participants due to excessive caffeine consumption, some become aggressive [12]. Some said that years might be add in the life span by coffee drinking [9]. It is indicated by the previous study that in the adult diet the major sources of caffeine are tea and coffee, on the other hand in children diet the major source of caffeine are chocolate and caffeinated soft drinks [8]. Due to daily academic load, university students are exposed to academic stress [13]. By consuming caffeinated beverages students tend to cope their overwhelming stressful situation [14]. Due to the scarcity of information concerning the assessment of prevalence of caffeinated beverages among adults, led to investigate local population about their consumption of caffeinated beverage, sources by which caffeine is consumed, their dependence on caffeine.

MATERIALS AND METHODS:

The study design was dependent on the objectives of the research study. A self –controlled cross-sectional study was performed during the research project. Sample size depending on the study design appeared to be adequate for the application of relevant statistical tests and was scientifically justified. A

self-controlled simple random sampling technique was used for sampling in which a minimum of 200 samples were included as a representative of the population. All the samples were reliable and without errors.

Inclusion Criteria

Both males and females above 18 years of age

Exclusion Criteria

Infants, toddlers and adolescents were excluded from the study.

Data collection procedure

Data was collected by means of a questionnaire that was meant to obtain information related to age, gender, occupation, socio-demography, knowledge about caffeinated beverage, their consumption, type of caffeinated beverages, dependence, withdraw results, adverse effects and information on which caffeinated beverage makes more active.

Data/ statistical analysis Data was analyzed using statistical software of SPSS (version 25.0) and Microsoft Excel for representing the results in the form of charts, graphs and tables.

RESULTS AND DISCUSSION:

Majority of the males have knowledge about caffeinated that are 54% and only slight 4% have no knowledge about caffeinated beverages. About 34.5 of females have knowledge about it and 1% have not any knowledge. 34.5% of males mostly consume tea as a caffeinated beverage, while only 23 % of females consume tea. The consumption of coffee and other caffeinated beverages is also more prevail among males rather than females. With male gender, high soda consumption and unhealthy dietary habits, there is positive association especially among males [15]. This information obtained with this study supports the above statement, which shows that the tendency towards consumption of caffeinated beverages is more in males rather than females who have less tendency towards it. This study also indicate that majority of the males and females consume caffeinated beverage 2 to 4 times per day and this frequency of consumption is also more in male population, which is already evident from the statement. Caffeinated beverage withdrawal symptoms such as decreased activeness, decreased energy, fatigue and headache are also more prevalent in the majority of the male population, rather than females. Moreover, the mild and acute adverse effects are also more prevalent in majority of the male population rather than females. The results of this study exactly support the above statement, so males have more knowledge, and more consumption of caffeinated beverages, due this they also experience more adverse effects as compared to females.

Table 1: Frequency distribution of consumer's preferences with respect to gender.

Variables	Gender	
	Male	Female
knowledge about caffeinated beverage		
Yes	108	69
No	8	2
Type of caffeinated beverage consumed		
Coffee	17	13
Tea	69	46
Others	25	12
Frequency		
One time	35	36
2 to 4 time	69	34
4 to 6 times	11	4
Withdraw results		
Decreased activness	49	25
Decreased energy	1	0
Fatigue	18	10
Headche	18	1
Adverse effect		
Yes	61	45
No	57	30

Majority of the peoples having normal BMI or those that are underweight experience mild adverse effects. But overweight peoples experience both mild and acute adverse effects equally. Among majority of the peoples whose BMI lies in the healthy range or those that are underweight and overweight, tea makes them more active. Majority of the normal and overweight respondents' response that after tea, coffee makes them more active. But majority of the underweight responds that other caffeinated beverages make them more active after tea and coffee is their third choice. So, tea is the preferred caffeinated beverage among people's weather they are underweight, overweight and normal, as their first choice of caffeine consumption. Coffee and other caffeinated beverages have their own place as a second choice after tea.

Table 2: Frequency distribution of consumer's preferences with respect to occupation

Variables	BMI		
	Underweight	Normal	Overweight
Intensity			
Mild	18	41	33
Acute	9	28	33
Makes more active			
Coffee	5	13	13
Tea	14	50	53
Others	10	20	11
Frequency			
One time	20	34	20
2 to 4 time	12	47	48
4 to 6 times	1	4	10

CONCLUSION:

The results of this study project show the prevalence of caffeinated beverages among adults of Pakistan. Among the 200 respondents, the tendency towards the consumption of caffeinated beverages has increased to such an extent that they start depending on caffeine and cannot perform their activities without it. Several adverse effects have been caused

on their health mostly mild. But without even caring or concerning these symptoms they continued their caffeine intake, without caring about the symptoms and majority do not seek any medical advice. So, it came to know that the prevalence or tendency towards caffeinated beverages have been increased to an alarming level.

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