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What do Eating Patterns Reveal? Implications for Mood and Cognition

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With the sudden entrance of COVID-19 Pandemic, people were forced to stay indoors. This led to their eating habits being altered and their food choices deteriorated. As the lockdown period increased, people often used eating food as a coping mechanism to deal with stress, further leading to faulty eating patterns. The aim of the study was to understand how eating patterns of young adults affect their cognitive processes and mood. A total of 253 participants (118- Males and 135- Females; 18-24 years old) completed the 18-item Three Factor Eating Questionnaire (TFEQ-r18) and a 19-item qualitative questionnaire, pertaining to the influence of food on Self, Cognition, Emotional, and Physical aspects. Correlation between the 3 aspects of TFEQ showed significant positive correlation. Emotional Eating was positively correlated with both, Uncontrolled Eating and Cognitive Restraint. Moreover, based on the qualitative questionnaire, it was found that eating habits affected not only one's cognition and emotions, but also had an impact on their self and physical image. The questionnaire also included questions about comfort foods which conclude the different types of foods one likes to eat under different circumstances. Majority people felt happy, calm, relaxed, less anxious or stressed, and experienced an improved and uplifted mood that lasted for about a day. A minority number of respondents reported feeling guilty after eating their favorite food. Implications of faulty eating patterns on cognition and mood are discussed, emphasizing the need to develop educational intervention programs promoting healthy food choices.

Keywords: Eating Patterns, Mood, Cognition, Comfort Foods

Entering university is a new chapter in the life of a young adult where there is ample opportunity to explore one's freedom and decisions pertaining to making choices in life. One such choice is regarding the food we consume. Many students experience a negative change in their dietary habits after entering university (Mansour et al., 2020). This research was particularly interested in examining how this new found independence mediates their food choices and impacts their mood and cognition. Over the years, adequate amounts of research have been done over the eating habits of university students and how males and females have differing eating habits. However, most of these studies focused on eating disorders and obesity among high school students and not the general eating patterns. This study attempts to explore the eating patterns during the pandemic among Indian university students to understand how eating choices may act as a resource for maintaining wellbeing as well as focusing on academic pursuits.

Most of the previous studies focused on the female population neglecting the eating habits of males, therefore, the emphasis will be to explore eating habits of both males and females and to see whether any gender differences exist.

The theory of Emotional Eating states that negative emotions of a person have the power of inducing eating as eating has the ability to reduce the intensity of negative emotions (Macht et. al., 2010). Female university students tend to consume more fatty foods than males, although their fruit and vegetable intake remains similar (Racette et al., 2005; Deshpande et al., 2009). In a study by Lambert et al. (2018), social media was a majorly influencing food choice due to its influence on body shape. It was also found that most young adults have unhealthy diets, including higher fast food intake and lower intake of fruits and vegetables, regardless of their programmes or sex (Bernardo et al., 2022).

The evidence in chocolate and mood studies is highly controversial. As more is known about the impact of chocolate on mood, the reasons for these effects appear increasingly complex.

Eating Patterns and Mood

Mood states act as hyper preceding above the unpredictability of emotions (Clark et al., 2018). Since mood is highly subjective, it is difficult to understand but it can be expressed in different tones (Boccara et al., 1993). Mood and food have a complex relationship, with both affecting each other (Albeesh et al., 2020). Recent research has revealed that healthy eating patterns may lead to long-term well-being (Oswald and Mucjic, 2016) and better mental health (Conner et al., 2017).

Gardner et. al (2014) suggested that a positive mood signs abstract construal, distal, and increases the importance of long-term goals like health, leading to greater inclination to healthy foods. The results revealed that a negative mood signs proximal construal and increases the lucidity of immediate goals like mood management, leading to greater preference for indulgent foods over healthy foods. Bongers et. al (2013) concluded that emotional eaters are usually expected to eat in response to negative emotions, whereas positive emotions have been overlooked. Analysis showed a major increase in food consumption for emotional eaters in the positive compared to the neutral condition, and a higher food consumption than non-emotional eaters.With regard to mood changes during food intake, an association between number of calories consumed and mood improvement after 5 minutes of food consumption was seen. Albeesh et. al (2020) concluded that the mood significantly impacts food consumptions and food preferences. On the other hand, food also affects the mood, which alters the illnesses, either positively or negatively. Advertisement is another reason that negatively affects mood and food choices and contributes to many illnesses. Men did not alter in consuming sweet foods as their mood changed. However, women believed they were more likely to consume sweets after a sad event. Regardless of one's gender and BMI, stress and bad mood significantly improved with healthy eating (Albeesh et al., 2020).

These studies conclude that even though mood is a subjective concept, it is definable in relation to food and eating patterns. Unhealthy eating behavior leads to low self-esteem which ultimately leads to depressed mood and positive coping approaches are required to avoid unhealthy eating habits and low mood. It has also been found that a positive mood leads to healthy eating habits. And it has been found that mood is often the predictor of food consumption and choices.

Eating Patterns and Cognition

Cognition is a connection between a thinking mind and the neurophysiological activities that follow (Solso, Maclin, Maclin, 2005). Masuda et al. (2010) investigated that conviction of disordered eating-related cognitions was positively correlated with general psychological ill-health and emotional distress in interpersonal backgrounds. Disordered eating and cognition was contrastingly related to psychological adaptability. This was conversely related to poor emotional distress and psychological health in interpersonal situations.

An association was observed between emotional eating with stress, worries, and tension among adolescent girls, confused mood in adolescent boys (Unger et al., 2009), with anxiety and loss of control (Goossens et al., 2009). It has been found that overeating negatively impacts cognition and impairs cognitive development, thus increasing the risk for psychiatric disorders (Mattson, 2019). Bellisle (2004) suggested that good regular dietary habits are the best way to ensure desirable behavioral and mental performance all the time. Contrastingly, children and adolescents with weak nutritional status are susceptible to changes in mental and/or behavioral functions that can be corrected, to a certain level, by dietary habits. White et al. (2020) argued that language, attention, learning, metacognition, and memory are imperative in developing food preferences through chemical senses.

All the studies conclude that worrying or being anxious led to emotional eating and the feeling of loss of control. It is also concluded that emotional eating was for the link to higher consumption of sweet foods. Lastly it was also

found that stronger intentions did not break under the circumstances of unhealthy diet and that appearance is a large issue in determining the eating habits.

The main objectives, on the basis of literature review, were:

H1: It was predicted that cognitive restraint, emotional eating, and uncontrolled eating would be positively correlated

H2: Cognitive restraint, emotional eating, and uncontrolled eating have an impact on mood

H3: Cognitive restraint, emotional eating, and uncontrolled eating eating habits will influence one's cognition

H4: There would be greater preference for sweet foods

Method

Sample

A total of 254 participants, 118 (46.24%) males and 134 (53.38%) females, participated in this study. The age range was from 18 to 25 years (Mean Age= 19.82 years, S.D.= 1.34). All of the participants were university students and residents of India. The mean age of females is 19.29 and the standard deviation= 1.20. The mean age of male is 20.26 and the standard deviation= 1.38. Lastly, 171 (67.3%) participants were residents of Delhi while 83 (32.7%) belonged to other regions.

Tools Used

Three Factor Eating Questionnaire- Revised (TFEQ-R18) (Karlsson et al., 2000), a shortened and revised version of the original 51-item questionnaire (Stunkard and Messick, 1985), an 18-item self-assessment questionnaire that assesses the behavior of normal and overweight individuals. It focuses on three behavioral and cognitive aspects- Emotional Eating (inability to refuse emotional cues, Uncontrolled Eating (the habit of eating more than normal due loss of control over consumption followed by subjective feelings of hunger) and Cognitive Restraint (conscious restriction of food consumption to promote weight loss or control body weight). It used a 4-point rating scale. Each answer was scored from 4 to 1. The Cronbach's coefficient alpha was 0.78–0.94.

A qualitative questionnaire was also made in order to have a better understanding of how eating behaviors are linked to mood and cognition. This questionnaire had questions pertaining to four aspects- Social, Emotional, Cognitive, and Self. Moreover, it included questions about one's comfort food and how it impacted their mood. The questions were scored by calculating the average of all subsets of the questionnaire, which gave us the average response percentage.

Procedure

At first, informed consent of all the participants, participating in the study, was taken. Then, each participant was requested to fill an online form that included the questionnaires. The first page of the form included an introduction to the study as well as the informed consent. The demographic variables of the participants were also noted. Along with this, confidentiality was

Table 1: correlation table

		UNC. EATING	E.E.	COG. RES.
UNC.EATING	Pearson Correlation	1	.534**	-0.012
	Sig. (2-tailed)		<.001	0.854
	N	254	254	254
E.E.	Pearson Correlation	.534**	1	.162**
	Sig. (2-tailed)	<.001		0.009
	N	254	254	254
COG. RES.	Pearson Correlation	-0.012	.164**	1
	Sig. (2-tailed)	0.854	0.009	
	N	254	254	254

**. Correlation is significant at the 0.01 level (2-tailed)

assured and participants were free to withdraw from the study at any given point of time. The form took approximately 10-12 minutes to fill. Once the form was filled, the participants were thanked for their participation and cooperation.

Results

TFEQ-R18

The Mean Score for Emotional Eating is 4.92 and the S.D. is ± 20.70. The aggregate score of this domain was 5257. There was significant positive correlation between Uncontrolled Eating and Emotional Eating (r= 0.534, p>0.01). Significant positive correlation was also found between Uncontrolled Eating and Cognitive Restraint (r= 0.162, p>0.01).

The Mean Score for Cognitive Restraint is 3.36 and the S.D. is ± 14.007. The aggregate score of this domain was 3558. The correlation between Cognitive Restraint and Uncontrolled Eating is negative (-0.012), however non-significant.

The Mean Score for Emotional Eating is 2.45 and the S.D. is ± 6.72. The aggregate score of this domain was 1706.

Qualitative Questionnaire Results:

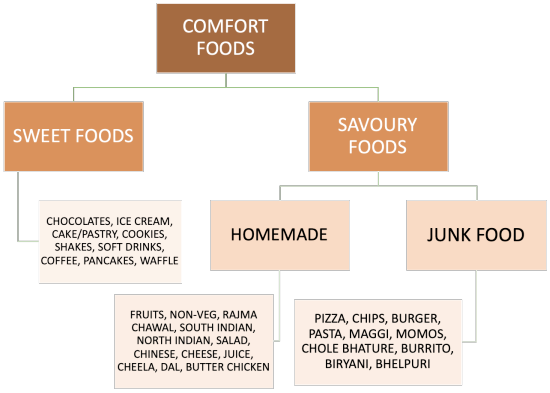

Figure 1: Categories Of Comfort Foods

Table 2: Most Preferred Comfort Foods

Sweet	Frequency	Savory Homemade	Frequency	Savory Junk Food	Frequency
Pancakes	2	Fruits	17	Sandwich	4
Waffle	2	Lassi	1	Fries	5
Coffee	3	South Indian	5	Momos	11
Soft drinks	4	Non-Veg	16	Maggi	13
Shakes	5	Juices	3	Pizza	28
Cookies	5	North Indian	4	Chips	16
Cake/pastry	10	Rajma chawal	15	Burger	14
Ice cream	23	Salad	4	Popcorn	1
Chocolates	38	Paneer	5	Pasta	14
		Soup	1	Chole bhature	8
		Cheela	2	Shawarma/ burrito	5
		Pakode	1	Bhelpuri	2
		Dal	2	Biryani	3
		Chai	1	Spring roll	1
		Chinese	3	Nachos	1
		Laphing	1	Tacos	1
		Butter chicken	2	Gol gappe	1
		Cheese	3	Samosa	1
		Parantha	1	Namkeen	1

Impact on Mood

Table 3: Average Response Percentage (Emotional)

	Food To Enhance Mental Health	Food To Improve Mood	Mood Fluctuations and Food	Total+Average Percentage Responses
Always	90 (35.43)	62 (24.41)	45 (17.71)	197 (25.85%)
Often	108 (42.52)	75 (29.53)	68 (26.78)	251 (32.94%)
Sometimes	47 (18.50)	90 (35.43)	76 (29.92)	213 (27.95%)
Rarely	7 (2.75)	19 (7.48)	45 (17.71)	71 (9.31%)
Never	2 (0.79)	8 (3.15)	20 (7.88)	30 (3.94%)
Total	254	254	254	

Table 4: Average Response Percentage (Physical)

	Body Shape And Food Quantity	Appetite Under Stress	Eating When Low	Total+Average Percentage Responses
Yes	154 (60.62)	-	-	154 (60.62%)
No	55 (21.65)	-	-	55 (21.65%)
Maybe	45 (17.72)	-	-	45 (17.72%)
Always	-	49 (19.29)	38 (14.96)	87 (17.12%)
Often	-	80 (31.50)	69 (27.16)	149 (29.33%)
Sometimes	-	83 (32.68)	80 (31.50)	163 (32.09%)
Rarely	-	31 (12.20)	48 (18.90)	79 (15.55%)
Never	-	11 (4.33)	19 (7.48)	30 (5.90%)
Total	254	254	254	

Table 5: Average Response Percentage (Cognitive)

	Good Diet	Superstitions About Food	Eating Pattern	Eating When Bored	Eating For Happiness	Total+Average Percentage Responses
Always	115 (45.28)	18 (7.09)		36 (14.17)	71 (27.95)	240 (94.49%)
Often	87 (34.25)	20 (7.87)		71 (27.95)	48 (18.90)	226 (88.98%)
Sometimes	41 (16.14)	37 (14.57)		67 (26.38)	71 (27.95)	216 (85.04%)
Rarely	9 (3.54)	48 (18.90)		55 (21.65)	47 (18.5)	159 (62.6%)
Never	2 (0.79)	131 (51.57)		25 (9.84)	17 (6.69)	175 (68.9)
Healthy	-	-	44 (17.32)	-	-	44 (17.32%)
Unhealthy	-	-	20 (7.87)	-	-	20 (7.87%)
Mixed	-	-	184 (72.44)	-	-	184 (72.44%)
Ext. Hea.	-	-	2 (0.79)	-	-	2 (0.79%)
Ext. Unhea.	-	-	4 (1.57)	-	-	4 (1.57%)
Total	254	254	254	254	254	

Table 6: Average Response Percentage (Self)

	Change In Eating Habits	Change Extent	Satisfaction With Diet	Changing Eating Patterns	Feeling Guilty With Favorite Food	Total+Average Percentage Responses
Little Bit	123 (48.42)	-	-	-	-	123 (48.42%)
A Lot	104 (40.94)	-	-	-	-	104 (40.94%)
No Change	27 (10.63)	-	-	-	-	27 (10.63%)
Better	-	154 (60.63)	-	-	-	154 (60.63%)
Worse	-	52 (20.47)	-	-	-	52 (20.47%)
No Change	-	48 (18.9)	-	-	-	48 (18.9%)
Fully Satisfied	-	-	34 (13.38)	-	-	34 (13.38%)
Somewhat Satisfied			83 (32.68)			83 (32.68%)
Neutral	-	-	82 (32.28)	-	-	82 (32.28%)
Somewhat Unsatisfied	-	-	45 (17.72)	-	-	45 (17.72%)
Fully Unsatisfied	-	-	10 (3.94)	-	-	10 (3.94%)
Yes	-	-	-	167 (65.75)	-	167 (65.75%)
No	-	-	-	37 (14.57)	-	37 (14.57%)
Maybe	-	-	-	50 (19.68)	-	50 (19.68%)
Always	-	-	-	-	10 (3.94)	10 (3.94%)
Often	-	-	-	-	17 (6.69)	17 (6.69%)
Sometimes	-	-	-	-	57 (22.44)	57 (22.44%)
Rarely	-	-	-	-	57 (22.44)	57 (22.44%)
Never	-	-	-	-	113 (44.49)	113 (44.49%)
Total	254	254	254	254	254	

Table 3 show the qualitative questionnaire revealed that for 32.94% of people (n=251), food “often” impacted their emotions, for 27.95% (n=213), and for 25.85% (197), food “sometimes” and “always” impacted their emotions, respectively.

Table 4 shows out of the total sample, 60.62% of people (n=154) stated that food impacted their body image. 32.68% (n=83) and 31.50% of people (n=80) chose “sometime” when asked whether their appetite under stress changes and they eat more when they feel low, respectively.

From the Table 5, 45.28% (n=115) of the participants said that a “balanced” diet is “always” important. 72.44% of the participants (n=184) stated that their general eating habits were a mix of healthy and unhealthy food choices. Thus, 27.95% (n=71) and 18.90% of people (n=48) said that they “often” eat when they are bored or happy.

Table 6 shows, 48.42% of the participants (n=123) said that their eating habits had changed “a little bit” during the COVID-19 Pandemic, while for 40.94% of the people (n=104), it had changed “a lot.” For the majority (60.63%; n=154), their

eating habits had gotten "better," meaning they shifted to healthier food choices leading to a healthier lifestyle. 32.68% of the participants (n=83) were "somewhat satisfied" with their current diet while 32.38% (n=82) were "neutral." Moreover, 65.75% of people (n=167) chose "yes" when asked about whether they would like to change their current eating patterns. 22.44% of the participants (n=57) chose "somewhat" and "rarely," each, when asked about feeling guilty after eating their favorite food.

Discussion

Impact of factors like technology, social media on general eating patterns are often neglected. Thus, the study was carried out to understand the eating habits of young adults and how they have an impact on one's mood and cognition. With mixed literature review and studies, the study revealed significant correlations between some variables while others were not correlated.

General Eating Patterns

As humans are faced with multiple food choices daily, what they prefer and choose form their eating habits. It was hypothesized that Cognitive Restraint (CR), Emotional Eating (EE), and Uncontrolled Eating (UE) would be high among young adults and be positively correlated (H1). It was found that there was significant positive correlation between, both, Emotional Eating and Uncontrolled Eating, and Emotional Eating and Cognitive Restraint. Thus, H1 was partially true; EE was significantly correlated with CR and UE.

A study by Engblom et al. (2009) found that emotional eating and cognitive restraint were positively associated with body weight in young women. Higher scores corresponded to a higher BMI, with no connection between emotional eating and body weight.. Contrastingly, Frayn and Kñauper (2018) it was revealed that emotional eating is the habit to overeat as a response to negative emotions leading to weight gain over time and difficulties in losing or maintaining it. Moreover, EE was associated with higher intake of sweet foods (Konttinen et al., 2010). Another study by Elfhag and Linné (2005) concluded that body weight is correlated with cognitive restraints in adolescence and emotional eating in women. Food craving developed as a significant indirect outcome of the association between restrained eating, and uncontrolled and emotional eating. Emotional eaters had a higher snacking consumption. Contrary to observations in adults, teenagers and young adults who displayed a high cognitive restraint showed consumption of less energy-dense foods rather than more "healthy foods" (Sante, 2004). Mantau et. al (2018) found that emotional eating was less likely to be regulated by biological factors (eg.- weight) and more impacted by situational (eg.- stress) and psychological (eg.- restrained eating) factors.

Impact Of Eating On Mood (Self And Physical Aspects Included)

Mood:

It was hypothesized that eating patterns would have an impact on mood (H2). Based on the data and studies, H2 is completely true.

Mi-Sook et. al (2008) concluded that there were significant differences in food preference according to emotions. Pizza & pasta, ice cream and cake were favored during happiness and amusement. Alcohol was the most preferred food item in sadness and anger. While relaxing, there was the preference of beverages, ice cream and snacks while relaxing. Chocolate showed the highest preference during depression. Instantaneous mood improvement from palatable food in the post prandial stage can forge repeated and habitual coping mechanisms for mood management (Macht and Mueller, 2007). It has been suggested that the mood-elevating effect of unhealthy foods is often less intense as compared to healthy foods (Wagner et al., 2014). Leeds et al. (2020) found that low mood was associated with unhealthy food consumption, apparent addiction to certain foods and overeating. Improved mood was associated with more healthy eating and eating in social and familial settings.

Emotional eating was associated with higher consumption of sweet foods among men and women and non-sweet foods in men independently of depressive symptoms and restricted eating. These findings reveal that

depressive symptoms and emotional eating both influence unhealthy food choices. Emotional eating could be one cause explaining the relationship between depressive symptoms and eating sweet foods, whereas other factors may be more imperative with respect to non-sweet foods. Noll et. al (2017) concluded that participants who were asked to thoughtfully consume chocolate had a greater increase in their positive mood as compared to those participants who were told to eat chocolate incautiously. Moreover, self-reported liking of the food partially mediated this effect. Hetherington et al. (1995) concluded that eating chocolate produced greater feelings of guilt among the 'addicts' and no major changes in feeling depressed or relaxed. On scales of disordered eating and depression, 'addicts' scored significantly more than controls; however, eating chocolate did not impact mood. Albeit chocolate provides pleasure, for those who consider consumption of this food to be enormous, any pleasure experienced is short lived and assisted by feelings of guilt. Apple and chocolate eating enhanced mood but chocolate's effect was stronger (Macht & Dettmer, 2006). Chocolate eating reduced negative mood after watching sad films but had no effect on positive mood (Macht & Mueller, 2007). Bad mood was alleviated after eating palatable chocolate (up to 70% cocoa) but the effects were very short-lived.

Physical:

In a study by H. Ans et al. (2018), it was revealed that there exists a bidirectional relationship between stress and eating. Stress can result in decreased food intake if high-calorie, palatable food is not available. In the presence of high-calorie palatable foods, stress results in increased food intake. Stress can be a potential cause for the development of obesity only if accompanied by increased eating behaviors. A study by Megalakaki et al. (2013) found that the obese adolescents used cognitive restraint more than the normal-weight adolescents did as a strategy for regulating their diet and were less satisfied with their body image. The normal-weight adolescents' use of cognitive restraint was correlated with body-weight dissatisfaction. A study by Wardle and Beales (1986) revealed that there were substantial gender differences in body image, restraint and food attitudes, even in the youngest age group (12 to 13 years). The majority of girls felt too fat, attempted to limit their food consumption, and showed guilt about eating. The boys expressed much less concern in these areas. No age group differences were found. The results recommended that normal English girls experience considerable levels of distress over eating and weight. Girls displayed more concern than boys about being or becoming overweight, more concern about the effects of food intake, a bigger desire to be thinner than their perceived body image, and a history of more dieting behavior (Thelen et al., 1992).

Impact Of Eating On Cognition

The same qualitative questionnaire was used to assess the impact of eating patterns on cognitive processes. It was hypothesized that eating habits will influence one's cognition (H3). Based on the evidence, H3 was partially true.

This can be explained by a study by Shin et al. (2018) who found that even though college students had a fair amount of knowledge regarding the consumption of fast food and that it is unhealthy, they prioritized the food taste and convenience. A contrary study by Wang and Musingo (2009) concluded that there were significant differences in the eating habits on the basis of gender, residential status, and educational qualification. It was also concluded that students had misconceptions regarding the knowledge of proper diet and good eating habits.

Wansink et al. (2003) found that there were different comfort food preferences across gender and across age. Males preferred warm, meal-related foods, like steak, while females favored comfort foods that were snacks, like chocolate and ice cream.

Comfort Foods:

Questions about comfort foods were also asked- their comfort food, how does it make them feel, and for how long do they feel comfortable. It was hypothesized that there would be greater preference for sweet foods (H4). Based on the research, H4 was completely true.

A study by Spence (2017) found that even though most people suppose that comfort foods enhance their mood, it is harder to come across

empirical findings in support. Such results have led to headlines recommending that the thought of comfort food is nothing more than a myth. Individuals may give "credit" to comfort food for mood betterment and enhancement that would have appeared even in the absence of the comfort food.

The highest voted food was chocolate, followed by pizza and ice cream respectively. Studies have found that chocolate has a greater effect on mood, affecting it positively (Meier et al., 2017; Fletcher et al., 2007; Cartwright et al., 2007; Yake et al., 2006). The joy experienced after chocolate consumption only exists if the consumption is low-moderate (Moreno et al., 2012). The other foods were- Fruits, Non-Veg, Pasta, Cakes/Pastries, rajma chawal, Maggi, Chips, Burger and Momos. High-protein food can severely prevent or reduce depressed mood in men (Wolfe et al., 2011). Eating fresh foods has been linked to better mental health (Brookie et al., 2018).

Therefore, even though people think that the consumption of such foods brings more enjoyment, eating unhealthy foods does not provide a greater psychological benefit as compared to other foods (Albeesh et al., 2020).

After analyzing the data, it was concluded that the duration of this mood enhancement ranged from about 1 hour to maximum a day. Albeit chocolate provides pleasure, for those who consider consumption of this food to be enormous, any pleasure experienced is short lived and assisted by feelings of guilt. Apple and chocolate eating enhanced mood but chocolate's effect was stronger (Macht & Dettmer, 2006). Chocolate eating reduced negative mood after watching sad films but had no effect on positive mood (Macht & Mueller, 2007). Bad mood was alleviated after eating palatable chocolate (up to 70% cocoa) but the effects were very short-lived. Although people believe that comfort foods provide them with mood improvement, comfort foods do not provide comfort beyond that of other foods or no food (Wagner and Ahlstrom, 2014).

Moreover, most people felt happy, calm, relaxed, less anxious/stressed, and experienced an improved and uplifted mood. A minority number of respondents mentioned feeling guilty after eating their favorite food. Some words they used were- "Relaxed," "Comfortable," "Mood lift," "Distracted," "Good." Pool et al. (2015) concluded that if a stressed person encounters an environmental stimulus associated with highly palatable food, this may trigger excessive pursuit of highly palatable food, whether or not the food elicits liking during its consumption. A study by Christensen et. al (2001) revealed that carbohydrate cravers reported feeling distressed prior to their cravings and satisfied, happy and relaxed following carbohydrate consumption. Protein cravers reported feeling anxious or hungry prior to their cravings and happy, normal, bored, and energetic following protein-rich food consumption. A significant positive correlation existed between "carbohydrate" cravers' ratings of craving intensity and almost all mood scales assessed for both male and female "carbohydrate" cravers. The correlation between craving intensity and mood existed predominately with individuals who craved sweet carbohydrate-rich foods.

Conclusion

The effect of COVID-19 has negatively and positively influenced the eating practices throughout India and globally. It can be concluded that one's personal food choices do impact one's mood and cognition and vice versa. Most studies reveal that low moods lead to higher consumption of sweet or carbohydrate-rich food, later leading to short-term improvement in mood states. Moreover, it was also revealed that a positive mood leads to healthy food choices, including fruits, vegetables, which in turn help in reducing CR, UE, and EE. However, more studies are required to concretely answer the question of whether cognition is impacted by eating patterns. One possible reason for less evidence can be that it is difficult to quantify the relationship of food with mood and, particularly, cognition. These results suggest that psychophysiological response to stress may influence subsequent eating behavior. In terms of food choices, studies show that vital factors in food choices in adults are cost, nutrition, convenience, leisure, and weight control, in the same order (Glanz, Basil, Maibach, Goldberg, & Snyder 1998).

Implications

It is stoutly believed that more information is needed about general eating patterns. It was noted that most people were not aware of how eating habits impact mood and cognition. There is a lack of understanding about the concept of cognition. In order to have good mental health, it is important to be aware and conscious of the food choices one makes, since they play a paramount role in determining one's mood and thoughts. In today's world, with increased focus on eating disorders and their influence, it is important to understand how general eating patterns have an influence on our daily life. In future, we need more educational programmes and interventions that would promote healthier food options and diet among the general population and prevent unhealthy food choices. Finally, harmful advertising of food items severely impacts the food choices. Thus, careful and stringent regulations are needed to prevent this.

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