

A Study of Dietary Habits and Mental Health Wellbeing in Young Adults

Chanchal Ashok Talekar¹, Sravani Chiruvella²

¹Student, Food Science, and Nutrition department, S.N.D.T College of Home Science, Pune.

²Assistant professor, Department of Science, S.N.D.T College of Home Science, Pune.

ABSTRACT

Background: To study dietary habits and mental health well-being in young adults of age 18-24 years.

Method: A cross-sectional study was conducted to study the dietary habits and the mental health well-being of the aged 18-24 young adults in Pune and Mumbai. A total of N = 224 individuals were selected by random sampling methods. The dietary habits were assessed by a food frequency questionnaire and the mental health well-being was calculated by the General health questionnaire (GHQ). Anthropometric data and general information was assessed using structured questionnaires.

Results: The significant association was found between milk consumption, Chickpea, dry fruits, dietary habits, and mental health well-being at a certain level. The maximum number of individuals (56 %) skipping their meals or eating less when they are stressed, affects their dietary habits as well as their mental health. Almost 87 % of the individuals preferred listening to music when they are under stress. A negative correlation was found between milk consumption, Chapati, fish food, and GHQ. And also a correlation between breakfast skipping with a GHQ score was found.

Conclusion: At certain levels, dietary habits can be beneficial to mental health and well-being as it is to physical health. Young adults should be aware of the foods which are good for mental health. Skipping meals and having unhealthy diets may affect the mental health of young adults of 18-24 years. Therefore, Having a healthy dietary habit may be beneficial for good physical health as well as mental health for young adults of 18-24 years.

Key Words: Dietary Habits, Mental Health Well-Being, Food Frequency Questionnaire, General Health Questionnaire

INTRODUCTION

A healthy diet is health-promoting and disease-preventing. It provides adequacy, without excess, of nutrients and health-promoting substances from nutritious foods and avoids the consumption of health-harming substances. Diets are the combination of foods consumed over time, through which we achieve adequacy without an excess of all nutrients (including energy). A nutritious food is “one that provides beneficial nutrients (e.g., protein, vitamins, minerals, essential amino acids, essential fatty acids, dietary fiber) and minimizes potentially harmful elements (e.g., anti-nutrients, quantities of sodium, saturated

fats, sugars)” (GAIN,(2017) drawing on definitions published by Drewnowski (2005) and Katz et al. (2011)).

An eating habit is a way a person or group eats, considered in terms of what types of food are eaten, in what quantities, and when they are eaten. An eating habit is said to be healthy or unhealthy mainly based on the type of food and the quantities (Shanmugapriya S. et al., 2021). Nutritional intake as a pivotal element contributing to human health and well-being is of great importance and its role in childhood and adolescence is more prominent and of greater concern. Lifestyle plays an important role in the development of obesity during childhood and adolescence. Regular family meals could serve as role models for healthy eating behaviors (Luis A. Moreno et al., 2010)

Mental well-being is a core component of optimal health and is a status that individuals can manage stress from daily living and make positive achievements by pursuing a public interest and contribution to the community. Maintaining an individual's mental health is important to improve personal life values, to reduce medical costs and other social expenses to deal with mental disorders, and enhance national competitiveness (So Young Lim et al., 2016). According to the World Health Organization(WHO), health is a comprehensive condition of mental, physical, spiritual, and social well-being and does not just refer to the absence of diseases (WHO,1946). Suicide occurs throughout the lifespan and was the fourth leading cause of death among 15-29 year-olds globally in 2019 (WHO,2021). Mental illness is one of the fastest-rising threats to public health, of which depression and anxiety disorders are increasing the most (Ljungberg T. et al., 2020).

The International Society for Nutritional Psychiatry Research has recommended that nutritional medicine be considered mainstream in psychiatric practice (PM Kris-Etherton et al., 2021). The Mediterranean diet could play a valuable role in ensuring our health through direct interaction with our microbiota (Gibiino G. et al., 2021). The Mediterranean-style diet is characterized by an abundance of plant foods and includes vegetables, fresh and dried fruits, whole-grain cereals, nuts and legumes, and a moderate amount of wine." These foods are rich in fiber, antioxidants, magnesium, zinc, and other micronutrients that are important for mental health. Meat is consumed sparingly with seafood being the primary protein source, followed by goat and sheep milk cheeses and yogurts. Gut microbes play a prime role in human health and have been shown to exert their influence on various physiological responses including neurological functions. Growing evidence in recent years has indicated a key role of gut microbiota in contributing to mental health. The connection between the gut and brain is modulated by microbes via neural, neuroendocrine, and metabolic pathways that are mediated through various neurotransmitters and their precursors, hormones, cytokines, and bioactive metabolites. Impaired functioning of this connection can lead to the manifestation of mental disorders (Bhattacharyya M. et al.,2013).

Food habits acquired during childhood persist into adulthood and form the basis of either good health or ill health, as the case may be, in the coming years. Hence there is a need to educate parents, especially in the middle and higher socioeconomic groups regarding correct dietary habits for their children to ensure that they can live healthy and productive lives as adults (Mukherjee, R., et al., 2017). Also, the consequences of skipping breakfast such as cognitive failures, lapses in attention and concentration

along with mental distress in young adults can affect their academic performance (Khanna S. et al., 2016). Nutritional intake has a special direct effect on children's health due to their physical and mental growth as well as cognitive development. Adequate nutrition and healthy food choices are known to be an important factor in the development of the brain and prevention of cognitive disorders; unhealthy eating behaviors are important determinants of mental health problems including hyperactivity disorder, depression, and conductive problems. (Abbasalizad Farhangi M, et al., 2018).

Mechanisms underlying beneficial effects of omega-3 Fatty acids on symptoms of mental disorders are regulations of integrity and fluidity of the membrane, neurite growth, neurotransmitters, endothelium, neuronal survival, neurodegeneration, transcription, and inflammation. Phospholipid is a principal component to maintain the integrity and functionality of neuronal membranes and is recently suggested as a blood biomarker for mental health. Vitamin B is involved in energy metabolism as a form of cofactors, nicotinamide adenine dinucleotide (NAD) and flavin adenine dinucleotide (FAD). In a NAD-FAD-dependent and independent way, the B vitamins, especially niacin, folate, vitamin B6, and vitamin B12 affect mental health. A famous hypothesis for mental disorders is the 'homocysteine hypothesis' that excess homocysteine causes the development of psychiatric symptoms (So Young Lim et al., 2016)

AIM AND OBJECTIVE

- To study the association of dietary habits and mental health well-being in young adults of age 18-25 years.
- To raise awareness of the association of food which were beneficial for mental health
- To study the association of milk consumption and breakfast skipping with mental health well-being in young adults.
- To study the association between BMI and dietary habits in young adults.

REVIEW OF LITERATURE

In recent years current changes, urbanization, globalization, including the food industry, and changes in people's lifestyles and eating habits, correlations between these phenomena and their impact on psychological status are becoming important (Mateusz Grajek, 2022). Diet and obesity can affect mood through direct effects, or stress-related mental disorders could lead to changes in diet habits that affect weight. Alternatively, common factors such as stress or predisposition could lead to both obesity and stress-related mental disorders, such as depression and posttraumatic stress disorder (PTSD). Specific aspects of diet can lead to acute changes in mood as well as stimulate inflammation, which has led to efforts to assess polyunsaturated fats (PUFA) as a treatment for depression. Bidirectional relationships between these different factors are also likely. Finally, there has been increased attention recently on the relationship between the gut and the brain, with the realization that the gut microbiome has an influence on brain function and probably also mood and behavior, introducing another way diet can influence mental health and disorders. Brain areas and neurotransmitters and neuropeptides that are involved in both mood and appetite likely play a role in mediating this relationship (Bremner, J. D., 2020). In 2016, So Young Lim et al., studied the topic 'Nutritional Factors Affecting Mental Health' and concluded that nutritional factors are important for mental well-being. Especially, omega-3 fatty acids, antioxidants, Vitamin B, and folates at recommended dietary intake levels are suggested for balanced meals and mental health, however, blood cholesterol levels are negatively associated with the risk of depression.

The health benefits of traditional Mediterranean-style diets were first noted in observational studies in the 1950s that indicated that populations following these dietary patterns had lower rates of heart disease and cancer and longer life expectancy compared to other populations. Newer data suggest that this eating pattern also may be good for our mental health. A study of 3486 British middle-aged individuals (mean age 55.6 years) found that a whole-foods diet comprised of fruits, vegetables, and fish gave protection against the onset of depressive symptoms, whereas a diet rich in processed meat, chocolates, sweet desserts, fried food, refined cereals, and high-fat dairy products increased vulnerability to depression.

In 2006, Sanchez-Villegas, A. et al., investigated that folate intake was inversely associated with depression prevalence among men, especially smokers. Among women, B₁₂ vitamin intake was inversely associated with depression, especially among smokers and physically active women and concluded that adherence to a Mediterranean Dietary Pattern ensures an adequate intake of fruits, nuts, vegetables, cereals, legumes or fish, important sources of nutrients linked to depression prevention.

Hebert et al., in 1999 developed and tested quantitative food frequency questions (FFQ) for use in 60 individuals residing in Gujarat. It is a 92-item FFQ based on food use and market survey. A validation study was conducted consisting of 24-h diet recalls (24HR) administered on 6 randomly selected days over 1 year. Two FFQs were administered, one each at the beginning and end of the 1 year. FFQ and 24 HR-derived nutrient scores were compared using correlation and regression analyses and by computing differences between nutrient intakes estimated by the two methods. Comparing nutritional scores obtained from the 24HR with those from the first FFQ resulted in an average Pearson (parametric) correlation coefficient of 0.69, and when comparing the second FFQ, it was 0.72 (P 0.0001). The average Spearman and Pearson correlation values were 0.68 and 0.72, respectively, making them nearly comparable to each other. The majority of regression analysis coefficients were near 1.0 (perfect linear connection). In comparison to the 24HR, nutrient scores on both FFQs were significantly and consistently higher. In 2016, Shirley Telles et al., conducted a similar study to develop a quantitative, interviewer-administered, easily scored food frequency questionnaire (FFQ) to assess the nutrient intake of individuals in the Northern region of India.

Chokhandre P. and Kashyap G. in the research 'Assessment of Psychological Well-being of Waste-pickers of Mumbai, India' affirmed that the GHQ-12 is a suitable measure of assessing the overall psychological well-being of waste-pickers. The primary objective of their study was to assess the psychological health of waste-pickers in Mumbai using a general health questionnaire (GHQ-12). Additionally, the study was carried out to determine the reliability and factor structure of the GHQ-12. Similarly, in the year 2008, Del Pilar Sánchez-López M., & Dresch Valso researched 'The 12-Item General Health Questionnaire (GHQ-12): Reliability, external validity, and factor structure in the Spanish population' and affirmed that the GHQ-12 can be used effectively to assess the Spanish population's overall psychological well-being and to detect non-psychotic psychiatric problems.

In 2022, Deepesh Rathore et al., studied to assess the reliability, validity, and factor structure of the GHQ-12 in the Indian undergraduate student population with 432 students aged 17 to 22 years. By using Cronbach's alpha, internal consistency was evaluated. The correlation coefficients with a measure of

general anxiety, subjective happiness, and life satisfaction were used to test the validity of convergence.

In the year 1980, Banks H Michael conducted research on ‘The use of the General Health Questionnaire as an indicator of mental health in occupational studies’ to examine the psychometric properties of an existing measure of mental health, the GHQ-12, as revealed in three studies involving employees in an engineering firm (n = 659), recent school-leavers (n = 647), and unemployed men (n = 92). In 1980 and found that scores on GHQ-12 were found to be much higher (indicating lower mental health) for those who were unemployed, higher for women than for men in one sample, and unrelated to age, job level and marital status.

In year 2021, Shanmugapriya S et al., conducted a descriptive cross-sectional study on the relationship between dietary eating habits and mental health among medical students in Kancheepuram District, Tamil Nadu. Their study quantifies the fact that dietary habits which we follow in our everyday life can have a lasting impact on our mental health which may be attributed to various other physical and social problems. Similarly, Talashima Naoko et al. carried out a pilot study on the relationship between diet and mental health among community-dwelling Japanese women in the year 2019 and, concluded that a proper diet to reduce the n-6/n-3 fatty acid ratio may improve mental health in community-dwelling Japanese women.

Khanna S. et al., In 2016 researched on “Breakfast eating habits and its association with mental well-being and mindful attention awareness among university students (18-24-year-old young adults) of Pune district, Maharashtra, India”. They did a Cross-sectional study with simple random sampling techniques in 3 universities in Pune. Hopkins Symptoms Checklist-10 and the mindful attention awareness measure, respectively, were used to assess mental well-being for mental distress and mindful attention for N=206 subjects. Using a food frequency questionnaire, breakfast eating patterns were accessed, and using structured surveys, anthropometric data and lifestyle patterns were evaluated. Statistical research they used was descriptive statistics, chi-square, and correlation tests. When compared across genders females skipped breakfast more often (60.3%) as compared to males (33.3%). They found that consumption of milk was significantly associated with lower mental distress and improved mindful attention and concluded that skipping breakfast may result in poor mental distress and mindful attention thereby resulting in poor overall mental well-being of young adults. Similarly Akbari v. et al., in 2019 reported that there is a significant relationship between breakfast skipping and a higher level of test anxiety.

Breakfast consumption has been associated with better mental health in adulthood, but the relationship between breakfast and mental health in adolescence is less well-known. Breakfast quality is an important component in the complex interaction between lifestyle factors and mental health in early adolescence (O’Sullivan et al., 2009). Smith, A. P. also reported in the research article entitled ‘Breakfast and mental health’ that Individuals who consumed a cereal breakfast each day were less depressed, less emotionally distressed, and had lower levels of perceived stress than those who did not eat breakfast each day. Those who consumed breakfast had a healthier lifestyle than the others in that they were less likely to be smokers, drank less alcohol, and had a healthier diet.

In 2016, Lesani, A. et al., in the research ‘Eating breakfast, fruit and vegetable intake and their relation

with happiness in college students' did a cross-sectional study and aimed to evaluate the relationships between happiness and fruit and vegetable intake as well as eating breakfast in students. And found that measure of happiness was positively associated with eating breakfast, the number of meals eaten daily, and the amount of fruit and vegetable consumption (P values were <0.001, 0.008, 0.02, and 0.045 respectively). Students who ate breakfast every day, more than 8 servings of fruit and vegetables daily, and had 3 meals in addition to 1–2 snacks per day had the highest happiness score.

In the year 2017, Begdache L. et al., conducted a study on the Assessment of dietary factors, dietary practices, and exercise on mental distress in young adults versus matured adults: A cross-sectional study. Their objective was to study dietary intake, dietary practices, and exercise in young adults (YA) (18–29 years) versus matured adults (MA) (30 years and older) in relation to mental distress and to assess whether mental well-being potentially stimulates healthy eating, healthy practices, and exercising. They found that mood seems to be dependent on food that increases the availability of neurotransmitter precursors and concentrations in the brain (such as frequent meat consumption and exercise, respectively). However, MA mood may be more reliant on food that increases the availability of antioxidants (fruits) and abstinence from food that inappropriately activates the sympathetic nervous system (coffee, high glycemic index, and skipping breakfast and concluded the level of brain maturation and age-related changes in brain morphology and functions may necessitate dietary adjustments for improving mental well-being.

Moitra P et al., also did a cross-sectional study on Eating habits and sleep patterns of adolescents with depression symptoms in Mumbai, India in 2020. The study showed that 25% of the adolescents, ages 10–17 years, attending select schools and colleges in Mumbai, India, had moderate to severe depression and their findings indicated that a significant proportion of adolescents had depression symptoms; improving sleep and eating habits may present potential targets for interventions. They also found that the prevalence of depression was lower in households where families ate meals together suggesting the potential role of family mealtimes and supportive family environments to foster healthy eating habits and improve the mental health of adolescents. Similarly, Gratão LHA et al., in the research article entitled 'Dietary Patterns, breakfast consumption, meals with Family and Associations with common mental disorders in Adolescents: a school-based cross-sectional study' in the Year 2020 observed that healthy dietary patterns are associated with better mental health in adolescents, thus should be encouraged and promoted. They found that Eating breakfast sometimes or almost every day, and the practice of having the main meals with the family sometimes almost every day, decreased the chance of Common Mental Disorders in adolescents.

R. Cook et al., in the year 2002, conducted research on 'The relationship between diet and mental health'. They found that in women, but not men, there was an association between the consumption of fruit and vegetables and better mental health. Those eating large amounts of fruit and vegetables were less likely to be anxious or depressed; the relationship existed irrespective of age and social background. The possibilities are discussed that firstly an increased intake of vitamins and minerals may be associated with better mental health and secondly that women with higher self-esteem may be more likely to consume fruit and vegetables in an attempt to slim.

Caffeine use is extremely prevalent among college students and caffeine consumption has been associated with an increase in anxiety in adults with generalized anxiety disorder. However, those who consume caffeine also tend to experience greater positive effects on behavior, including alertness and arousal (Bertasi R O et al., 2021). Meanwhile, Salinero et al., observed increased nervousness, insomnia, and activeness when energy drinks were consumed; each of these effects occurred in females, but only the effect of insomnia was statistically significant in males. Greater consumption of caffeine by college students is associated with higher levels of anxiety intake is associated with depressive symptoms and higher levels of anxiety in college students (Bertasi R O et al., 2021).

In 2010, Luppino et al., researched 'Overweight, Obesity, and Depression' to conduct a systematic review and meta-analysis on the longitudinal relationship between depression, overweight, and obesity and to identify possible influencing factors. They evaluated the longitudinal bidirectional relation between depression and overweight (body mass index 25-29.99) or obesity (body mass index 30). They concluded that meta-analysis confirms a reciprocal link between depression and obesity. Obesity was found to increase the risk of depression. Similarly Ha et al., 2017 in a research article entitled 'Can Obesity Cause Depression? A Pseudo-panel Analysis' concluded that Social isolation due to the stigma attached to obesity might trigger depression and increases in the BMI (body mass index) increased depression days (or being depressed) to a statistically significant extent, with a large effect size.

In the year 2008, Scott et al., conducted research on 'Obesity and mental disorders in the adult general population' and aimed to investigate (a) the associations between mental disorders (in particular anxiety disorders) and obesity in the general population and (b) potential moderators of those associations (ethnicity, age, sex, and education). They conducted a nationally representative face-to-face household survey in New Zealand with 12,992 participants 16 years and older. And found that obesity was significantly associated with any mood disorder (OR 1.23), major depressive disorder (OR 1.27), any anxiety disorder (OR 1.46), and most strongly with some individual anxiety disorders such as post-traumatic stress disorder (PTSD) (OR 2.64). They concluded that there are Stronger associations between anxiety disorders and obesity than between mood disorders and obesity; the association between PTSD and obesity is a novel finding.

Obesity is associated with an approximately 25% increase in the odds of mood and anxiety disorders and an approximately 25% decrease in the odds of substance use disorders. Variation across demographic groups suggests that social or cultural factors may moderate or mediate the association between obesity and mood disorder (George E. et al., 2006). Zeiler Michael et al., reported that overweight and underweight adolescents have an increased risk of psychological problems and reduced quality of life. Underweight women had significantly greater impairment in mental health than normal-weight women, even after controlling for between-group differences in demographic characteristics and physical health. Underweight women had significantly lower levels of body dissatisfaction and eating-disordered behavior than normal-weight women. Very underweight women are a vulnerable group, being at increased risk of impairment in both physical and mental health (Mond Jonathan et al., 2011). Harpham T et al., reported in the research 'Maternal mental health and child nutritional status in four developing countries' that there was also a relation between high maternal CMD (common mental disorders) and poor child nutritional status in India and Vietnam.

In the year 2018, Pengpid S. et al., conducted research on the 'Risk of disordered eating attitudes and its relation to mental health among university students in ASEAN'. They did a cross-sectional study with 3148 university students, with a mean age of 20.5 years, $SD = 1.6$ and they aimed to explore the prevalence of eating disorder attitudes and its relation to mental distress among university student populations in Indonesia, Malaysia, Myanmar, Thailand, and Vietnam. And found that sociodemographic factors (wealthier subjective economic status, and living in a lower middle-income country), underweight and overweight body weight perception, psychological factors (depression symptoms and pathological internet use), and being obese were associated with eating disorder risk.

McLaren et al., found in 2008 in their research 'The relationship between body mass index and mental health' that anxiety disorders were elevated among underweight men compared to normal-weight men and women. Substance use disorders were elevated among obese men at younger compared to older ages. Mood disorders were elevated among obese women compared to normal-weight women, and subclinical anxiety/depression was reduced among obese men compared to normal-weight men and women.

Music listening is associated with stress-reducing effects. Relaxation is a common reason for listening to music in daily life. On the other hand, ambulatory assessment studies on the stress-reducing effect of music listening — particularly those encompassing both psychological as well as physiological indicators for stress — are very rare (Linnemann A., 2017). Juslin et al. (2008) suggest that the emotional effect of music varies as a function of reasons for music listening. Since 'relaxation' is one of the main reasons why individuals listen to music. In the year 2013 Thoma, M. V., investigated and concluded that music listening impacted the psychobiological stress system. Listening to music prior to a standardized stressor predominantly affected the autonomic nervous system (in terms of a faster recovery), and to a lesser degree the endocrine and psychological stress response.

A significant increase in violence in the world and its impact on public health and society can be an important reason to offer solutions to reduce or control anger. Studies have shown that specific food groups may be effective in controlling mental disorders such as depression, anxiety, and anger (Kalantari, N. et al., 2016). Low-carbohydrate diet in female groups is associated with depression and anger (Keith et al., 1991). In the year 2016, Kalantari, N. et al., researched 'The Association between Dairy Intake, Simple Sugars and Body Mass Index with Expression and Extent of Anger in Female Students'. The cross-sectional study was done to determine the relationship between food intake and Body Mass Index on state-trait anger expression in female students of Shahid Beheshti University of Medical Sciences. The study concluded that life quality can be affected by mental health as well as physical health. More consumption of dairy food groups decreases the trait anger and the dairy product intake has a positive effect on both temperaments during long time and immediate reaction to oppositions. Therefore, the intake of dairy products can be suggested as a nutritional strategy for reducing anger and increasing soothe.

Sarlio-Lähtenkorva, S., in the year 2014 conducted research on 'Mental health and food habits among employed women and men', and the study aimed to examine the association between mental health and

recommended food habits among employed middle-aged women and men. They found that women having poor mental health were less likely than their healthier counterparts to report consuming fresh vegetables, fresh fruits, low-fat milk, and low-fat cheese on a daily basis, and cereals or porridge at least five times a week. Men having poor mental health reported consuming less frequently fresh fruits and dark bread. Except for cereals and dark bread, the results remained statistically significant. The results suggested that poor mental health is associated with unhealthy food habits.

Similarly, Lee, G. et al., 2017 also investigated and conducted a cross-sectional population-based study to determine the risk of mental health problems, including stress, depressive mood, and suicidal ideation in relation to skipping meals and the frequency thereof per day. And they found that breakfast skipping significantly increased the risks of stress and depressive mood. Stress, depressive mood, and suicidal ideation were significantly prevalent as the daily frequency of skipping meals increased. Hong, S. A., reported in the research 'Dietary behavior, psychological well-being, and mental distress among adolescents in Korea' that in logistic regression analyses, adjusted for age, sex, socioeconomic status, school level, school types, Body Mass Index, physical activity, and substance use, positive dietary behaviors (regular breakfast, fruit, vegetable, and milk consumption) were positively and unhealthy dietary behaviors (intake of caffeine, soft drinks, sweet drinks, and fast food consumption) were negatively associated with self-reported health, happiness, and sleep satisfaction. Positive dietary behaviors were negatively associated with perceived stress and depression symptoms. Unhealthy dietary behaviors (consumption of fast food, caffeine, sweetened drinks, and soft drinks) were associated with perceived stress and depression symptoms.

In 2004 Hakkarainen, R. et al., also conducted research on 'Food and nutrient intake in relation to mental well-being' and found that Energy intake was higher in men who reported anxiety or depressed mood, and those reporting any such symptoms consumed more alcohol. But they found that the Subjects reporting anxiety or depressed mood had a higher intake of omega-3 fatty acids and omega-6 fatty acids.

Undue concern about one's body image is one of the psychological problems. Body image concerns are on the rise among adolescents. Singh, M. M. et al., studied Body Image, Eating Disorders, and the Role of Media among Indian Adolescents, to estimate the proportion of adolescents who have concerns about their body image and to understand the relationship between eating attitudes, media, and famous personalities with body image concerns. They studied 550 employed students of pre-university colleges of Udupi taluk, Karnataka, India, and concluded a considerable number of participants were concerned about their body image. Approximately one-third of the participants had an inclination of developing an eating disorder. The participants who had issues with their body image were more likely to develop disordered eating and were probably more influenced by famous personalities.

In the year 2013, Bhattacharyya, M. et al., in the study 'Adolescent lifestyle in India: Prevalence of risk and promotive factors of health' and demonstrated that Women in Goa, India were more than twice as likely as men to have medium/high levels of psychological distress. Fish consumption was found to be significantly associated with reduced odds of medium or high psychological distress by approximately half in both sexes and meat consumption was also associated with reduced distress in women. Similarly, Kulkarni, A. A. et al., 2015 researched 'Associations between diet quality and mental health in socially

disadvantaged New Zealand adolescents' and reported that Eating a healthy diet is significantly associated with better emotional health ($p < 0.001$) and eating an unhealthy diet is significantly associated with greater emotional distress ($p < 0.001$), after controlling for age, ethnicity, and gender. The healthy and unhealthy eating scales are independently related to mental health scores and concluded diet quality is associated with mental health in adolescents.

Parletta, N. et al., in the year 2019 conducted research on 'A Mediterranean-style dietary intervention supplemented with fish oil improves diet quality and mental health in people with depression: A randomized controlled trial (HELFIMED)'. Their aim was to investigate whether a Mediterranean-style diet (MedDiet) supplemented with fish oil can improve mental health in adults suffering depression and found that mental health improvements had correlations, most notably for increased vegetable diversity and legumes. There were some correlations between increased omega-3, decreased omega-6, and improved mental health, and concluded that supplementing with fish oil can improve mental health in people with depression. Similarly, M Corezzi et al., demonstrated that the Mediterranean diet has a potential protective role for mental health in young adults in 2020. The gut microbiota has emerged as a key component in regulating brain processes and behavior. Diet is one of the major factors involved in shaping the gut microbiota composition across the lifespan.

The habit of junk food consumption has increased around the world. Foods with high sugar and salt content are widely recognized as causes of non-communicable diseases such as diabetes, heart disease, and stroke. Recent evidence demonstrates an association between junk food consumption and an increased risk of mental disorders. Hafizurrachman, M. et al., reported a positive association between frequent junk food consumption and the potential for symptoms of mental health problems. These problems can be suffered by all age categories, including children and adolescents. On the other hand, routine junk food consumption coupled with negative behaviors such as smoking and drinking alcohol, and being overweight or obese, contributes to the growth of mental health problems.

A recent study by ElBarazi, A. et al., 2023 on Association between university student junk food consumption and mental health, aimed to determine the relationship between university students' consumption of junk food and their levels of stress, anxiety, and depression and found that daily consumption of junk food was significantly linked to stress (odds ratio [OR], 4.5; 95% confidence interval [CI], 2.5–8.3), anxiety (OR, 11.1; 95% CI, 6.2–20.1), and depression (OR, 7.9; 95% CI, 4.5–13.9) for $N = 506$. Verma, R. et al., 2020 also reported that consuming various types of junk food and viruddha ahara (incompatible diet) and various physical and mental health consequences were found significantly linked with high consumption of viruddh ahara (Junk food). It could be concluded that the consumption of viruddha ahara (Junk food) has a significant adverse impact on the physical and mental health of youngsters. Biswas, P also stated that taste is the most influencing factor of junk food in young adults and regular consumption of junk food can cause mental health problems.

In the year 2014, El Ansari, W. et al., conducted research on Food and Mental Health: Relationship between Food and Perceived Stress and Depressive Symptoms among University Students in the United Kingdom and found a significant negative association between consuming fish/seafood and depressive symptoms among males only. For males and females, consuming lemonade/soft drinks, meat/sausage

products, dairy/dairy products, and cereal/cereal products was not associated with either perceived stress or depressive symptoms. Concluded the associations between consuming 'unhealthy' foods and higher depressive symptoms and perceived stress among male and female students as well as the associations between consuming 'healthy' foods and lower depressive symptoms and perceived stress among male and female students in three UK countries suggest that interventions to reduce depressive symptoms and stress among students could also result in the consumption of healthier foods and/or vice versa.

Skipping breakfast had a negative impact on mental well-being. High frequency of consumption of apples, seafood, kiwi, dried fruits, sardines, olive oil, green leafy vegetables, tomatoes, carrots, and apricots was beneficial to the mental health of students (Ihbour, S. et al., 2022). Higher intakes of fruits and vegetables, rich in micronutrients, have been associated with better mental health. However, cooking or processing may reduce the availability of these important micronutrients. In 2018, Brookie, K. L. et al., conducted a cross-sectional survey designed for 422 young adults ages 18–25 (66.1% female) living in New Zealand and the United States that assessed typical consumption of raw vs. cooked/canned/processed fruits and vegetables, negative and positive mental health (depressive symptoms, anxiety, negative mood, positive mood, life satisfaction, and flourishing), and covariates (including socio-economic status, body mass index, sleep, physical activity, smoking, and alcohol use). They found that Controlling for covariates, raw fruit and vegetable intake (FVI) predicted reduced depressive symptoms and higher positive mood, life satisfaction, and flourishing; processed FVI only predicted higher positive mood. The top 10 raw foods related to better mental health were carrots, bananas, apples, dark leafy greens like spinach, grapefruit, lettuce, citrus fruits, fresh berries, cucumber, and kiwifruit.

Chocolate is a popular food and its consumption has long been associated with enjoyment and pleasure. Chocolate is thought to have interactions with neurotransmitters which contribute to mood modulation and appetite regulation. However, the evidence in chocolate and mood studies remains highly controversial. The relationship between chocolate and mood are highly complex, combining psychopharmacological components, and nutritional and sensory characteristics of the food (Wong, S. Y et al., 2011).

College students with anxiety and depressive symptomatology face escalated risk for alcohol-related negative consequences. While it is well-established that normative perceptions of proximal peers' drinking behaviors influence students' own drinking behaviors, it is not clear how mental health status impacts this association. In 2018, the research article 'Poor mental health, peer drinking norms, and alcohol risk in a social network of first-year college Students' by Kenney, S. R. et al., examined cross-sectional relationships between anxiety and depressed mood, perceived drinking behaviors, and attitudes of important peers, and past month alcohol consumption and related problems in a first-semester college student social network. The study found that mental health interacted with perceptions to predict past-month drinking outcomes, such that higher anxiety and higher perceptions that peers drink heavily were associated with more drinks consumed and consequences, and higher depression and perceptions were associated with more drinks consumed, heavy drinking frequency, and consequences. Attitudes that peers approve of heavy drinking were associated with more drinks consumed and heavy drinking frequency among students with lower (vs. higher) depressed moods.

Mason-Jones, A. J., 2015 conducted research on ‘Alcohol, Binge Drinking and Associated Mental Health Problems in Young Urban Chileans’. They aimed to explore the link between alcohol use, binge drinking, and mental health problems in a representative sample of adolescent and young adult Chileans, adolescents aged 15-20 years, and young adults aged 21-25 years. They concluded that Young people in Chile self-report a high prevalence of alcohol use, binge drinking, and associated mental health problems. Similarly, Keith, D. R. et al., investigated frequent marijuana use among undergraduates, and its association with the use of illicit substances, mental health problems, and stress. They found students who were consuming alcohol at hazardous levels were 1.2 times more likely to report psychological distress than those with lower levels of alcohol consumption and concluded that a considerable proportion of undergraduate students at universities consume alcohol at hazardous or harmful levels. In addition, high levels of alcohol consumption are associated with poor academic performance and mental health outcomes among students.

There is a causal linkage between alcohol use disorders and major depression, such that increasing involvement with alcohol increases the risk of depression (Boden, J. M et al., 2011). Also, all patients with depression should be asked if they smoke. Smokers with depression have higher nicotine dependence and, after quitting, experience more severe negative moods and are at increased risk of major depression (Mendelsohn, C., 2012) Sleepiness and sleep debt mediated the relationship between short sleep and depression and anxiety risk. Sleepiness and sleep debt also mediated the impact of evening-type preferences on depression and anxiety risk in university students (Dickinson, D. L. et al., 2018).

METHODOLOGY

A cross-sectional study was conducted by random sampling method. The data was collected online as well as offline. 235 individuals were selected randomly between the age group of 18-24 in Pune and Mumbai. Out of these 235 individuals, 11 were excluded for incomplete questionnaires. Thus, a total number of 224 subjects were included in this study. Among these 224 individuals, 63 were males and 161 were female.

A Pilot study was conducted and the questionnaire was pretested on a sample size of 30 after taking their consent. A pre-tested questionnaire was used to collect socio-demographic details and dietary eating habits by food frequency questionnaire (FFQ) of the study participants. To assess the mental health of every individual General health questionnaire (GHQ-12) was used.

Food frequency questionnaires (FFQs) are a common method for measuring usual dietary intake, particularly in large epidemiological studies.

The general health questionnaire (GHQ-12) was originally designed by Goldberg (1972), to have a standardization to determine the prevalence of psychiatric morbidity. The GHQ-12 consists of 12 items, each one assessing the severity of a mental problem over the past few weeks. The questions included both the positively phrased (1,3,4,7,8,12,) and the negatively phrased (2,5,6,10,11,9) items, and a 4-point Likert-type scale (from 0 to 3) were used. There are three factors from the GHQ-12: Social Dysfunction

(including items 1, 3, 4, 7, 8, and 12), Anxiety and Depression (including items 2, 5, 6, and 9), Loss of Confidence (including items 10 and 11). With the application of the confirmatory factor analysis, many studies have suggested that this three-factor model, compared to other models, has better goodness of fit. Simultaneously, other scholars have also found that the GHQ-12 has three dimensions (Liang Y, et al., 2016). The score was used to generate a total score ranging from 0 to 36. The positive items were corrected from 0 (always) to 3 (never) and the negative ones from 3 (always) to 0 (never). High scores indicate worse health.

Body Mass Index (BMI), formerly called the Quetelet index, is a measure for indicating nutritional status in adults. It was calculated as a person's weight in kilograms divided by the square of the person's height in meters (kg/m²) from the data on height and weight provided. The classification was done according to WHO recommendations as shown in the table below.

Table 1: Classification of BMI

BMI	Nutritional status
Below 18.5	Underweight
18.5–24.9	Normal weight
25.0–29.9	Pre-obesity
30.0–34.9	Obesity class 1
35.0–39.9	Obesity class 2
Above 40	Obesity class 3

Statistical analysis: Data was entered in MS Excel and analyzed by using SPSS software. Frequencies were tabulated, and Chi-square, Correlation, and ANOVA were done to identify the relation between dietary habits and mental health in an individual. The level of significance was set as $p < 0.05$.

Operational Definition:

1. Vegetarian Diet: A Vegetarian diet is defined as a diet “consisting wholly of vegetables, fruits, grains, nuts, and sometimes eggs or dairy products”.
2. Non-Vegetarian Diet: Non-vegetarians are defined as those who consume all meats combined including fish at least once per week.
3. Junk Food, Fast food: Junk food, fast food, and trash food are all definitions of quick, unhealthy, and hunger-satisfying food, which are easy to make and easy to consume. They tend to have low nutritive values but high numbers of calories and high amounts of refined sugars.

4. Current Drinkers: Those who consume one or more than one drink of any alcohol in the year preceding the study.
5. Current Tobacco Consumers: Someone who at the time of the study, smokes/uses tobacco in any form either daily or occasionally.

RESULT AND DISCUSSION

The study aimed to study the dietary habits and the mental health well-being of aged 18-24 years old adults. And to make awareness about the foods that benefit mental health well-being.

❖ Descriptive Statistics:

The results were interpreted as per the following categories:

- Socio-demographic characteristics:

Table 2: Socio-Demographic Characteristics

Socio-demographic characteristics	Frequency (n)	Percentage (%)
Age		
18-20	58	26.0
21-24	166	74.0
Gender		
Male	63	28.1
Female	161	71.9
Occupation		
Employed	45	20.2
Unemployed	11	4.9
Student	166	74.4
Housewife	1	0.5
Total	224	100.0

As per the above Table, the mean age of subjects was 21.54 ± 1.64 and the maximum percent of the study population was present in the age group of 21-24 years. Among 224 individuals 28.1% were males whereas 71.9% were females. The maximum percentages of the individuals were students in the study.

BMI of the individuals:

Table 3: BMI of Individuals

	BMI	Frequency (n)	Percent (%)
Group 1	Underweight	60	26.8
Group 2	Normal	127	56.7
Group 3	Overweight (pre-obesity)	34	15.2
	Obesity Class 1	3	1.3
	Total	224	100

The groups were made according to their mental health well-being status into group 1 and group 2. The mean of the GHQ score was 15.63 ± 5.61 . The GHQ score for the individuals mentioned below.

Table 4: Frequency of GHQ Score

	Frequency (n)	Percent (%)
Group 1	60	26.7
Group 2	164	73.3
Total	224	100.0

Group 1: Individuals having lower GHQ scores. (less than 12)

Group 2: Individuals having higher GHQ scores. (more than 12)

PIE CHARTS FOR THE SURVEY QUESTIONNAIRE

Figure 1: Number Of Males and Females In The Study

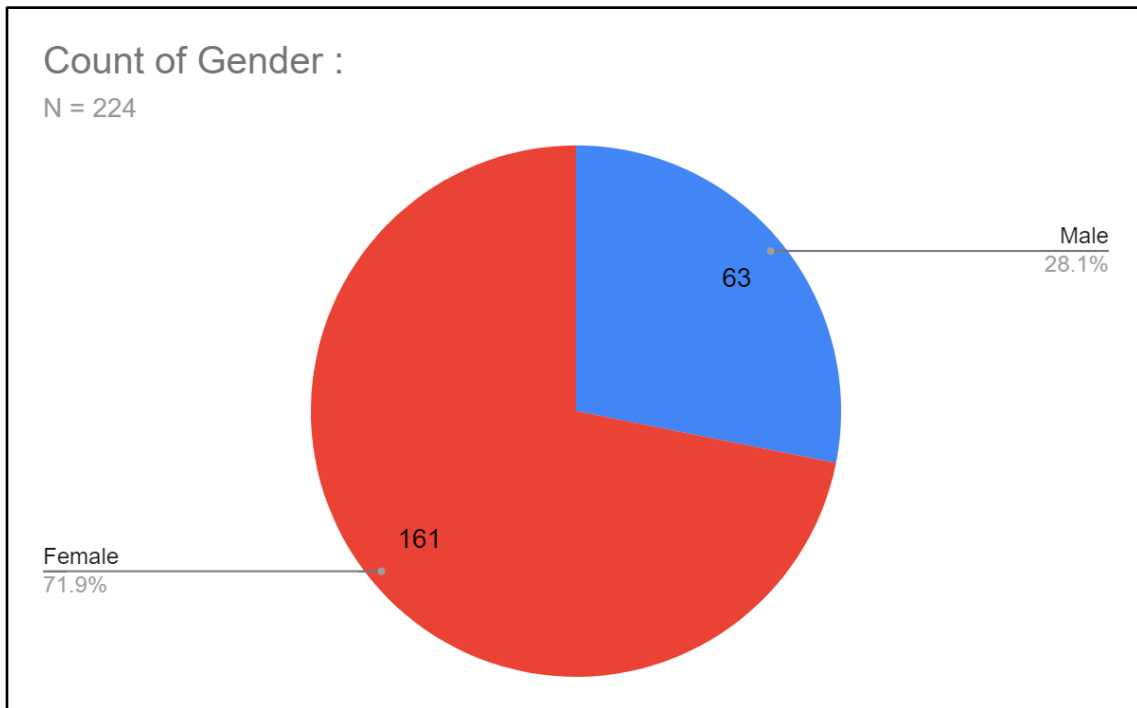


Figure 2: Occupation Of The Individuals

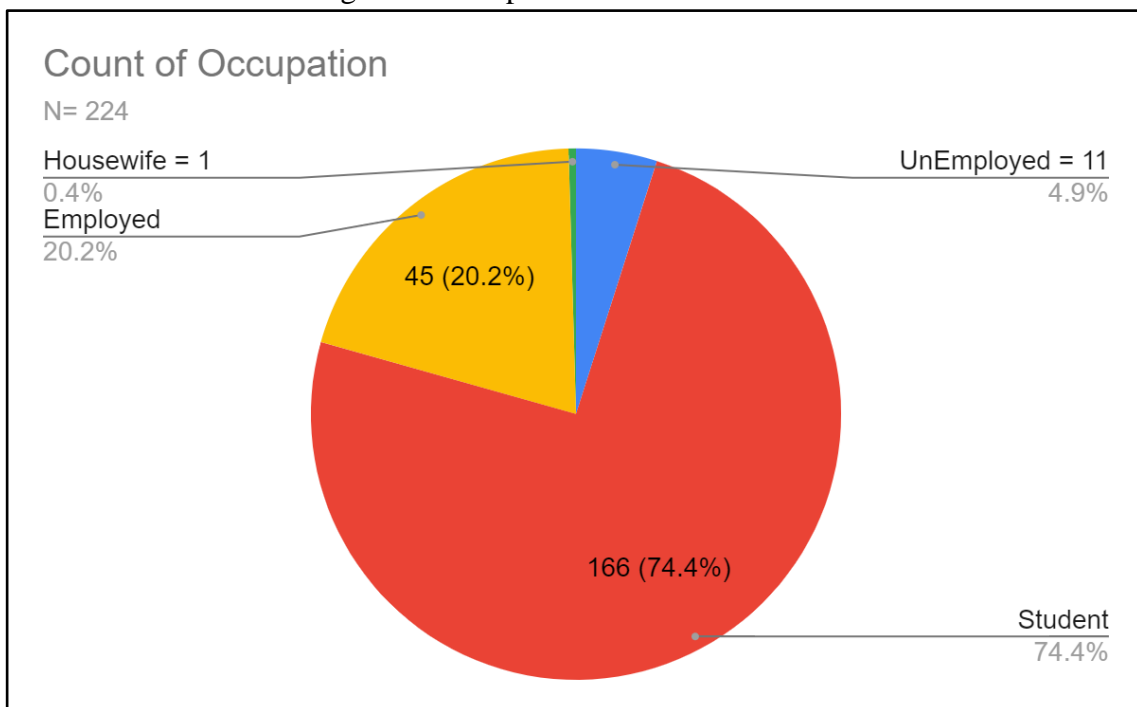


Figure 3: Diet Pattern Of The Individuals

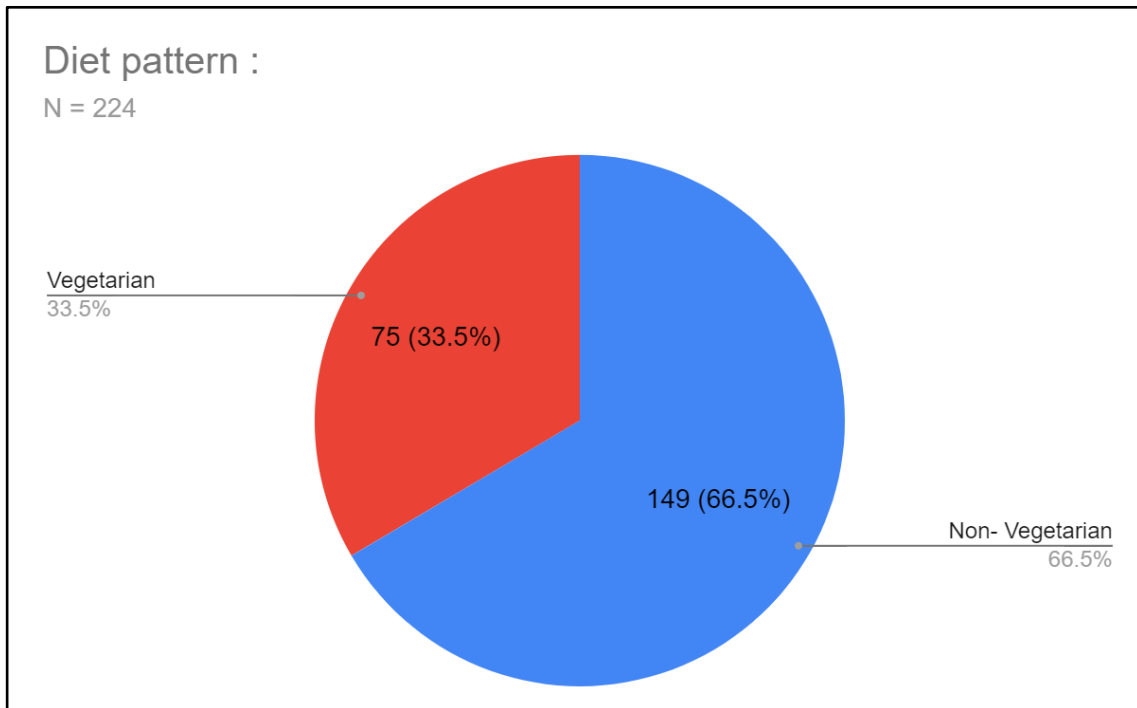


Figure 4: Meals Consumed

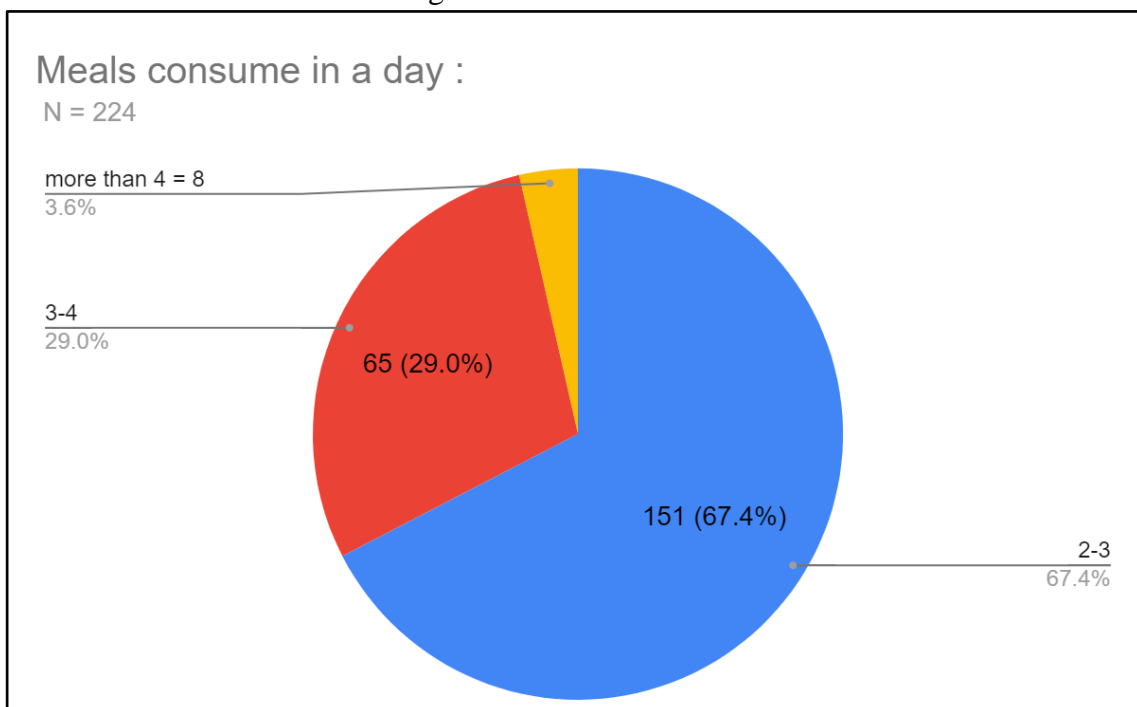


Figure 5: Water Intake Of Individuals

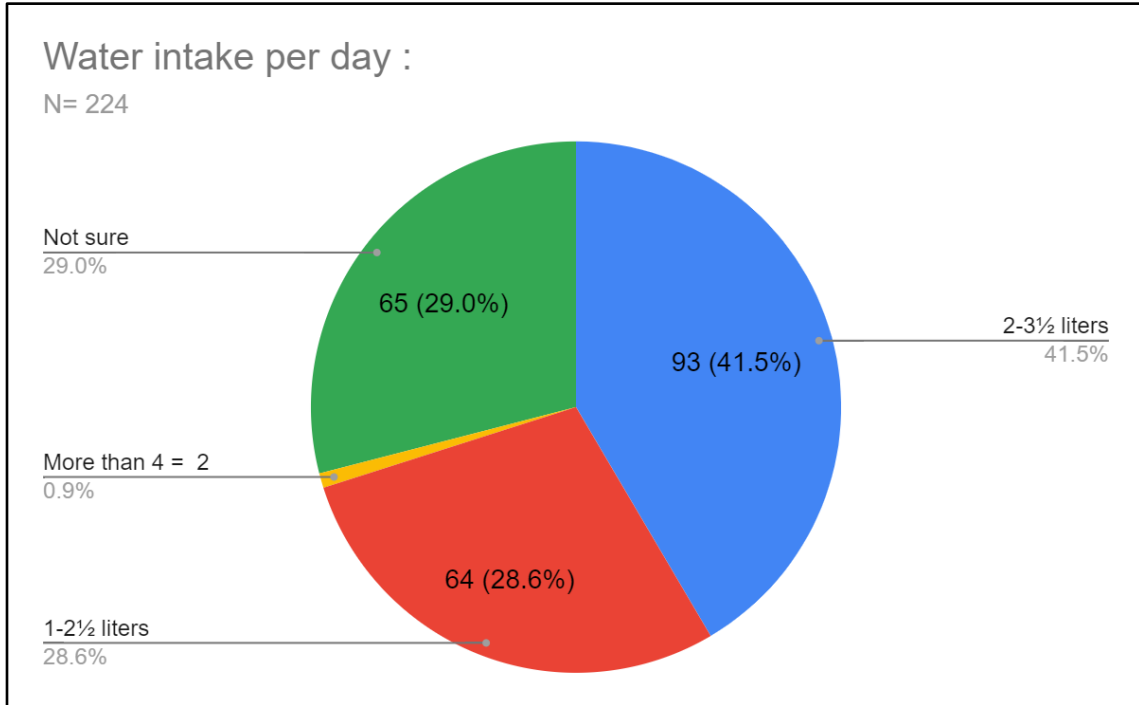


Figure 6: Skipping Meals

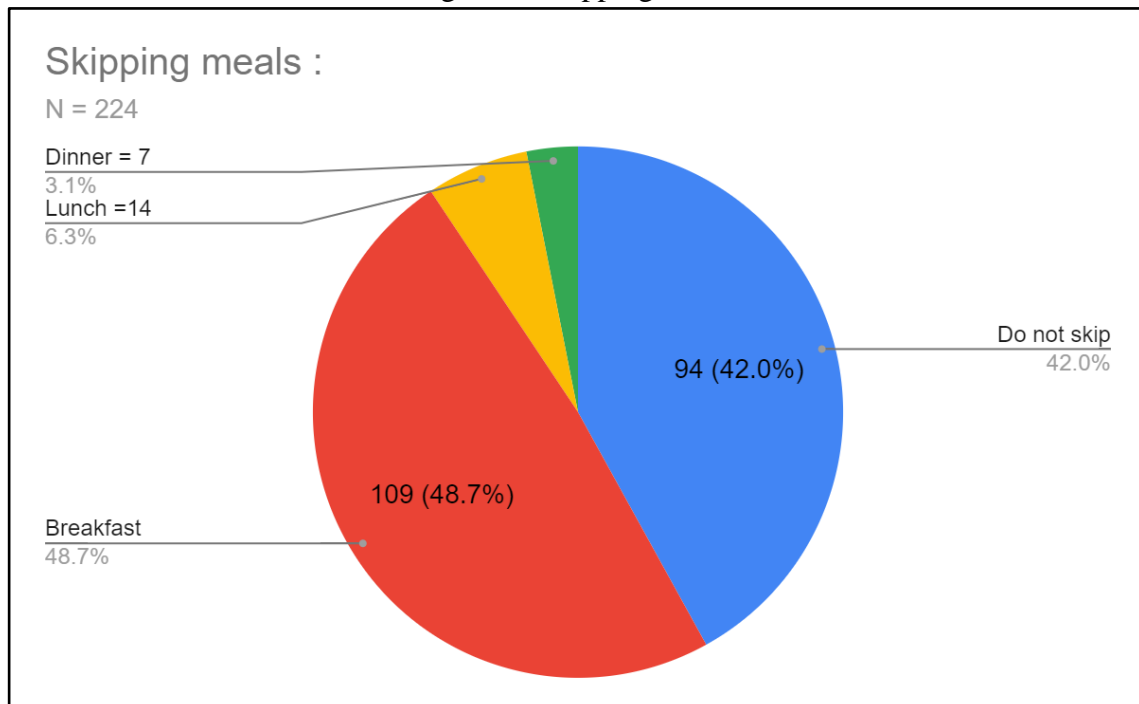


Figure 7: Importance Of Mental Health And Physical Health

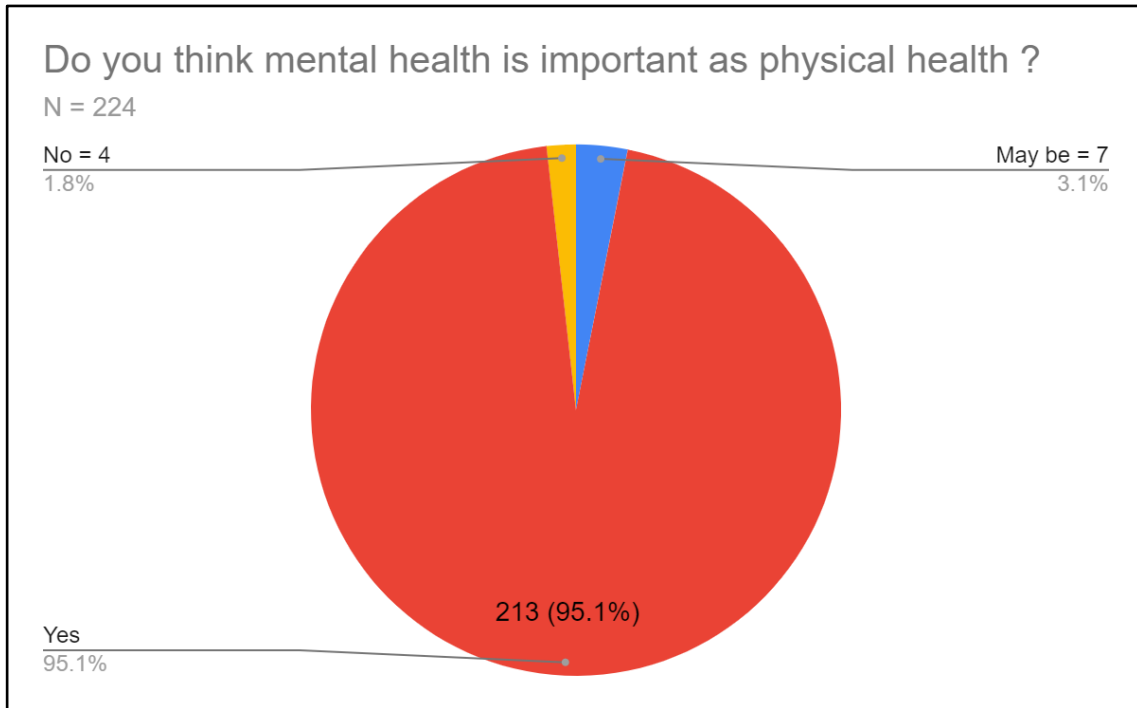


Figure 8: Relationship Of Mental Health And Dietary Habits

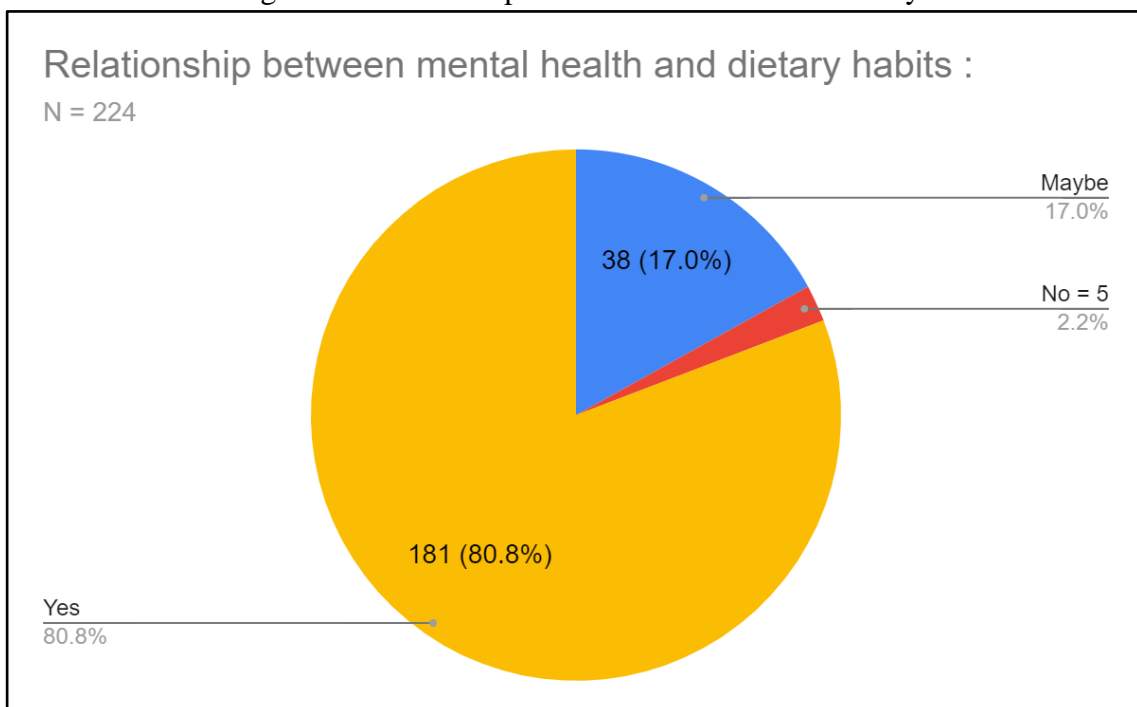


Figure 9: Effect Of Mental Health On Food Intake

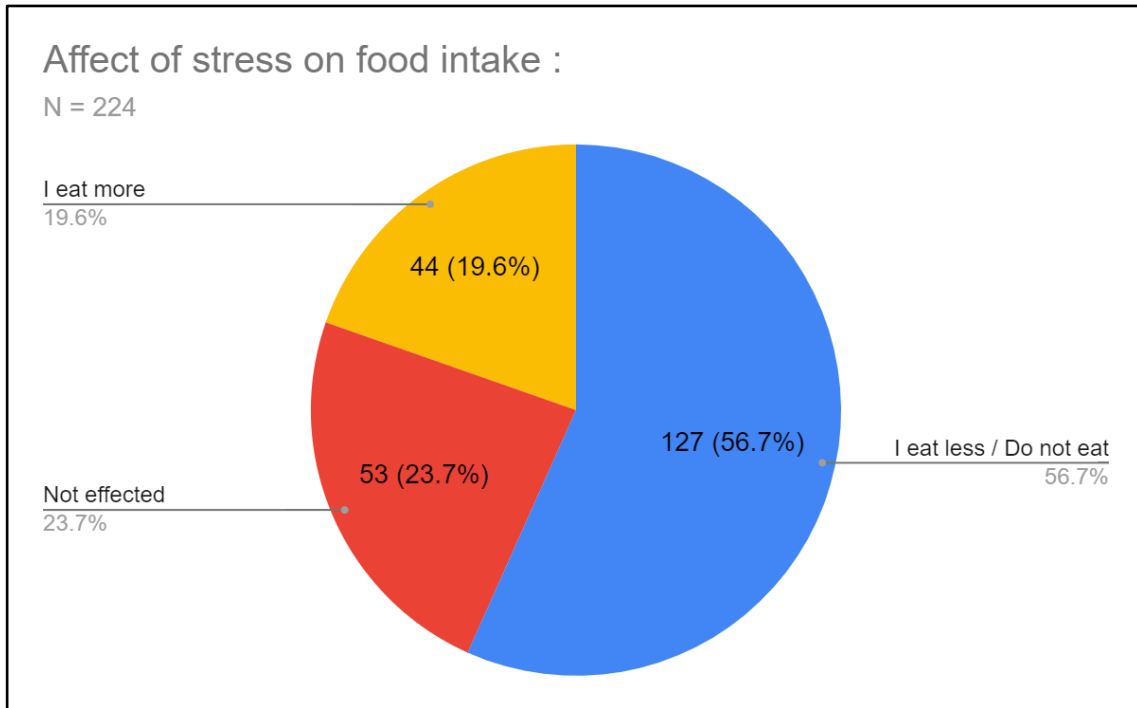


Figure 10: Awareness Of The Food Which Is Good For Mental Health

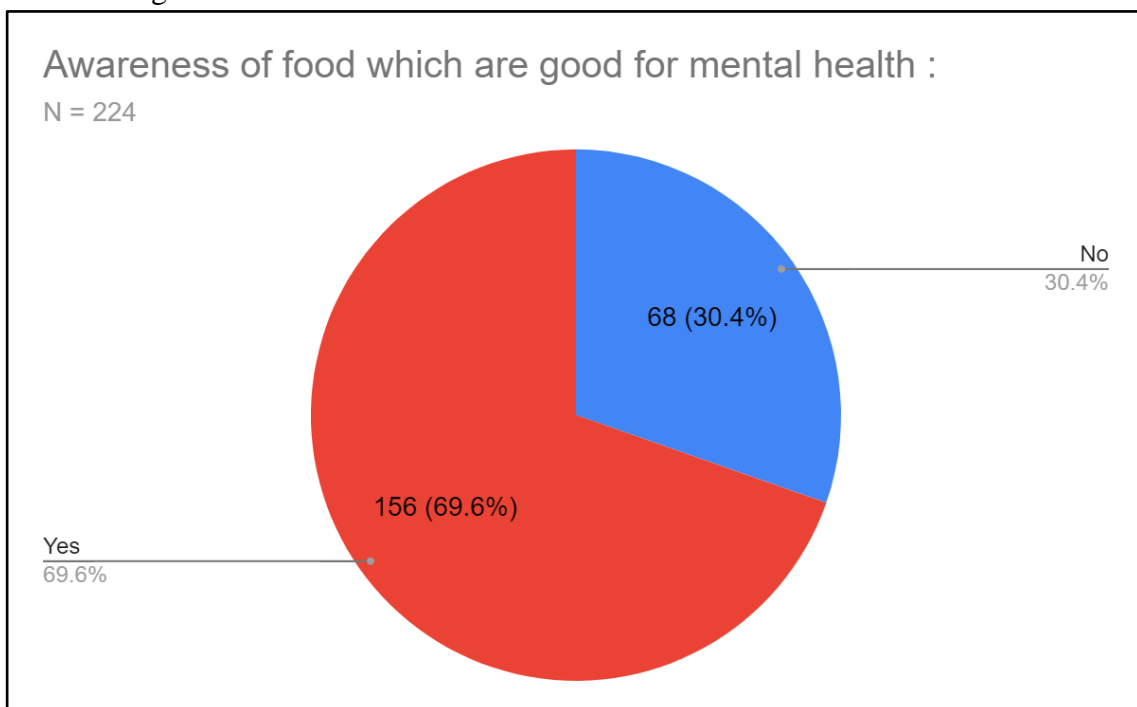


Figure 11: Indulging In Intoxication When Under Stress

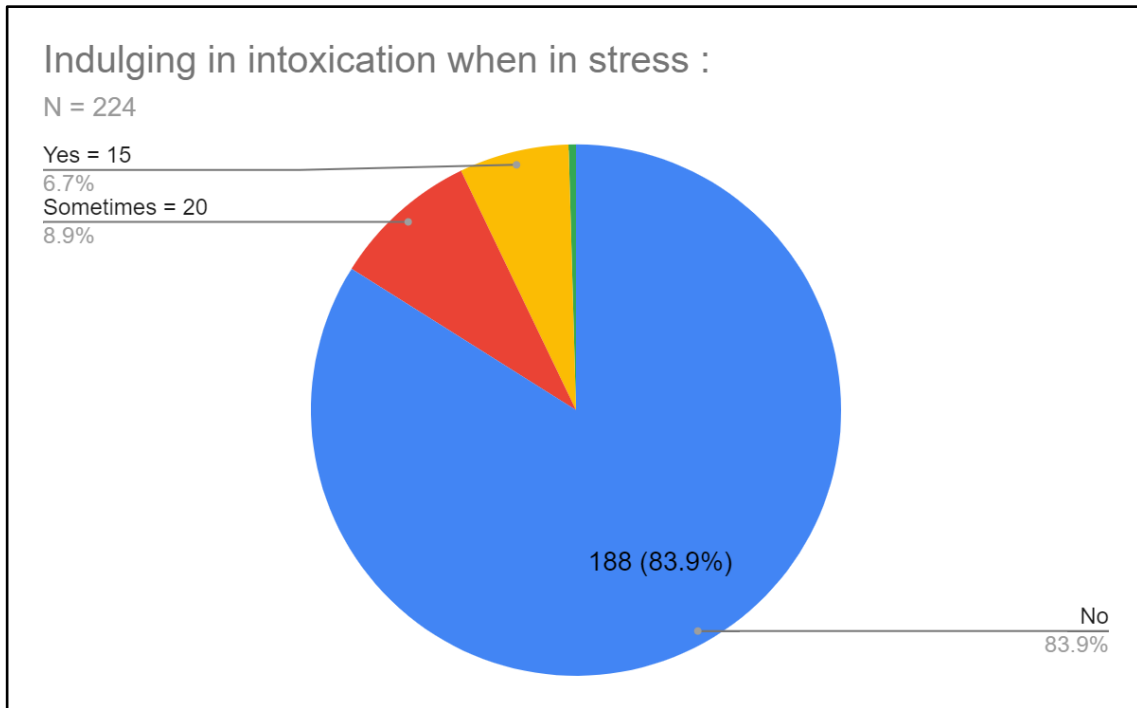


Figure 12: Consumption Of Tea/Coffee With Milk

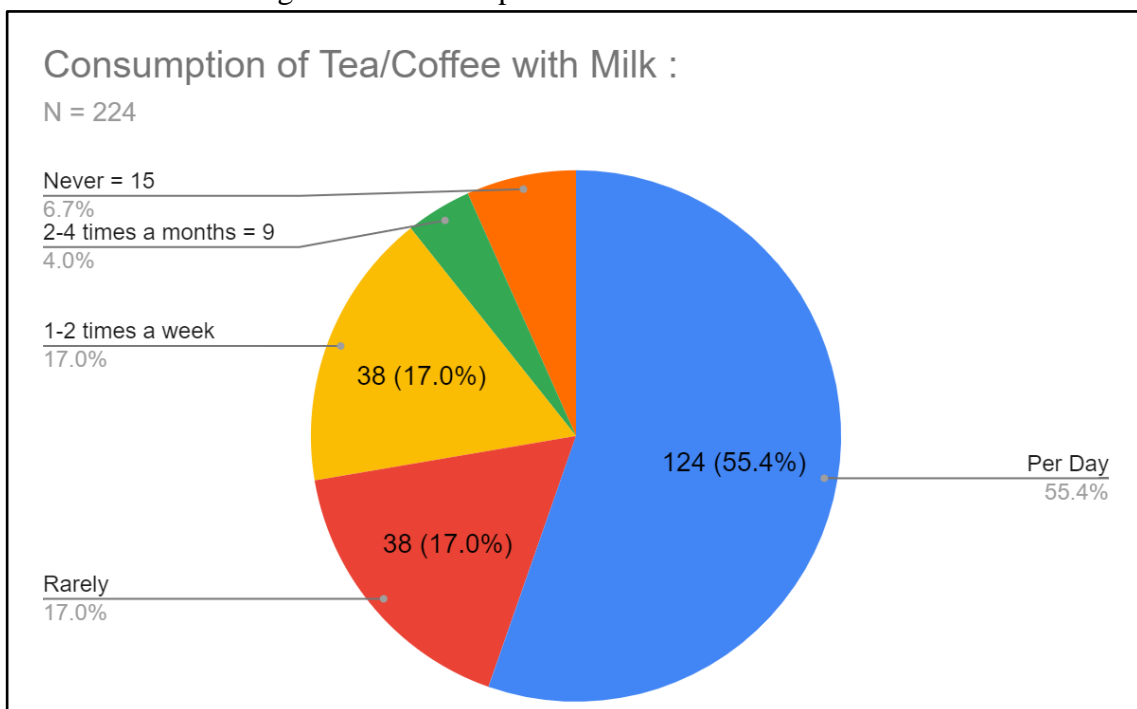


Figure 13: Breakfast

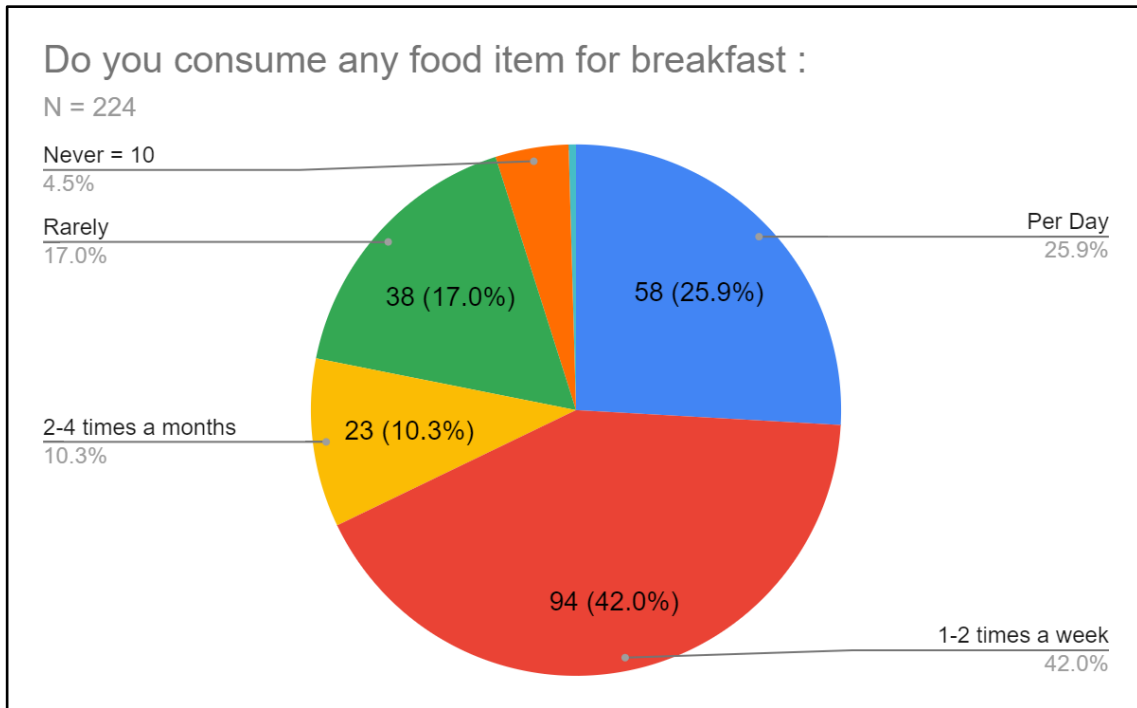


Figure 14: Milk Consumption

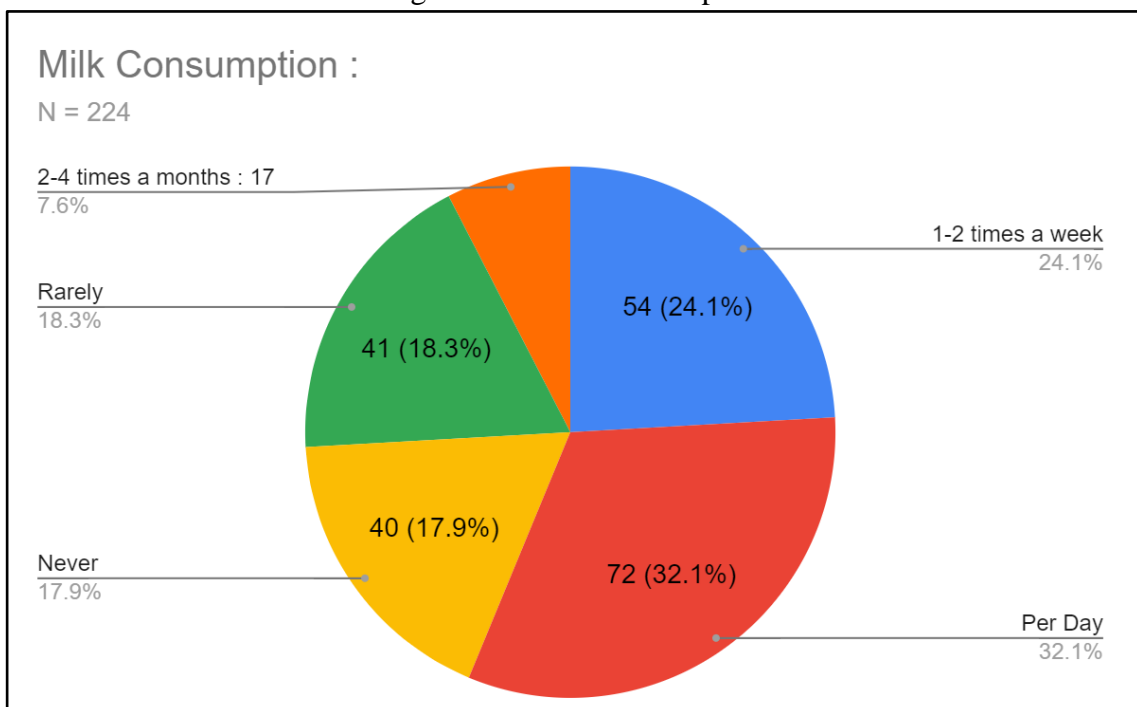


Figure 15: Consumption Of Milk Product

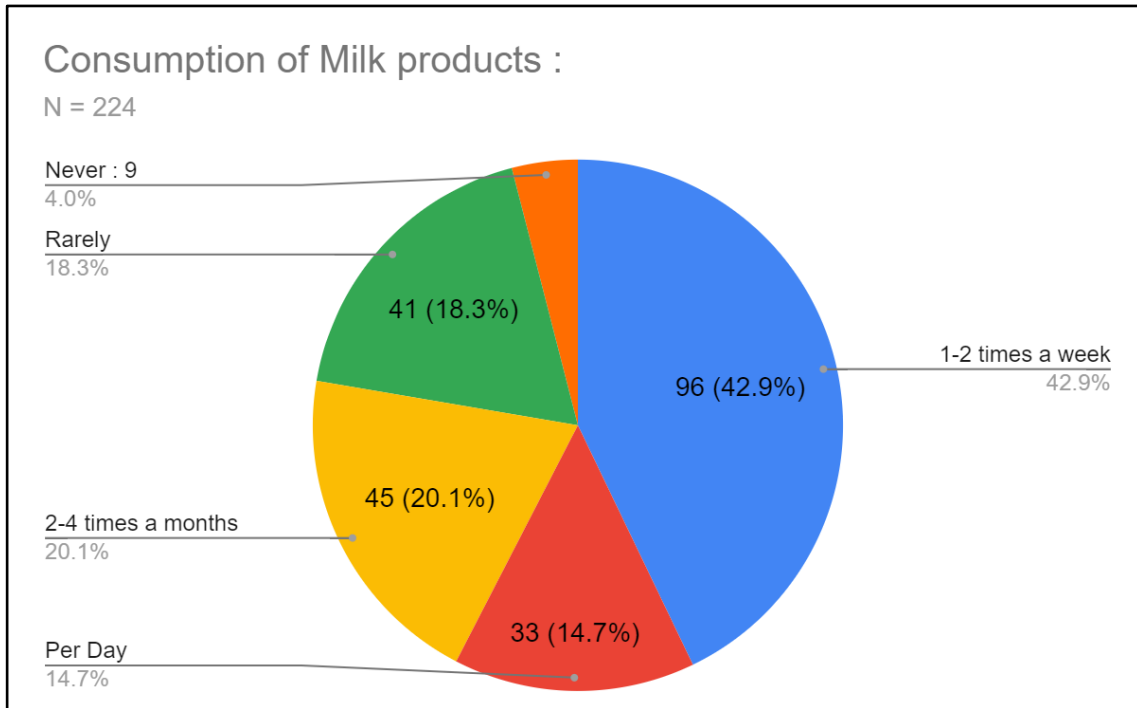


Figure 16: Dry Fruits Consumption

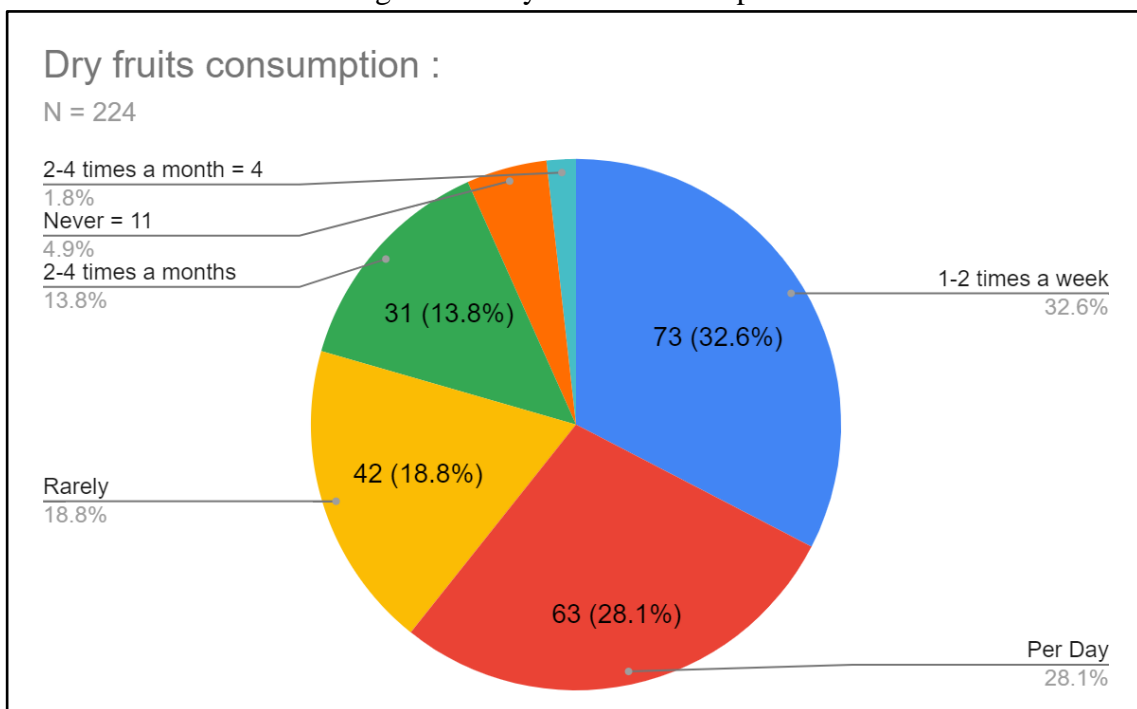


Figure 17: Consumption of Chapati

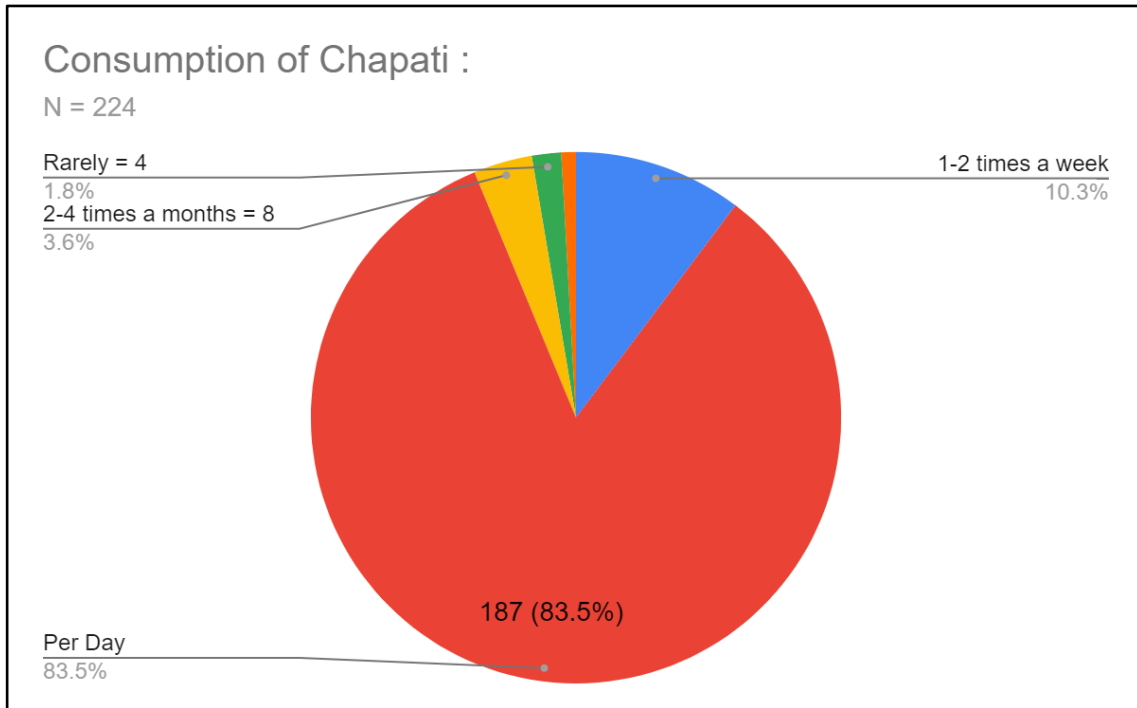


Figure 18: Consumption Of Bhakri

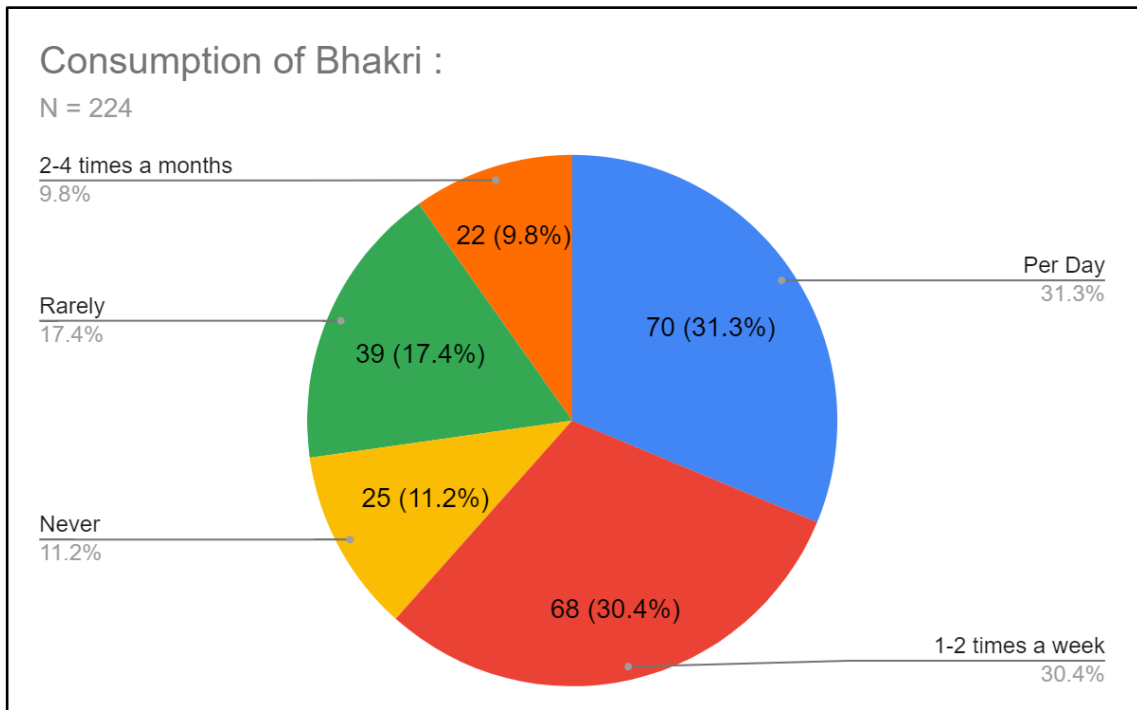


Figure 19: Consumption Of Puri

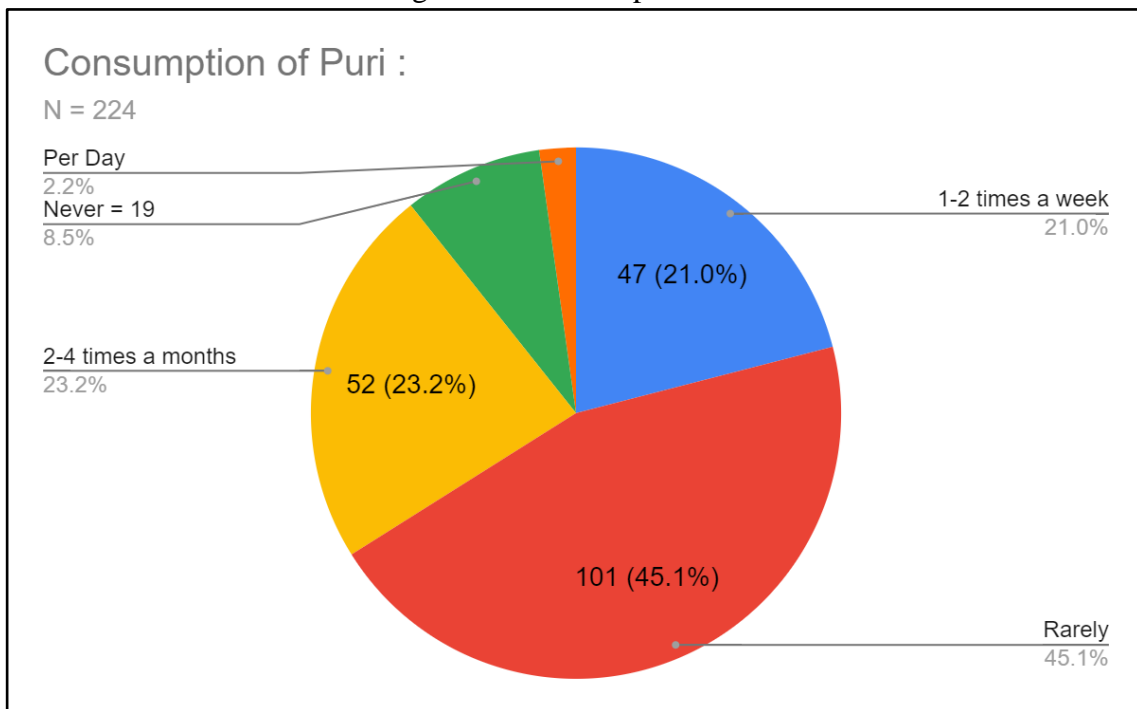


Figure 20: Consumption Of Paratha

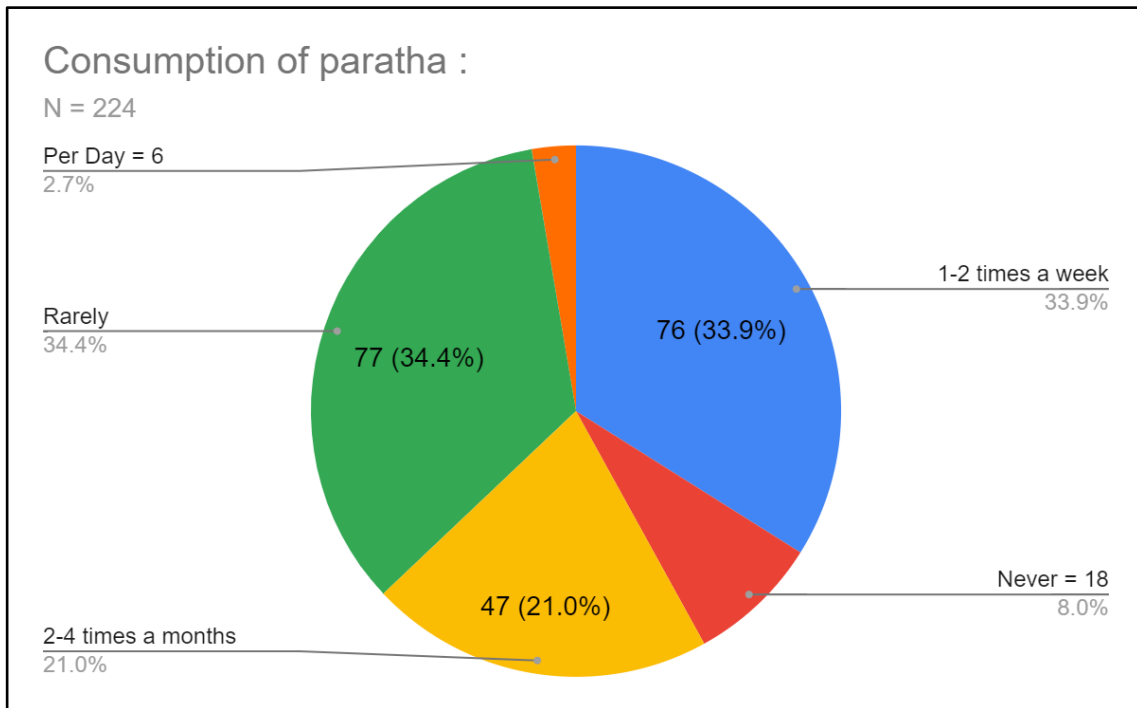


Figure 21: Consumption Of Khichadi

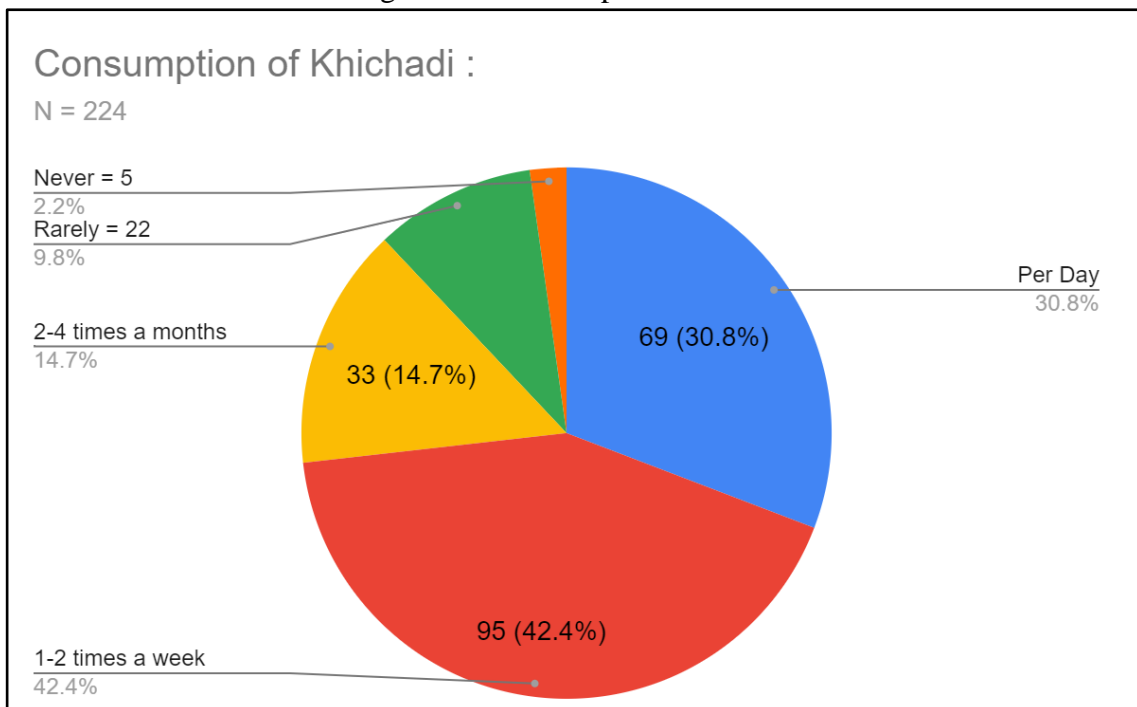


Figure 22: Consumption Of Plain Steam Rice

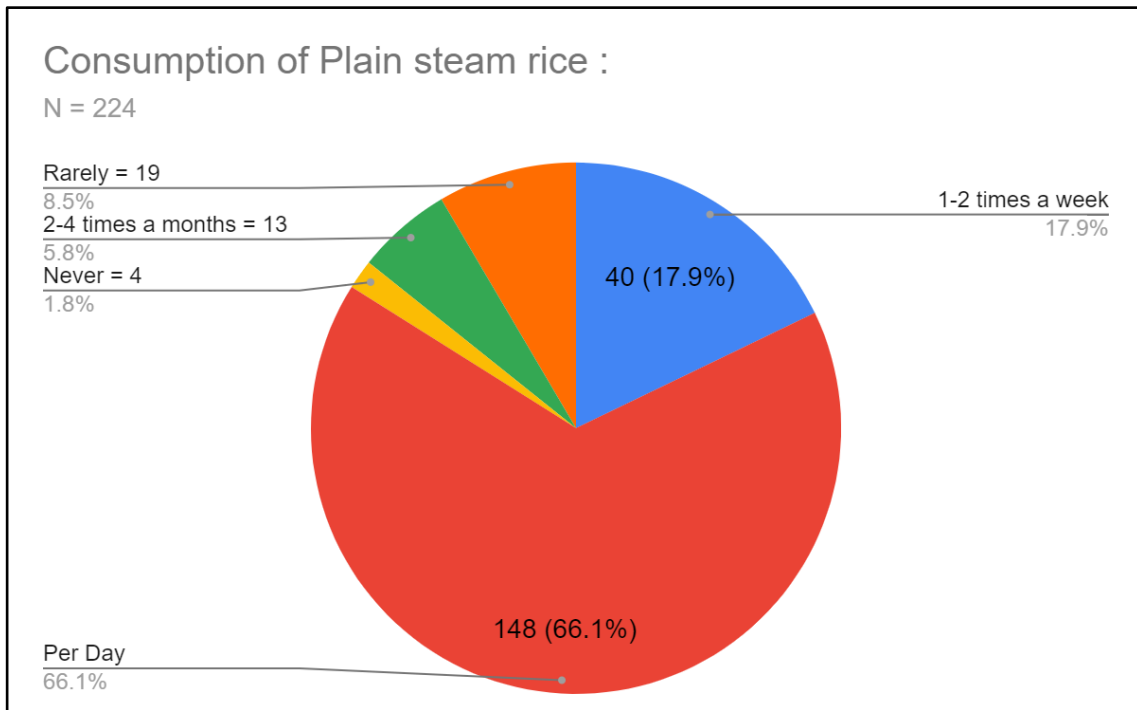


Figure 23 : Consumption Of Pulao

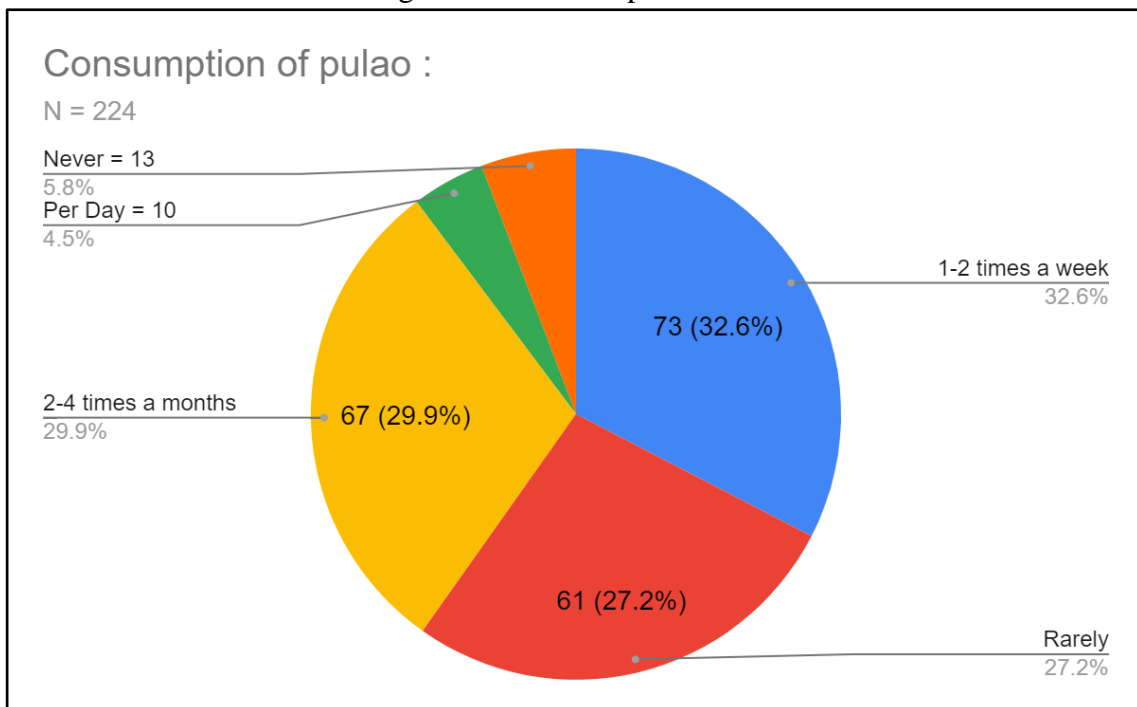


Figure 24 : Consumption Of Leafy Vegetables

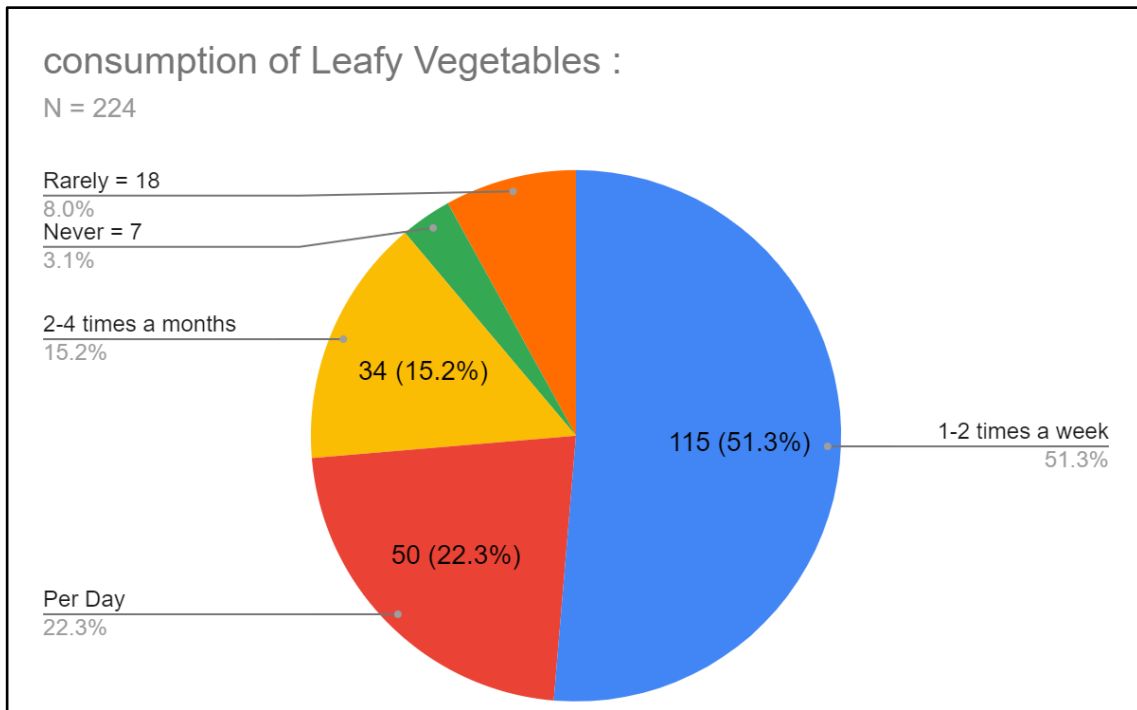


Figure 25: Consumption Of Other Vegetables

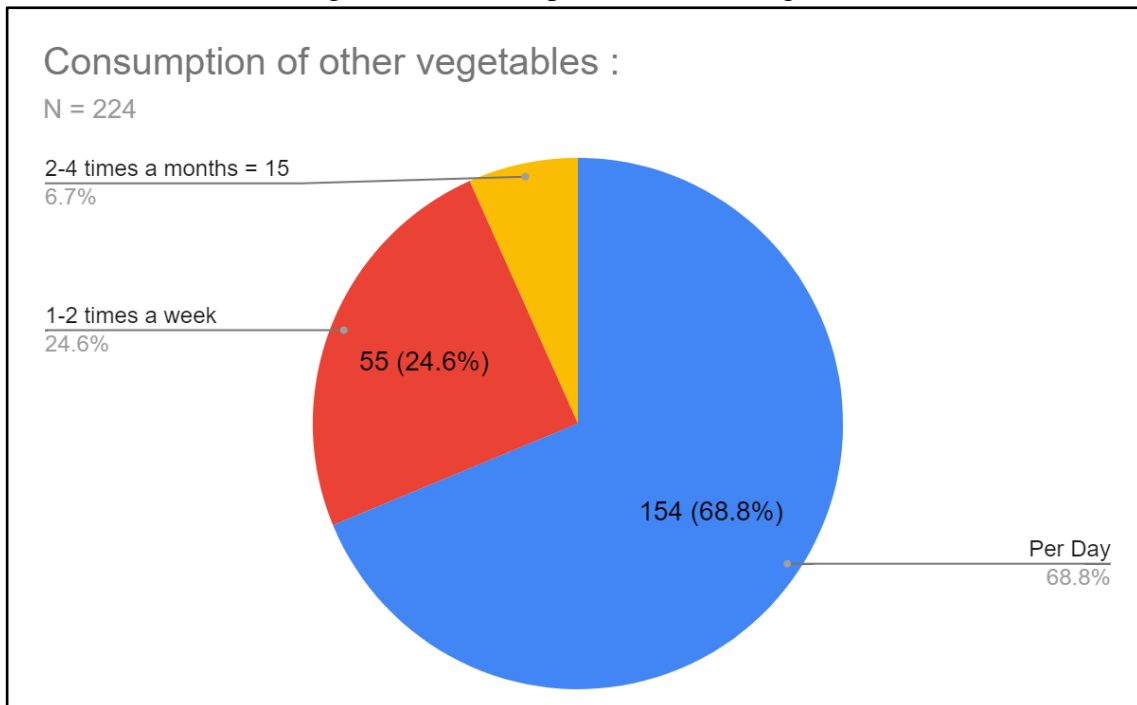


Figure 26: Consumption Of Fruits

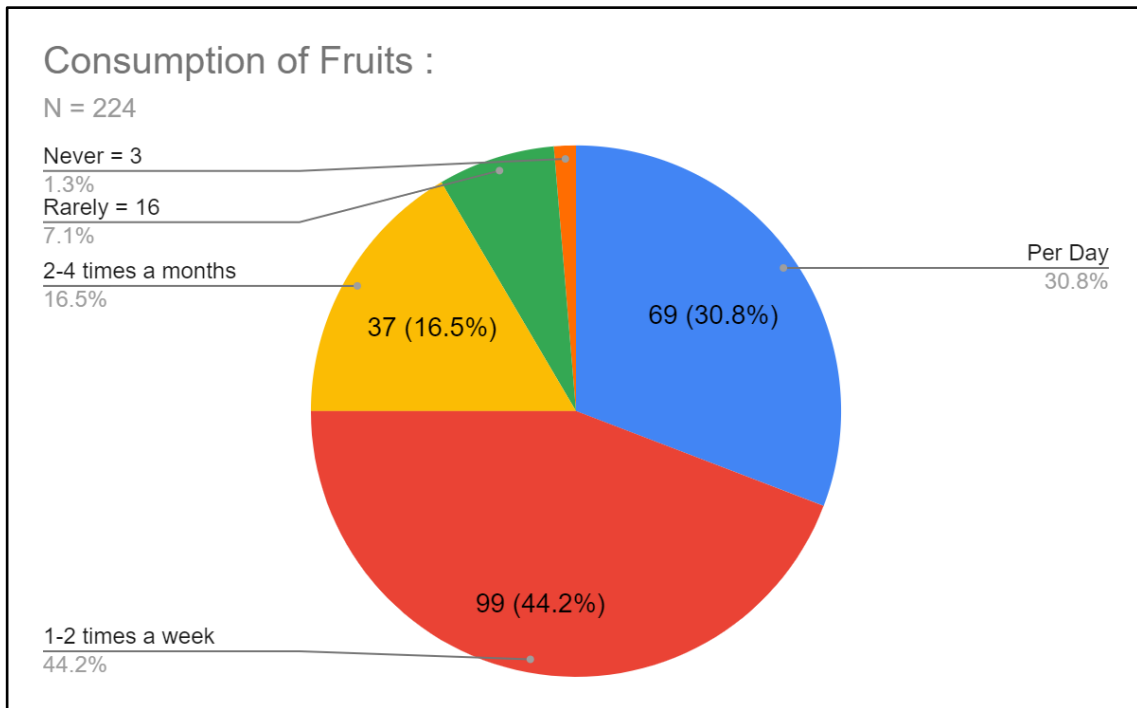


Figure 27: Consumption Of Pulses

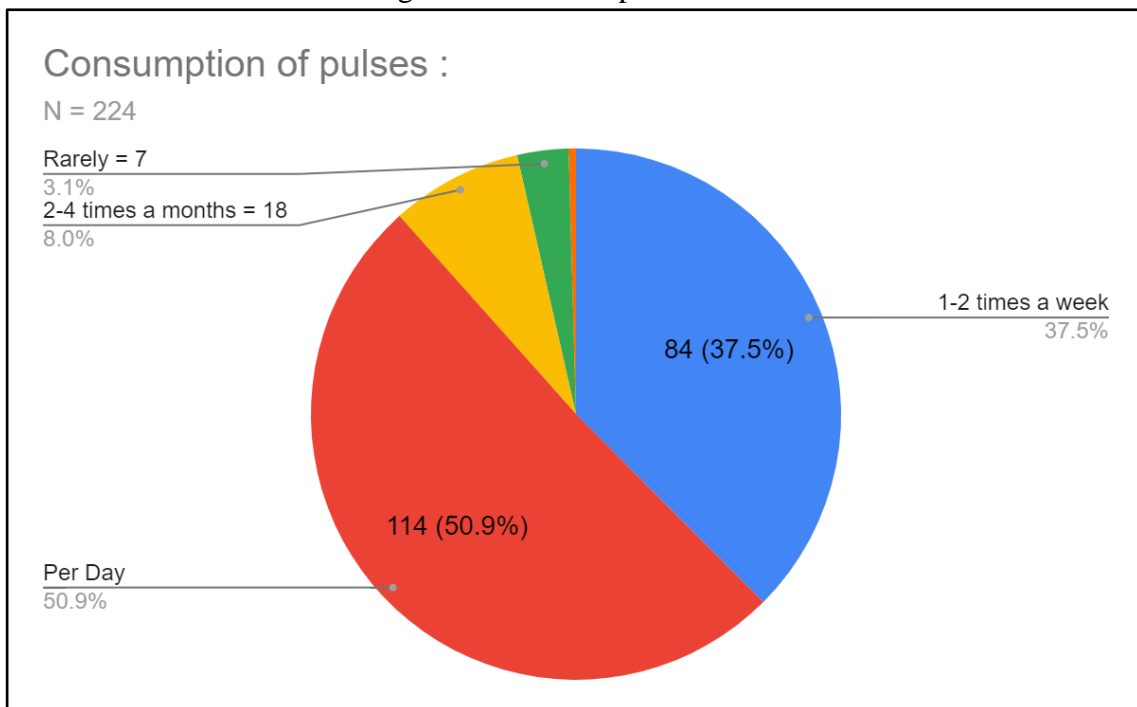


Figure 28: Consumption Of Chickpea

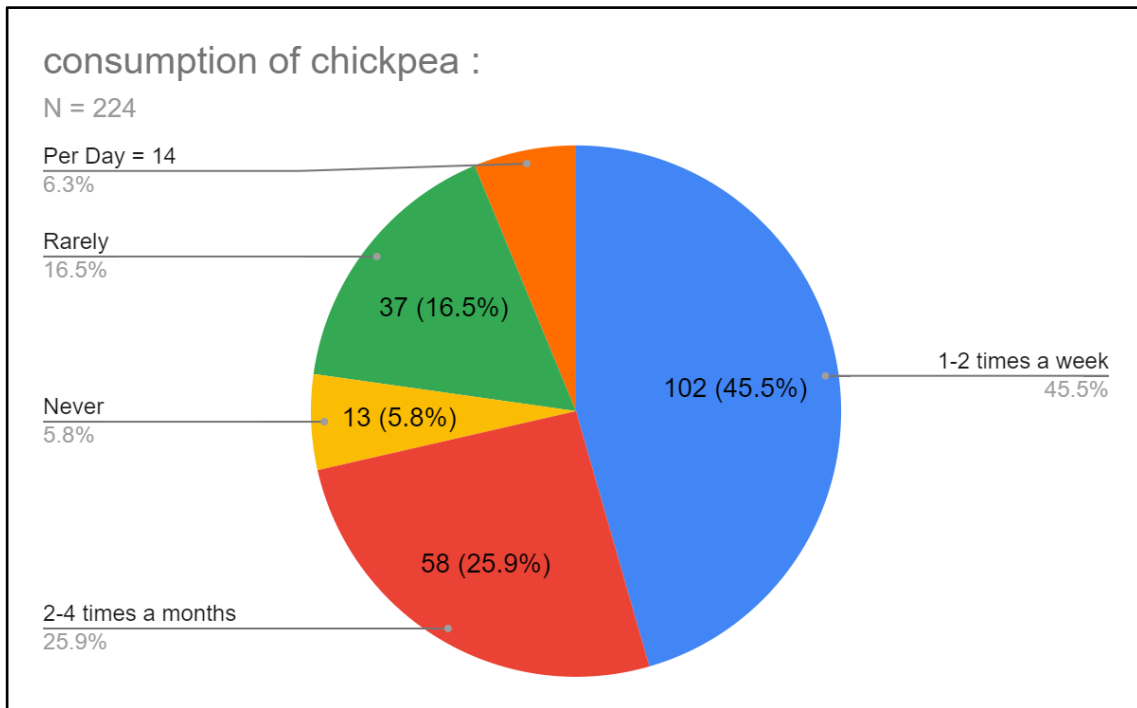


Figure 29: Consumption Of Egg

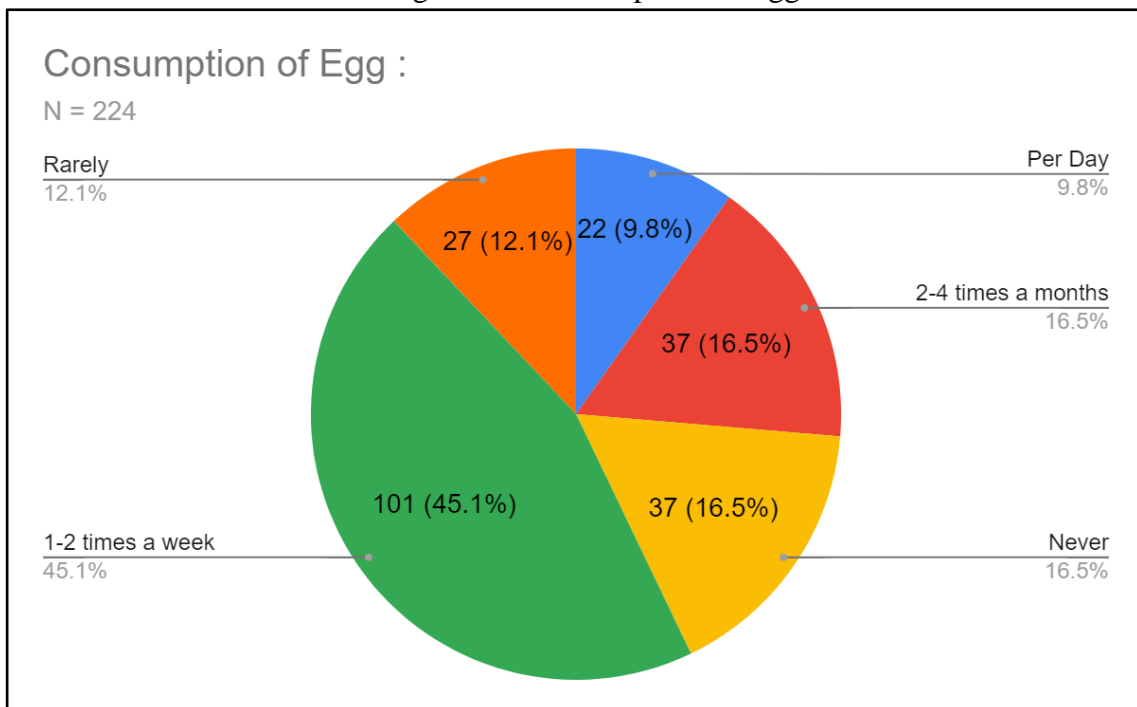


Figure 30 : Consumption Of Pickles

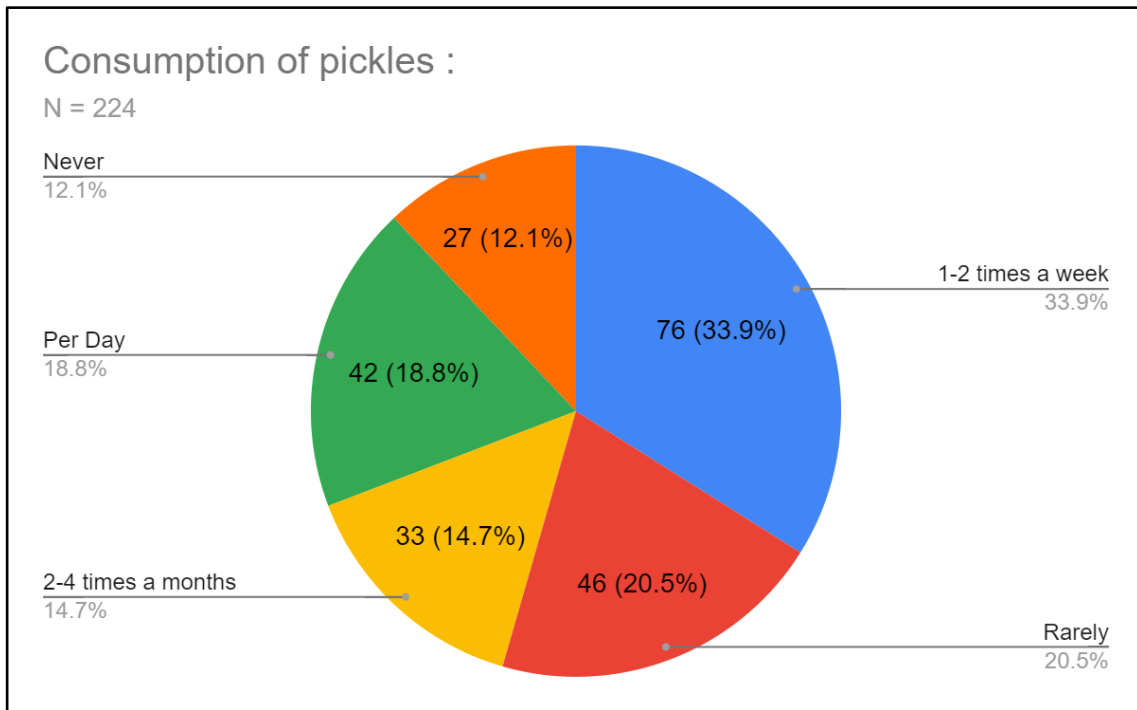


Figure 31 : Consumption Of Chicken

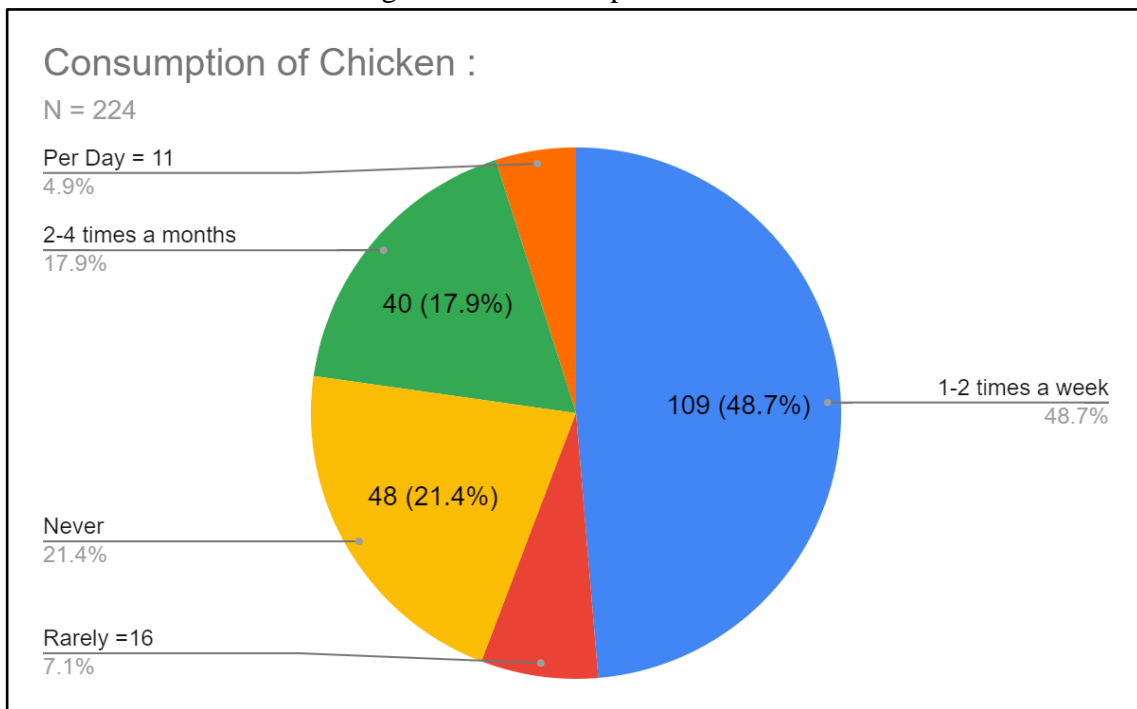


Figure 32: Consumption of Red Meat

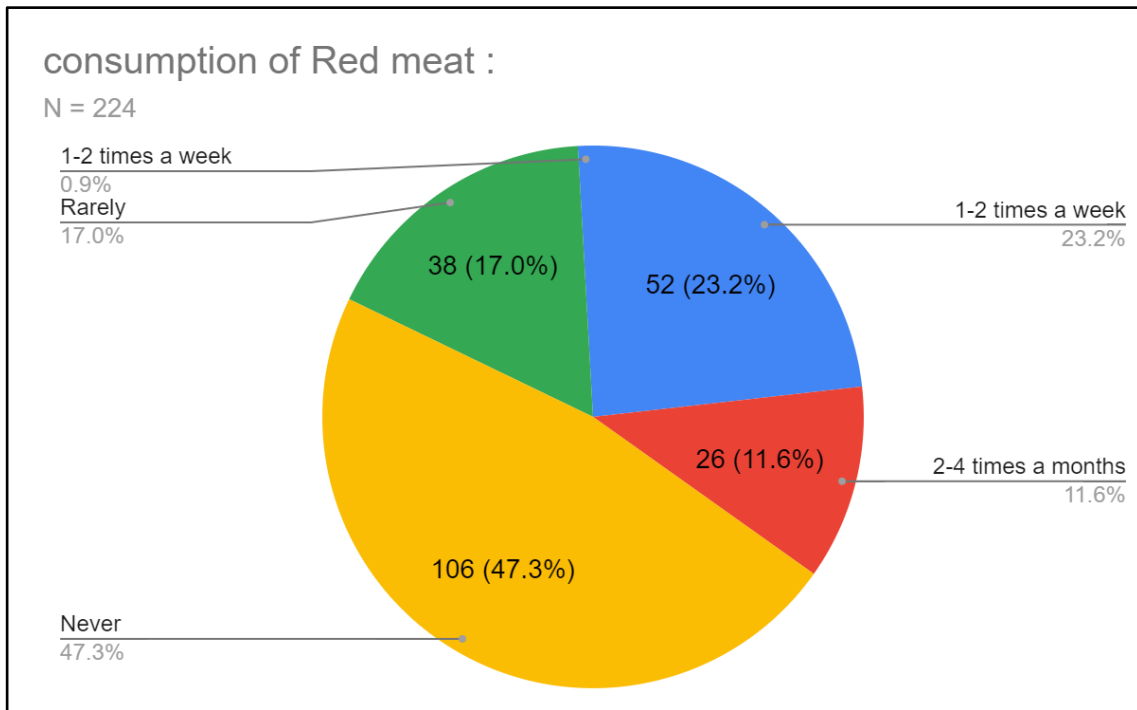


Figure 33: Consumption Of Fish And Fish Foods

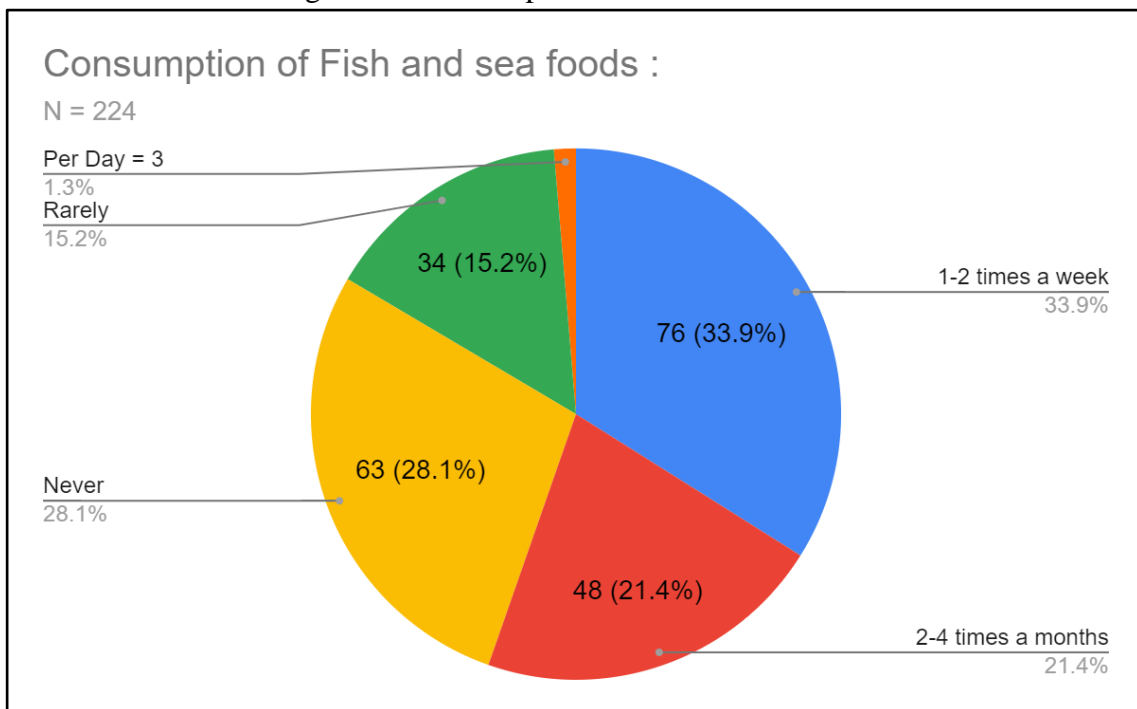


Figure 34: Consumption of Junk Food

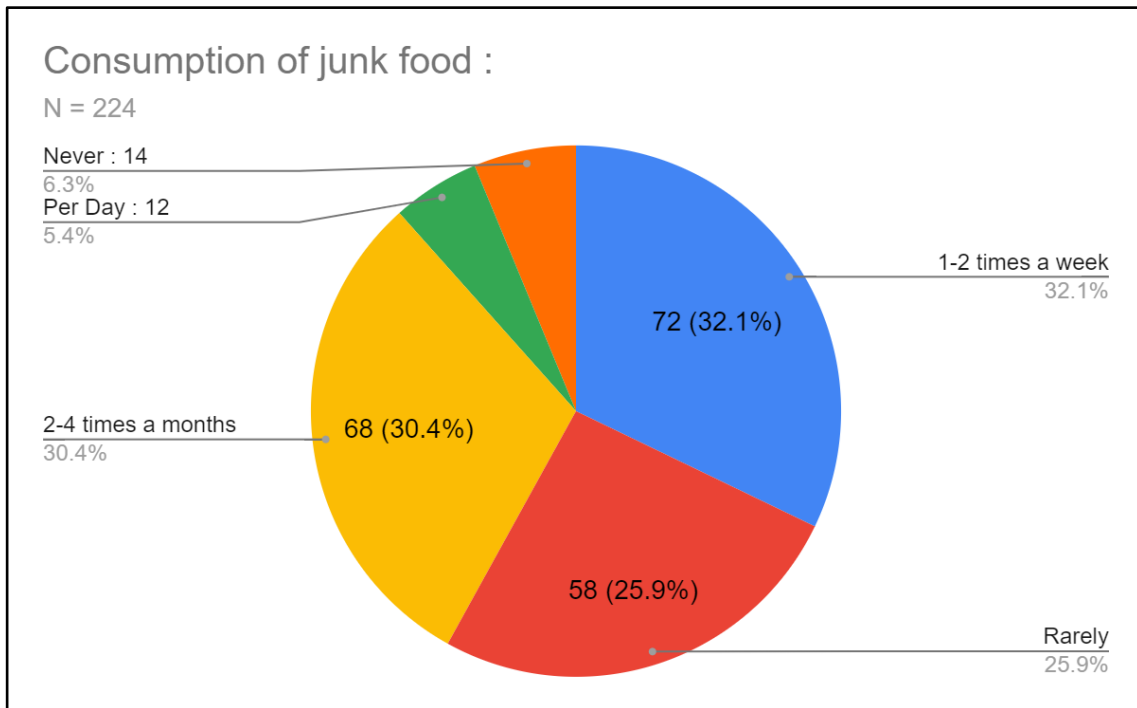


Figure 35: Consumption Of Snack

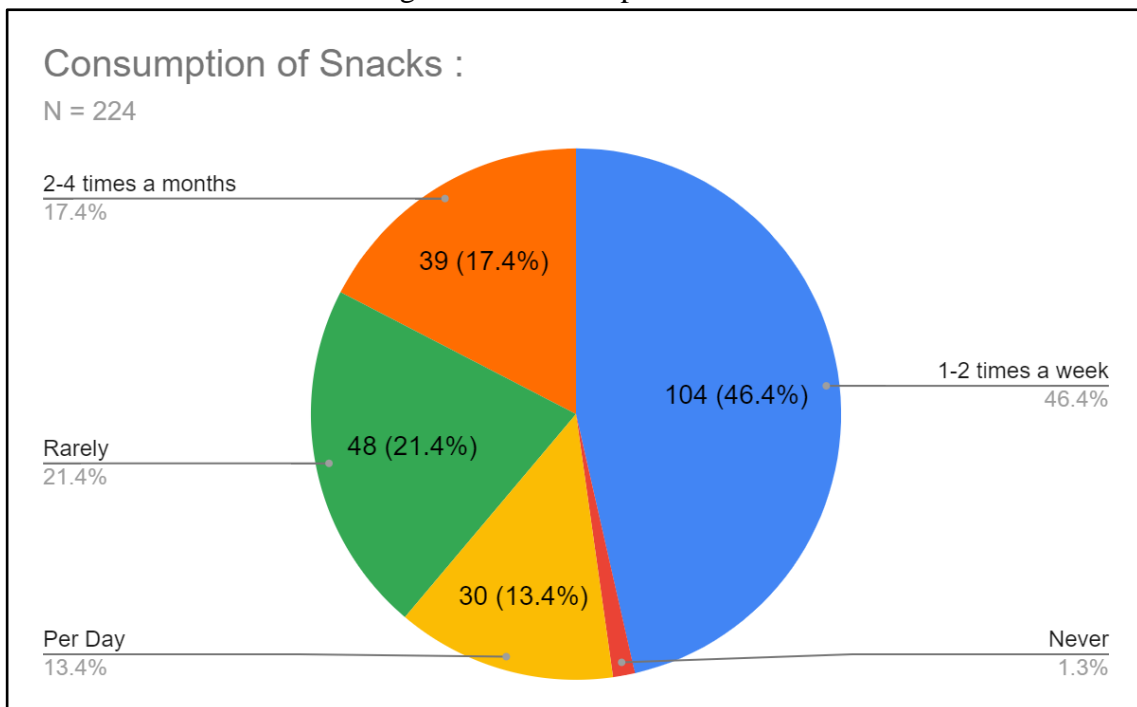


Figure 36: Consumption of Carbonated Drinks

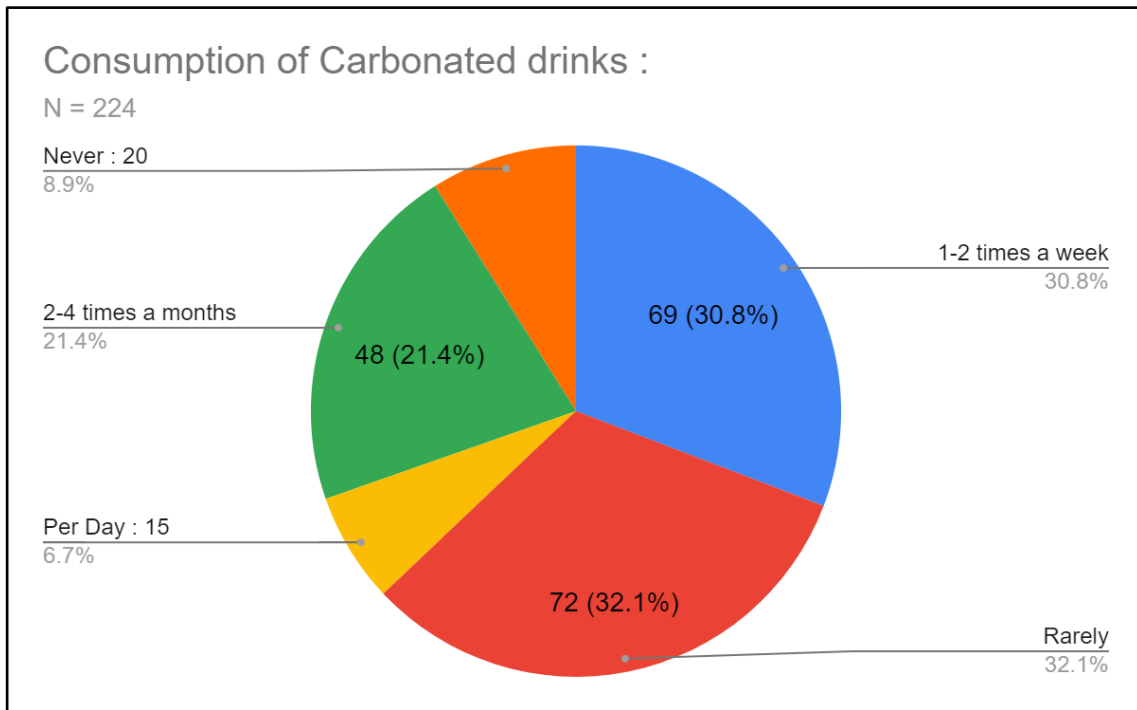


Figure 37: Consumption Of Foods With Added Sugar

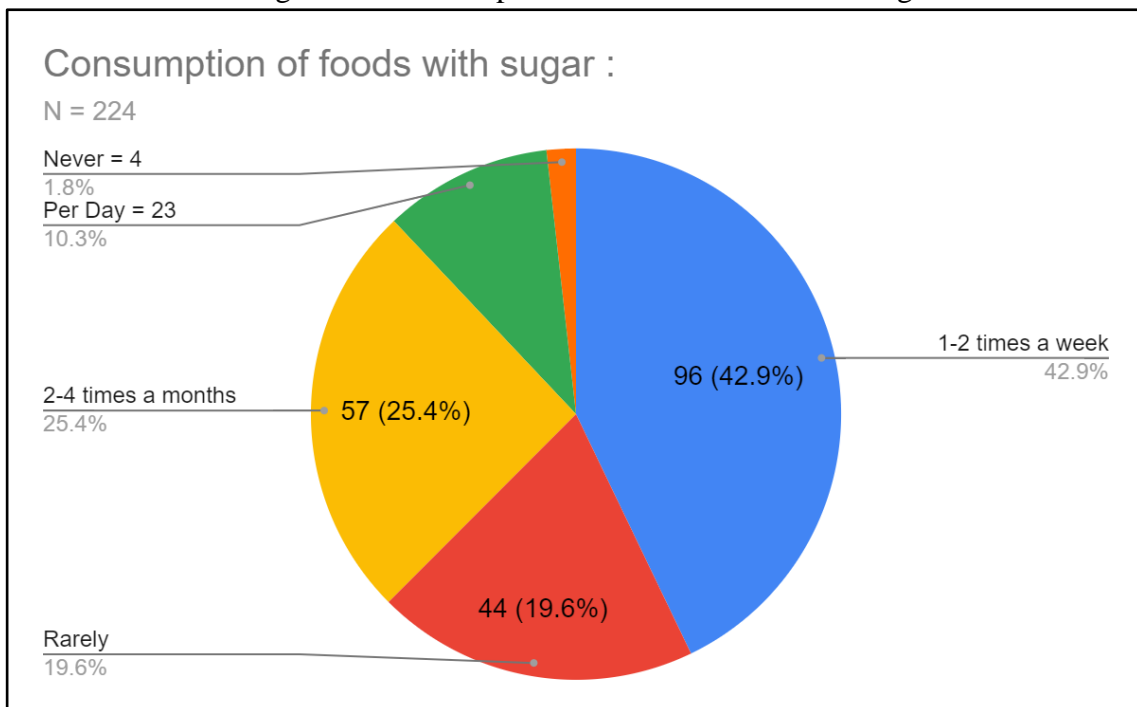
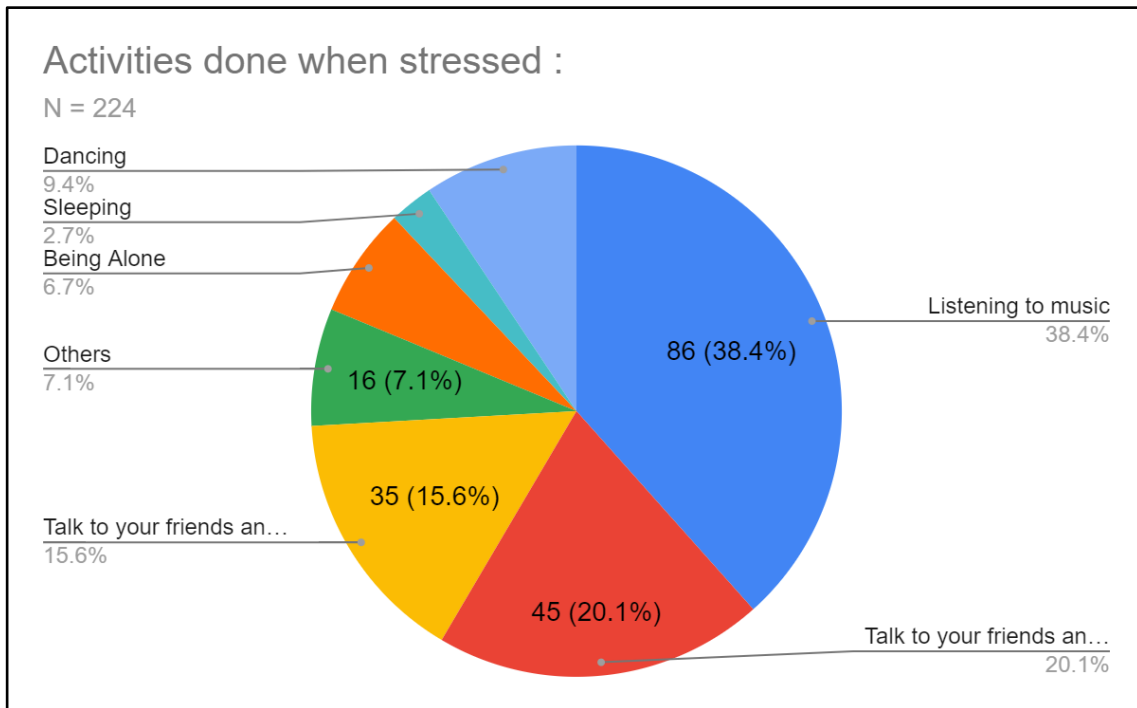


Figure 38: Activities Done In Stress



According to the above figures, 66.5% of individuals were non-vegetarian, and 33.5 % were vegetarian. And the majority of the individuals skipped their breakfast and 42.0 % did not skip their meals. 56.7% of the individuals ate less or did not eat food when they were under stress, whereas 23.7 % of individuals did not affect their eating habits when under stress. And the milk consumption of 32.1 % of individuals was per day. Fruits, vegetables, and dry fruits consumption by 30.8 %, 51.3 %, and 32.6 % individuals were per day respectively. And chickpea, one of the food items from the Mediterranean diet, was consumed 1-2 times a week by maximum individuals. Similarly, snacks and junk food consumption, and carbonated drink consumption individuals are shown in the above figures. Food with added sugar was consumed 1-2 times a week by 42.9 % of the individuals.

From total 224 individuals 95.1% thought that mental health is as important as physical health. Whereas 80.8 % thought that there is a relationship between mental health and dietary habits, and the remaining 20 % of individuals thought that there may be or there is no relationship between mental health and dietary habits.

❖ **Statistical analysis by SPSS:**

Chi-Square between GHQ and Dietary habits:

Table 5: Chi-Square between GHQ and Dietary Habits

Characteristics	χ^2	p - value
Diet Pattern	4.395	0.029
Chapati	4.348	0.361
Bhakri	11.987	0.007
Milk	1.545	0.819
Dry fruits	4.994	0.003
Chickpea	11.511	0.021
Pulses	6.400	0.171
Red meat	6.582	0.160
Junk	4.559	0.336
Pickles	2.432	0.657
Egg	11.196	0.024
Chicken	5.089	0.278
Fish Food	6.482	0.166
Fruits	10.305	0.036
Leafy vegetables	13.494	0.009
Other vegetables	8.249	0.083
Plain steam rice	5.929	0.205
Khichadi	12.549	0.014
Skipping meals	1.088	0.780
Intoxication	3.737	0.154

Characteristics	χ^2	p - value
Diet Pattern	4.395	0.029
Chapati	4.348	0.361
Bhakri	11.987	0.007
Milk	1.545	0.819
Dry fruits	4.994	0.003
Chickpea	11.511	0.021
Pulses	6.400	0.171
Red meat	6.582	0.160
Junk	4.559	0.336
Snacks	5.940	0.204
Food with added sugar	9.825	0.043

Significant Level ($p < 0.05$)

The maximum of the individuals who skipped their breakfast was found to have a high GHQ score. There was a statistical significance i.e. $p < 0.05$ when consumption of bhakri, dry fruits, leafy vegetables, chickpeas, fruits, and eggs was compared with the GHQ score of the individuals, as well as diet pattern, was also significant. (Table no. 5)

And when the chi-square statistical analysis was done according to the BMI grouping, the milk consumption and milk product were found to be significant to the BMI of an individual. (Milk: $X^2=19.062$, $df=8$, $p=0.15$). Also the water intake and consumption of junk food and carbonated drinks was found to have slight differences. (Table 8).

Importance of Mental health as physical health:

Based on the survey questionnaire, from the total 224 individuals 95 % of the participants think that mental health is as important as physical health.

Table 6: Importance of Mental Health Among Individuals

Importance of Mental health	Frequency (n)	Percent (%)
Yes	213	95.1
No	4	1.8
Maybe	7	3.1
Total	224	100

Skipping Breakfast and GHQ:

Total individuals who skipped their breakfast: 109

Maximum individuals (82.56 %) who skipped their breakfast had a high GHQ score.

Table 7: Frequency Of Skipping Breakfast And GHQ

	Frequency (n)	Percentage (%)
Individuals who skipped breakfast and have high GHQ	90	82.56%
Individuals who skip breakfast and have normal GHQ	19	17.44%
TOTAL	109	100 %

One- way ANOVA between GHQ and dietary habits:

Table 8: One- way ANOVA of GHQ and Dietary Habits

Characteristics	F - value	p – value
-----------------	-----------	-----------

Diet pattern	4.443	0.036
Skipping meals	0.805	0.371
Milk	0.003	0.954
Milk products	0.327	0.568
Fruits	3.062	0.082
Chickpea	0.008	0.925
Tea /Coffee with milk	0.072	0.789
Dry fruits	5.086	0.025
Bhakri	10.787	0.001
Chapati	0.571	0.451
Khichadi	3.642	0.058
Pulao	2.534	0.113
Leafy Vegetables	6.990	0.009
Plain steam rice	2.534	0.204
Pulses	4.581	0.033
Egg	0.012	0.912
Chicken	2.349	0.127
Food with added sugar	7.534	0.007
Snack	2.936	0.088

Significant Level (p <0.05)

According to the above table, One-way ANOVA was done between the groups of GHQ and the dietary habits, the significant association was shown in the diet pattern of an individual. The consumption of

pulses and dry fruits was also associated with the GHQ group. Food with added sugar and leafy vegetables and consumption of khichadi, fruits, and bhakri also showed a significant association.

Whereas when the One- way ANOVA was done between the BMI with the dietary habits, there was a significant difference between GHQ and consumption of milk as well as dry fruits. Consumption of tea/coffee with milk and junk food also showed slight differences as shown in Table no. 9 and 10.

Similarly Khanna S. et al., found that there is an association between breakfast consumption and daily milk intake in the year 2016. Also, a study was done by A. P. Smith had proved that eating breakfast regularly improves mental well-being and reduces stress in the form of a reduced cortisol level among adults. Other research articles also showed a similar association between dietary habits and mental health.

Chi- Square (BMI and Dietary habits)

Table 9: Chi-Square (BMI- Dietary Habits)

Characteristics	χ^2 value	p- value
Tea/coffee with milk	13.464	0.097
Milk	19.062	0.015
Carbonated drink	13.521	0.095
Junk	13.576	0.094

Significant Level (p<0.05)

One –way ANOVA (BMI and Dietary habits)

Table 10: ANOVA (BMI -Dietary Habits)

CHARACTERISTICS	F- value	p- value

Milk	4.199	0.016
Dry fruits	4.361	0.014
Tea/coffee with milk	2.372	0.096
Plain rice	2.575	0.078
Junk	2.562	0.079
Snack	2.398	0.093

Significant Level (p<0.05)

Correlation between BMI and GHQ: Positive correlation observed between BMI and GHQ.

Table 11: Correlation between BMI-GHQ

Correlation		BMI	GHQ
BMI	Pearson coefficient	1	0.073
	Sig. (2-tailed)		0.275
	N	224	224
GHQ	Pearson coefficient	0.073	1
	Sig. (2-tailed)	0.275	
	N	224	224

Significant Level (p<0.05)

Correlation between individuals BMI and GHQ score showed positive correlation, as BMI of the participants increases the GHQ score were also increased.

Correlation between GHQ and Dietary Habits:

Table 12: Correlation Of GHQ and Dietary Habits

Correlation		GHQ	Milk consumption	Chapati	Fish Food
GHQ Score	Pearson coefficient Sig. (2-tailed) N	1 224	- 0.042 0.528 224	-0.009 0.896 224	-0.065 0.333 224
Milk consumption	Pearson coefficient Sig. (2-tailed) N	- 0.042 0.528 224	1 224	0.112 0.096 224	0.065 0.333 223
Chapati	Pearson coefficient Sig. (2-tailed) N	-0.009 0.896 224	0.112 0.096 224	1 224	0.112 0.096 224
Fish Foods	Pearson coefficient Sig. (2-tailed) N	-0.065 0.333 224	0.065 0.333 223	0.112 0.096 224	1 224

Significant Level (p<0.05)

According to the above table, when the correlation was done in between GHQ scores of individuals with the consumption of milk, chapati, and fish food, the negative correlation was found.

Correlation between BMI and Dietary habits:

Negative correlation was found between BMI and consumption of chickpeas of the participants.

Table 13: Correlation of BMI and Dietary Habits

Correlation		BMI	Chickpea
BMI	Pearson coefficient Sig. (2-tailed) N	1 224	-0.058 0.391 224
Chickpea	Pearson coefficient Sig. (2-tailed) N	-0.058 0.391 224	1 224

Significant Level (p<0.05)

Correlation between GHQ questionnaire and GHQ score : Significant level (p < 0.05)

Table 14: Correlation between Concentration and Dietary Habits

Correlation		Diet pattern	Skipping Meals	Milk	Dry fruits	Fruits
Be able to concentrate on whatever you are doing?	Pearson Correlation Sig. (2-tailed) N	-0.114 0.089 224	-0.052 0.435 224	0.083 0.219 224	0.168 0.012 224	0.99 0.139 224

Table 15: Correlation between Sleep and Dietary Habits

CORRELATION		Milk	Dry fruits	Fruits	Fish food
Lost much sleep due to worries	Pearson Correlation Sig. (2-tailed) N	-0.004 0.950 224	-0.007	0.000	-0.038

Table 16: Correlation between Stress and Dietary Habits.

CORRELATION		Skipping meals	Chickpea	Fish food
Felt constantly under strain	Pearson Correlation Sig. (2-tailed) N	0.035	-0.032	-0.051

Table 17: Correlation of Feeling and Unhappy And Dietary Habits

CORRELATION		Skipping meals	Dry fruits	Chickpea	Fish food
Feeling unhappy and stressed	Pearson Correlation Sig. (2-tailed) N	0.000	-0.23	-0.075	-0.017

According to the above tables(14,15,16 and 17), a negative correlation is found in dietary habits i.e. consumption of milk, dry fruit, fruits and skipping meals to sleep, and feeling unhappy respectively. And negative correlation was found between milk consumption and the concentration of the individuals, the individuals who were consuming milk daily were able to concentrate more than who were not.

Activities young adults prefer to do when in stress:

It was observed that the majority of the individuals prefer listening to music when they were in stress and some of them also prefer being alone and sleeping when they were in stress. Also, 20-30 % of the individuals talk to their friends and family when they were in stress. (also shown in Figure 38)

Table 18: Activities Done In Stress

	Frequency (n)	Percent (%)
Listening to Music	86	38.4
Talk to your friends and family	45	20.1
Talking to your friends, family, Listening to music	35	15.6
Dancing	21	9.4
Being alone	15	6.7
Other (reading, cooking, etc)	22	9.8
Total	224	100

CONCLUSION

At certain levels dietary habits can be beneficial to mental health well-being as it is for physical health.

Young adults should be aware of the foods which are good for mental health. Skipping meals and having unhealthy diets may affect the mental health of young adults of age 18-24 years. The significance was found in the consumption of fruits and chickpeas with GHQ. It was also seen that the maximum of the individuals who skipped breakfast had a high GHQ score and also the milk consumption was negatively correlated with the GHQ score, i.e. if the individual who consumed milk daily had a normal GHQ score. A significant association ($p < 0.005$) was found between milk consumption and mental well-being suggesting that intake of milk with breakfast may improve the mental well-being of the subjects. Dry fruits and chickpeas consumption was also negatively correlated with feeling unhappy and depressed. The BMI and GHQ were also correlated and a positive correlation was found. It was also seen that young adult listens to music to feel relief when under stress. Therefore, Having a healthy dietary habits may be beneficial for good physical health as well as mental health for young adults of age 18-24 years.

Hence, this study recommends that awareness and education about healthy diets should be given to young adults.

REFERENCE

1. Shanmugapriya S., Anantheshwar V. M., Dhivagar J., Jain T., "A Study On Association Between Dietary Eating Habits And Mental Health Among Medical Students In Kancheepuram District, Tamil Nadu", National Journal of Community Medicine, 2021, 12 (10), 331-335.
2. Moreno L.A., Rodriguez G., Fleta J., Bueno-Lozano M., Lazaro A., & Bueno G., "Trends Of Dietary Habits In Adolescents", Critical Reviews In Food Science And Nutrition, February 2010, 50 (2), 106-112.
3. Lim S. Y., Kim E. J., Kim A., Lee H. J., Choi H. J., Yang S. J., "Nutritional Factors Affecting Mental Health, Clinical Nutrition Research", 2016, 5 (3), 143-152.
4. Ljungberg T., Bondza E., Lethin C., "Evidence Of The Importance Of Dietary Habits Regarding Depressive Symptoms And Depression", International journal of environmental research and public health, 2020, 17 (5), 1616.
5. Kris-Etherton P. M., Petersen K. S., Hibbeln J. R., Hurley D., Kolick V., Peoples S., Woodward-Lopez G., "Nutrition And Behavioral Health Disorders: Depression And Anxiety", Nutrition reviews, 2021, 79 (3), 247-260.
6. Gibiino G., De Siena M., Sbrancia M., Binda C., Sambri V., Gasbarrini A., Fabbri, C., "Dietary Habits And Gut Microbiota In Healthy Adults: Focusing On The Right Diet. A Systematic Review", International Journal of Molecular Sciences, 2021, 22 (13), 6728.
7. Bhattacharyya M., Marston L., Walters K., D'Costa G., King M., Nazareth I., "Psychological Distress, Gender And Dietary Factors In South Asians: A Cross-Sectional Survey", Public Health Nutrition, 2021, 17 (7), 1538-1546.
8. Mukherjee R., Chaturvedi S., "A Study Of The Dietary Habits Of School Children In Pune City, Maharashtra, India", International Journal of Community Medicine and Public Health, 2017, 4 (2), 593-597.
9. Khanna S., Dharap A., Gokhale D, "Breakfast eating habits and its association with mental well-being and mindful attention awareness among university students of Pune district, Maharashtra, India", Int J Community Med Public Health, June 2016, 3 (6), 1584-1588.

10. Bremner J. D., Moazzami K., Wittbrodt M. T., Nye J. A., Lima B. B., Gillespie C. F., Rapaport M H, Pearce B D, Shah A J, Vaccarino, V., “Diet, Stress And Mental Health”, *Nutrients*, August 2020, 12 (8), 2428.
11. Sanchez-Villegas A., Henriquez P., Bes-Rastrollo M., Doreste J., “Mediterranean Diet And Depression”, *Public health nutrition*, December 2006, 9 (8A), 1104-1109.
12. Hebert J. R., Gupta P. C., Bhonsle R. B., Sinor P. N., Mehta H., Mehta, F. S., “Development And Testing Of A Quantitative Food Frequency Questionnaire For Use In Gujarat, India”, *Public Health Nutrition*, March 1999, 2 (1), 39-50.
13. Telles S., Bhardwaj A. K., Gupta R. K., Kumar A., Balkrishna A., “Development Of A Food Frequency Questionnaire To Assess Dietary Intake For The Residents Of The Northern Region Of India”, *Indian Journal of Ancient Medicine and Yoga*, 2016, 9 (4), 139-147.
14. Rathore D., Rana S., Chadha, N. K., “Psychometric Assessment Of The Ghq-12 (General Health Questionnaire-12 Items): Evaluating The Reliability, Validity, And Comparison Of Factor Structure In Indian Undergraduate Students”, *International Journal of Indian Psychology*, October 2022, 10 (3).
15. Praveen C., Kashyap G. C., “Assessment Of Psychological Well-Being Of Waste-Pickers Of Mumbai, India”, *Asian Journal of Epidemiology*, 2017, 10 (3), 138-143.
16. Del Pilar Sánchez-López M., Dresch V., “The 12-Item General Health Questionnaire (Ghq-12): Reliability, External Validity, And Factor Structure In The Spanish Population”, *Psicothema*, November 2008, 20 (4), 839-843.
17. Banks M. H., Clegg C. W., Jackson P. R., Kemp N. J., Stafford E. M., Wall, T. D., “The Use Of The General Health Questionnaire As An Indicator Of Mental Health In Occupational Studies”, *Journal of occupational psychology*, 1980, 53 (3), 187-194.
18. Takashima N., Katayama A., Dokai Mochimasu K., Hishii S., Suzuki H., Miyatake N., “A Pilot Study Of The Relationship Between Diet And Mental Health In Community-Dwelling Japanese Women”, *Medicina*, August 2019, 55 (9), 513.
19. Akbari V., Asayesh H., Sharififard F., Qorbani M., Elahi A., Heidarpour A, “Breakfast Consumption As A Test Anxiety Predictor Among Paramedical Students”, *Journal of Nursing and Midwifery Sciences*, 2020, 7 (1), 47-51
20. O’Sullivan T. A., Robinson M., Kendall G. E., Miller M., Jacoby P., Silburn S. R., Oddy W. H., “A Good-Quality Breakfast Is Associated With Better Mental Health In Adolescence”, *Public Health Nutrition*, February 2009, 12 (2), 249-258.
21. Smith A. P. “Breakfast And Mental Health”, *International Journal of food sciences and Nutrition*, September 1998, 49 (5), 397-402.
22. Lesani A., Mohammadpoorasl A., Javadi M., Esfeh J. M., Fakhari A, “Eating Breakfast, Fruit And Vegetable Intake And Their Relation With Happiness In College Students”, *Eating and weight disorders-studies on anorexia, bulimia, and obesity*, December 2016, 21 (4), 645-651.
23. Begdache L., Chaar M., Sabounchi N., Kianmehr H, “Assessment Of Dietary Factors, Dietary Practices And Exercise On Mental Distress In Young Adults Versus Matured Adults: A Cross-Sectional Study”, *Nutritional Neuroscience*, July 2019, 22 (7), 488-498.
24. Moitra P., Madan J., Shaikh N. I, “Eating Habits And Sleep Patterns Of Adolescents With Depression Symptoms In Mumbai, India”, *Maternal & Child Nutrition*, December 2020, 16 (3).

25. Gratão L. H. A., Pessoa M. C., Rodrigues da Silva T. P., Rocha L. L., Louise Cassimiro Inácio M., Resende Prado Rangel de Oliveira T., Mendes L. L., “Dietary Patterns, Breakfast Consumption, Meals With Family And Associations With Common Mental Disorders In Adolescents: A School-Based Cross-Sectional Study”, BMC Public Health, May 2022, 22 (1), 980.
26. Cook R., Benton D., “The Relationship Between Diet And Mental Health”, Personality and individual differences, March 1993, 14 (3), 397-403.
27. Bertasi R. A., Humeda, Y., Bertasi T. G., Zins Z., Kimsey J., Pujalte G., Pujalte G. G., Caffeine Intake And Mental Health In College Students”, Cureus, April 2021,13 (4).
28. Luppino F. S., de Wit, L. M., Bouvy P. F., Stijnen T., Cuijpers P., Penninx B. W., Zitman F. G., “Overweight, Obesity, And Depression: A Systematic Review And Meta-Analysis Of Longitudinal Studies”, Archives of general psychiatry, March 2010, 67 (3), 220-229.
29. Ha H., Han C., Kim B., “Can Obesity Cause Depression? A Pseudo-Panel Analysis”, Journal of Preventive Medicine and Public Health, July 2017, 50 (4), 262.
30. Scott K. M., McGee M. A., Wells J. E., Browne, M. A. O., “Obesity And Mental Disorders In The Adult General Population”, Journal of psychosomatic research, January 2008, 64 (1), 97-105.
31. Zeiler M., Philipp J., Truttmann S., Waldherr K., Wagner G., Karwautz A., “Psychopathological Symptoms And Well-Being In Overweight And Underweight Adolescents: A Network Analysis”, Nutrients, 2021, 13 (11), 4096.
32. Mond J., Rodgers B., Hay P., Owen C ., “Mental Health Impairment In Underweight Women: Do Body Dissatisfaction And Eating-Disordered Behavior Play A Role? ”, BMC public health, July 2011, 11, 1-10.
33. Harpham T., Huttly S., De Silva M. J., Abramsky T., “Maternal Mental Health And Child Nutritional Status In Four Developing Countries”, Journal of Epidemiology & Community Health, December 2005, 59 (12), 1060-1064.
34. Pengpid S., Peltzer K., “Risk Of Disordered Eating Attitudes And Its Relation To Mental Health Among University Students In ASEAN”, Eating and Weight Disorders-Studies on Anorexia, Bulimia, and Obesity, 2018, 23, 349-355.
35. McLaren L., Beck C. A., Patten S. B., Fick G. H., Adair C. E., “The Relationship Between Body Mass Index And Mental Health: A Population-Based Study Of The Effects Of The Definition Of Mental Health”, Social Psychiatry and psychiatric epidemiology, January 2008, 43, 63-71.
36. Kalantari N., Doaei S., Gordali M., Rahimzadeh, G., Gholamalizadeh M., “The Association Between Dairy Intake, Simple Sugars, And Body Mass Index With Expression And Extent Of Anger In Female Students”, Iranian journal of psychiatry, 2016, 11 (1), 43.
37. Sarlio-Lähteenkorva S., Lahelma E., Roos E., “Mental Health And Food Habits Among Employed Women And Men”, Appetite, April 2004, 42 (2), 151-156.
38. Hong S. A., Peltzer K., “Dietary Behaviour, Psychological Well-Being And Mental Distress Among Adolescents In Korea”, Child and Adolescent Psychiatry and Mental Health, 2017, 11 (1), 1-12.
39. Hakkarainen R., Partonen T., Haukka J., Virtamo J., Albanes D., Lönnqvist J., “Food And Nutrient Intake In Relation To Mental Wellbeing”, Nutrition Journal, September 2004, 3 (1), 1-5.
40. Singh A. P., Misra, G., “Adolescent Lifestyle In India: Prevalence Of Risk And Promotive Factors Of Health”, Psychology and Developing Societies, September 2012, 24 (2), 145-160.

41. Singh M. M., Parsekar S. S., TV B., “Body Image, Eating Disorders And Role Of Media Among Indian Adolescents”, *Journal of Indian Association for Child and Adolescent Mental Health*, January 2016, 12 (1), 9-35.
42. Kulkarni A. A., Swinburn B. A., Utter J., “Associations Between Diet Quality And Mental Health In Socially Disadvantaged New Zealand Adolescents”, *European Journal of Clinical Nutrition*, January 2015, 69 (1), 79-83.
43. Parletta N., Zarnowiecki D., Cho J., Wilson A., Bogomolova S., Villani A., O’Dea K., “A Mediterranean-Style Dietary Intervention Supplemented With Fish Oil Improves Diet Quality And Mental Health In People With Depression: A Randomized Controlled Trial (Helfimed)”, *Nutritional Neuroscience*, July 2019, 22 (7), 474-487.
44. Hafizurrachman M., Hartono R. K., “Junk Food Consumption And Symptoms Of Mental Health Problems: A Meta-Analysis For Public Health Awareness”, *Kesmas: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal)*, 2021, 16 (1).
45. Sabnis M., “Viruddha Ahara: A critical view”, *Ayu*, 2012, 33 (3), 332.
46. El Ansari W., Adetunji H., Oskrochi R., “Food And Mental Health: Relationship Between Food And Perceived Stress And Depressive Symptoms Among University Students In The United Kingdom”, *Central European Journal of public health*, June 2014, 22 (2), 90-97.
47. Ihbou S., Arfaoui A., Boulbaroud S., Chigr F., “Self-Reported Dietary Habits And Intensity Of Negative Emotions: From A Population Of Moroccan University Students”, *Current Research in Nutrition and Food Science Journal*, 2022, 10 (3), 1077-1091.
48. Brookie K. L., Best G. I., Conner T. S., “Intake Of Raw Fruits And Vegetables Is Associated With Better Mental Health Than Intake Of Processed Fruits And Vegetables”, *Frontiers in Psychology*, 2018, 487.
49. SY W., PL L., “Chocolate: Food For Moods”, *Malaysian Journal of Nutrition*, August 2011, 17 (2).
50. Kenney S. R., DiGuiseppi G. T., Meisel M. K., Balestrieri S. G., Barnett N. P., “Poor Mental Health, Peer Drinking Norms, And Alcohol Risk In A Social Network Of First-Year College Students”, *Addictive behaviors*, 2018, 84, 151-159.
51. Mason-Jones A. J., Cabieses B., “Alcohol, Binge Drinking And Associated Mental Health Problems In Young Urban Chileans”, *PLoS one*, April 2015, 10 (4), e0121116.
52. Keith D. R., Hart C. L., McNeil M. P., Silver R., Goodwin R. D., “Frequent Marijuana Use, Binge Drinking And Mental Health Problems Among Undergraduates”, *The American Journal on Addictions*, 2015, 24 (6), 499-506.
53. Boden J. M., Fergusson D. M., “Alcohol and depression”, *Addiction*, May 2011, 106 (5), 906-914.
54. Mendelsohn C., “Smoking And Depression: A Review”, *Australian family physician*, 2012, 41 (5), 304-307.
55. Dickinson D. L., Wolkow A. P., Rajaratnam S. M., Drummond S. P., “Personal Sleep Debt And Daytime Sleepiness Mediate The Relationship Between Sleep And Mental Health Outcomes In Young Adults”, *Depression and anxiety*, 2018, 35 (8), 775-783.