

# The Effect of Exam Stress on Students' Eating Habits and Lifestyle of University Students in Erbil

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**Abstract**— In the context of heightened emphasis on academic performance at universities, this study investigates into the crucial exploration of how lifestyle factors, particularly eating behavior, can impact students' academic success. The primary objective was to assess the influence of examination stress on the eating behaviors, habits, and lifestyle of university students in Erbil city, Kurdistan - Iraq. A cross-sectional study in the form of questionnaire was conducted at post-examinations period, utilizing the Eating Behavior and Lifestyle Changes, with 327 participants providing responses. The study was divided into two sections. Section one focusing on socio-demographic information and the second section focused on questions related to the impact of examination stress on the eating behavior and life style. The findings revealed that a substantial 87% of participants experienced stress during the examination period, affecting crucial aspects such as fatigue levels, sleeping behaviors, and notably, eating habits. The statistical analysis highlighted a significant correlation between decreased appetite during exams and gender ( $p = 0.00$ ) and BMI ( $p = 0.00$ ), while no association was observed with other participant variables (Age, Job, University, Income, or Residency). Notably, 34% (110) reported increased appetite, 39% (126) experienced decreased appetite, and 10% (34) did not notice any changes. Furthermore, the study revealed that 22% (72) of respondents skipped meals daily, 39% (128) occasionally skipped meals, and only 39% (127) did not skip any meals. To conclude, these findings shed light on the intricate relationship between examination stress and students' eating patterns, emphasizing the need for a holistic approach to support students' well-being during challenging academic periods.

**Index Terms**—: Eating habit , life style , Stress examination students.

## I. INTRODUCTION

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Understanding the impact of lifestyle factors, specifically eating behavior, on academic success is crucial as college students' health-related habits often change with new resources and environments. University students often fall short of wellness standards, and while numerous studies explore the correlation between eating habits and academic performance, there's a scarcity of research focusing on college students (Reuter, Forster, and Brister 2021).

Exams exert stress on students, affecting their eating patterns. Studies reveal disordered eating behaviors during exam times, with a preference for comfort food high in fat, sugar, and carbohydrates. Psychological stress in students is associated with unhealthy food consumption, suggesting a need for examination of factors influencing eating behaviors during exam periods. This analysis investigates associations between sociodemographic and health-related behaviors, dietary patterns, and examination stress among undergraduate students (Choi 2020).

Identifying these factors could inform interventions to improve diet quality and academic success. The impact of stress on students' health, mental health, appetite, and sleep during the examination period is underexplored. This study ~~thesis~~ aims to shed light on this overlooked aspect, emphasizing the need for attention to students' well-being and proposing measures to prevent malnutrition in Erbil universities, Kurdistan, Iraq.

Navigating newfound independence, young adults encounter persistent challenges in making healthy nutritional choices, underscoring the pressing need to address the evolution of their dietary habits (Barker, Blain, and Russell 2015). This imperative extends to raising awareness about students' health, food intake, and the consequences of emotional eating,

particularly magnified during the demanding examination. In the context of today's fast-paced world, recognizing sleep as a fundamental biological necessity becomes paramount, given its profound impact not only on mood but also on performance across various life domains such as work, school, and home (Mueller et al. 2018).

The study's objectives are multifaceted: to gather comprehensive data on students' health and lifestyle alterations during final examinations, identify nuanced changes in eating habits and lifestyles (including physical activity, sleeping hours, and sleep quality), assess the prevalence of eating disorders and insomnia, and delve into effective strategies employed by individuals exhibiting healthy eating habits amidst the heightened stress of academic pressures.

## 2. Participants and Methods:

### 2.1. Study Design and Participants:

A cross-sectional study investigating eating behavior and lifestyle changes was conducted among university students in Erbil, Kurdistan, Iraq, during the examination period. The survey utilized random sampling in Erbil city's universities to understand the impact of exam stress on academic students' eating patterns and lifestyle changes. The survey was done from February 1st to April 1st, 2023, employing both paper and online questionnaires distributed through platforms like Cihan University email and various online student communities to reach a diverse range of university students in the area.

### 2.2. Questionnaire Design:

An anonymous questionnaire was designed to assess academic stress and eating behavior, comprising three sections. A pilot study was done to validate the questionnaire and assess. After updating the survey, the questionnaire was modified and finalized. The first section gathered demographic data, including age, gender, department, job sector, marital status, and income. The second section focused on individual lifestyle and academic stress levels, while the third section measured eating behaviors during the examination period (Macan et al. 1990).

### 3.3. Sample Inclusion Criteria:

Eligible participants were college students aged 18 or older, residing in Erbil, whether residing at campus or at homes. The final population encompassed students from various academic disciplines. Outreach efforts included emails sent to young adults through a university database and the distribution of flyers across university facilities (Barker, Blain, and Russell 2015)

### 2.4. Sample Size:

The sample size was estimated using Yemane's formula, considering a 50% prevalence range for a finite targeted population. The calculated sample size ( $n$ ) was 400, where  $n = N / (1 + Ne^2)$ ,  $N$  represents the estimated population size of approximately 100,000 without any health issues, and  $e$  is the margin of error set at 0.05 based on research conditions (Y. M. Galali 2020)

### 2.5. Ethical Consent:

Participant consent was taken and all personal data was treated confidentially without requiring university ethical approval,

solely for academic purposes, and Participants assured that they can withdraw at any stage if they would feel uncomfortable with questions

### 2.6. Statistical Analysis:

Data analysis was performed using SPSS statistical software (v. 21.0, IBM). Various statistical analyses were employed, and for comparisons between groups with more than two variables, the Kruskal-Wallis test was utilized. A significance level of 0.05 was chosen for all analyses (Gardiner, Hagerly, and Bryan 2021).

## Results and Discussion:

### Results:

The survey, made publicly available on February 1, 2023, the data was collected during the first semester examination period and the second semester midterm examinations until April 24, 2023. Following meticulous statistical examination, coding, and data validation, the total number of participants reached 327. This inclusive study encompassed both private and public universities in the Erbil area, drawing participants from diverse academic fields and varying academic levels, ranging from junior to senior.

The wide spectrum of participant characteristics proved invaluable in eliciting a plethora of insights into the intricate connections between behaviors and healthy eating. The participants represented a dynamic mix, not only in terms of age but also in their academic pursuits, offering a comprehensive understanding of the interplay between various activities and dietary habits.

In terms of academic distribution, the College of Health Technology constituted 36% (118), the College of Engineering comprised 24% (80), the College of Law accounted for 2% (5), the College of Education represented 14% (45), the College of General Administration constituted 19% (62), and the College of Science included 5% (17).

Gender-wise, the findings indicated a majority of females, comprising 71% (231), while males constituted 29% (96). Examining body mass index (BMI), the distribution showed 57% (186) as normal, 6% (18) underweight, 30% (99) overweight, and 7% (24) obese. The majority of students, 84% (274), fell within the age range of 18 – 25 years, with 10% (33) between 26 – 30 years, and 6% (20) between 31 – 36 years. Economically, 6% (18) of participants reported a low economic status, 87% (283) a medium status, and 8% (26) a high status. Marital status revealed that 86% (280) were single, while 15% (48) were married. Regarding living arrangements during the examination period, 88% (289) of students resided at home, and 12% (38) stayed in dormitories. Majority of the participants were normal and overweight BMI by 57 and 30%, respectively.

Employment dynamics during the study period were marked by 25% (83) of students working, with 75% (244) being jobless. Among the employed, 72% (60) were categorized as employees, and 28% (23) as self-employed. This comprehensive overview accentuates the diverse and representative nature of the participant pool, enriching the study's depth and relevance.

Table 1: Socio-demographic information of student participants.

subjects	Categories	No.	%
Gender	Male	96	29%
	Female	231	71%
Age	18-25	274	84%
	26-30	33	10%
	31-36	20	6%

Economic status	Low	18	6%
	Medium	283	87%
	High	26	8%
Marital Status	Married	48	15%
	Single	280	86%
BMI (kg/m <sup>2</sup> )	Underweight	18	6%
	Normal	186	57%
	Overweight	99	30%
	Obese	24	7%
Residency	Home	289	88%
	Dorm	38	12%
Employment status	Employed	83	25%
	Unemployed	244	75%
Job type	Public or Private Employee	60	72%
	Self - Employee	23	28%
College	Health	118	36%
	Engineering	80	24%
	Law	5	2%
	Education	45	14%
	Administration	62	19%
	Science	17	5%

Table 2: Lifestyle Characteristics of the Participants.

Characteristic		Frequency	Percentage
No. of hours Sleeping at Night	Less than 7	201	61%
	7 hours	77	24%
	More than 7	49	15%
No. of hours Sleeping During the Day	No sleep	81	25%
	1-2 hours	98	30%
	3-4 hours	58	18%
Physical activity change	Same	132	40%
	More	74	23%
	Less	121	37%
Sport activity	No training	225	69%
	1 to 2 times	56	17%
	1. 3 to 5 times	29	9%
	More than 5 times	17	5%
medications and supplements use	Using	35	11%
	Not using	292	89%
Types of medications and supplements use	Vitamins	16	55%
	Herbs	7	24%
	Medications	6	21%
Smoking	Not smoking	266	81%
	Less than 5 cigarettes	20	6%
	5 to 10 cigarette	12	4%
	More than 10 cigarette	29	9%
Alcohol Use	No, I don't	298	91%
	I occasionally do	18	6%
	Often	11	3%

The Kruskal–Wallis test conducted that the sleeping at night has no significant relation with gender, age, job, university, Income, residency or BMI. As well as The statistical analysis revealed that the sleeping in daytime during examination period was significantly correlated with job ( $p=0.001$ ) not associated with participant's (Age, BMI, Job, University, Income or Residency). As it shows in [figure 1](#), the percentage of students sleep less than 7 hours is 61% (201) participants, 24% (77) sleeps 7 hours at night and 15% (49) students sleeps more than 7 hours at night during the examination periods.

The percentage of students that don't nap during the day is 25% (81), 30% (98) sleeps 1-2 hours during the day, 18% (58) sleeps 3-4 and 28% (90) sleeps more than 4 hours during the day in the examination period. [Figure 2](#).

The statistical analysis unveiled significant correlations between supplement usage during the examination period and certain factors, including age ( $p = 0.012$ ), BMI ( $p = 0.063$ ), and job status ( $p = 0.0$ ). Notably, no such associations were found with participant gender, university affiliation, income, or residency, as detailed in Table 2. Of the surveyed students, 11% (35) reported using medications or supplements, while the majority, constituting 89% (292), did not employ any such substances. Further insight into the types of supplements revealed that among the medication users, 55% (16) opted for vitamins, 24% (7) for herbal supplements, and 21% (6) for pharmaceutical drugs, as illustrated in Figure 3. This nuanced analysis sheds light on the varied patterns of supplement use among the participants, emphasizing key associations with demographic and health-related factors.

Table 3: Symptoms of High Stress Among the Respondents.

Categories		Frequency	Percentages
Stress level	Not stressed	44	13%
	Low	81	25%
	Moderate	102	31%
	High	100	31%
Fatigue level	low	81	25%
	moderate	169	52%
	High	77	24%
Acne appearing	Yes, a lot	73	22%
	Yes, sometimes	151	46%
	No. never	103	31%
Irregular-Menstrual cycle	Yes	152	66%
	No	79	34%
	all of them	31	9%
	some of them	293	90%
	none of them	3	1%

The statistical analysis reveals a significant correlation between stress levels during the examination period and certain factors, notably gender ( $p = 0.00$ ) and job status ( $p = 0.015$ ). However, no significant associations were found with participant age, BMI, university affiliation, income, or residency, as indicated in Table 3. The distribution of stress levels among participants showed that 13% (44) reported being not stressed, 25% (81) experienced low stress, 31% (102) were moderately stressed, and another 31% (100) reported high stress. These stress levels manifested in various symptoms; for instance, 22% (73) reported experiencing acne, with 46% (151) encountering occasional acne, and 31% (103) never experiencing acne during the examination period. Fatigue levels varied, with 25% (81) reporting mild fatigue, 52% (169) experiencing moderate fatigue, and 24% (77) indicating high levels of fatigue. Importantly, 66% (152) of female participants reported irregular menstrual cycles during this period, while 34% (79) stated that their menstrual cycles remained unaffected. This comprehensive analysis underscores the diverse impact of stress on students, encompassing both psychological and physiological aspects.

Table 4: The Dietary Habit

Categories		Frequency	Percentages
Skipping meals	Yes, Always	72	22%
	sometimes	128	39%
	No, I don't	127	39%
	less than three	144	44%

Number of Meals per day	three	125	38%
	more than three	58	18%
Number of Snacks per day	less than three	91	28%
	three	144	44%
Time of eating breakfast	more than three	92	28%
	6 - 8 AM	169	52%
	10 AM or Later	61	19%
Time of eating lunch	I don't have breakfast	97	30%
	12 PM - 1 PM	149	46%
	2 PM or Later	162	50%
Time of eating dinner	I don't have Lunch	16	5%
	5 - 8 PM	195	60%
	9 PM or Later	98	30%
Appetite change	I don't have Dinner	34	10%
	increases	110	34%
	decreases	126	39%
Their idea of the diet	same as before the exams	91	28%
	unhealthy	189	58%
Weight change	healthy	138	42%
	Yes, it increases	94	29%
	The same	74	23%
	Yes, it decreases	93	28%
	I haven't noticed	66	20%

The findings indicate that 22% (72) of respondents' skip meals every day, 39% (128) are sometimes skipping meals, only 39% (127) of them are not skipping any meals. Also, the statistical analysis revealed that number of meals a day during examination period was significantly correlated with Gender ( $p = .00$ ) but not associated with participant's (Age, BMI, Job, University, Income or Residency). According to [table 4](#); average of 44% (144) had less than three meals a day, 38% (125) have three meals a day also 28% (92) of them are having more than three meals in a day during this stressful period [figure 4](#).

The outcomes also show that 28% (91) of the students surveyed are eating less than three snacks per day, 44% (144) having three snacks per day and 28% (92) of them having more than three snacks a day. As shown in the [figure 5](#).

The statistical analysis showed that the appetite decreases during examination period was significantly correlated with gender ( $p = 0.00$ ) and BMI ( $p = 0.00$ ) but not associated with participant's (Age, Job, University, Income or Residency). In [Table 4](#) explained that 34% (110) of them will have increased appetite, 39% (126) appetite decreased, and 10% (34) of them did not notice any changes. [Figure 6](#).

**Table 5: Eating Behaviors.**

Categories		Frequency	Percentages
Eating fruits per day	Less than 80 grams	215	66%
	80 grams	83	25%
	More than 80 grams	29	9%
Eating vegetables per day	Less than 80 grams	205	63%
	80 grams	78	24%
	More than 80 grams	44	13%
Eating fast foods per week	None	94	29%
	1-2 time/s	163	50%
	3 times or more	70	21%
Eating junk foods per week	None	170	52%
	1-2 time/s	119	36%
	3 times or more	38	12%
	Don't drink	188	57%
	1-2 time/s	104	32%

Drinking energy drinks per day	3 times or more	35	11%
Drinking fizzy drinks per day	Don't drink	145	44%
	1-2 time/s	132	40%
	3 times or more	50	15%
Drinking water per day	Less than 1 liter	97	30%
	1.5 - 3 liters	138	42%
	More than 3 liters	92	28%
Drinking tea per day	Don't drink	93	28%
	1-2 time/s	139	43%
	3 times or more	95	29%
Drinking coffee per day	Don't drink	137	42%
	1-2 time/s	135	41%
	3 times or more	55	17%
Eating fish per week	Do not consume	197	60%
	1-2 time/s	117	36%
	3 times or more	13	4%
Eating chicken per week	Do not consume	39	12%
	1-2 time/s	183	56%
	3 times or more	105	32%
Eating red meat per week	Do not consume	74	23%
	1-2 time/s	179	55%
	3 times or more	74	23%

The statistical analysis explained that the tea consumption during examination period was significantly correlated with Gender ( $p = .002$ ) but not associated with participant's (Age, BMI, Job, University, Income or Residency). It is also revealed that the coffee consumption during examination period was not associated with participant's (Gender, Age, BMI, job, University, Income or Residency).

As shown in the [figure 7](#). Below for drinking tea 28% (92) are not drinking tea, 43% (139) drinking 1-2 time/s daily and 29% (95) of them drink 3 or more cups of tea in a day.

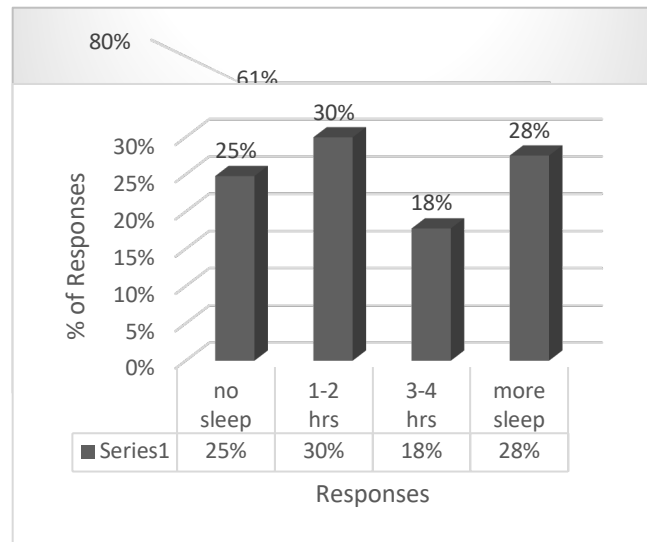


Figure 1: The % of sleeping at Night

Figure 2 : The % of sleeping during the day

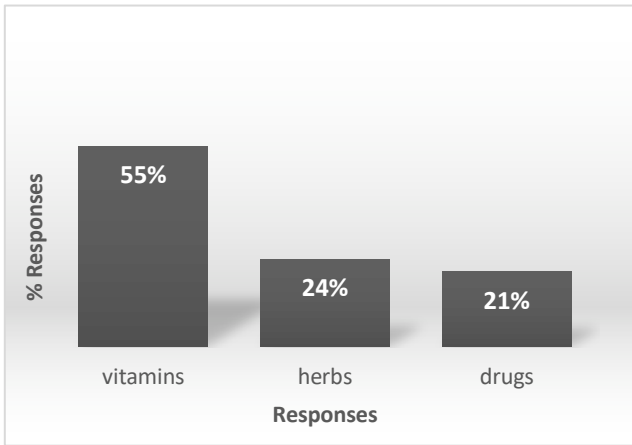


Figure 3: The % of Medication Types

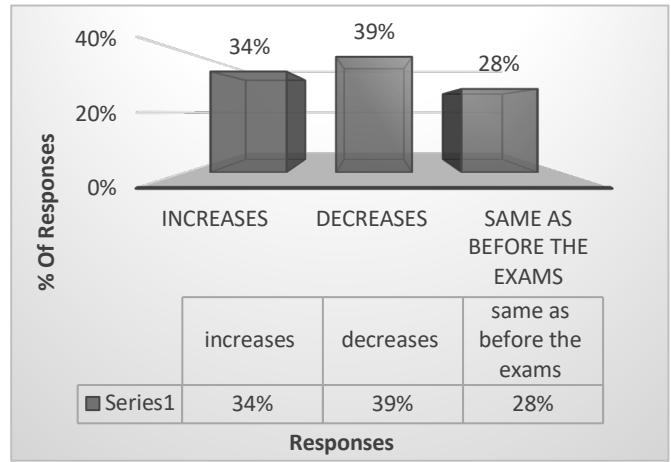


Figure 6: The % of appetite change:

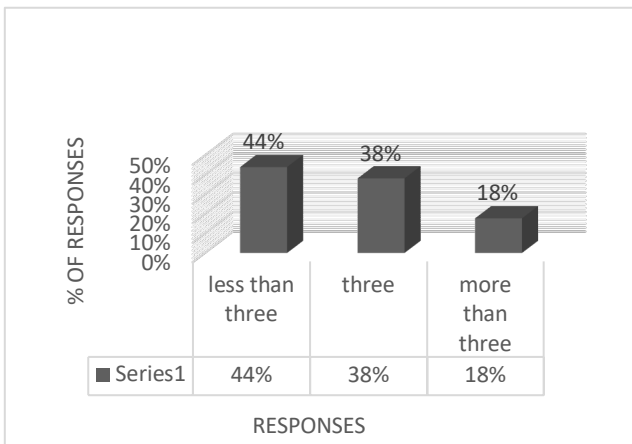


Figure 4: The % of meals eaten per day:

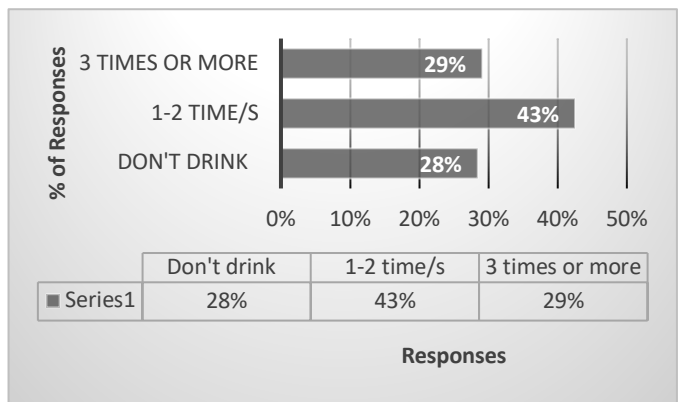


Figure 7: The % of Cups of teas drank in a day during examination period

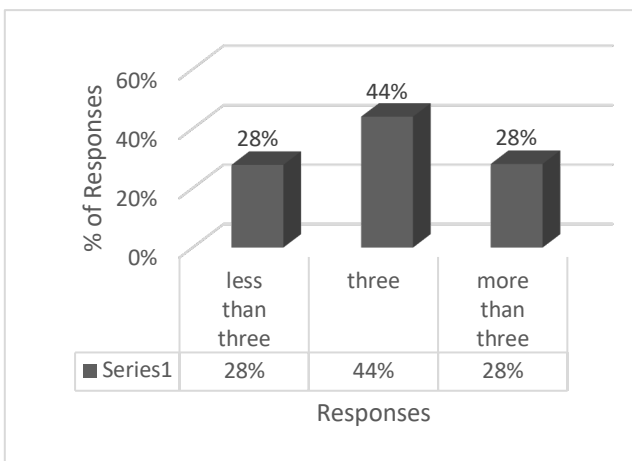


Figure 5: The % of Snacks Eaten per day

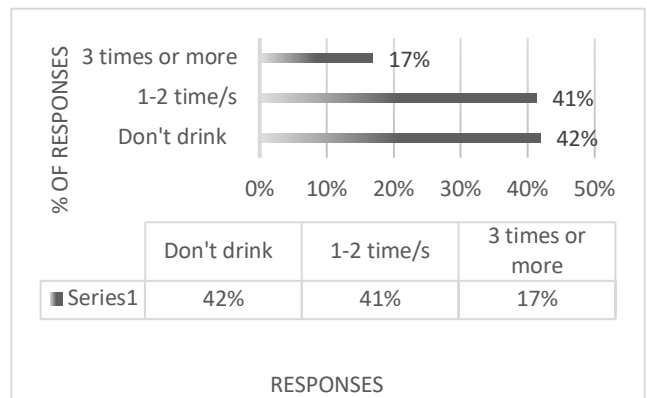


Figure 8: The % of cups of coffee drunk/Day during examination period,

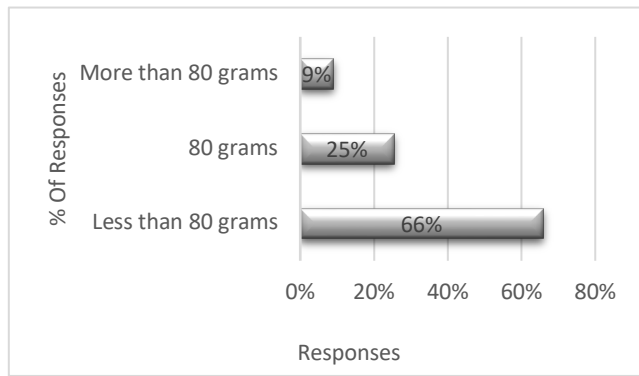


Figure 9: The % of Fruit Eaten in a day During examination period.

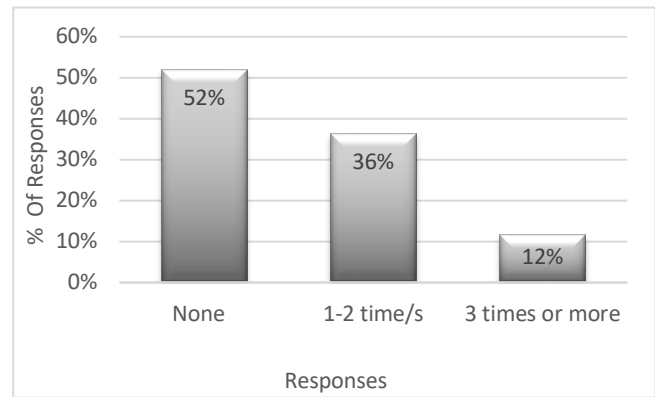


Figure 12: The % of Junk Foods Eaten During Examination Periods:

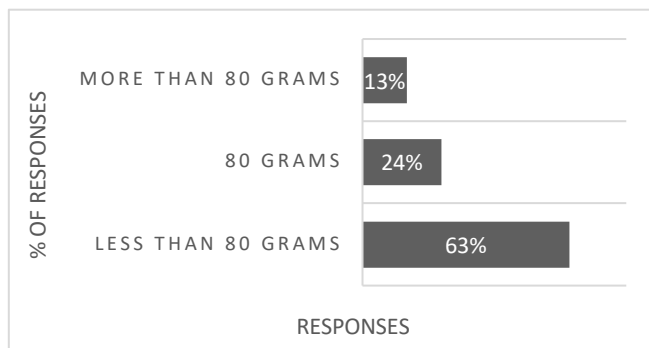


Figure 10: The % of vegetables eaten in a Day During examination period

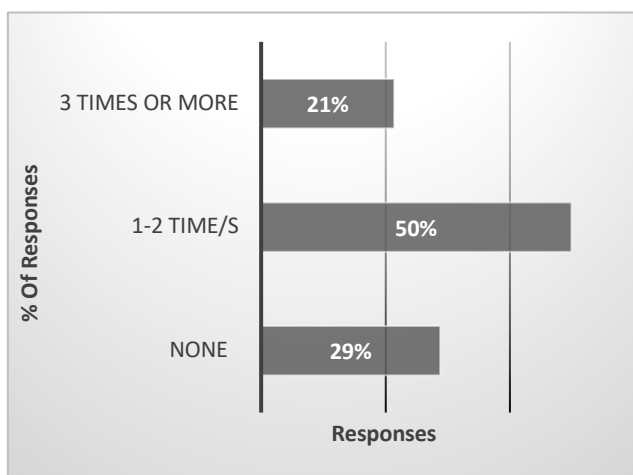


Figure 11: The % of Fast Foods Eaten During Examination Periods

**Discussion:**

This study underscores the profound impact of examination stress on students' eating habits and overall lifestyle. It highlights the challenges students face in controlling their eating behaviors and their lack of awareness regarding proper dietary guidelines and food groups. Moreover, the research brings to light the concerning lack of physical activity among students, persisting during both examination and non-examination periods. Addressing these issues necessitates targeted interventions and educational programs geared towards promoting healthier habits and equipping students with effective stress coping mechanisms (Macan et al. 1990). Participants reported experiencing a range of negative effects, including fatigue, mood swings, feeling overwhelmed, confusion, and a lack of motivation, all attributed to high levels of examination stress (Maier et al. 2021).

The analysis further reveals a strong correlation between changes in stress levels, anxiety, and salivary cortisol levels, emphasizing the need for proactive measures to mitigate the negative impacts of stress during medical school (Špiljak et al. 2022). Notably, a significant portion of participants frequently skipped meals during the examination period, with breakfast being the most commonly skipped (Adolphus, Lawton, and Dye 2013). Findings align with previous research indicating a decline in hunger and unhealthy lifestyle habits during high-stress periods (Y. Galali et al. 2022). The prevalence of fast-food consumption, insufficient intake of fruits and vegetables, and inadequate physical activity among students underscores the importance of educating them about proper dietary habits and emphasizing the role of food groups in daily dietary requirements (Caso et al. 2020).

The negative relationship between stress levels and eating habits, leading students to opt for quick, high-calorie meals, is a crucial consideration. The accessibility and affordability of fast-food outlets near schools contribute to this trend, warranting the development of college programs that prioritize students' needs and encourage healthier habits (Rummo et al. 2020). During stress, individuals tend to gravitate toward high-sugar and high-fat meals, revealing a connection between carbohydrate and fat-rich diets and cortisol levels. The proliferation of fast-food establishments near campuses,

coupled with students' time constraints, emphasizes the urgency of addressing these challenges to promote healthier eating patterns and overall well-being (Dyson et al. 2022).

### Conclusion

The objective of this study was to investigate the influence of examination stress on students' eating behaviors, lifestyle, and overall well-being. The findings indicate that a significant proportion, approximately 87% of participants, experienced varying levels of stress during the examination period, impacting factors such as fatigue, sleep patterns, and, notably, eating habits. The study sheds light on the nuanced effects of examination stress on participants' appetites, showcasing both positive and negative influences. Overall, this research contributes valuable insights into the tangible consequences of examinations on students, revealing how stress disrupts their normal lifestyle habits.

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