PREVALENCE OF DEPRESSION, ANXIETY AND STRESS AMONG COLLEGE STUDENTS AND CORRELATION OF PSYCHOLOGICAL FACTORS AND NUTRITION AMONG THEM"

ST.TERESA'S COLLEGE

(AUTONOMOUS)

PROJECT SUBMITTED

In Partial Fulfillment of the Requirement for the Award of the degree of

B.Sc NUTRITION AND DIETETICS

BY

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Register No: SB20ND021

DEPARTMENT OF CLINICAL NUTRITION AND DIETETICS

ST.TERESA 'S COLLEGE (AUTONOMOUS)

ERNAKULAM

APRIL 2023

CERTIFIED AS BONAFIDE RESEARCH WORK

DECLARATION

I hereby declare that the project entitled "**PREVALENCE OF DEPRESSION, ANXIETY AND STRESS AMONG COLLEGE STUDENTS AND CORRELATION OF PSYCHOLOGICAL FACTORS AND NUTRITION AMONG THEM**" submitted in partial fulfilment of the requirement for the award of the degree of B.Sc Nutrition and Dietetics is a record of original research work done by me under the supervision and guidance of **Ms. Anna Reenu Shaji** , Assistant Professor, Department of Clinical Nutrition and Dietetics, Women's Study Centre, St. Teresa's College (Autonomous), Ernakulam and has not been submitted in part or full of any other degree/diploma/fellowship or the similar titles to any candidate of any other university.

Place: ERNAKULAM Safa Mariyam

Date: 18/04/2023

CERTIFICATE

I here certify that the project entitled "**PREVALENCE OF DEPRESSION, ANXIETY AND STRESS AMONG COLLEGE STUDENTS AND CORRELATION OF PSYCHOLOGICAL FACTORS AND NUTRITION AMONG THEM**" submitted in partial fulfilment of the requirement for the award of the degree of B.Sc Nutrition and Dietetics is a record of original work done by Ms. Safa Mariyam during the period of the study under my guidance and supervision.

Signature of the HOD

Ms. Surya M. Kottaram

Head of the Department

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Signature of the Research Guide with designation

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SAFA MARIYAM

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INTRODUCTION

According to WHO (2021), depression is a common mental disorder. Globally, it is estimated that 5% of adults suffer from the disorder. It is characterized by persistent sadness and a lack of interest or pleasure in previously rewarding or enjoyable activities. It can also disturb sleep and appetite. Tiredness and poor concentration are common. Depression is a leading cause of disability around the world and contributes greatly to the global burden of disease. The effects of depression can be long-lasting or recurrent and can dramatically affect a person's ability to function and live a rewarding life.

According to WHO (2022), anxiety disorders are characterized by excessive fear and worry and related behavioral disturbances. Symptoms are severe enough to result in significant distress or significant impairment in functioning. There are several different kinds of anxiety disorders, such as: generalized anxiety disorder (characterized by excessive worry), panic disorder (characterized by panic attacks), social anxiety disorder (characterized by excessive fear and worry in social situations), separation anxiety disorder (characterized by excessive fear or anxiety about separation from those individuals to whom the person has a deep emotional bond), and others. Effective psychological treatment exists, and depending on the age and severity, medication may also be considered.

WHO (2023), defined stress as a state of worry or mental tension caused by a difficult situation. Stress is a natural human response that prompts us to address challenges and threats in our lives. Everyone experiences stress to some degree.

According to WHO (2021), nutrition is a critical part of health and development. Better nutrition is related to improved infant, child and maternal health, stronger immune systems, safer pregnancy and childbirth, lower risk of non-communicable diseases (such as diabetes and cardiovascular disease), and longevity. Healthy children learn better. People with adequate nutrition are more productive and can create opportunities to gradually break the cycles of poverty and hunger.

The mental health of college students is an area of adding concern worldwide. Anxiety and stress scores were higher among female students. First and second year students had higher scores for depression, anxiety and stress. Students who were satisfied with their studies had lower scores of depression, anxiety and stress than those who were dissatisfied. There is an alarming high prevalence of depression, anxiety and stress symptoms among college students. This shows the need for primary and secondary preventive measures, with the provision of adequate and appropriate support services for this group. Depression and anxiety are widespread conditions throughout the world. The factors related to these morbidities may be divided into academic and non-academic factors.

University students, particularly those in their first year, confront difficulties that affect both their personal lives and academic performance. They are more susceptible to psychological diseases like sadness and anxiety due to these unfavorable circumstances.

Saiful Islam, Rejina Akter et al; (2020) polled first-year undergraduate students to determine the prevalence of depression and anxiety as well as any possible underlying causes. At Jahangirnagar University, 400 first-year students between the ages of 18 and 23 participated ina cross-sectional survey (in Bangladesh). They reported that 69.5% and 61%, respectively, of adults, had moderate to extremely severe levels of anxiety and depression, with no discernible gender differences. Poor sleep quality and a lack of exercise were the biggest risk factors for depression. Overuse of the internet was the primary risk factor for anxiety. They concluded that first-year university students are particularly susceptible to mental diseases and seem to be supported by the high frequency of sadness and anxiety among them. The findings point to the necessity for intervention programmes as well as enough and suitable supportive services for them.

Since the onset of the COVID-19 pandemic, rates of anxiety and depression among college students have increased considerably. A recent study showed that one in three students suffers from severe depression and anxiety. Anxiety, even if it is as common and perhaps as debilitating as depression, has received less attention and often goes unnoticed and under-treated in the general population. Sadly , up to 75% of students struggling with depression and anxiety are hesitant to reach out for help. This raises the possibility of harmful outcomes, such as dropping out of college, poor academic performance, suicide and substance abuse.

Siddharth Sarkar et al; (2017) did a systematic review of depression, anxiety, and stress among medical students in India. The prevalence rates for stress, anxiety, and depression were

combined. The prevalence of depression ranged from 8.7% to 71.3%, with an overall prevalence rate of 39.2% based on data from 16 studies. Comparably, the combined prevalence rates for stress and anxiety from 28 investigations was 51.3% and 34.5%, respectively. They concluded that the college students in India experience different vicissitudes and tensions than students in the West and also concluded that, compared to male students, female students had higher levels of stress and depression.

Many college students in India suffer from depression, anxiety, and stress. To address their issues and make mental health care easily available to them, systemic initiatives are required. College students may have a number of negative repercussions from the mounting stress, including poor quality of life and academic risk. As a result, high rates of psychological morbidity and low quality of life can be brought on by high rates of depression, anxiety, and stress. 7.7% of undergraduate students exhibited moderate-to-severe anxiety, and 4.3% of them were said to have a serious Internet addiction. The symptoms of general anxiety, psychic anxiety, and somatic anxiety were found to significantly positively correlate with internet addiction. Anxiety greatly influences regression analysis' ability to predict undergraduate students' Internet addiction. When students are stressed, anxious, or depressed, they may have a propensity to use the Internet excessively to combat their negative emotions, sleep problems, anxieties, feelings of guilt, and hopelessness.

A study was conducted by Shilpa Suresh Bisen and Yogesh Deshpande in 2020, to ascertain the prevalence, predictors, and psychological correlates of internet addiction among Indian college students. In this study, a large sample of Indian college students was examined to determine the prevalence of internet addiction, psychological correlates of internet addiction, and predictors of internet addiction with the purpose of synthesizing data. A comprehensive survey of 1600 college students was carried out on a randomly chosen sample. In order to gather pertinent information, the Beck Depression Inventory, Beck Anxiety Inventory, and Barratt Impulsivity Scale were used. The scores on internet addiction, sadness, anxiety, and impulsivity were considerably higher in the Internet Addict (IAD) group than in the Non-Internet Addict (N-IAD) group, according to a comparison of the clinical characteristics of the IAD and N-IAD groups. In India, a thorough study of a sizable sample of college students produced a prevalence of 12.5%. Measures of sadness, anxiety, and impulsivity have a stronger relationship with IAD than the N-IAD group.

Jaison Joseph et al; (2021), in Kerala, took data from national and state level which reported mental health morbidity from 2002 to 2018. They compared the prevalence of mental health illness and disability reported in Kerala with national estimates. And found the prevalence of both indicators was higher among males , as compared to females. People with mental illness per 100,000 population was approximately three times higher in Kerala when compared with the national average. NSS 76th round data (from 2018) showed higher burden of intellectual disability and mental illness in Kerala calculated in person per 100,000 when compared with the national average Besides depression, other mental issues including schizophrenia, bipolar disorder and alcohol-related mental disease, were also prevalent among state people, the survey conducted by the Kerala State Mental Health Authority and National Health Mission(June 2021) said. It also found that one in every eight persons, that is 12.43 percent of people covered under the survey, required psychiatric intervention. The survey also found that the majority of students were getting treatment for mental health issues while few were yet to get proper treatment. Around 60% college students in the state have experienced mental depression in varied degrees since the outbreak of Covid-19 and at least 55% youngsters pursuing UG and PG courses in arts and science colleges are too worried about their future. According to the study, a small group of college students in arts and science colleges in the state suffer from 'mild' mental depression while a very small proportion of students suffer from moderately severe depression. Around 6% suffer from severe depression.

Significance of the study

University students are a special segment of the society that enters a critical phase of development from adolescence to adulthood, during which they experience a lot of emotional and physiological changes which can lead to social withdrawal, low self esteem, self doubt and loneliness. Various factors contribute to their development, such as geographical changes, academic stress and financial problems, and students are more prone to developing mental health disorders. These all reasons make it very essential for them to develop coping mechanisms. Therefore university student's worldwide are at higher risk of developing mental health problems particularly depression. There's a strong correlation between depression, anxiety and stress . Few researchers have been prompted to investigate whether the emotional status of these differ from each other and differ due to nutrition.

REVIEW OF LITERATURE

The retrieval of relevant literature pertaining to the study "**PREVALENCE OF DEPRESSION, ANXIETY AND STRESS AMONG COLLEGE STUDENTS**" was done from published articles, journals, books and other related sources. The obtained literature reviews were categorized and presented in the following sections:

2.1) Definition of depression, anxiety, stress and nutrition

2.2) Identify the validity of dass-21 scale

2.3) Relation between nutrition and mental health

2.4) Effect of chronic stress on our body

2.5) Relation between stress and food absorption

2.6) Nutritional status and influence of diet on stress

2.1) Definition of depression, anxiety, stress and nutrition

According to WHO, depression is a common mental disorder. Globally, it is estimated that 5% of adults suffer from the disorder. It is characterized by persistent sadness and a lack of interest or pleasure in previously rewarding or enjoyable activities. It can also disturb sleep and appetite. Tiredness and poor concentration are common. Depression is a leading cause of disability around the world and contributes greatly to the global burden of disease. The effects of depression can be long-lasting or recurrent and can dramatically affect a person's ability to function and live a rewarding life.

According to WHO, anxiety disorders are characterized by excessive fear and worry and related behavioral disturbances. Symptoms are severe enough to result in significant distress or significant impairment in functioning. There are several different kinds of anxiety disorders, such as: generalized anxiety disorder (characterized by excessive worry), panic disorder (characterized by panic attacks), social anxiety disorder (characterized by excessive fear and

worry in social situations), separation anxiety disorder (characterized by excessive fear or anxiety about separation from those individuals to whom the person has a deep emotional bond), and others. Effective psychological treatment exists, and depending on the age and severity, medication may also be considered.

WHO defined stress as any type of change that causes physical, emotional or psychological strain. Stress is your body's response to anything that requires attention or action. Everyone experiences stress to some degree. The way you respond to stress, however, makes a big difference to your overall well-being.

According to WHO, nutrition is a critical part of health and development. Better nutrition is related to improved infant, child and maternal health, stronger immune systems, safer pregnancy and childbirth, lower risk of non-communicable diseases (such as diabetes and cardiovascular disease), and longevity. Healthy children learn better. People with adequate nutrition are more productive and can create opportunities to gradually break the cycles of poverty and hunger.

Mohsen Mirzaei, Seyed Mojtaba Yasini Ardekani et al; (2019) aimed to investigate the prevalence of stress, anxiety, and depression in the Yazd adult population and to examine the associated socioeconomic factors. Despite achievements in higher education and economic development of the Yazd population over the past 2 decades, the trend of these disorders has alarmingly increased. Considering the findings, it is necessary to develop evidence-based and appropriate community-based primary and secondary mental health prevention programs.

Saba Asif et al; (2020) aimed to study the frequency of depression, anxiety and stress among university students in Sialkot, Pakistan. Survey research method was used to collect data from three universities of Sialkot by using simple random sampling techniques from 500 university students. A demographic sheet and DASS-21 (Depression, Anxiety Stress Scale) were used to measure the level of depression, anxiety and stress. Data was scored according to the standard scoring procedure for each subscale and for further analysis frequency distribution method was applied through statistical package for social sciences (SPSS. 21). It was concluded that symptoms of anxiety and stress are more prevalent with moderate to extremely severe range than depression in the current sample. The findings suggested an urgent need for some preventive measures and interventions to improve the mental health of students.

Narayan R Mutalik et al; (2016) aimed to assess the symptoms of depression, anxiety, and stress among undergraduate students studying in a govt. degree college, Bagalkot. A total of 133 undergraduate students from Govt. First Grade College, Bagalkot, were included based on a universal sampling method. Questionnaires based study was conducted using the Depression Anxiety, Stress Scale (DASS-21) and General health questionnaire (GHQ-28) for assessing the severity of Depression, Anxiety, Stress and emotional distress among students respectively. Results indicated high grades of depression, anxiety and stress among undergraduate students which indicated the amount of burden students have to bear in the current scenario. They concluded that early interventions are needed to improve the quality of life and reduce the stress among students.

Gao Wenjuan, Ping Siqing et al; (2019) aimed to examine the gender differences in college student's depression, anxiety, and stress over the four academic years, and to explore possible anxiety-related factors among first year students. The study analyzed 1892 undergraduate students from 15 universities in China, with 898 females and 994 males. The students have been followed for four years and completed a survey containing the Depression Anxiety Stress Scale-21 questionnaire, students' socio-demographic information, and their educational background, etc. Anxiety turned out to be the most prevalent and serious issue for college students, especially for female students; while a growing prevalence of depression was found among male students during college. It is of great significance to adopt collegiate policies reflecting the gender differentials.

2.2) Identify the validity of dass-21 scale

The short version of the Depression Anxiety Stress Scale-21 (DASS-21) was developed to provide a self-report measure of anxiety, depression and stress signals. The DASS-21 has been translated and validated in many languages and used with several ethnic groups. It is widely used to assess symptoms of mental suffering in clinical and non-clinical adult samples. A growing number of studies of adolescents apply the DASS-21 to identify signs of anxiety, depression and stress; however, most studies investigating the validity of the DASS-21 constructs were conducted with adults, making it difficult to extrapolate the scale efficiency items to recognize the physiological symptoms in adolescents.

Minh Thi Hong Le et al; (2017) assessed the internal consistency, latent structure and convergent validity of the Depression, Anxiety and Stress Scale-21 (DASS-21) among adolescents in Vietnam. An anonymous, self-completed questionnaire was conducted among 1,745 high school students in Hanoi. They concluded that the DASS-21 is reliable and suitable for use to assess symptoms of common mental health problems, especially depression and anxiety among Vietnamese adolescents. However, its ability in detecting stress among these adolescents may be limited.

Julie D. Henry and John R. Crawford (2011) aimed to test the construct validity of the short-form version of the Depression anxiety and stress scale (DASS-21), and in particular, to assess whether stress as indexed by this measure is synonymous with negative affectivity (NA) or whether it represents a related, but distinct, construct. To provide normative data for the general adult population. The DASS-21 was administered to a non-clinical sample, broadly representative of the general adult UK population (*N*=1,794). Competing models of the latent structure of the DASS-21 were evaluated using CFA. They concluded that the DASS-21 subscales can validly be used to measure the dimensions of depression, anxiety, and stress. However, each of these subscales also taps a more general dimension of psychological distress or NA. The utility of the measure is enhanced by the provision of normative data based on a large sample.

Abebaw M. Yohannes PhD, FCCP et al; (2018) examined the validity and responsiveness of the Depression Anxiety and Stress Scales-21 (DASS-21) in patients with COPD following an 8-week pulmonary rehabilitation program (PRP). Five hundred and fifty-seven patients with clinically stable COPD completed an 8-week outpatient multidisciplinary PRP were the subjects. Anxiety, exercise capacity, quality of life, and dyspnea were measured pre- and post-PRP, utilizing the Anxiety Inventory for Respiratory Disease, Incremental Shuttle Walk Test, St. George's Respiratory Questionnaire, and modified Medical Research Council dyspnea scale, respectively. In addition, we administered the DASS-21 to assess both the validity and responsiveness of this tool compared with other, well-established metrics. They concluded that the DASS-21 has acceptable validity and is a responsive scale for use in PRP in patients with COPD.

2.3) Relation between nutrition and mental health

The greatest burden of illness today is caused by mental, neurological, and substance use disorders. The chance of developing depression and other psychopathologies increases when they coexist with other health risks like obesity. There is evidence linking nutrition to behavior, mood, and the pathology and management of mental disease.

Walid El Ansari, Hamed Adetunji et al; (2014), evaluated the relationship between nutritional behavior, stress, and depressive symptoms, in a sample from three UK nations, by university and sex. Using a cross-sectional survey, a sample of 3,706 undergraduate students from seven institutions in England, Wales, and Northern Ireland were surveyed. The 12-item Beck Depression Inventory, the Cohen's Perceived Stress Scale, and the 12-item food frequency assessment were all self-administered tests. Comparisons between sex and education were made. For each of the two outcomes, perceived stress and depressive symptoms, univariable and multivariable regression models were run. They concluded that , the associations between eating "unhealthy" foods and greater depressive symptoms among male and female students, as well as the associations between eating "healthy" foods and lesser depressive symptoms among male and female students in three UK countries, suggest that interventions to lessen depressive symptoms and stress among students may also result in the consumption of healthier foods and/or vice versa.

Lisa M. Bodnar and Katherine L. Wisner (2005), found that a modifiable risk factor for depression may be a poor diet's quality. Depression risk is increased by low omega-3 fatty acid levels. Both fish oil and folic acid supplements have been used effectively to treat depression. Antidepressant effectiveness is decreased by folate insufficiency. Folate, vitamin B12, iron, zinc, and selenium deficiencies are more prevalent in melancholy people than in non-depressed people. Antioxidants in food have not been thoroughly investigated in connection to depression.

A study conducted by Charoonsri Chusak, Mutthatinee Tangmongkhonsuk et al ; (2022) , where Thai undergraduate students were asked to answer a series of questions about their eating habits, lifestyles, and quality of life during COVID-19 restrictions. The goal was to find out whether there was any correlation between the length of online learning and these factors. They found that the majority of undergraduate students reported using their digital devices such as computers, tablets, or cellphones more than 6 hours per day (76.1%) and spending 3-6 hours per day on online study (76.9%). In addition, 75.4% of them skipped breakfast (about three times per week), and 63.8% slept for six to eight hours each day. While learning online, there

was a higher percentage of students who drank tea or coffee with milk and sugar. As a consequence of the research, it was discovered that skipping breakfast and drinking sugary beverages more frequently were strongly connected with longer online learning. On the other hand, higher computer, tablet, and smartphone use for online learning was linked to shorter sleep duration and a lower quality of life in terms of mental health. The results of this study add to a report on the relationship between undergraduate students' online learning, food consumption, lifestyle choices, and quality of life, placing emphasis on the need for intervention techniques to encourage healthy choices.

2.4) Effect of chronic stress affect our body

The effects of stress on the nervous system have been investigated for 50 years (Thierry et al; 1968). Some studies have shown that stress has many effects on the human nervous system and can cause structural changes in different parts of the brain (Lupien et al., 2009). Chronic stress can lead to atrophy of the brain mass and decrease its weight (Sarahian et al., 2014). These structural changes bring about differences in the response to stress, cognition and memory (Lupien et al., 2009). Of course, the amount and intensity of the changes are different according to the stress level and the duration of stress (Lupien et al., 2009). However, it is now obvious that stress can cause structural changes in the brain with long-term effects on the nervous system (Reznikov et al., 2007)

The study on stress and its consequences by Ann Pietrangelo, Timothy J. Legg et al; (2017), chronic stress has been found to have a number of harmful impacts on our bodies. The fight-or-flight reaction is triggered by stress. Your respiration, heartbeat, and muscles tighten as you get more anxious. To help you respond quickly in an emergency and safeguard your body, this response was developed .But when the stress response keeps firing, day after day, it could put people's health at serious risk .Your emotional, immunological and digestive systems, as well as your cardiovascular health, can all suffer from long-term stress .Chronic stress can cause a variety of symptoms and affect your overall well-being. Symptoms of chronic stress include ;Irritability, weakest immune system , depression, insomnia, fertility problems, the muscles, stomach-ache etc . It affects the central nervous system, endocrine system, respiratory and cardiovascular system, digestive system, reproductive system and immune system.

The study by William Shaw et al ; (November , 2018) says that Our bodies are well equipped to handle stress in small doses, but when that stress becomes long-term or chronic, it can have serious effects on your body.Stress affects our body a lot, like the musculoskeletal system, Muscle tension is almost a reflex reaction to stress(body's way of guarding against injury and pain). With sudden onset stress, the muscles tense up all at once, and then release their tension when the stress passes. Chronic stress causes the muscles in the body to be in a more or less constant state of guardedness. When muscles are taut and tense for long periods of time, this may trigger other reactions of the body and even promote stress-related disorders. Stress can cause respiratory problems . Stress and strong emotions can present with respiratory symptoms, such as shortness of breath and rapid breathing, as the airway between the nose and the lungs constricts. For people without respiratory disease, this is generally not a problem as the body can manage the additional work to breathe comfortably, but psychological stressors can exacerbate breathing problems for people with pre-existing respiratory diseases. Stress can affect body a lot such as cardiovascular system endocrine system, gastrointestinal system, nervous system, male and female reproductive system etc

2.5) Does stress affect food absorption

- Susan J Torres et al ; (2007) , have looked into how stress affects people's eating habits. The constraints of the study designs complicate our understanding of the stress-eating relationship, but they came to some tentative results that are consistent with the idea that stress can affect people's eating habits. Longitudinal studies have found evidence that chronic life stress may be causally related to weight gain, with a stronger effect in men. One aspect of the emergence of obesity may be stress-induced eating. Future research that measures biological stress markers will help us better understand the physiological process underlying the relationship between stress and eating as well as how stress may be connected to the neurotransmitters and hormones that regulate hunger .Stress-induced eating may be one factor contributing to the development of obesity.

Sofie Thompson et al;2009 study was done to know the effect of food absorption when stress is a major factor And they found that When the stress response is activated, digestion is suppressed so the body can reroute its resources to trigger fight or flight. The central nervous system shuts down digestion by slowing contractions of digestive muscles and decreasing secretions for digestion. If the stress response happens occasionally, the body recovers and

continues with normal functioning. If the stress response is triggered too often, the body has a harder time recovering. This impedes the flow of digestion and can cause stomach upset. It can also contribute to the development of irritable bowel syndrome and/or ulcers. The digestive system cannot function properly with too much stress or stimulation. Thus, we need to practice activating the relaxation response as often as we can.

Tracey Torosian, Ph. D et al ;(July 2021)says that the gut is often referred to as the second brain because it has a nervous system with more neurotransmitters than the brain's central nervous system. When we're stressed, our brain activates and the sympathetic nervous system is our flight-or-fight response: it prepares the body to protect itself against danger by conserving functions that aren't immediately needed for survival. That includes digestion. The emptying of the stomach is delayed, which can lead to a stomachache, indigestion, heartburn and nausea. As the stomach is slowing down, stress causes increased motor function in the large intestine. So at the same time that you're stressed, you might experience bowel urgency or diarrhea.

2.6) Nutritional status and influence of diet on stress

A study was done on stress and appetite by Yvonne H. C. Yau and Marc N. Potenza et al; (2014) and they found that people Experiencing drive to eat, in the absence of true caloric need, is common but is subject to large individual differences. Uncontrollable stress changes eating patterns and the salience and consumption of hyperpalatable foods; over time, this could lead to changes in allostatic load and trigger neurobiological adaptations that promote increasingly compulsive behavior. Stress-induced elevations of GC secretion can intensify emotions and motivation. Chronic stress is often accompanied by anxiety, depression, anger, apathy, and alienation .Weight-related metabolic changes may alter allostatic load. Animal models have provided evidence that obesity is often characterized by a decreased amount of adipose signal or resistance at the receptor level. Individuals with high BMIs show a stronger association between chronic stress and weight gain than those with low BMIs who experience similar degrees of stress

Nutrition can be used as a means of supporting the body during times of stress, increasing resilience, building strength and re-equipping the body with nutrients that may become depleted during periods of chronic stress.

Research has indicated that magnesium and vitamin B6 may support individuals experiencing stress. A study by Pouteau *et al;* (2018) indicated that combined supplementation helped to alleviate stress levels in subjects who were experiencing extreme stress. A further study by Jahangard *et al;* (2019) indicated that individuals who were administered omega-3 fatty acids demonstrated reduced markers of psychological and physiological burnout, including decreased cortisol levels, compared with controls.

METHODOLOGY

Research is an investigation of an idea, subject or topic for a purpose. It enables the researcher to extend knowledge or explore theories. It offers the opportunity to investigate an area of interest from a particular perspective.

The procedure and method followed during the study entitled "**PREVALENCE OF DEPRESSION, ANXIETY AND STRESS AMONG COLLEGE STUDENTS**" is explained under the following heading

3.1) Assessment of nutritional status and psychological factors

3.1.1.Assess the nutritional status of college students

3.1.2. Assess the severity of psychological factors

3.2) selection of area

3.3) selection of subjects

3.4) collection of data

3.1) Assessment of nutritional status and psychological factors

Dietary intake and nutritional status of individuals are important factors affecting the mental health and the development of psychiatric disorders. Mental health disorders affect most of the young adult population (ages 18–25). Common disorders in young adults are major depression , anxiety and stress. The nutritional status of an individual is influenced by a variety of factors, including: Life stage, environment, food access, and socioeconomic status. In turn, each of these factors can influence mental health. There is a strong relationship between nutrition and mental health in adults and has been found to differ between depressed and anxious individuals

. Dietary intake has been found to differ between males and females with mental health disorders.

3.1.1) Assess the nutritional status of college students

We used a food frequency questionnaire to understand the nutritional status of our subjects. A food frequency questionnaire (FFQ) consists of a finite list of foods and beverages with response categories to indicate usual frequency of consumption over the time period queried. The questions we included in it were, how often were each food group consumed, how often they had junk foods, were they on any medication, did they have any sort of diseases , Did they skip their breakfast, do they stress eat and how many meals a day did they consume

3.1.2) Assess the severity of psychological factors

We assessed the psychological factors among college students using DASS-21. The Depression, Anxiety and Stress Scale - 21 (DASS-21) is a set of three self-report scales designed to measure the emotional states of depression, anxiety and stress (21 questions). Each of the three DASS-21 scales contains 7 items, divided into subscales with similar content.

3.2) Selection of area

Ernakulam District was selected for collection of majority of our samples. College students from St. Teresa's College were taken as it was easy and convenient to take subject. Data was also collected from other colleges outside of Ernakulam District.

3.3) Selection of subjects

Hundred samples were selected with the age group 18-26. The subject mainly selected was college students. We took a few subjects from the department of fashion designing (bachelors and masters students) , from nutrition and dietetics department (bachelor and masters students), few from psychology department (bachelors students) and very few from other departments.

3.4) Collection of data

The date was collected using a questionnaire. Printed questionnaire was given to few people (30 sample), rest of the questionnaire was given to people as Google form (70 sample)

Data collected for the study include:

Background information of selected subjects like age, sex, height, weight marital status, department etc was asked

- To identify the prevalence of depression, anxiety, stress among college students and correlation of psychological factors and nutrition among them
- Food frequency questionnaire was used to collect the data of college students
- DASS-21 scale was used to assess the psychological stress among college students

RESULT AND DISCUSSION

The data collected regarding the study entitled "**PREVALENCE OF DEPRESSION, ANXIETY AND STRESS AMONG COLLEGE STUDENTS AND CORRELATION OF PSYCHOLOGICAL FACTORS AND NUTRITION AMONG THEM**(18-25) " was tabulated and discussed under the following heading.

4.1) Results obtained using DASS Scale.

4.1.1) Frequency and Percentage of subjects experiencing depression

4.1.2) Frequency and Percentage of subjects experiencing anxiety

4.1.3) Frequency and Percentage of subjects experiencing stress

4.2. Nutritional status

4.2.1) Frequency of intake of cereals and pulses

4.2.2)Frequency and intake of fruit and vegetables

4.2.3)Frequency and intake of milk and milk products

4.2.4)Frequency and intake of meat and meat produced

4.2.5)Frequency of intake of junk food.

4.2.6) Number of meals consumed by subjects.

4.2.7) Number of subjects skiing breakfast

4.3) Assessment of health status of the subjects.

4.3.1) Number of subjects having food Allergy

4.3.2) Number of subjects suffering from a disease

4.3.3)Number of subjects on Medications

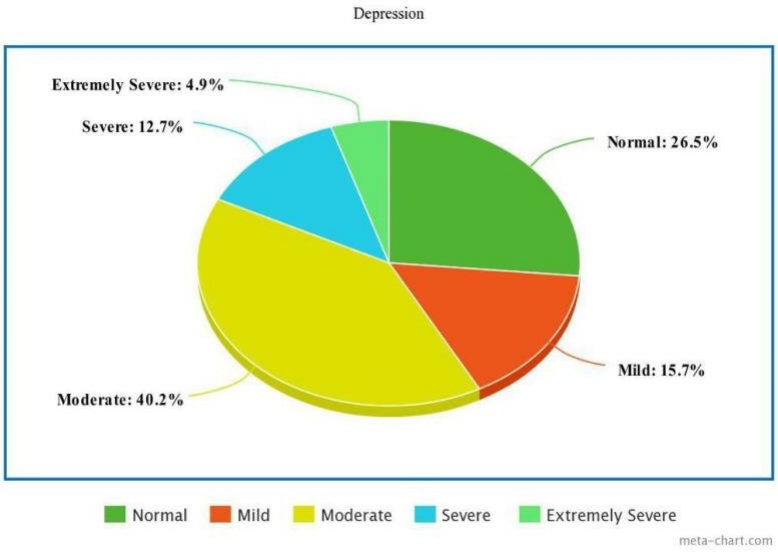
4.3.4)Number of subjects with the habit of stress eating

4.4) Relationship between mental health and stress eating

4.5) Relationship between junk food consumption and mental status

4.1) Frequency and Percentage of subjects experiencing depression

Depression	Frequency	Percentage
Normal	27	26.5
Mild	16	15.7
Moderate	40	40.2
Severe	12	12.7
Extremely severe	5	4.9
Total	100	100

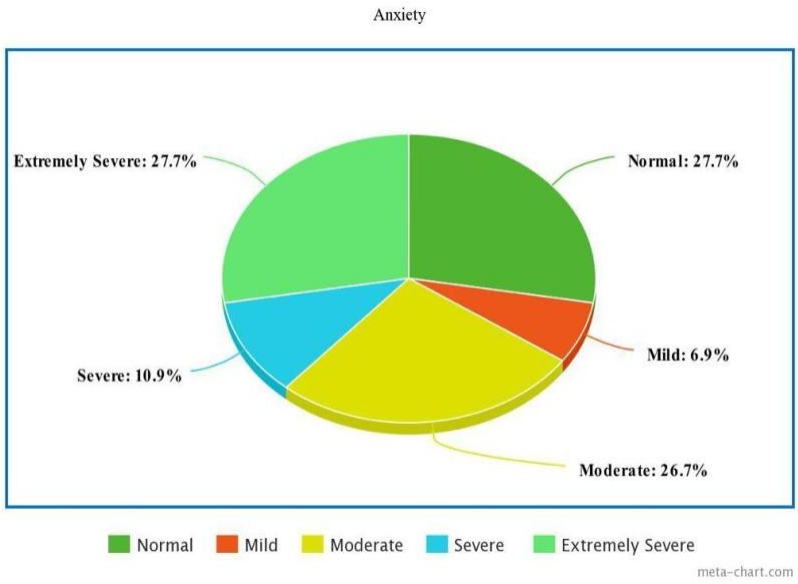


From the above table number 1 and figure number 1, it is was found that a large percentage of the students were experiencing moderate depression (40.2%) and 15.7%

of them were having mild depression,12.7% of them were having severe depression and only 26.5% of them were having normal mental status.

4.2) Frequency and Percentage of subjects experiencing anxiety

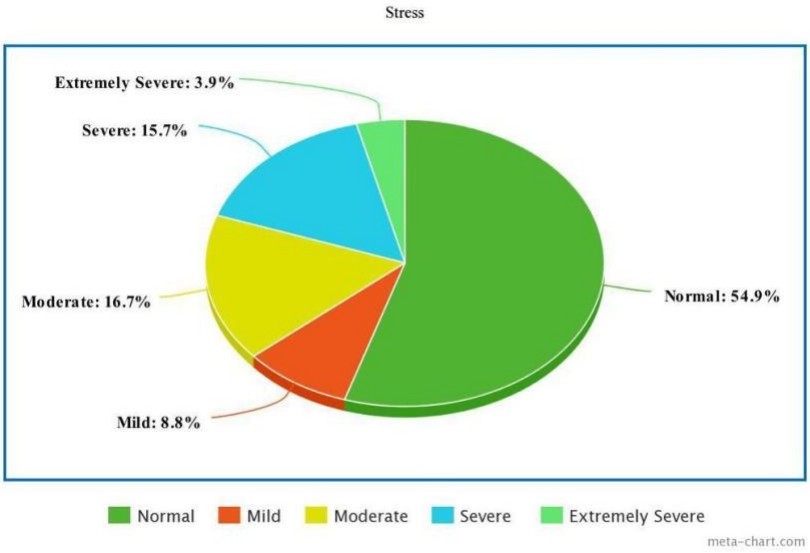
Anxiety	Frequency	Percentage
Normal	28	27.7
Mild	7	6.9
Moderate	27	26.7
Severe	10	10.9
Extremely severe	28	27.7
Total	100	100



From the above table number 2, and figure number 2, it was found that the majority of the subjects were experiencing moderate anxiety and 10.9% of them were having severe anxiety and 6.9% of them were having mild anxiety.

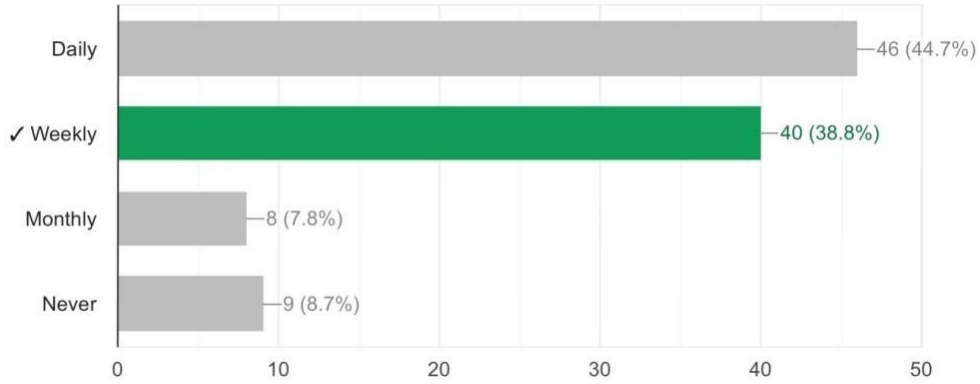
4.3) Frequency and Percentage of subjects experiencing stress

Stress	Frequency	Percentage
Normal	54	54.9
Mild	9	8.8
Moderate	17	16.7
Severe	16	15.7
Extremely severe	4	3.9
Total	100	100



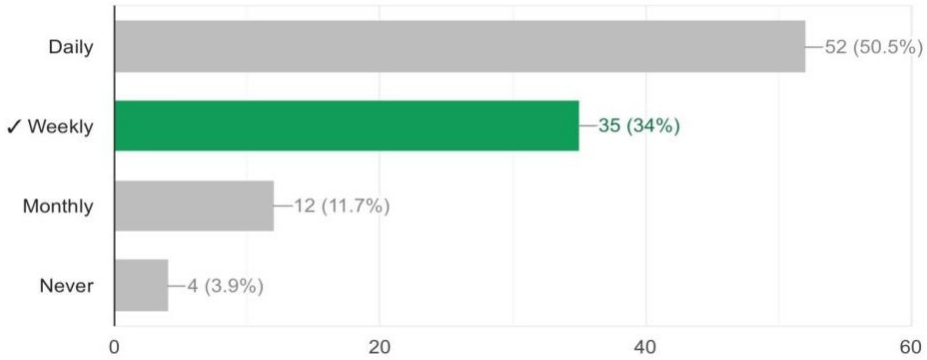
From the above table number 3 and figure no 3,it was found that the majority of the subjects were not having any stress issues (54.9%), 16.7% of them were having moderate stress and 15.7% of them were having severe stress issues.

4.4) Frequency of intake of cereals and pulses



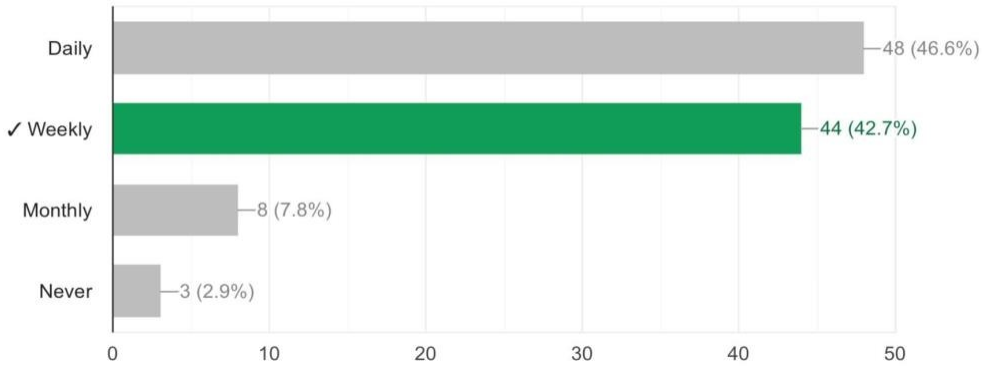
From the above figure number:4 it was found that the majority of the subjects consume cereals and pulses on a daily basis and 38.8% of them have cereals and pulses weekly and 8.7% of them never used to have any cereals and pulses.

4.5) Frequency of intake of Fruits and vegetables



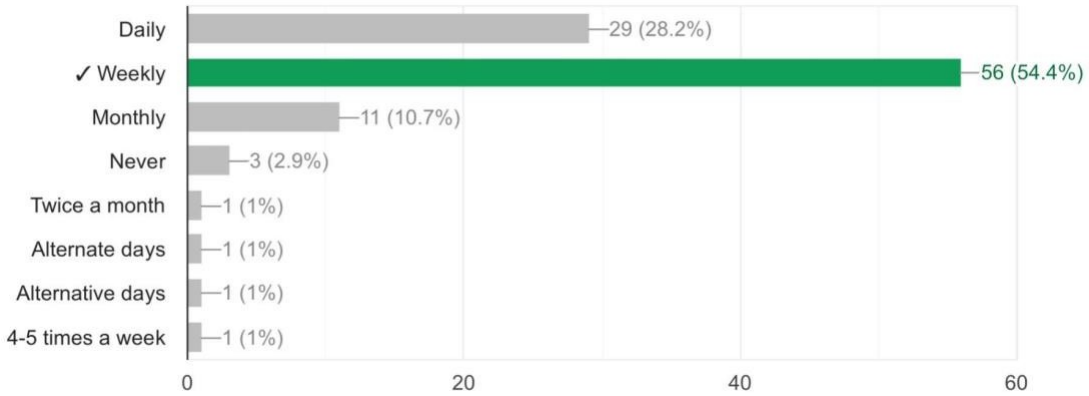
From the above figure number 5, it was found that the majority of the subjects consume fruits and vegetables on a daily basis (50.5%) and 34% of them consume fruits and vegetables weekly and 3.9% of the subjects never consume fruits and vegetables.

4.6) Frequency of intake of milk and milk products



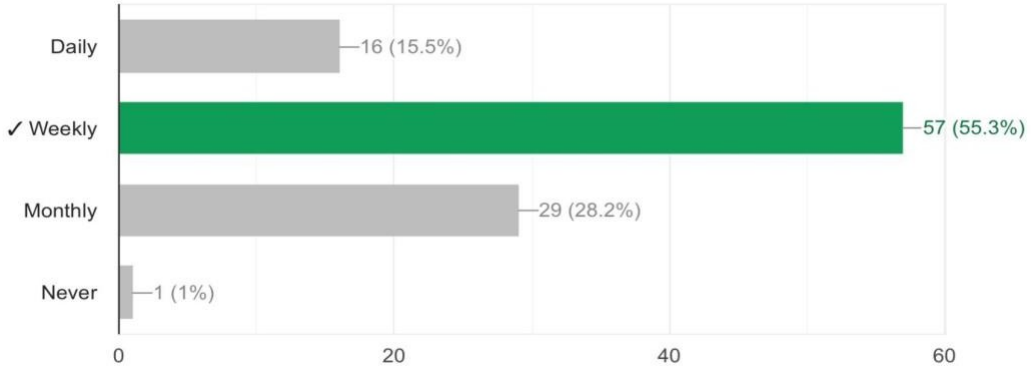
From the above figure number 6 , it was found that the majority of the subjects consumed milk and milk products on a daily basis (46.6%) , 42.7% of them consumed milk and milk products weekly and 2.9% of them never consumed milk and milk products.

4.7) Frequency and intake of meat and meat produce



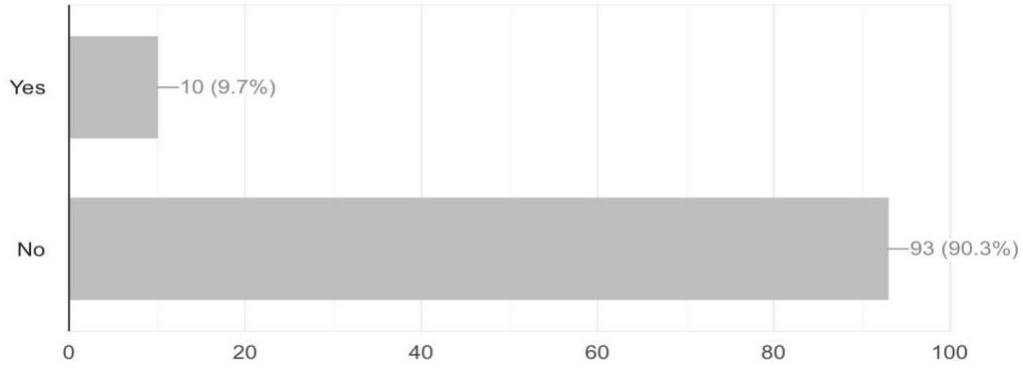
From the above figure number 7, it was found that , the majority of them consumed meat and meat products weekly (54.4%) , 28.2% of the subjects consumed meat and meat products on a daily basis and 2.9% of them never consumed meat and meat products.

4.8) Frequency of intake of junk food



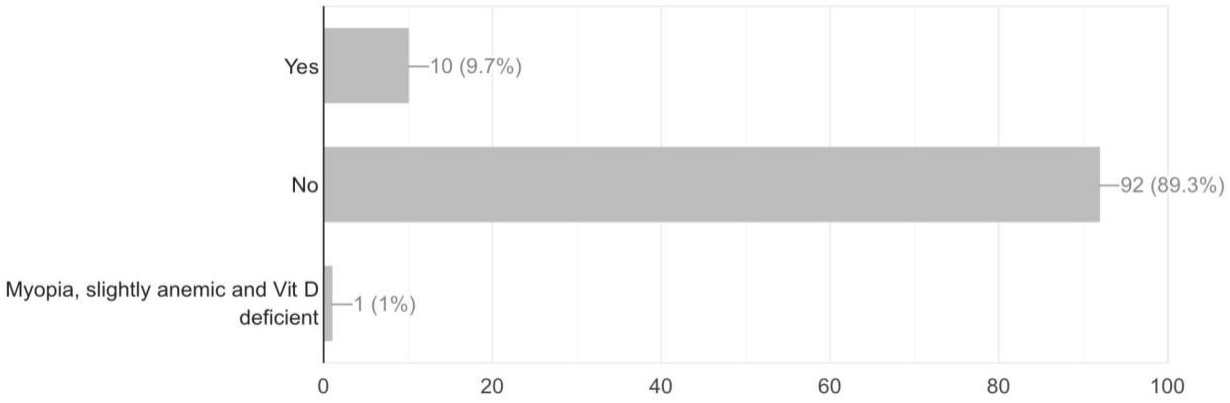
From the above figure number 8 , it was found that , majority of them consumed junk food weekly (55.3%) , 15.5% of them consumed junk foods on a daily basis and 1% never consume junk foods.

4.9) Number of subjects having food Allergy



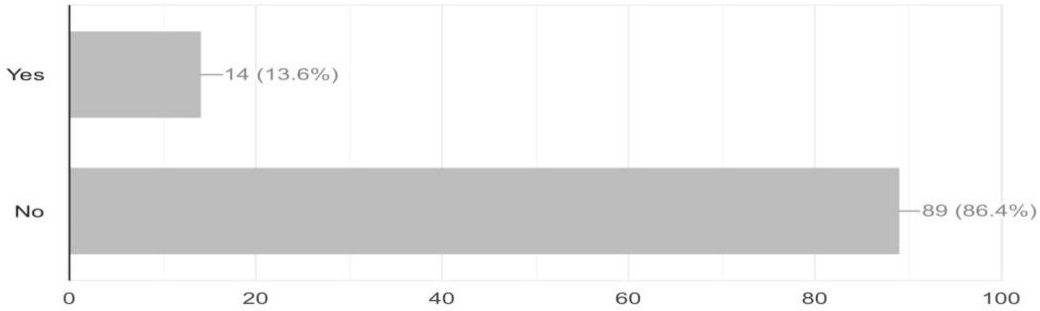
From the above figure number 9, it was good that the majority of the subjects did not have any food allergies (90.3%) and 9.7% of the subjects had food allergy.

4.10) Number of subjects suffering from a disease



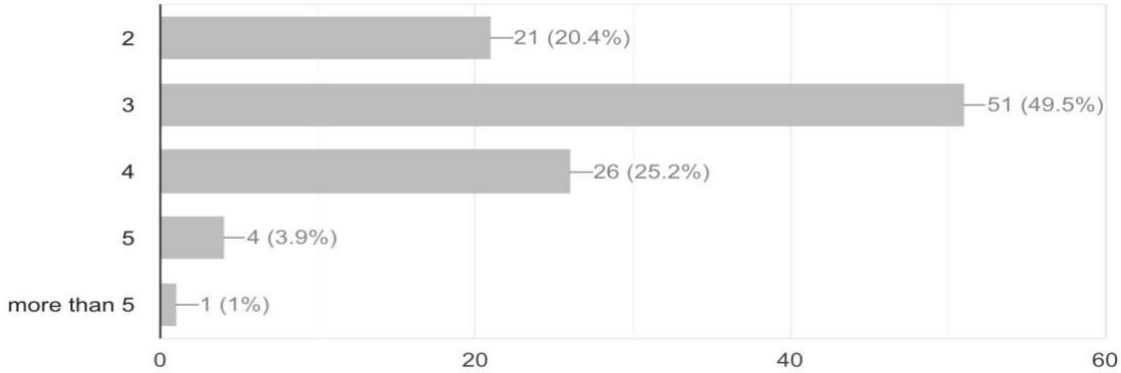
From the above figure number 10, it was found that, majority of the subjects did not suffer from any disease (89.3%) and 1% of the subjects suffered from diseases like Vitamin D deficiency, Anaemia, Myopia etc.

4.11) Number of subjects on Medications



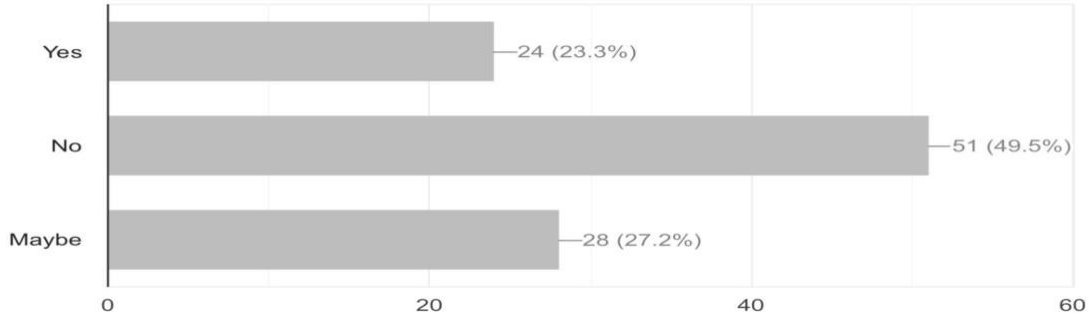
From the below figure number 11 , it is clear that majority of the students are not on any medications (86.4%) and 13.6% of them were on medications.

4.12) Number of meals consumed by subjects



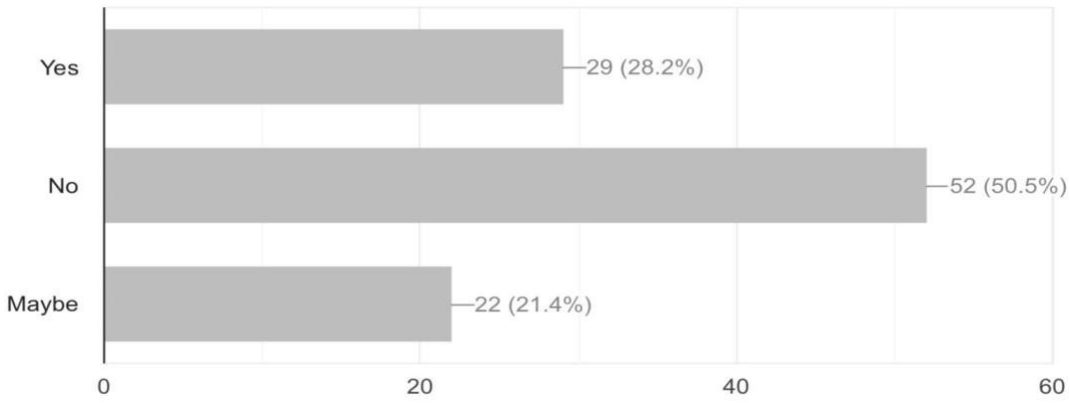
From the above figure number 12, it is clear that the majority (49.5%) of the subjects consumed 3 meals a day and 25.2% of them consumed 4 meals a day , 3.9% of the subjects consumed 5 meals a day and 1% of the subjects consumed more than 5 meals a day.

4.13) Number of subjects skipping breakfast



From the above figure number 13, it was found that the majority of the subjects (49.5%) did not skip their breakfast, 27.2% of them skipped their breakfast sometimes and 23.3% skipped their breakfast on a regular basis.

4.14) Number of subjects with the habit of stress eating

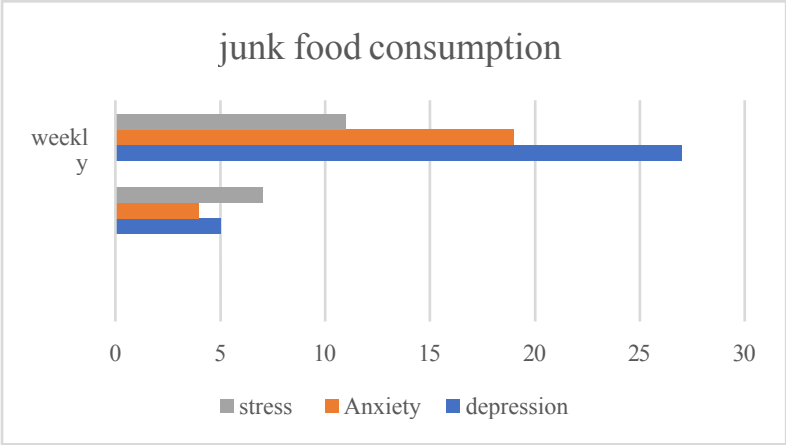


From the above figure number 14, it is clear that the majority of the subjects (50.5%) did not have the habit of stress eating , 21.4% of them sometimes used to stress eat and 28.2% have the habit of stress eating

4.4) Relationship between mental status and stress eating.

From the above figure number 15 , it is clear that , majority of the subjects stress eating were subjects who suffered from stress(41.4%) ,34.5% from anxiety and 24.1% from depression

4.5) Relationship between junk food consumption and mental status.



From the above figure no: it was found that majority of the subjects experiencing depression used to have junk foods on a daily basis and % of the subjects experiencing stress have junk foods weekly.Majority of the subjects having stress use to have junk foods on a daily basis and % of the subjects experiencing anxiety used to have junk foods on daily basis.

SUMMARY AND CONCLUSION

The study entitled "**PREVALENCE OF DEPRESSION, ANXIETY AND STRESS AMONG COLLEGE STUDENTS AND CORRELATION OF PSYCHOLOGICAL FACTORS AND NUTRITION AMONG THEM**(18-25)" was done with following objectives:

1. To assess the mental health of college students using DASS (Depression Anxiety Stress Scale).

2. To determine the relation between psychological factors and nutrition of college students

Fifty subjects were chosen from St. Teresa's College and the remaining fifty samples were taken from other colleges for the study. Data regarding the present study was consolidated, analyzed and conclusions drawn from the results are summarized below:

1. Out of 100 subjects , the majority of them were undergraduate students .

2. The mean age of the subjects was found to be 19-22 years

3. Dass-21 scale was used for collecting data on the psychological factors of the subjects

4. Food frequency questionnaire was used to collect data on the nutritional status of the subjects

5. From the data collected regarding the psychological factors it was found that the majority of the subjects suffered from anxiety (27.7%).

6. When the stress response is activated, digestion is suppressed so the body can reroute its resources to trigger fight or flight.

7. The digestive system cannot function properly with too much stress or stimulation. Thus, we need to practice activating the relaxation response as often as we can.

8. We found that eating a healthy diet rich in fruit, vegetables, fish and lean meat, is associated with reduced risk of depression.

9. By analyzing the psychological factors , we found that 4.9% of the subjects suffer from extremely severe depression, 27.7% of the subjects suffer from extremely severe anxiety and 3.9% of the subjects suffer from extremely severe stress

10. From the food frequency questionnaire, we found that about 28.2% of the subjects have the habit of stress eating and around 15.5% of the subjects consume junk food on a daily basis.

11. We also found out that there's a strong relationship between nutrition and mental health in young adults and has been found to differ between depressed and anxious individuals.

12. The greatest burden of illness today is caused by mental, neurological, and substance use disorders.

13. We found that the chance of developing depression and other psychopathologies increases when they coexist with other health risks like obesity.

14. From the data collected there is evidence linking nutrition to behavior, mood, and the pathology and management of mental disease.

15. Depression and anxiety are widespread conditions throughout the world. The factors related to these morbidities may be divided into academic and non-academic factors.

16. Subjects with depression were found to consume a poor quality diet which is known to lead to depressive symptoms.

Limitations

- Since most of the data are self-reported , one has to believe what others say without evidence.
- Since we have taken only the age group from 18-25 we can not draw a conclusion of the whole population of people under other age groups on depression anxiety and stress

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APPENDIX

Name :

Course :

Age : Height : Weight :

Please read each statement and circle or tick an option a, b, c or d which indicates how much the statement applied to **you over the past week**. There are no right or wrong answers. Do not spend too much time on any statement.

1. I couldn't seem to experience any positive feeling at all
    a) Did not apply to me at all
    b) Applied to me to some degree, or some of the time
    c) Applied to me to a considerable degree or a good part of time
    d) Applied to me very much or most of the time

2. I found it difficult to work up the initiative to do things
    a) Did not apply to me at all
    b) Applied to me to some degree, or some of the time
    c) Applied to me to a considerable degree or a good part of time
    d) Applied to me very much or most of the time

3. I felt that I had nothing to look forward to
    a) Did not apply to me at all
    b) Applied to me to some degree, or some of the time
    c) Applied to me to a considerable degree or a good part of time
    d) Applied to me very much or most of the time

4. I felt down-hearted and blue
    a) Did not apply to me at all
    b) Applied to me to some degree, or some of the time
    c) Applied to me to a considerable degree or a good part of time
    d) Applied to me very much or most of the time

5. I was unable to become enthusiastic about anything
    a) Did not apply to me at all
    b) Applied to me to some degree, or some of the time
    c) Applied to me to a considerable degree or a good part of time
    d) Applied to me very much or most of the time

6. I felt I wasn't worth much as a person
    a) Did not apply to me at all
    b) Applied to me to some degree, or some of the time
    c) Applied to me to a considerable degree or a good part of time
    d) Applied to me very much or most of the time

7. I felt that life was meaningless
    a) Did not apply to me at all
    b) Applied to me to some degree, or some of the time
    c) Applied to me to a considerable degree or a good part of time
    d) Applied to me very much or most of the time

8. I was aware of dryness of my mouth
    a) Did not apply to me at all
    b) Applied to me to some degree, or some of the time
    c) Applied to me to a considerable degree or a good part of time
    d) Applied to me very much or most of the time

9. I experienced breathing difficulty (e.g. excessively rapid breathing, breathlessness in the absence of physical exertion)
    a) Did not apply to me at all
    b) Applied to me to some degree, or some of the time
    c) Applied to me to a considerable degree or a good part of time
    d) Applied to me very much or most of the time

10. I experienced trembling (e.g. in the hands)
    a) Did not apply to me at all
    b) Applied to me to some degree, or some of the time
    c) Applied to me to a considerable degree or a good part of time
    d) Applied to me very much or most of the time

11. I was worried about situations in which I might panic and make a fool of myself
    a) Did not apply to me at all
    b) Applied to me to some degree, or some of the time
    c) Applied to me to a considerable degree or a good part of time
    d) Applied to me very much or most of the time

12. I felt I was close to panic
    a) Did not apply to me at all
    b) Applied to me to some degree, or some of the time
    c) Applied to me to a considerable degree or a good part of time
    d) Applied to me very much or most of the time

13. I was aware of the action of my heart in the absence of physical exertion (e.g. sense of heart rate increase, heart missing a beat)
    a) Did not apply to me at all
    b) Applied to me to some degree, or some of the time
    c) Applied to me to a considerable degree or a good part of time
    d) Applied to me very much or most of the time

14. I felt scared without any good reason
    a) Did not apply to me at all
    b) Applied to me to some degree, or some of the time
    c) Applied to me to a considerable degree or a good part of time
    d) Applied to me very much or most of the time

15. I found it hard to wind down
    a) Did not apply to me at all
    b) Applied to me to some degree, or some of the time
    c) Applied to me to a considerable degree or a good part of time
    d) Applied to me very much or most of the time

16. I tended to over-react to situations
    a) Did not apply to me at all
    b) Applied to me to some degree, or some of the time
    c) Applied to me to a considerable degree or a good part of time
    d) Applied to me very much or most of the time

17. I felt that I was using a lot of nervous energy
    a) Did not apply to me at all
    b) Applied to me to some degree, or some of the time
    c) Applied to me to a considerable degree or a good part of time
    d) Applied to me very much or most of the time

18. I found myself getting agitated
    a) Did not apply to me at all
    b) Applied to me to some degree, or some of the time
    c) Applied to me to a considerable degree or a good part of time
    d) Applied to me very much or most of the time

19. I found it difficult to relax
    a) Did not apply to me at all
    b) Applied to me to some degree, or some of the time
    c) Applied to me to a considerable degree or a good part of time
    d) Applied to me very much or most of the time

20. I was intolerant of anything that kept me from getting on with what I was doing
    a) Did not apply to me at all
    b) Applied to me to some degree, or some of the time
    c) Applied to me to a considerable degree or a good part of time
    d) Applied to me very much or most of the time

21. I felt that I was rather touchy
    a) Did not apply to me at all
    b) Applied to me to some degree, or some of the time
    c) Applied to me to a considerable degree or a good part of time
    d) Applied to me very much or most of the time

22. 22.

	Daily	Weekly	Monthly	Never
Cereals and Pulses				
Fruits and vegetables				
Milk and milk products				
Meat and meat products				
Junk foods				

23. Do you have any food allergies ? Yes No

24. Are you on any medicines ? Yes No

25. Do you have any diseases ? Yes No

26. Do you skip breakfast ? Yes No Maybe

27. How many meals do you eat a day ? 2. 3. 4. 5.

28. Do you stress-eat ? Yes No Maybe