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Coffee Consumption and Mental Well-Being: Exploring Sleep, Anxiety, and Depression

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Abstract:
The stimulant effects of caffeine on the central nervous system and its possible impacts on mental health make it a popular psychoactive drug. Using the Depression, Anxiety, and Stress Scale (DASS-1), this study examines the connections between coffee intake, anxiety, depression, and sleep quality. 110 people who usually drank coffee and ranged in age from 17 to 53 were polled. Significant differences between genders were found in the research; women reported worse sleep, more anxiety, and more severe depression symptoms than men. Caffeine has been shown to increase alertness, but too much of it can interfere with sleep cycles and make anxiety and sadness worse, especially in sensitive people[(2,3).]
The results highlight how caffeine has multifaceted effects that vary depending on a person's sensitivity, intake habits, and genetic makeup. While excessive coffee drinking has been related to negative impacts, particularly among vulnerable groups, moderate coffee consumption may have some positive effects on mental health. These findings underline the necessity of individualized caffeine intake recommendations as well as more studies to examine caffeine's function in managing mental health issues and its potential as a therapeutic adjunct[(6)].

Keywords: Anxiety, Depression, Sleep quality, DASS

Introduction:

The widely consumed psychoactive ingredient caffeine (1,3,7-trimethylxanthine), which can be found in a variety of foods, drinks, and pharmaceuticals, draws attention as a result of its possible effects on well-being and performance.Coffee can affect the central nervous system and interfere with sleep if consumed too soon before bed. Adenosine receptor blocking, deep sleep reduction, sleep pattern disruption, onset delay, and decreased rapid eye movement sleep are some of the ways caffeine impacts sleep. For those who are sensitive to caffeine, coffee can cause sleep disturbances at night even though it may increase alertness in the morning.Avoid drinking anything that contains caffeine, limit how much you drink in the afternoon and evening, and avoid caffeine right before bed to improve the quality of your sleep. Caffeine tolerance, individual responses, and interactions with other substances all affect how coffee affects sleep. Coffee is a well-known stimulant that is supposed to mitigate the adverse effects of sleep deprivation. Caffeine, however, can alter the length and quality of your sleep, particularly during the healing process. Caffeine, the primary psychoactive component of coffee, has received significant attention for its potential impact on the most common mental health conditions, such as anxiety and depression. Caffeine's psycho-stimulant effects are primarily mediated by antagonistizing adenosine receptors, modulating neurotransmitter systems, and influencing intracellular calcium signaling in the brain. Caffeine has dose-dependent effects[(8,14,11)]. While moderate caffeine consumption

is safe in healthy adults and may benefit mental health, excessive intake has been linked to negative effects on neurological and psychiatric health and can exacerbate symptoms, emphasizing the importance of adjusting consumption patterns.High caffeine consumption is associated with increased anxiety levels, particularly in people who are predisposed to anxiety disorders. However, the relationship between caffeine consumption and depression risk is complex, with some studies indicating that moderate intake may be protective, while others show no significant association. Individual variations in caffeine metabolism, sensitivity, and genetic factors have a significant impact on caffeine responses[1,5,6,7,9]. The chapter also explores the therapeutic potential of caffeine as an adjunct treatment and outlines challenges and future research directions in understanding caffeine's multifaceted role in mental health[15,16,17].

METHODS:

Sample selection: This study included 110 patients, and the DASS-1 SCALE was used to assess depression and anxiety.The survey was carried out online using a Google Form.

Inclusion criteria:

Age group who are early working age and prime working age

All the individuals who are consuming coffee regularly.

Exclusion criteria:

Individuals who refuse to respond.

Patients who are not consuming coffee regularly.

RESULTS:

Demographics details:(Table 1)

The study includes 110 patients in total. Participants' ages ranged from 17 to 53 years old. The majority (65%) are females, with men accounting for 35%. The majority are graduates (67.3%), and 71% are unemployed.

Table 1:socio Demographic Details

CHARACTERISTICS	CATEGORY	NUMBER	PERCENTAGE
Age	15-24	76	69%
	25-54	34	31%
Gender	Male	38	35%
	Female	72	65%
Marital status	Single	96	88%
	Married	14	12%
Education	Schooling	4	3%
	Graduation	74	68%
	Post graduation	32	29%
Employment	Employed	32	29%
	Unemployed	78	71%
Marital status	Married	14	12%
	Single	96	88%

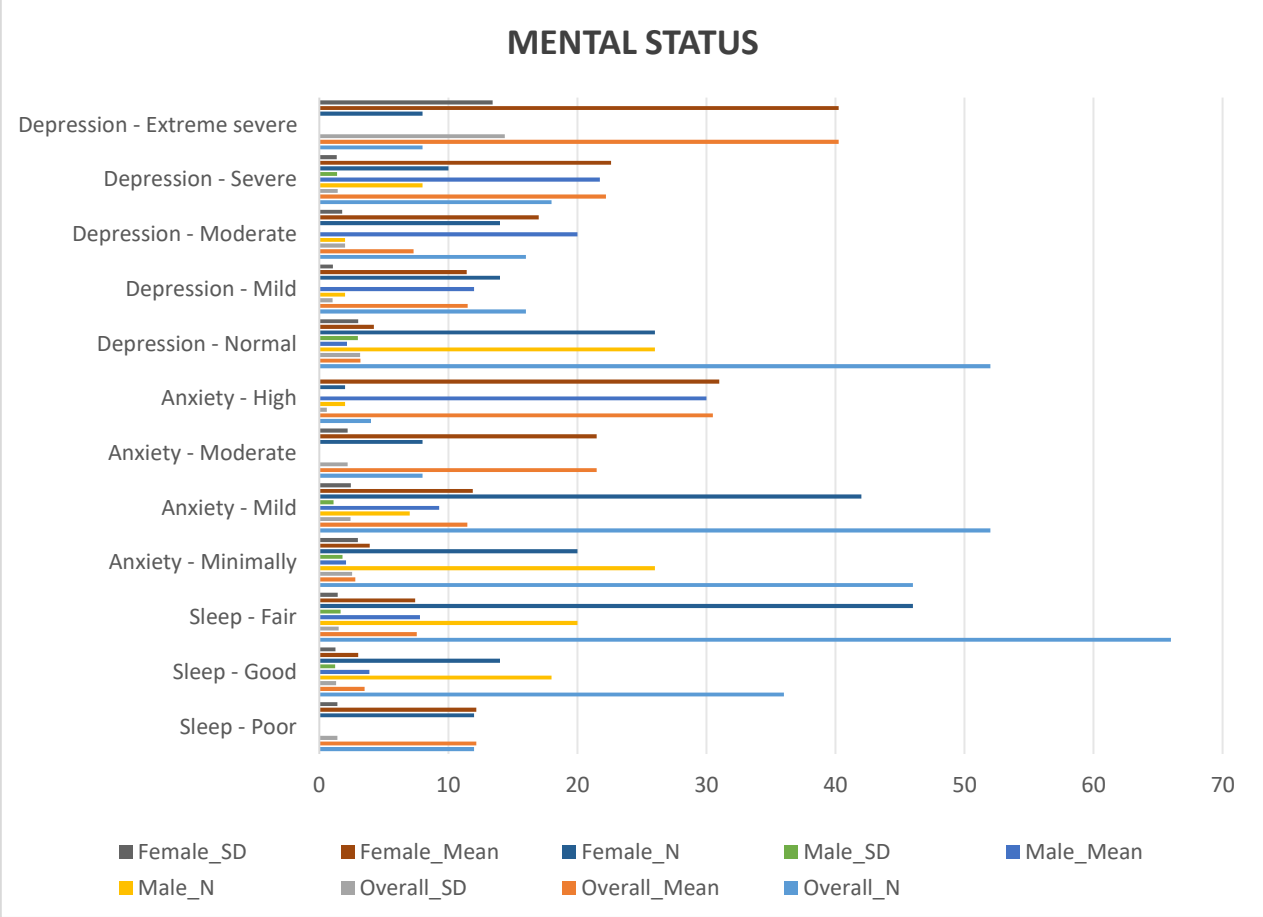
Food habits	Non-vegeterian	72	66%
	Vegetarian	18	16%
	Both	20	18%
Alcohol	Yes	10	9%
	No	100	91%
Smoking	Yes	4	3%
	No	106	97%
Allergies	Yes	14	13%
	No	96	87%

Table 1 presents the demographics of the individuals participated in the study .

Descriptive analysis of mental status from DASS-1 Scale(table 2)

Mental status	Overall			Male			Female		
	N	Mean	SD	N	Mean	SD	N	Mean	SD
Sleep									
✓ Poor	12	12.16	1.40	0	0	0	12	12.16	1.40
✓ Good	36	3.5	1.29	18	3.88	1.23	14	3	1.24
✓ Fair	66	7.54	1.49	20	7.8	1.64	46	7.43	1.42
Anxiety									
✓ Minimally	46	2.8	2.53	26	2.07	1.80	20	3.9	2.98
✓ Mild	52	11.46	2.42	7	9.28	1.11	42	11.90	2.45
✓ Moderate	8	21.5	2.20	0	0	0	08	21.5	2.20
✓ High	4	30.5	0.57	2	30	0	02	31	0
Depression									
✓ Normal	52	3.19	3.15	26	2.15	2.98	26	4.23	3.02
✓ Mild	16	11.5	1.03	2	12	0	14	11.42	1.04
✓ Moderate	16	7.3	1.99	2	20	0	14	17	1.77
✓ Severe	18	22.2	1.43	8	21.75	1.38	10	22.6	1.35
✓ Extreme severe	8	40.25	14.37	0	0	0	8	40.25	13.44

Figure 1: Analysis of Mental Status Usingthe DASS-1 Scale: Sleep, Anxiety, and Depression



DASS 1 SCALE:

The table 2 presents a descriptive examination of mental state (sleep, anxiety, and depression) using the DASS-1 Scale, emphasizing gender differences. In terms of sleep, only females reported poor sleep (N=12, Mean=12.16, SD=1.40), while men reported higher sleep quality in the "Good" and "Fair" categories. Females consistently reported greater levels of anxiety across all categories, including mild (Mean=11.90, SD=2.45) and moderate (Mean=21.50, SD=2.20), while men had lower ratings, with minimum anxiety being the most prevalent (Mean=2.07, SD=1.80). In terms of depression, females had a greater prevalence of severe depression (N=8, Mean=40.25, SD=14.37), males had lower levels of depression, with the majority falling into the normal group (N=26, Mean=2.15, SD=2.98). Overall, females reported lower mental health outcomes, with greater levels of anxiety and sadness than males.

CONCLUSION:

This study concludes by highlighting the substantial impact of coffee intake on mental health, specifically with relation to anxiety, sadness, and sleep quality. It seems that caffeine, as a stimulant, makes anxiety worse; women report greater anxiety ratings in all categories, including mild, moderate, and severe anxiety. Furthermore, sleep interruptions were much more common, particularly among females who reported poor sleep quality, whereas males had comparatively better sleep outcomes. It is crucial to take into account caffeine's ability to disrupt rest and recuperation processes since these findings imply that it may have a detrimental effect on sleep, particularly in sensitive people. Coffee

intake patterns and individual reactions are important factors in the complex link between coffee and mental health.

The study also shows that the degree of depression varies by gender, with women reporting more severe symptoms than men. The prevalence of severe and intense depression was greater in females than in males, who tended to fall into the "normal" depression group. This highlights the necessity for individualized methods to caffeine intake management. A more comprehensive knowledge of how coffee intake may impact mental health, especially in vulnerable populations, is necessary given the intricate interactions between caffeine, anxiety, and depression. This study emphasizes the value of tailored advice and more investigation into the long-term impacts of caffeine on mental health and its possible therapeutic uses in mental health treatment.

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