International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

A Pilot Study on Eating Habits and Behavioral Disorders Among Teenagers

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ABSTRACT
There is a commonly held view that eating disorders are lifestyle choice. Eating disorders are actually serious and often fatal illnesses, obsessions with food, body weight, and shape may also signal an eating disorders. Eating disorders are complex illnesses with multiple causes that require treatment across a number of domains. Eating disorders are developmental rather than mental problems. That is the reason this piece of research depicted not just understanding the eating patterns but also disabilities/ disorders related to this and in future how to interpret via awareness.

Keyword: Eating Disorder, Anorexia Nervosa, Binge Eating, Night Eating Syndrome, Primary Care

INTRODUCTION:

There is a commonly held view that eating disorders are lifestyle choice. Eating disorders are actually serious and often fatal illnesses, obsessions with food, body weight, and shape may also signal an eating disorders. Common eating disorders include anorexia nervosa, bulimia nervosa, night-eating syndrome, eating disorders not otherwise specified and binge-eating disorders. Eating disorders occur in men and women, young and old, rich and poor and from all cultural backgrounds; they result in about 7000 death a year as of 2010, making them the mental illnesses with the highest mortality rate. The chance for recovery increases the earlier they are detected, therefore, it is important to be aware of some of the warning signs of an eating disorder. In this research, different types of eating disorder, their side effects, complications and treatments are discussed. Whether it is the effect of the media, family or friends, the number of eating disorders has significantly increased and they are becoming more and more prevalent. There are five classifications of eating disorders: anorexia, bulimia, binge eating disorder (BED), eating disorders not other- wise specified (EDNOS) and night eating syndrome. Over seven million girls and women and one million boys and men will suffer from an eating disorder in their lifetime. Up to 3.7% of females will be diagnosed with anorexia nervosa and an estimated 4.2% will have bulimia nervosa. The majority of adolescent patients seen in referral centres fit into a third category (EDNOS) and does not fit strict criteria for either anorexia or bulimia. Nineteen percent of college-aged females are bulimic; many go undiagnosed until much later. At the other end of the spectrum, 1% to 5% of the population falls into the category of binge eating disorder, not yet an approved psychiatric diagnosis. Anorexics are more likely to be female (90%-95%); 80% of bulimics are female and 60% of BEDs are female. Eating disorders begin early, with 10% being diagnosed in children less than 10 years of age. One third of patients are diagnosed as preteens and adolescents up to age 15. In total, 86% of patients are diagnosed with eating disorders before the age of 20.

The terms “teenager” and “adolescent” are often used interchangeably. Whereas the former may be concretely defined in terms of biological age, specifically referring to individuals aged 13-19 years old, the latter is more difficult to define in terms of age-related boundaries. Instead, adolescence is defined as a developmental period straddling the transition from childhood to adulthood, which may be characterized by the biological, cognitive, psychological and social changes that occur during this time during adolescence, fundamental biological changes known as puberty occur within the body, which transform a child into a biological adult capable of sexual reproduction. Puberty is a gradual and sequential process that spans across the adolescent years, and encapsulates multiple and complex biological processes. Puberty triggers rapid increases in height, size and capacity of the heart and lungs, muscle mass, and body fat. Adolescents become stronger and more physically able than children and gender differences in physicality emerge; males will typically grow taller with larger heart and lung capacities, and develop more muscle mass and less body fat, than their female counterparts. Male pubertal development also includes the deepening of the voice, changes in male genitalia and increases in androgen hormone production. In contrast, female pubertal development includes the growth of breasts, changes to female genitalia and increases in estrogens hormone production. Thus puberty serves to exacerbate sex differences and make them more visually salient. The dramatic changes in the physical appearance of young people triggered by pubertal development can lead individuals to treat adolescents differently; expecting more adult, and often more gender typical, behaviour from them.

Pubertal hormones have an interesting impact on adolescent behaviour, including sexual behaviour, sleep and mood. In terms of sexual behaviour, first feelings of sexual attraction towards potential romantic partners are triggered by pubertal hormones at the very start of adolescence, normally at the age of ten. In terms of sleeping behaviour, melatonin the hormone which regulates sleep and increases with feelings of sleepiness has been found to increase later in the day in older adolescents, than younger adolescents. The result is that adolescents going through puberty display a preference for going to bed later, and waking up later, than children. In terms of mood, rapid increases in hormones at the start of puberty seem to be associated with fluctuations in mood in early adolescence, and as these levels stabilize, so too do mood fluctuations. However research examining the link between puberty and moodiness in adolescence has yielded mixed results, leading researchers to conclude that environmental factors must also play an important role in mood regulation.

Finally, puberty triggers important biological changes in brain development during adolescence. Though the brain reaches its adult size around the age of ten, it continues to develop throughout adolescence in terms of structure and function. Biological processes of synaptic pruning (removal of unnecessary brain circuitry) and mylenation (insulation of brain circuitry in myelin) in specific brain areas, lead to changes in the efficiency of these areas. Brain regions affected by these processes include

1. The prefrontal cortex, which is responsible for complex thought processes, such as planning, consideration of risk and reward, and impulse control,
2. The parietal cortex, which is responsible for memory, and
3. The temporal cortex, which is also responsible for memory and thinking about others. These changes in brain structure are responsible for many of the changes in thinking patterns that are observed during the adolescent years.

Eating disorders are complex illnesses with multiple causes that require treatment across a number of domains. Eating disorders are developmental rather than mental problems. That is the reason this piece

of research depicted not just understanding the eating patterns but also disabilities/ disorders related to this and in future how to interpret via awareness.

Aims and Objectives

Aim:-

To understand the prevalence of eating disorders in the urban areas

Objectives:-

- To understand the eating patterns among the individuals.
- To acquire knowledge about the eating disorders/disabilities if any

METHODOLOGY:-

Information was taken from 50 respondents (aging between 13-19 years) both male and female in the urban areas of Jharkhand (Dumka) and south Kolkata. The survey was conducted from February 2023 to March 2023 via distribution of Google forms. (Survey was in short conducted virtual mode). Data was formed in the bar graph.

REVIEW OF LIETRATURE

Aetiology of Eating Disorders

The eating disorders have traditionally been viewed as sociocultural in origin. However, recently it was found that genetics tend to have a strong influence on these disorders. Current research demonstrates that eating disorder symptoms may be as common or more common among certain ethnic groups (Asians, blacks, and Hispanics) when compared with whites. There was no difference found in dieting and restraint scores between Asian, Latino, and white adolescent girls and boys and no difference in binging or BED in obese patients who sought to lose weight with bariatric surgery. However, an analysis of 18 studies (1987-2001) concluded that African-American women were less likely than white women to have an eating disorder.

Types of Eating Disorders

Anorexia nervosa (AN): Anorexia nervosa is a highly distinctive serious mental disorder. It can affect individuals of all ages, sexes, sexual orientations, races, and ethnic origins; however, adolescent girls and young adult women are particularly at risk. The disorder involves the fear of gaining weight, having a distorted body image, a refusal to maintain normal weight, and the use of extreme measures to keep the weight off. Anorexia is typically diagnosed after a person is 25-30 percent below the normal weight for three months or more. Additionally, cognitive and emotional functioning is markedly disturbed in people with this disorder.

Typically, two sub-types of anorexia are identified. First, restricting-type anorexics lose weight purely by dieting and exercising without binge eating or purging. Second, binge-eating/purging-type anorexics also restrict their food intake and exercise to lose weight, but periodically engage in binge eating and/or purging.

Anorexia is often associated with denial of illness and resistance to treatment. Consequently it is difficult to engage individuals with AN in treatment, including nutritional restoration, and weight normalization

Bulimia nervosa (BN): Bulimia nervosa is a serious, potentially life-threatening eating disorder. It is characterized by a cycle of bingeing and compensatory behaviours such as self-induced vomiting

designed to undo or compensate for the effects of binge eating. Patients diagnosed with bulimia nervosa follow closely with patients diagnosed with binge-purge anorexia. Bulimia is diagnosed if the binge-purge cycle occurs at least two times a week. The act of purging can cause severe damage to the oesophagus and teeth and it can also cause the gag reflex to be less sensitive.

Non-Purging type of bulimia is also diagnosed and is characterized by using other inappropriate methods of compensation for binge episodes, such as excessive exercising or fasting. In these cases, the typical forms of purging, such as self-induced vomiting, are not regularly utilized.

Binge-eating disorders (BED): According to the Diagnostic and Statistical Manual of Mental Disorders (DSM), 5th edition, binge-eating disorder is defined by several criteria. Individuals must report consuming an amount of food that is definitely larger than what most people would eat in a similar period of time under similar circumstances in addition to experiencing a loss of control over one's eating behaviour during this time. In addition, at least three of the following characteristics must also be present: summing food much more rapidly than normal; eating food until uncomfortably full; consuming large amounts of food when not feeling physically hungry; consuming food alone to avoid embarrassment; or feeling disgusted, depressed, or guilty after the eating event. The diagnosis also requires that a significant amount of distress be associated with the binge episodes, which must occur at least once per week for 3 months or more. Lastly, the disorder must not be accompanied by any regular compensatory behaviour, nor should the binge eating occur solely during an episode of bulimia nervosa or anorexia nervosa.

Some more eating disorder found in new research. These are like:

Eating disorders not otherwise specified (EDNOS): Eating disorders not otherwise specified is much used by clinicians yet largely ignored by researchers. It is the category for disorders that do not meet the criteria for any other specific eating disorder and accounts for about 50% of eating disorders. Although patients with EDNOS do not meet the diagnostic criteria for either AN or BN, if the disordered behaviours continue, they may progress to frank AN or BN. For example, some patients may have met all criteria for AN with the exception of missing three consecutive menstrual periods, or they may be of normal weight and purge without bingeing. Although patients may not present with medical complications, they often present with medical concerns and treatment modality depend on the severity of impairment and the symptoms.

Fairburn and Bohn described two subtypes as particularly common for EDNOS. The first are in- stances where the individual's presentation closely resembles Anorexia Nervosa or Bullemia Nervosa, but he or she just fails to meet the diagnostic thresholds. The second subtype are cases in which the clinical features of Anorexia Nervosa and Bullemia Nervosa are combined in ways other than in the two recognized syndromes.

Night-eating syndrome (NES): The other prominent form of disordered eating related to overweight and obesity is NES. NES was first described by Stunkard et al. among a group of individuals with obesity seeking weight loss treatment. They reported that those with the syndrome consumed a large majority of their caloric intake (25% or more) at a time when individuals without obesity would not be eating. In addition, the patients experienced insomnia and morning anorexia. Attention to NES was neglected until the late 1990's, when the focus of eating-related research shifted in response to the growing prevalence of obesity. Since this time, the definition of NES has varied. For example, in later years, Stunkard's definition was expanded to include nocturnal ingestions.

NES is characterized by recurrent episodes of night eating, which is described as either excessive food consumption in the evening (after dinnertime, i.e., evening hyperphagia) or eating after awakening from sleep (i.e., nocturnal ingestions). NES is also characterized by at least three of the following symptoms: morning anorexia, the presence of a strong urge to eat between dinner and sleep and/or during the night, sleep onset and/or maintenance insomnia, frequently depressed mood or mood worsening in the evening, and a belief that one cannot get back to sleep without eating. In order to be diagnosed with NES, individuals must be aware of and be able to recall the eating episodes. These symptoms must also cause significant distress and/or impairment in functioning and not be better explained by external factors or another disorder, such as a sleeping disorder or other disordered eating pattern. NES is classified in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM5) as an "other specified feeding or eating disorder."

Side effects of eating disorders

1. **Osteoporosis:** Anorexics are at increased risk of osteoporosis due to lowered intake, being under-weight, and de- creased estrogen related to amenorrhea. Calcium supplementation in pubertal girls may increase peak bone mass. Calcium supplementation may increase the beneficial effects of physical activity on bone. Deficiency of vitamin D in young people can affect their ability to reach peak bone mass. Special risks in eating disorder patients for osteoporosis include the following:
   Anorexic girls (aged 13-23 years) who also suffer from depression may be at higher risk for osteoporosis than those without depression; the reason for this finding is not known.
   Amenorrhea in anorexic women and young girls may indicate the onset of estrogen deficiency, which can have a negative effect on bone density and peak bone mass.
   Under-nutrition can affect bone density through deficiency of anabolic hormones such as insulin like growth factor I; in addition, low weight is also a risk factor for lowered bone mass.
2. **Taste receptors damaged:** For all four taste stimuli (sweet, salty, sour, and bitter), intensities on the palate have been found to be lower in bulimic subject than in control subject, reduced taste sensitivity affected only the palate and not the whole mouth. Specifically, taste receptors located on the palate may become damaged because vomit is directed toward the roof of the mouth during purging.
3. **Oral Health:** The association between oral pathology and eating disorders is most clearly established in cases with frequent self-induced vomiting, regardless of whether the diagnosis is anorexia or bulimia, and is characterized by dental erosion on palatal surfaces. Dental caries and dry mouth secondary to salivary gland dysfunction also occur. Gingival inflammatory changes due to vitamin C deficiency/scurvy are also observed.
4. **Others:** There were other side effects as well, including decreased concentration and other cognitive changes; physical changes that included decreased need for sleep; gastrointestinal problems; dizziness; headaches; noise and light sensitivity; weakness; fluid retention; cold intolerance; and difficulties with hearing and sight. There was a 40% slowing of basal metabolic rate, low body temperature, decrease in heart rate, and respiration.

Complications of eating disorders

No rehabilitation works 100% every time and a risk of relapse is always present. Re-feeding is one of the most prevalent complications characterized by the inability of the body to cope with the extreme

change in metabolic function. The main signs of the re-feeding syndrome are Hypophosphatemia, hypokalemia and hypomagnesaemia, heart failure, Salt and water retention, Depletion of vitamins such as B1, B6

These symptoms are caused by the change in metabolism in the body from fat to carbohydrates. When an anorexic patient starves themselves they are using stored fat as the primary source of energy. But when they start eating again their bodies can switch from using stored fat as energy to using carbohydrates from food again. This change will lead to insulin being released from the pancreas to aid in the uptake of glucose. When the insulin is released cells will start to increase the amount of glucose, phosphate, potassium, magnesium and water that they take in.

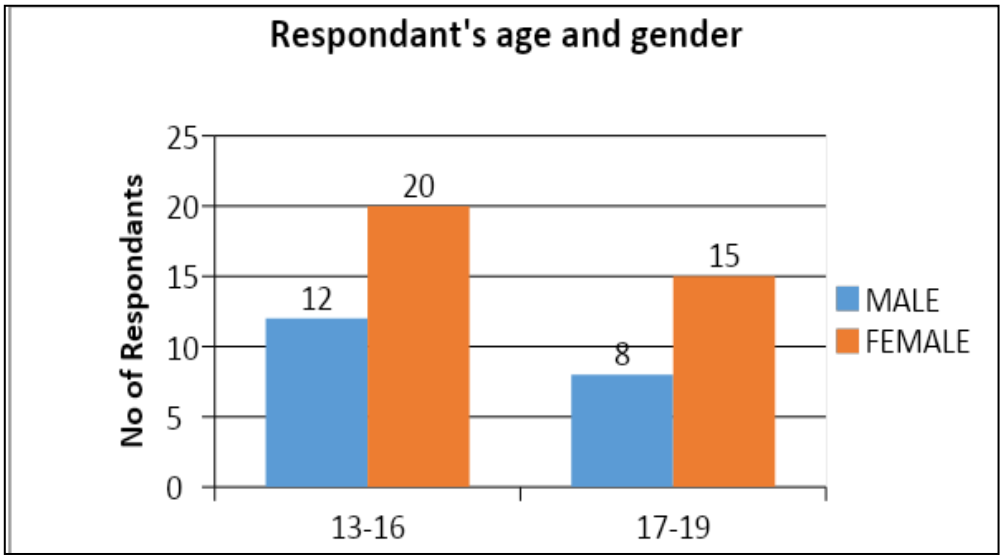
To avoid re-feeding syndrome, levels of phosphorus, magnesium, potassium and calcium should be determined for the first 5 days and every other day for several weeks; electrocardiogram should be also performed. If indicated, during the first days of re-feeding, large amounts of multivitamins and minerals, in particular potassium, thiamine, phosphate and magnesium, should be provided. Again, strict monitoring is needed to prevent vitamin A and D toxicity in case of excessive supplements.

Treatment on eating disorders

1. **Pharmacological treatments**: Medications are generally useful for patients with bulimia nervosa and BED. Common forms of pharmacotherapy include antidepressants, antiepileptic medications, anti-obesity, and stimulant medications. For bulimia nervosa, antidepressant medications are the primary pharmacologic treatment. The evidence for the use of fluoxetine in the treatment of bulimia nervosa comes in the form of various case reports, systematic studies, and double-blind, randomized placebo controlled trials. Tricyclic antidepressants and monoamine oxidase inhibitors are also found to be effective were also found to be more effective than placebo in decreasing the binging and vomiting in patients with bulimia nervosa. Ondansetron at 24mg/day is also reported to reduce binge eating. For BED, lisdexamfetamine is reported to be generally well tolerated and effective, and is the first medication to be indicated by the FDA for treatment Family-based treatment (FBT) Although early models of family therapy for AN focused on addressing problematic aspects of the family that were believed to contribute to the development and maintenance of AN, more recent models have focused on reducing blame and utilizing the family as a resource for recovery. In FBT, parents play a central role in restoring their child's health, and sib- lings are encouraged to provide emotional support to their ill sibling. The FBT should happen in the home during parental meal and needs the support of both parents. If parents do not have a shared understanding of how to undertake these tasks, they may unintentionally undermine each other.
2. **Inpatient:** Inpatient treatment is usually for very seriously ill patient who are usually the ones with cardiac or severe psychological issues that might need special medical attention throughout their treatment. These patients are fed by nasogastric feeding in order to reduce the risk of re-feeding syndrome and insulin spikes that can cause serious problems. Patients have also shown that they have less abdominal distention, nausea, and bloating. By being fed this way, doctors are able to add in more necessary fat to the diet without the patient objecting leading to a decreased hospital stay.
3. **Outpatient:** The standard nutritional treatment for outpatient is progressive bolus oral feeding. This is when the patient has a nutritionist set up a plan for what they need to eat to meet their goal caloric intake as well as nutritional needs. But some patients have had digestive issues such as nausea, bloating and pain from returning to normal eating too quickly. The biggest consequence of this form

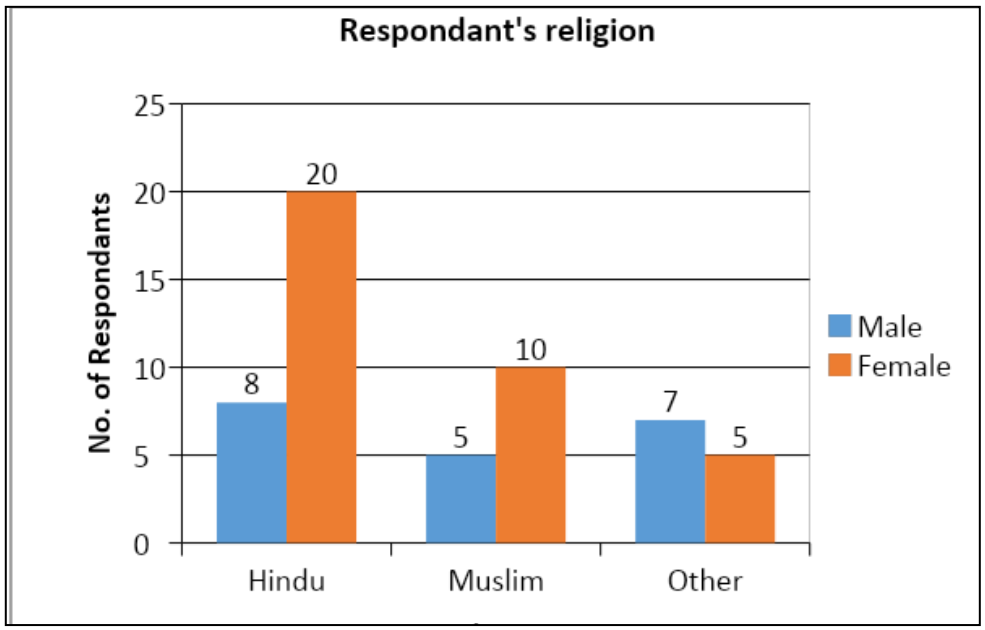
of treatment is that it can lead to re-feeding syndrome and refusal to eat altogether. Many patients will struggle with the idea of eating solid food again especially enough to meet the caloric intake goal needed to make them healthy.

RESULTS AND DISCUSSION



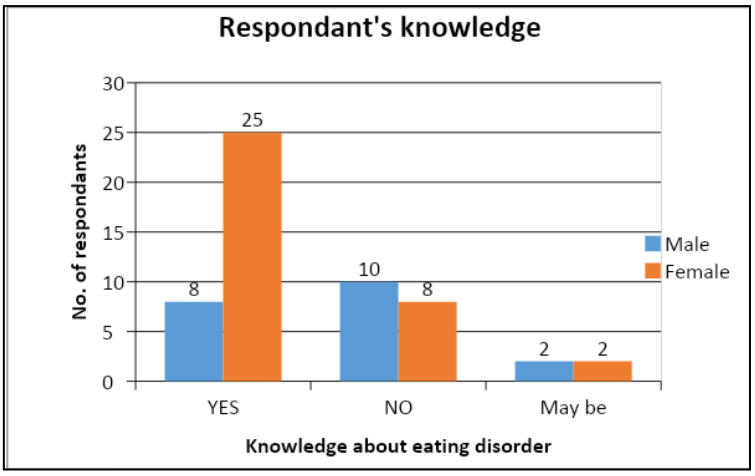
Graph I

Graph I represent total number of respondents used for this pilot study. Total no. of respondents is 50 in number. This number is segregated into two groups as per age and gender.



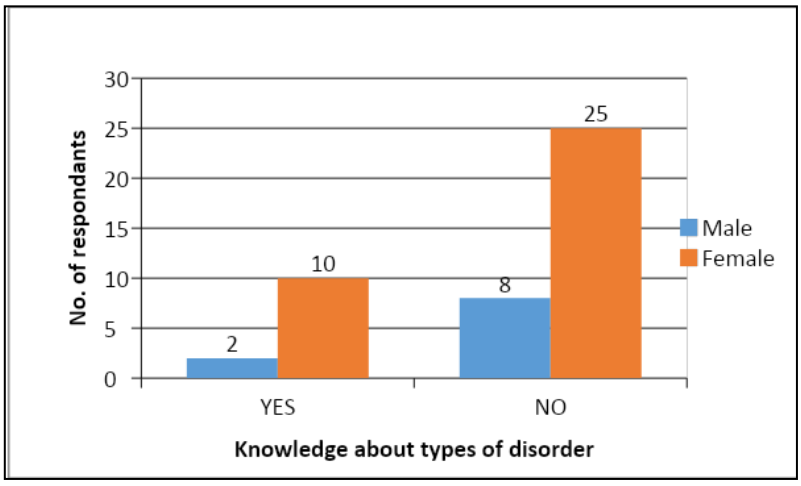
Graph II

Graph II represents the total number of religions who are participating in pilot study. Respondents are segregated into three groups as Hindu, Muslim and Other between two genders.



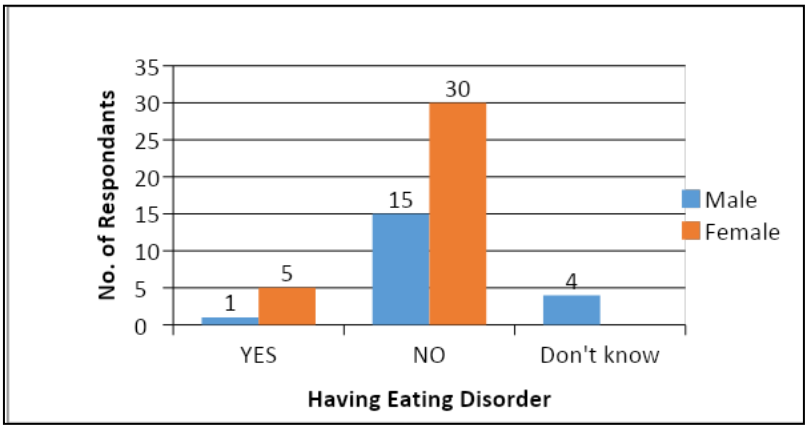
Graph III

Graph III represents the number of awareness about the eating disorder between two genders. It was found that Girls are more aware than boys about this disorder.



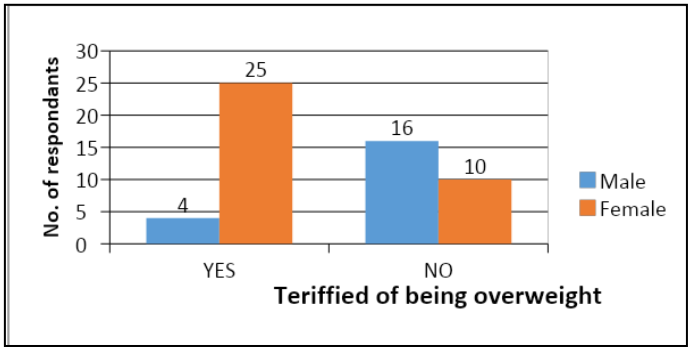
Graph IV

Graph IV represents the number of respondents knows about the type of eating disorder. It was found that Girls had more knowledge than Boys.



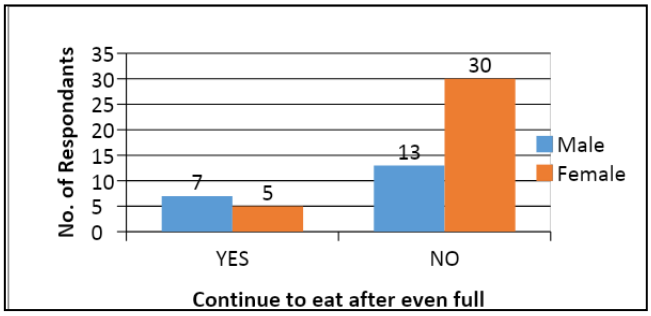
Graph V

Graph V represents the total number of respondents who have eating disorders and who have not. It is seen that girls are facing the problems of eating disorder because lack of the knowledge or wrong information they have. On the other side boys don't have this disorder but in most cases they even don't know either they have this kind of disorder or not.



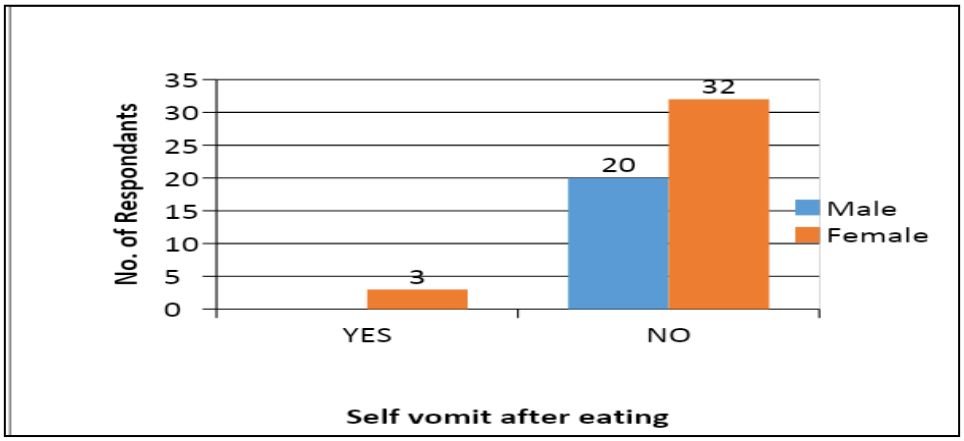
Graph VI

Graph VI represents the total number of respondents who had fear of being overweight. And found that girls had the more fear about this than the boys. It is because now days both girls and boys are more conscious about their physical appearance and that's why they had fear of being overweight without knowing that it is also a symptoms of eating disorder.



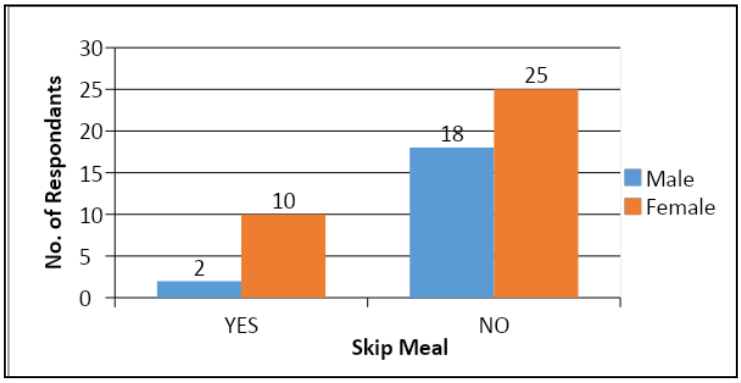
Graph VII

Graph VII represents the number of respondents who had the habit of continue to eat even after full or they have done their meal. And found that the negative response is more than positive between both genders, which are a good sign of teenagers.



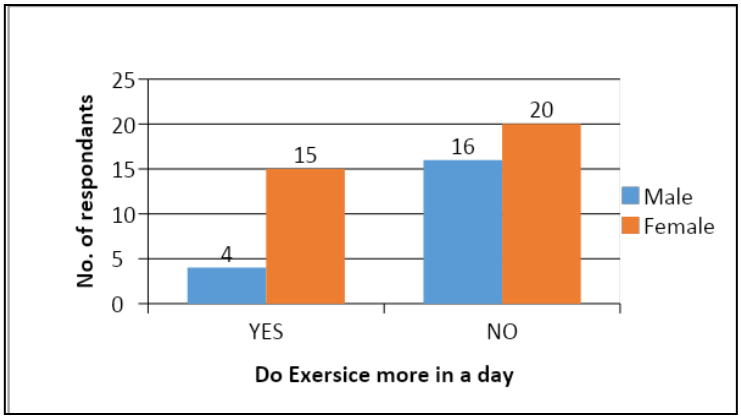
Graph VIII

Graph VIII represents the total number of respondents who had the habit of self vomiting after eat their meal. Found that there is negative number present in boys but from provided sample, there are some numbers of girls who had such kind of symptoms which is very dangerous for their health.



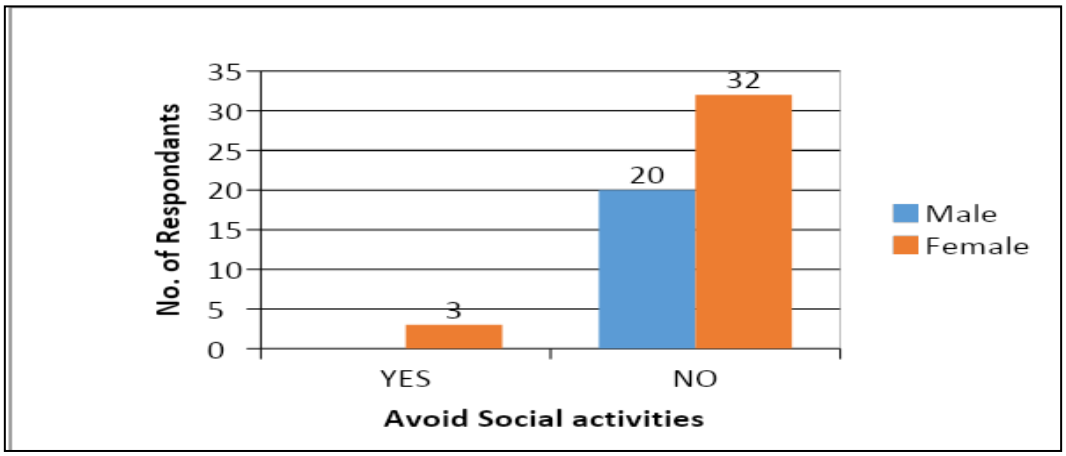
Graph IX

Graph IX represents the total number of respondents who skip their meal for the over consciousness of being overweight which is very harmful. And the numbers of girls are more than boys.



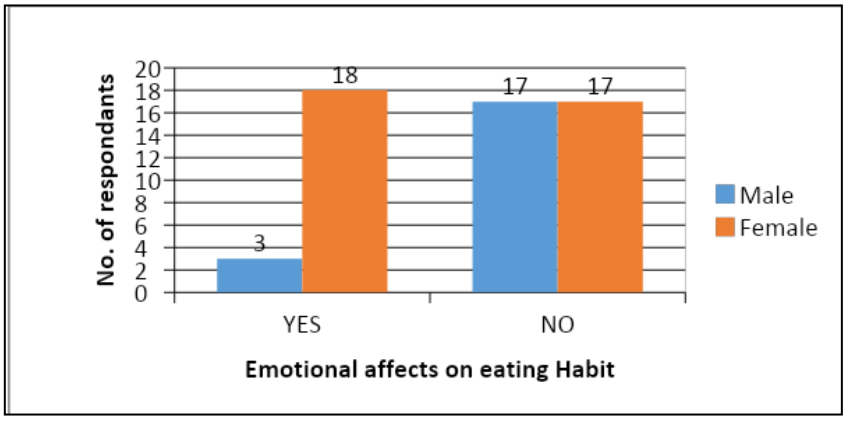
Graph X

Graph X represents the number of respondents who are doing more exercise for maintain themselves, which is actually wrong information they had and they apply it in their daily life. The number of girls are more than boys in such kind of habits.



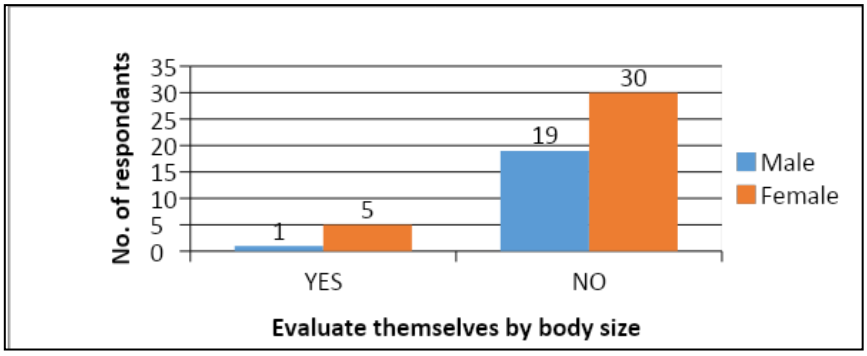
Graph XI

Graph XI represents the total numbers of respondents who are avoiding social activities due to many reasons which are like people are bullying them, fear of eating spicy and getting weight. It was observed that girls have such kind of fear than boys and so they avoid social activities.



Graph XII

Graph XII represents the total numbers of respondents whose eating patterns are affected due to their emotional affects. In this phase there are some physical changes occur in both genders. But girls are more emotional by their nature and the other factors that they have which are hormonal changes. For this reason girls have more mood swings and which is affect their food habits. And the data shows the same things.



Graph XIII

Graph XIII represents the no of respondents who evaluate themselves by their body shapes and size. The number of data found that girls have more number than boys in this category. This is just because of they have lack of confidence and family support within them.

In the Indian settings, there are no cases reported of BED and only five cases have been reported of BN. The frequency of disordered eating/probable ED ranged from 4% to 45.4%. It is possible that subsyndromal ED cases may not be captured by a self-rated assessment. Two studies reported the prevalence of eating distress syndrome (EDS) to be 11% and 14.8%.

It has also raised the awareness of the possibility of abuse of various anti-obesity drugs as a part of bulimic compensatory behavior is high in this population, given the easy and unsupervised access of these drugs over the counter, for example, Orlistat.

In the context of India, EDs paint a particularly complex picture both historically and at present, perhaps reflecting the enormous diversity of its populace. Early reports of EDs began appearing in the mid-1990s, including five cases of young, single, Hindu women (aged 15-22), who exhibited persistent vomiting, amenorrhea, refusal to eat, significant weight loss, and numerous somatic complaints without

particular import placed on thinness or fatphobia. Alternatively, the low incidence of AN and related ED in nonwestern cultures could be artifacts of how data on ED are collected in these areas.

In a study done in India on medical students, obesity was found to be 13.2% (confidence interval: 7.84%–18.5%) with stress being one of the major factors along with increased calorie intake, lack of physical activity, consumption of tea/coffee/fruit juices, socioeconomic status, and family history of obesity having a statistically significant relationship with overweight/obesity. Medical education was also considered stressful throughout the course of training. A study on nursing students reported the prevalence of obesity and underweight to be 5% and 34%, respectively. Interestingly, all the nursing students in the current study belonged to the middle socioeconomic status.

In India, the prevalence studies of ED and anorexia nervosa began to emerge only post the 1990s.[7] In the study, Indian patients felt that they over ate and binge ate more often than Australian patients while frequencies of food restriction, vomiting, and laxative use were similar. Many Indians were less aware of ED feelings, such as, fear of losing control over food or eating and being preoccupied with food, eating or their body. Furthermore, Indian females were less preoccupied with ED-related feelings. Fear of loss of control over eating and preoccupation with thoughts of food, eating, or body weight occurred but to a significantly lesser extent for Indian patients.

Data also suggest that Indian girls like other Asian populations have a strong orientation toward family values, collectivism rather than individualism, and hence, personal or internal control is less important to them.

In a study on adolescent girls, the rates of overweight (31%) and obesity (24.6%) were higher in students whose parents had a higher level of education.

A study done by Minu et al. 2019 suggested that high scores in AN involved a greater chance of being diagnosed with an ED in rural adolescent girls, while urban adolescent girls' educational status and family have an influence in gathering knowledge regarding anorexia nervosa. In a study on medical students, out of the total 134 study participants, 23 (17.2%) students had scores that indicated the presence of probable AN. Out of the 23 who had an ED, 19 (82.6%) made themselves sick because they felt uncomfortable, 21 (91.3%) worried that they have lost control over their eating pattern, all the participants felt they are fat, and only 9 (39.1%) said that food dominates their life.

There have thus been sporadic studies on the epidemiology of ED in India but all circumscribed by limited data sets, fixed age groups, and there are no nationwide studies that would enable us to have accurate estimates of the incidence and prevalence of ED in India. Large planned epidemiological data are sparse and warranted.

Limitations:

This piece of study is restricted to conduct in the virtual mode. The respondents were restricting themselves to provide information on their eating patterns and symptoms. The results taken from the online survey are somewhat tentative and therefore may result in mild biases.

CONCLUSION

Eating disorders affect not only the diagnosed patients, but the families surrounding them. They can be triggered by society trends, genetics, and family and can develop during any stage in life, classified as a medical illness. Although these conditions are treatable, the symptoms and consequences can be detrimental and deadly if not addressed. They commonly coexist with other condition, such as anxiety

disorder, substance abuse, or depression. Eating disorders can lead to heart and kidney problems and even death. Treatment involves monitoring, talk therapy, nutritional counselling, and sometimes medicines. People with eating disorder suffer of osteoarthritis, Kidney failure, high blood pressure, diarrhoea, dizziness, etc. There are many complications that can arise with treatment such as re- feeding syndrome and hypophosphatemia, which can lead to patient distress or fatality. Eating disorders are a lifelong battle even after treatment is completed.

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