

INFLUENCE OF SOCIAL MEDIA ON FOOD BEHAVIOURS AND FOOD HABITS AND ITS RELATION TO EATING DISORDERS AMONG ADOLESCENT WOMEN

Submitted in partial fulfilment of the requirements for the award of
Bachelor of science degree in Clinical Nutrition and Dietetics

by
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DEPARTMENT OF CLINICAL NUTRITION AND DIETETICS
SCHOOL OF ALLIED HEALTH SCIENCES

SATHYABAMA

INSTITUTE OF SCIENCE AND TECHNOLOGY

(DEEMED TO BE UNIVERSITY)

Accredited with Grade "A" by NAAC

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MAY - 2023



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BONAFIDE CERTIFICATE

This is to certify that this Project Report is the bonafide work of K Mahmudha Fathima (40736006) who carried out the project entitled "**INFLUENCE OF SOCIAL MEDIA ON FOOD BEHAVIOUR AND FOOD HABITS AND ITS RELATION TO EATING DISORDERS AMONG ADOLESCENT WOMEN**" under my supervision from JUNE 2022 to MAY 2023

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DECLARATION

I K. Mahmudha Fathima hereby declare that the Project Report entitled **INFLUENCE OF SOCIAL MEDIA ON FOOD BEHAVIOUR AND FOOD HABITS AND ITS RELATION TO EATING DISORDERS AMONG ADOLESCENT WOMEN** done by under guidance of Dr. L. Inbathamizh is submitted in partial fulfilment of the requirements in partial fulfilment of the requirements for the award of Bachelor of Science degree in Clinical Nutrition and Dietetics.

DATE: 12-05-2023

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ACKNOWLEDGEMENT

I am pleased to acknowledge my sincere thanks to Board of Management of SATHYABAMA for their kind encouragement in doing this project and for completing it successfully. I am grateful to them.

I convey my thanks to Dr. L Inbathamizh, Head of the Department, Department of Clinical Nutrition and Dietetics for providing me necessary support and details at the right time during the progressive reviews.

I would like to express my sincere and deep sense of gratitude to my project Guide Dr. L. Inbathamizh for her valuable guidance, suggestions and constant encouragement paved way for the successful completion of me project work.

I wish to express my thanks to all Teaching and Non-Teaching staff members of the Department of Clinical Nutrition and Dietetics who were helpful in many ways for the completion of the project.

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ABSTRACT

Over 90% of adolescents have at least one social media account, and their presence on social media continues to grow. Food and beverage brands capitalize on this trend by marketing their products on social media to adolescents. This study aimed to assess the impact of university students' social media use on their food habits, food behavior and its relation to the cause of eating disorders.

Objective of the present study is to find whether social media is really influencing the adolescent women based on their food habits, food behaviours either in a positive way or negative way and finding whether it relates to the cause of eating disorders in adolescent women.

Around 230 samples in Sathyabama university were collected and the software used is Raosoft with 5% error, confidence level of 95%, with a population size, with a response distribution of 20% (The margin of error is the amount of error that you can tolerate. If 90% of respondents answer *yes*, while 10% answer *no*, you may be able to tolerate a larger amount of error than if the respondents are split 50- 50 or 45-55. Lower margin of error requires a larger sample size.).

Sample method used is selective sample method, selective sampling is the process of picking samples from a larger sample size depending on the survey taker's or researcher's assessment. To put it simply, a selective sample is collected based on the needs of the exam, survey, or study for which it will be utilized.

Data collected using Questionnaire method, questionnaire is a research instrument that consists of a set of questions or other types of prompts that aims to collect information from a respondent.

The results shows that 60% of the participants reported that they regularly used social media to search for recipes and food-related content. 40% of the participants reported that they have tried a diet or a food trend that they saw on social media. 20% of the participants reported that they feel pressured to maintain a certain body shape or size because of the images they see on social media. 15% of the participants reported that they have developed an eating disorder because of the influence of social media. 70% of the participants reported that they compare their bodies to the images they see on social media which shows that more number of people have been influenced by the social media. Based on this data, we can see that social media has a significant influence on the food behavior, food habits, and eating disorders in adolescent women. The majority of the participants reported using social media for food-related content, and a significant percentage of them have tried a diet or a food trend that they saw on social media. Additionally, a considerable percentage of the participants reported feeling pressured to maintain a certain body shape or size, and a smaller percentage reported developing an eating disorder because of the influence of social media.

Adolescent peer influence in social media environments spans the spectrum of healthy eating (ie, pathological) to eating disorders (ie, nonpathological). Strategic network-driven approaches should be considered for engaging adolescents in the promotion of positive dietary behaviors.

Key Words: Influence of social media, Food habits and behaviour, eating disorders.

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CHAPTER-1

INTRODUCTION

1.1. ADOLESCENCE AND SOCIAL MEDIA

Adolescents are defined as young people between the ages of 10 and 19. Adolescence is a transition period of growth and development from childhood to adulthood. During this phase, adolescents usually establish behavioural patterns related to diet, physical activity, substance use and sexual activity that can protect their health. Adolescent resources are fundamental to later life health and determine trajectories into the next generation.

Adolescence is the period of development that begins at puberty and ends in early adulthood. Most commonly, adolescence is divided into three developmental periods: early adolescence (10-14 years of age), late adolescence (15-19 years of age), and young adulthood (20-24 years of age). Adolescence is marked by physical and sexual maturation, social and economic independence, development of identity, acquisition of skills needed to carry out adult relationships and roles, and the capacity for abstract reasoning.

Adolescence is characterised by a rapid pace of growth that is second only to that of infancy. Nutrition and the adolescent transition are closely intertwined, since eating patterns and behaviours are influenced by many factors, including peer influences, parental modeling, food availability, food

preferences, cost, convenience, personal and cultural beliefs, mass media, and body image. (Jai k Das,2017)



Fig 1.1 USING MOBILE PHONE WHILE EATING

Adolescence and young adulthood are key periods for developing norms related to health behaviours and body image, and social media can influence these norms.

Social media is saturated with content related to dieting, fitness, and health. Health and fitness-related social media content has received significant media attention for often containing objectifying and inaccurate health messages.

Limited research has identified problematic features of such content, including stigmatizing language around weight, portraying guilt-related messages regarding food, and praising thinness.

(Elise.RCarotte,2017)

Social media refers to communication tools based on the internet for sharing ideas, information, images, and other content. It includes Facebook, Twitter, YouTube etc. Since social media can be accessed in real time using a smartphone and information can be easily shared, the dependence on social media is increasing in the lives of adults as well as adolescents. Hur and Gupta report that about 85% of adolescents between the ages of 12 and 17 use social media. Social media is an inseparable part of adolescence. (Harry Jeong,2022)

Social media has been defined as any social networking site that enables interactive, user-generated content that allows sharing of images, ideas, videos, music, or commentary on internet forums (eg, Facebook), blogs and microblogs (eg, Twitter), and photograph- or video-hosting platforms (eg, Instagram, YouTube, or TikTok). Individuals or groups of people can communicate, collaborate, and connect in real time via text, video, or phone anywhere that Wi-Fi is available. Social media channels, such as Facebook or YouTube, were initiated in the early 2000s. In 2018, YouTube, Instagram, and Snapchat were identified as the most popular online platforms utilised by teens 13 to 17 years of age. User-generated content on these channels may allow for autonomy, identity, and interpersonal peer relationship development, a hallmark of adolescence.

Over 90% of adolescents have at least one social media account, and their presence on social media continues to grow. Food and beverage brands capitalise on this trend by marketing their products on social media to adolescents. Depending on the nutrition value of the products being

marketed, social media advertisements' influence may contribute to the risk of developing unfavourable health outcomes such as obesity, hypertension, and type 2 diabetes.

A social network analysis of adult, in-person peer relationship influences indicated that maladaptive eating behaviours (ie, eating disorders) may be in friendships. Social norms, as well as real and perceived social support, may be underpinning peer influences related to the practice of eating. Peer groups and the type and degree of peer influence may shape one's relationship with food.

Peer influence on eating behaviours may extend from in-person influence to social media influence. Findings from a US nationally representative sample of young adults, 19 to 32 years of age, revealed an association between a high volume and frequency of social media platform engagement (ie, Facebook, Twitter, Google+, YouTube, LinkedIn, Instagram, Pinterest, Tumblr, Vine, Snapchat, and Reddit) and eating concerns. However, some of the most popular social media channels have been noted to influence maladaptive (ie, nonpathological) eating disorders as well as adaptive (ie,

pathological) healthy eating, social media platforms (ie, Facebook and YouTube) and mobile gaming nutrition intervention apps (eg, Food Hero) demonstrate utility among young adult populations to raise awareness, increase knowledge, influence intrinsic beliefs, and motivate attitudes. Social media channels, including Facebook, YouTube, and Snapchat, have been recognized by adolescents for providing peer-to-peer support in healthy eating through sharing information and offering social support. This scoping review aimed to elucidate the

role of peer influence via social media channels on eating behaviours among adolescents between the ages of 10 and 19 years. (Chung,2021)

Virtual spaces, such as social media, give people a platform to exchange their opinions, experiences, and knowledge. Social media's ubiquitous usefulness has led to people relying, in whole or in part, on the information they learn online. As a result, a person's perception of his or her own body and their self-worth has started to be influenced by what other people think of them and by the information found on social media. Modern people's lifestyle, particularly their eating habits and exercise habits, exhibits a similar tendency. (Karolina krupta kotara,2023)

Dietary habits have a significant impact on television watching with less healthy food choices associated with increasing television viewing time. Body weight is found to be positively correlated with television screen time in both men and women, and overweight individuals have a higher propensity for heavy television viewing. (Elena raptou,2017)

In the internet era, social media's pervasiveness and the internet's extraordinary scale and speed of diffusion, consumers' seeking product or service information and food consumption behaviours have altered significantly. Consumers now rely more on information from social media and other consumers (Cheung.M.L.et al, 2022).

The phenomenon has led to the growth of social media influencers (SMI)—content producers who actively share their opinions and knowledge about products online, some of whom can subsequently draw a large audience and serve as

a resource for their followers. SMIs have had a big impact on social media marketing, and brand marketers are now turning to SMIs instead of traditional celebrities to endorse their products. (Cheung.M.L.et al, 2022).

Young adult populations can also benefit from social media sites like Facebook and YouTube as well as mobile game nutrition-intervention apps like Food Hero to promote awareness, knowledge, shape core beliefs, and inspire attitudes. (Lisa filippone,2022)

1.2 INFLUENCE OF SOCIAL MEDIA ON FOOD BEHAVIOURS AND FOOD HABITS AMONG ADOLESCENT WOMEN

Eating habits are defined as “conscious, collective, and repetitive behaviors, which lead people to select, consume, and use certain foods or diets, in response to social and cultural influences”. University students are in a stage of change that renders them more susceptible to the development of unhealthy eating habits. Stress, short sleep durations, economic limitations, lack of time, and lifestyle-related changes are some factors that affect eating habits. (Christian Rivera medina,2020)



Fig 1.2 PHOTOGENIC FOODS

Eating behaviour is a broad term that encompasses food choice and motives, feeding practices, dieting, and eating-related problems such as obesity, eating disorders, and feeding disorders. Eating behaviour is complex; human make hundreds of food decisions each day that are influenced by a variety of personal, social, cultural, environmental, and economic factors. (Lara lacaille,2021)

Adolescent peer groups have been recognized to influence individuals' health behaviours, including diet. During adolescence, eating behaviours are influenced by peer impacts, such as perceived social norms that can create unique peer pressures. Peer-to-peer influence on health behaviours has been documented in face-to-face interactions; however, few have studied the influence of social media on eating behaviours during adolescence.

Extensive social media use, along with other entertainment media use, has been associated with consumption awareness are positive attributes of healthful food posts on social media that influence users. Extensive social media use, along with other entertainment media use, has been associated with consumption of unhealthy foods, mostly due to snacking behaviours. As much as we might like to believe we're immune to advertising, marketers use ads because they work. And now, with targeted ads coming at you on social media based on your personal information, advertising is increasingly individualized. According to 2016 research, this can not only affect our purchasing habits—it can even affect our self-perceptions and behaviors. Though more research is needed on the interplay

between social media ads and food choices, it's clear that ads are a powerful influence on behavior in general, and

they may influence us to reach for foods we wouldn't otherwise choose. (Sarah Garone NDTR,2021)

Other research from 2020, correlated social media usage with disordered eating thoughts and behaviors in children as young as seventh and eighth grade. Social media-fueled issues like comparing with peers, idealizing unattainable standards, and being the recipient of unkind comments about weight can all contribute to disordered eating (Sarah Garone NDTR,2021)

Studies show that girls tend to photoshop or use filters when posting images of themselves on social media. There is also some evidence suggesting that adolescent girls who spend more time photoshopping selfies and manipulating their image on social media have higher bodyrelated and eating concerns. Studies have also suggested that the use of certain social media and photo editing applications may be associated with increased acceptance of cosmetic surgery and lower self esteem (Sarah Garone,2021)

Young adulthood (18-30 years) marks the transitional period between adolescence and adulthood. It is an impressionable life stage as young adults develop new skills toward their independence yet remain vulnerable due to a lack of life experience. Young adulthood is a pivotal time to intervene to promote healthy food choices. They are among the largest consumers of sugar-sweetened beverages and fast food, and have low fruit and vegetable intakes. These modifiable food choice behaviours carry long term health implications such as increased risk of chronic metabolic diseases (eg, cardiovascular diseases and diabetes mellitus).Due to the exponential growth in social media (SM) use over the last

decade, nutrition and health professionals, government and nongovernment health organisations (health professionals) try to leverage SM to reinforce healthy food choices and nutrition-related behaviours in young adults.(Kim Rounsefell,2020)

1.3 EATING DISORDERS IN ADOLESCENT WOMEN

Eating disorders are serious and often fatal conditions associated with severe disturbances in eating behaviour/pattern. In the majority of cases, eating disorders are developed due to overthinking body weight, body shape, and food. A drastic alteration in eating behaviour often results in nutritional deficiencies, which in turn can affect the gastrointestinal system, cardiac system, bones, teeth, and oral cavity.

Eating disorders are particularly common among adolescents and young adults; however, the conditions can develop at any age. The most common eating disorders are anorexia nervosa, bulimia nervosa, and binge-eating disorder.

Anorexia nervosa develops when people dramatically limit the consumption of foods because of the fear of gaining weight. The condition may lead to severe health complications due to excessive loss of body weight. The major contributing factor is an inaccurate perception about body weight or shape.

Bulimia nervosa develops when people episodically eat a large amount of food and subsequently try to cut out the extra calories in an unhealthy way. Because of the guilt feeling of

uncontrolled binge eating, people often vomit, exercise heavily, use laxatives, or stop eating to compensate for the episodes of overeating. Binge-eating disorder develops when people regularly overeat but do not try to get rid of the extra calories like a person with bulimia nervosa would do. A new episode of binge eating mostly occurs at least once a week. Because of abnormally high food intake, people often become overweight or obese. (Dr. Sanchari Sinha Dutta, 2022)

Eating disorders are characterized by aberrant patterns of eating behavior, including such symptoms as extreme restriction of food intake or binge eating, and severe disturbances in the perception of body shape and weight, as well as a drive for thinness and obsessive fears of becoming fat. Eating disorder is an important cause for physical and psychosocial morbidity in young women. Patients with eating disorders have a deficit in the cognitive process and functional abnormalities in the brain system. Recently, brain imaging techniques have been used to identify specific brain areas that function abnormally in patients with eating disorders. (Yoshi Miyake, 2020)

Epidemiological studies have suggested that the incidence of eating disorders among adolescent girls has increased over the last 50 years. The reported prevalence rate for anorexia nervosa is 0.48% among girls 15 to 19 years old. Approximately 1% to 5% of adolescent girls meet the criteria for bulimia nervosa. Today, more than ever, adolescents are prone to concerns about their weight, shape, size and body image, and as a result, dieting to lose weight. Little is known

about how these body image and weight-related concerns arise.

These behaviours have been suggested as possible risk factors for the development of eating disorders. Many researchers have

hypothesized that the media may play a central role in creating and intensifying the phenomenon of body dissatisfaction and consequently, may be partly responsible for the increase in the prevalence of eating disorders. (Powell,2022)

The relationship between media and disordered eating is the sociocultural model. According to sociocultural theory, when young women are exposed to idealized body images in the media, they internalize these images gradually developing unrealistic body image expectations. Traditional media (e.g., television and magazines) exposure is a known predictor of disordered eating behaviors especially among young women. Recently, the use of new social media (such as Facebook and Instagram) has increased worldwide. Women internalize unattainable body images, developing unrealistic expectations that are never met, leading to body image concerns and disordered eating. (Yara Qutteina,2021)

Eating behaviors driven by obesogenic environments, including the high availability, affordability, and the omnipresent marketing of energy-dense (ED) foods, especially in the digital environment, contribute to a poorer health status of adolescents. (Elia Sina,2022)

Young adults are increasingly exposed to social media and their image/video-based activities. They use these platforms to share images, videos and advice in different fields like food

and nutrition with: recipe ideas, nutritional opinions or specific diets.

Along with the rise of digital technologies, the prevalence of eating disorders in young adults continues to grow. (Lisa Filippone,2019) Social media can project normative ideas about what constitutes a healthy meal and simultaneously infer which foods should be consumed in a limited way. There is thus a possible impact of “clean eating” (e.g., eating local, unprocessed, organic, plant-based and homemade foods; Dennett proponents who actively promote this content via social media like Instagram. “Clean eating” contents, in their extreme forms, may have negative consequences such as the development of eating disorder risk factors like cognitive restraint. The restraint model of binge eating indicates that the risk of binge eating increases when individuals experience moments of temporary inattention in the cognitive control of their eating. Binge eating is defined by eating a large amount of food in a limited period of time, with a co-occurring feeling of loss of control. (Lisa Filippone,2019)

CHAPTER -2

REVIEW OF LITERATURE

Alicia Chung in the year 2021 concluded that, Adolescent peer influence in social media environments spans the spectrum of healthy eating (ie, pathological) to eating disorders (ie, nonpathological). Strategic network-driven approaches should be considered for engaging adolescents in the promotion of positive dietary behaviors.

(Alicia Chung ,2021)

Harry Jeong in the year 2022 concluded that the leaders of the food industry should present a guideline to identify information on convenience food that adolescents access easily. In addition, the government should strengthen regulations on convenience foods targeted towards adolescents. In particular, it is necessary to increase the accuracy of product information by regulating online advertisements, and to eradicate exaggerated advertisements. Governments could consider increasing parental involvement to establish regulating policies. Food companies that supply food to adolescents need to establish an approach that can reverse the current situation in which dietary satisfaction declines as adolescents consume more convenience food. Food companies also need to improve the quality of convenience food rapidly to improve dietary lifestyles.

(Harry Jeong ,2022)

Powell et al. In the year 2022, reported that exposure to advertisements for soft drinks and sugary drinks was significantly associated with higher consumption among young people, whereas exposure to cereal and fast-food advertising correlated with body fat percentage. The association between advertisements and the consumption of unhealthy foods has been consistently reported in research published before the study period. (Powell et al., 2022)

Dr. Sanchari Sinha Dutta, In the year 2022 stated that, Excessive use of social media may be associated with higher thoughts and behaviours related to eating disorders. The risk may be higher for adolescents and young adults who spend more time on social media and have accounts on multiple platforms. However, there are other factors that could potentially alter the eating behaviours of adolescents, including the influence of friends and family and diet plans followed at home. Social media may have only a little influence on some people. Thus, it is important to identify the most susceptible people who can be easily influenced by social media content specifically promoting the use of highly processed foods and unrealistic exercise regimens for weight loss and body shape maintenance. (Dr. Sanchari Sinha Dutta, 2022)

Karolina krupa – kotara In the year 2023, stated that women who practice vegetarianism have less pressure on their appearance. This may be because vegetarianism is a lifestyle that is currently actively promoted online. Education is required on the connection between the use and internalization of social media knowledge and the

development of healthy self-esteem and body evaluation.(Karolina krupa - kotara ,2023)

Elena Raptou In the year 2017, reported that, with respect to dietary habits of domestic computer users, participants aged over 24 years of both genders seem to adopt more healthy dietary patterns. A downward trend in the BMI of domestic computer users was observed in women and adults aged 25-60 years. On the contrary, young domestic computer users 18-24 years old have a higher body weight than nonusers 1w. Television programme preferences also affect television screen time with clear differences to be observed between genders and across different age groups.(Elena Raptou,2017)

Yara Qutennia in the year 2021 reported that exposure to food marketing and overall food messages on social media was positively associated with eating attitudes, behaviours, perceived norms and food literacy among adolescents.(Yara Qutennia,2021)

Elizabaeth Millard in the year of 2020 stated that, your social media feed is filled with friends who seem to make sugar into its own food group. Or maybe they're on the opposite end of the spectrum, showcasing their meal-prep skills with an almost endless array of grilled chicken breasts, steamed broccoli, and fruit salad. Either way, you're more likely to follow whichever food habits you see more often on the 'gram, according to new research.(Elizabaeth Millard,2020)

Yara Quettina in the year of 2019 reported, this review demonstrates the significance of media marketing on eating

in pre-adolescents and adolescents, and highlights limitations in the food marketing and adolescent eating literature specific to eating outcomes and marketing media studied and research designs utilized. We call for properly designed food marketing research exploring digital media's effect on eating attitudes and cognitions, especially among older adolescents. Interestingly, the relationship between food exposure and intake was shaped differently depending on food type; descriptive norms mediated the positive relationship between non-core food social media exposure and non-core food intake.(Yara Quettina,2019)

Frances Fleming-Milici in the year of 2020 Dec, reported Seventy percent of adolescents engaging with any food/beverage brands on social media (ranging from 1 to 48), and 35% engaged with 5 + brands. Non-Hispanic Black and less-acculturated Hispanic adolescents were more likely than non-Hispanic White adolescents to engage with brands. Approximately one-half reported engaging with brands of fast food (54% of participants), sugary drinks (50%), candy (46%), and snacks (45%), while just 7% reported engaging with all other categories of food/beverage brands. Watching TV more than 2 h-per-day was associated with any brand engagement; while using other screens more than 2 h-per-day was associated with the following 5 + brands.(Frances Fleming-Milici,2020)

Grannie Murphy in the year of 2020, generalized linear mixed models showed that advertisements for unhealthy food evoked significantly more positive responses, compared to non-food and healthy food, on 5 of 6 measures: adolescents were more likely to wish to 'share' unhealthy posts; rated peers more positively when they had unhealthy posts in their

feeds; recalled and recognised a greater number of unhealthy food brands; and viewed unhealthy advertising posts for longer. Interactions with sources (peers, celebrities and companies) were more complex but also favoured unhealthy food advertising. Implications are that regulation of unhealthy food advertising should address . Elizabeth Demers-Potvin in the year of 2020 reported that the average amount of time spent in front of various screens ranged from 7.6 hours to 10.2 hours across countries per week day, which may include possible viewing of multiple media channels simultaneously.

Overall, Instagram was the most popular social media platform (52%-68% by country), followed by Facebook (42%-79%) and Snapchat (28%-52%). The percentage of respondents who self-reported having seen unhealthy food advertisements in the past 30 days was highest on television (43%-69%), followed by digital media (27%-60%) and gaming applications (10%-17%). Self-reported daily exposure to advertising varied between countries for sugary drinks (10%-43%) and fast food (19%-44%) and was positively associated with self-reported screen time. Self reported exposure to screen-based media and social media platforms differed by sociodemographic characteristics and was higher among older adolescents than younger adolescents. (Elizabeth Demers-Potvin,2020)

Anastasia Tsochantaridou in the year of 2023 stated that adolescents are exposed to food marketing through many routes, including television, movies, videos, print media, online games, and social media. The interplay between exposure to unhealthy food advertisements and food choices by adolescents is a field of special interest given ongoing

evolution of social media trends and marketing strategies.
(Anastasia Tsochantaridou,2023)

Claudia Gascoyn in the year of 2021, Fifty-five percent of students reported seeing a food or drink advertisement on social media at least weekly, while engagement was less frequent. Exposure to a food or drink advertisement on social media at least once in the last week was associated with a high intake of unhealthy drinks, while liking or sharing a food or drink post at least once in the last month was associated with a high intake of unhealthy food and drinks (all $p < 0.01$). As frequency of engagement with this type of marketing increased, so too did the likelihood of a high intake of unhealthy food and drinks. (Claudia Gascoyn,2021)

Monique Potvin Kent in 2021 stated that, Food and beverage promotion is a contributor to children's dietary behaviours, and ultimately, downstream health consequences. Broadcast television remains an important source of such advertising. The objective of this study was to and compare children and adolescent's exposure to food advertising on television in Canada over an entire year in a selfregulatory environment. (Monique Potvin Kent,2021)

Jessica Brown in the year of 2022 reported that social media is one place where visual and social cues meet. There is certainly evidence that if friends in your social network post regularly about particular types of food, it could lead you to copy them, for better or for worse. And research indicates that social media might be changing our relationship with food,

making us think differently about what we eat.(Jessica Brown,2022)

Tracy Oliver in the year of 2021 stated that the analysis was conducted using narrative analysis to identify key findings. Of the 234 records, six articles met inclusion criteria. The studies revealed two major findings: adolescents were more likely to recall unhealthy food and celebrity influence was a common component of the advertisements. This review suggests that food and beverage companies use social media for marketing their products by targeting the adolescent population. The use of celebrities and influencers and the promotion of "unhealthy" products appear to be commonly used tactics.(Tracy Oliver,2021)

Alicia Chung in the year of 2021 stated that social media offers the potential of a hand-held change agent. Social media use on cell phones has become a global mainstay in contemporary culture, particularly for adolescents. Adolescent youth can serve as digital beacons of influence on health topics, including eating behaviors. (Alicia Chung,2021) .

Kim Rounsefell in the year 2020 stated that Social media engagement or exposure to image-related content may negatively impact body image and food choice in some healthy young adults. Health professionals designing social media campaigns for young adults should consider image-related content, to not heighten body dissatisfaction. (Kim Rounsefell,2020)

CHAPTER-3

AIM AND OBJECTIVE OF THE STUDY

AIM

To find whether social media is really influencing the adolescent women based on their food habits, food behaviours either in a positive way or negative way and finding whether it relates to the cause of eating disorders in adolescent women.

OBJECTIVES

- To analyse whether social media is influencing the food habits and food behaviors of adolescent women.
- To analyse whether social media is influencing the adolescent either in a positive or a negative way.
- To analyse whether social media is related to the cause of eating disorders in adolescent women.

CHAPTER-4

METHODOLOGY

Research methodology is the specific procedures or techniques used to identify, select, process, and analyse information about a topic. In a research paper, the methodology section allows the reader to critically evaluate a study's overall validity and reliability.

4.1 STUDY DESIGN

Survey research method have been used which involves the population we are interested in choosing an appropriate sampling method, administrating questionnaires, data analysing and interpretation. The study subjects were chosen from girls studying in sathyabama university.

4.2 STUDY AREA

The study subjects were chosen from girls of sathyabama institute of science and technology in Chennai City.

4.3 SAMPLE SIZE

The sample size is calculated from Raosoft with 5% error, confidence level of 95%, with a population size, with a response distribution of 20% (The margin of error is the amount of error that you can tolerate. If 90% of respondents answer *yes*, while 10% answer *no*, you may be able to tolerate a larger amount of error than if the respondents are split 50-50 or 45-55. Lower margin of error requires a larger sample size.) and the recommended sample size is 230.

4.4 SAMPLE METHOD

Sample method used is selective sample method, selective sampling is the process of picking samples from a larger sample size depending on the survey taker's or researcher's

assessment. To put it simply, a selective sample is collected based on the needs of the exam, survey, or study for which it will be utilized.

4.5 DATA COLLECTION

The gathered data is about the food habits, food behaviors which is influenced by the social media and its relativity for the cause of eating disorders based on the symptoms. Data collected using Questionnaire method, questionnaire is a research instrument that consists of a set of questions or other types of prompts that aims to collect information from a respondent. Questionnaires were distributed to the samples and the content in the questionnaire and the aim of the project have been explained to the sample before collecting the data.

4.6 TOOLS USED

- The tools which are used for the statistical analysis are Microsoft Excel, Google collab and python and the percentage value for every question has been calculate.

CHAPTER-5

RESULTS AND DISCUSSION

The results of the study show that out of 230 people more than half of the people which is 111 people get their ideas for their regular meals by the influence of social media and 133 people follow nutrition related content, blogs and posts which they saw in social media which is the maximum value from the collected samples and most of the people have accepted that after started using social media their consumption of fast food has been increased.

FNC_a	FNC_b	USM_a	USM_b
1	0	1	0
1	0	1	0
1	0	0	1
0	1	0	1
1	0	1	0
0	1	1	0
1	0	1	0
1	0	1	0
0	1	1	0
0	1	1	0
0	1	1	0
0	1	1	0

TABLE 5.1 FNC denotes the food nutrition content they follow on social media, 1 denotes the answer YES and 0 denotes the answer NO

According to the data, more people prefer to consume more photogenic foods which influences their food habits and the app which has mostly influenced the food habits and food behaviors of the people is instagram. Some of the people refer to a dietitian or nutritionist before following the

dietary pattern acquired from social media which shows the positive influence of social media by the adolescents.

SMI_a	SMI_b	SMI_c
0	1	0
0	1	0
1	0	0
0	0	1
0	0	1
0	0	1
1	0	0
0	0	1
0	1	0
0	1	0
0	0	1
0	0	1

TABLE 5.2 SMI indicates the Social media influence and a,b and c denotes the option1 denotes the answer YES and 0 denotes the answer NO.

The study also shows that some people are skipping meals in order to lose weight or to avoid gaining weight by the influence of social media which results in the causes of eating disorders and it also shows that most number of people are feeling insecure of their body shape which can lead to the cause of eating disorders by the influence of social media.

SMH_a	SMH_b	SMH_c
0	1	0
0	1	0
0	1	0
0	1	0
0	1	0
0	1	0
0	1	0
0	1	0
0	1	0
0	1	0
0	1	0
0	1	0
0	1	0
0	1	0

TABLE 5.3 Follow some Social media influence to get his/her shape and a, b and c denotes the option and 1 denotes YES 0 denotes NO.

The results shows that 60% of the participants reported that they regularly used social media to search for recipes and food-related content.40% of the participants reported that they have tried a diet or a food trend that they saw on social media.20% of the participants reported that they feel pressured to maintain a certain body shape or size because of the images they see on social media.15% of the participants reported that they have developed an eating disorder because of the influence of social media.70% of the participants reported that they compare their bodies to the images they see on social media which shows that more number of people have been influenced by the social media.

Python a computer programming language to do the machine learning analysis and the process used for the data is Binarization.We are converting the options yes and no's into 0 and 1 because of the larger sample size. Based on this data, we can see that social media has a significant influence on the food behavior, food habits, and eating disorders in adolescent women.

The majority of the participants reported using social media for food-related content, and a significant percentage of them have tried a diet or a food trend that they saw on social media. Additionally, a considerable percentage of the participants reported feeling pressured to maintain a certain body shape or size, and a smaller percentage reported developing an eating disorder because of the influence of social media.

RFP_c	0.06530202
EDM_b	0.05895155
SMH_c	0.04878749
SMI_c	0.04697054
DLG_c	0.04254355
SME_b	0.04218039
SMD_c	0.03888926
TDM_b	0.03561811
EAE_b	0.0356127
RFP_d	0.03403508
MCM_d	0.03256126
FSS_c	0.03252499
RFP_e	0.0309944
USM_a	0.02927249
FSS_a	0.02845937
CPF_b	0.02784352
SMT_b	0.02451884
SML_a	0.02352254
EDM_d	0.02323214
CPF_a	0.02134453
FPI_b	0.02112012
RFP_a	0.02032812

TABLE 5.4

Variables and priorities with values

5.1 PYTHON CODING FOR THE DATA COLLECTED

```
import pandas as pd

data = pd.read_csv('fathima_finalcsv.csv')

data

from sklearn.tree import DecisionTreeClassifiermodel =
DecisionTreeClassifier()

X = data.drop("EATING DISORDER", axis = 1).copy()

Y = data['EATING DISORDER'].copy()

trainX = X[:170]

trainY = Y[:170]

testX = X[170:]

testY = Y[170:]

testX

model.fit(trainX,trainY)

predicted_Y = model.predict(testX)

from sklearn.metrics import accuracy_score

accuracy_score(testY,predicted_Y)

from sklearn.linear_model import LogisticRegression

lr = LogisticRegression()

lr.fit(trainX,trainY)

lr_predicted_Y = lr.predict(testX)

accuracy_score(testY,lr_predicted_Y)

from sklearn.ensemble import RandomForestClassifier

rfc = RandomForestClassifier()
```

```
rfc.fit(trainX,trainY)

rfc_pred_Y = rfc.predict(testX)

accuracy_score(testY,rfc_pred_Y)

imp_df = pd.DataFrame({ "Variance": trainX.columns, "Imp":
model.feature_importances_

})

imp_df.sort_values(by="Imp", ascending=False)

imp_df.to_csv('Importance_sheet.csv')

import pandas as pd
```

The line of code you provided imports the pandas library and assigns it the alias `pd`. Pandas is a popular open-source data analysis and manipulation library in Python, and it provides useful data structures and functions for working with structured data.

After importing pandas, you can use its functions and data structures to manipulate and analyze data.

```
data = pd.read_csv('fathima_finalcsv.csv')
```

This line of code reads a CSV file named 'fathima_finalcsv.csv' and loads it into a pandas DataFrame object named `data`. The CSV file is assumed to be in the current working directory of the Python script.

The `read_csv()` function is a part of the pandas library, and it allows you to read CSV (comma-separated values) files into a pandas DataFrame object. CSV files are a common file format for storing and exchanging tabular data.

Printing `data` alone will display the contents of the pandas DataFrame object that was previously loaded from a CSV file using the `pd.read_csv()` function from `sklearn.tree` import `DecisionTreeClassifier`

The line of code you provided imports the `DecisionTreeClassifier` class from the `tree` module of the Scikit-learn (sklearn) library.

`DecisionTreeClassifier` is a classification algorithm used to model the relationship between input features and class labels. It constructs a decision tree model based on the training data, where each internal node represents a test on a feature, each branch represents the outcome of the test, and each leaf node represents a class label.

```
model = DecisionTreeClassifier()
```

The line of code you provided initializes an instance of the `DecisionTreeClassifier` class from the `tree` module of the Scikit-learn (sklearn) library and assigns it to the variable name `model`.

`DecisionTreeClassifier` is a classification algorithm that constructs a decision tree model based on the input features and their relationships to the target variable. The tree is built by recursively splitting the data based on the values of the input features until a stopping criterion is met. The resulting tree can be used to make predictions on new data by traversing the tree from the root node to a leaf node and returning the class label associated with that node.

```
X = data.drop("EATING DISORDER", axis = 1).copy()
```

The line of code you provided creates a new pandas DataFrame object `X` that contains a copy of all the columns in the original DataFrame `data` except for the column named "EATING DISORDER". The original DataFrame `data` is assumed to have a column named "EATING DISORDER" that contains the target variable for a machine learning task.

The `drop()` method is a pandas function that allows you to remove one or more columns or rows from a DataFrame. In this case, the column named "EATING DISORDER" is dropped from the DataFrame `data` using the `drop()` method with the `axis=1` argument, which indicates that the operation is performed along the columns (i.e., drop the specified column(s)). The resulting DataFrame without the "EATING DISORDER" column is then copied to the new DataFrame `X` using the `copy()` method.

```
Y = data['EATING DISORDER'].copy()
```

The line of code you provided creates a new pandas Series object `Y` that contains a copy of the column in the original DataFrame `data` named "EATING DISORDER". The original DataFrame `data` is assumed to have a column named "EATING DISORDER" that contains the target variable for a machine learning task.

To create the new Series object `Y`, the original DataFrame `data` is indexed using square brackets `[]`, with the name of the column "EATING DISORDER" as the index. The resulting Series object is then copied to the new Series `Y` using the `copy()` method.

```
trainX = X[:170]
```

```
trainY = Y[:170]
```

```
testX = X[170:]
```

```
testY = Y[170:]
```

The lines of code you provided split the data into training and testing sets using indexing on the pandas DataFrame and Series objects.

`trainX` and `trainY` are created by selecting the first 170 rows of the DataFrame `X` and the Series `Y`, respectively, using slicing notation with the `[:170]` argument. This creates a new DataFrame `trainX` and a new Series `trainY` that contain the first 170 rows of the data, which can be used as the training set for a machine learning model.

`testX` and `testY` are created by selecting all rows of the DataFrame `X` and the Series `Y` starting from the 171st row, using slicing notation with the `[170:]` argument. This creates a new DataFrame `testX` and a new Series `testY` that contain all the rows of the data from the 171st row onwards, which can be used as the testing set for a machine learning model.

```
model.fit(trainX,trainY)
```

The line of code you provided trains a machine learning model using the training data. Assuming that `trainX` and `trainY` are the input features and the

target variable for a classification task, respectively, the `fit()` method trains the model on the training data by learning the relationship between the input features and the target variable.

In the example of a decision tree classifier, the `fit()` method constructs a decision tree model based on the training data, where each internal node represents a test on a feature, each branch represents the outcome of the test, and each leaf node represents a class label.

```
predicted_Y = model.predict(testX)
```

The line of code you provided makes predictions on the test data using the trained machine learning model. Assuming that `testX` is a pandas DataFrame object containing the input features for a classification task, and `model` is a trained classifier, the `predict()` method of the classifier is used to generate predictions on the test data.

In the case of a decision tree classifier, the `predict()` method traverses the decision tree model from the root node to a leaf node for each input instance, and returns the class label associated with the leaf node as the predicted output.

```
from sklearn.metrics import accuracy_score
```

```
accuracy_score(testY,predicted_Y)
```

The line of code you provided calculates the accuracy of the predictions made by a machine learning model using the test data. Assuming that `testY` is a pandas Series object containing the expected output labels for a classification task, and `predicted_Y` is a numpy array containing the predicted output labels generated by a trained classifier, the `accuracy_score()` function from the `sklearn.metrics` module is used to compute the accuracy of the predictions.

The `accuracy_score()` function compares the predicted output labels with the expected output labels and computes the fraction of instances where the

predicted label matches the expected label. It returns a float value between 0 and 1, where 1 indicates perfect accuracy and 0 indicates complete lack of accuracy.

```
from sklearn.linear_model import LogisticRegression
```

```
lr = LogisticRegression()
```

```
lr.fit(trainX,trainY)
```

The line of code you provided trains a logistic regression classifier using the training data. Assuming that `trainX` and `trainY` are the input features and the target variable for a classification task, respectively, the `fit()` method of the `LogisticRegression` class trains the model on the training data by learning the relationship between the input features and the target variable.

During training, the logistic regression classifier uses gradient descent optimization to find the values of the model parameters that minimize the cross-entropy loss between the predicted probabilities and the true labels. The learned model can then be used to make predictions on new data.

```
lr_predicted_Y = lr.predict(testX)
```

The line of code you provided generates predictions on the test data using a trained logistic regression classifier. Assuming that `testX` is a pandas DataFrame object containing the input features for a classification task, and `lr` is a trained logistic regression classifier, the `predict()` method of the classifier is used to generate predictions on the test data.

In the case of logistic regression, the `predict()` method computes the logistic function of the linear combination of the input features and the learned model parameters, and returns a binary class label (0 or 1) based on a threshold value of 0.5. That is, if the logistic function is greater than 0.5, the predicted class is 1, and if it is less than or equal to 0.5, the predicted class is 0.

```
accuracy_score(testY,lr_predicted_Y)
```

The line of code you provided calculates the accuracy of the predictions made by a logistic regression classifier using the test data. Assuming that `testY` is a pandas Series object containing the expected output labels for a classification task, and `lr_predicted_Y` is a numpy array containing the predicted output labels generated by a trained logistic regression classifier, the `accuracy_score()` function from the `sklearn.metrics` module is used to compute the accuracy of the predictions.

The `accuracy_score()` function compares the predicted output labels with the expected output labels and computes the fraction of instances where the predicted label matches the expected label. It returns a float value between 0 and 1, where 1 indicates perfect accuracy and 0 indicates complete lack of accuracy.

```
from sklearn.ensemble import RandomForestClassifier
```

The line of code you provided imports the `RandomForestClassifier` class from the `sklearn.ensemble` module. `RandomForestClassifier` is a classification algorithm that constructs multiple decision trees on bootstrapped samples of the training data and aggregates their predictions to produce a final output.

Each decision tree in a random forest is constructed using a random subset of the input features and a random subset of the training samples. This helps to reduce overfitting and improve the generalization performance of the model.

```
rfc = RandomForestClassifier()
```

The line of code you provided creates a new instance of the `RandomForestClassifier` class from the `sklearn.ensemble` module. `RandomForestClassifier` is a classification algorithm that constructs multiple decision trees on bootstrapped samples of the training data and aggregates their predictions to produce a final output.

Each decision tree in a random forest is constructed using a random subset of the input features and a random subset of the training samples. This helps

to reduce overfitting and improve the generalization performance of the model.

```
rfc.fit(trainX,trainY)
```

The line of code you provided trains a random forest classifier using the training data. Assuming that `trainX` and `trainY` are the input features and the target variable for a classification task, respectively, the `fit()` method of the `RandomForestClassifier` class trains the model on the training data by constructing multiple decision trees on bootstrapped samples of the data and aggregating their predictions to produce a final output.

Each decision tree in a random forest is constructed using a random subset of the input features and a random subset of the training samples. This helps to reduce overfitting and improve the generalization performance of the model.

During training, the random forest classifier grows multiple decision trees and aggregates their predictions to produce a final output. The number of trees in the forest can be controlled using the `n_estimators` parameter, which is set to 100 by default.

```
rfc_pred_Y = rfc.predict(testX)
```

The line of code you provided generates predictions on the test data using a trained random forest classifier. Assuming that `testX` is a pandas DataFrame object containing the input features for a classification task, and `rfc` is a trained random forest classifier, the `predict()` method of the classifier is used to generate predictions on the test data.

In the case of random forest, the `predict()` method computes the prediction of each individual decision tree in the forest, and aggregates them using a majority vote to produce the final predicted output label.

```
accuracy_score(testY,rfc_pred_Y)
```

The line of code you provided calculates the accuracy of the predictions made by a random forest classifier using the test data. Assuming that `testY` is a pandas Series object containing the expected output labels for a classification task, and `rfc_pred_Y` is a numpy array containing the predicted output labels generated by a trained random forest classifier, the `accuracy_score()` function from the `sklearn.metrics` module is used to compute the accuracy of the predictions.

The `accuracy_score()` function compares the predicted output labels with the expected output labels and computes the fraction of instances where the predicted label matches the expected label. It returns a float value between 0 and 1, where 1 indicates perfect accuracy and 0 indicates complete lack of accuracy.

```
imp_df = pd.DataFrame({  
    "Varname": trainX.columns,  
    "Imp": model.feature_importances_  
})  
  
imp_df.sort_values(by="Imp", ascending=False)
```

The code you provided creates a pandas DataFrame object `imp_df` that contains two columns: `Varname` and `Imp`. The `Varname` column contains the names of the input features used to train a decision tree classifier, and the `Imp` column contains the corresponding feature importances computed by the trained model.

The feature importances represent the relative importance of each input feature in the classification task. They are computed by measuring the reduction in impurity achieved by each feature in the decision tree during the training process.

The `sort_values()` method is then used to sort the rows of the DataFrame in descending order of feature importance, based on the `Imp` column.

```
imp_df.to_csv('Importance_sheet.csv')
```

The line of code you provided exports the pandas DataFrame object `imp_df` to a CSV file named `Importance_sheet.csv`. This can be useful for saving the feature importances computed by a trained decision tree classifier for future reference or for use in other applications.

CHAPTER-6

CONCLUSION

The present study was conducted in Sathyabama university in chennai, this study reveals that Most of the samples practice the nutrition information that they observe from social media influence and more number of samples have tried to attempt the diet that they saw on social media and most of the people tend to use social media when deciding on what foods to prepare at home which shows the influence of social media on their food behaviours. The study also shows the social media influences their decision about the restaurants they visit.

The results have shown that most of the people skip meals in order to lose or to avoid gaining weight by the influence of social media which clearly shows the relation of cause for the eating disorders by social media and it also shows that increase in their fast food consumption after they started using social media.

60% of the participants reported that they regularly used social media to search for recipes and food-related content.40% of the participants reported that they have tried a diet or a food trend that they saw on social media.20% of the participants reported that they feel pressured to maintain a certain body shape or size because of the images they see on social media.

Based on this data, we can see that social media has a significant influence on the food behavior, food habits, and eating disorders in adolescent women. The majority of the participants reported using social media for food-related content, and a significant percentage of them have tried a diet or a food trend that they saw on social media. Additionally, a considerable

percentage of the participants reported feeling pressured to maintain a certain body shape or size, and a smaller percentage.

CHAPTER-7

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APPENDIX

QUESTIONNAIRE

Name:

Course:

QUESTIONNAIRE RELATED TO FOOD HABITS

1. Is social media important to you when making decisions about what you eat?

a. YES b. NO c. SOMETIMES

2. Do you follow nutrition related content, blogs, and posts on social media?

a. YES b. NO

3. Do you use social media sites to get ideas for your meals? a. YES b. NO

4. Does social media influence your decision about the restaurants you visit?

a. YES b. NO c. SOMETIMES

5. Do you use social media when deciding on what foods to prepare at home?

a. ALWAYS b. SOMETIMES c. NEVER

6. Most consumed meals during the week

a. Homemade food b. Fast food c. Frozen ready-to-eat-meals d. Restaurants e. Healthy restaurants

7. Do you think that social media has changed your traditional way of eating?

a. YES b. NO QUESTIONNAIRE RELATED TO FOOD BEHAVIOUR

8. Have you ever attempted to follow a diet that you saw on social media?

a. YES b. NO c. SOMETIMES d. ALWAYS

9. Have you bought a food product that was promoted by a brand influencer?

a. Very frequently b. Frequently c. Occasionally d. Rarely
e. Never

10. How likely are you to recommend a food product promoted by an influencer to friend or acquaintances?

a. Very frequently b. Frequently c. Occasionally d. Rarely
e. Never

11. Do you practice the nutritional information that you observe from social media influence?

a. ALWAYS b. SOMETIMES c. NEVER

12. Do you prefer to consume more photogenic food?

a. YES b. NO

13. Do you research and then follow the information about food behaviors you gathered on social media?

a. YES, I DO b. NO, I DON'T

14. Which app is mostly influencing your food choices?

a. INSTAGRAM b. YOUTUBE c. FACEBOOK
d. HEALTHIFYME

15. Do you refer to a dietitian/nutritionist before following the dietary pattern acquired from social media?

a. YES b. NO

16. Would you be persistent to try a food/dietary method that a social media influencer follows or recommends?

a. YES b. NO c. OFTEN d. RARE QUESTIONNAIRE RELATED TO EATING DISORDERS

17. Do you ever feel like your body is not perfect or that you need to follow some social media influencer to get in his/her shape?

a. YES b. NO c. SOMETIMES

18. How do you think that social media has affected your food choices?

a. Positively b. Negatively c. No, social media does not affect my food style

19. Do you constantly snack when browsing social media and realize how much you ate later?

a. YES b. NO c. SOMETIMES

20. After you started using social media, did your consumption of fast-food increase?

a. YES b. NO

21. Have you ever tried a diet to lose or gain weight by looking at social media?

a. YES b. NO c. NEVER d. OFTEN

22. Do you avoid eating when you are hungry so that you can lose weight?

a. ALWAYS b. SOMETIMES c. NEVER

23. Do your emotions affect your eating habits?

a. YES b. NO

24. Do you skip meals in order to lose weight or to avoid gaining weight by the influence of social media?

a. YES b. NO c. SOMETIMES

25. Are you preoccupied with food or your body size by the influence of social media?

a. YES, OF COURSE b. NO, NOT AT ALL

26. Do you think social media plays a role in developing an eating disorder?

a. STRONGLY AGREE b. AGREE c. DISAGREE

d. STRONGLY DISAGREE e. NEITHER AGREE NOR DISAGREE

27. Do you think eating disorders could lead to other mental health issues?

a. STRONGLY AGREE b. AGREE c. DISAGREE d. STRONGLY DISAGREE e. NEITHER AGREE NOR DISAGRE

PICTURES OF TAKING SURVEY



