Cognitive Functions among Obese and Non-Obese People

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Abstract

Background: *Obesity is one of the leading global health concerns of 21st century. It is highly prevalent among all age groups including children, adolescents and adults. This dramatic increase of obesity across developed and developing countries is a result of changes in dietary habits, lesser physical activities, and enhanced sedentary lifestyles. It has been well-established that obesity not only impacts physical health but also influences brain structure and functions.*
Objectives: *In view of the alarming need to gain insight on such existing cognitive disparities, the present study aimed to assess cognitive functions among obese and non-obese people.*
Methods: *300 participants (180 obese and 120 non-obese) age-ranging between 20 to 40 years were taken as samples for the present study. The participants were administered the BRIEF (Adult-A) in order to examine their executive functioning.*
Results: *T-test analysis showed that significant differences exist between obese and non-obese adults on executive functioning including, behavioral regulation and metacognition.*
Conclusion: *The study contributes to the understanding that how BMI or obesity impacts executive functioning of an individual. In addition, it throws light on the need to develop healthy eating habits and increase physical activity.*
Keywords: *Obesity, Cognitive function, Executive function, Behavioral regulation, Metacognition, Obese and non-obese people.*

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Introduction

Obesity is a modern-day epidemic and a major public health-related concern worldwide. In 2016, the World Health Organization (WHO) estimated that 1.9 billion adults worldwide were overweight, while 650 million were obese. In 2022, 2.5 billion adults aged 18 years and older were overweight. Among them, 890 million were affected with obesity. In 21st century, the obesity has reached at epidemic levels, with 5% population being affected (The Hindu, 2007). India is following the trend of other developing countries, which are increasingly becoming obese (Gulati & Mishra, 2017). This global health burden is attributed to multiple factors, including genetic, behavioral, and social factors. Lifestyle changes related with our current society have led to increased calorie intake, primarily from sugar, trans, and saturated fats, and reduced physical activity. As a result, a previously positive energy balance is transformed into adipose tissue accumulation and pathological weight gain (Blüher, 2019). And this excess adipose is now affecting populations on global level not just few countries (Ahmed & Mohammed, 2025). This excessive collection of adipose tissue results in obesity (Das & Khaled, 2024; Hall et al., 2022; Johnson et al., 2024; Magkos et al., 2024; Manore et al., 2017; Minari et al., 2024; Rydin et al., 2024; Torres-Carot et al., 2022; Westerterp, 2018). Excessive body weight consequently leads to various life-threatening chronic illnesses (Ahmed & Mohammed, 2025). Specifically, it has been found that obesity enhances the risk for cardiovascular diseases like coronary heart disease and stroke (Akil & Ahmad, 2011; Powell-Wiley et al., 2021; Welsh et al., 2024). In addition to an increased risk of non-communicable disease and premature death, overweight and obesity are linked with cognitive decline and the development of mental illness, including dementia (Singh-Manoux et al., 2018; Tang et al., 2021) and mood disorders (Bond et al., 2010; Fagiolini et al., 2003; Herva et al., 2006; Roberts et al., 2003). Individuals with obesity are at high risk for developing type-2 diabetes, hypertension, and dyslipidemia (Powell-Wiley et al., 2021). Additionally, it has been revealed that obesity can lead to problems related with respiration (Liu et al., 2017; Orozco-González et al., 2024; Shah & Kaltsakas, 2023).

Unsurprisingly, excess body weight has led to rising healthcare costs (Withrow & Alter, 2011) and contributes to over 2.8 million deaths each year (World Health Organization, 2017). This increase is often more rapid in developing countries in comparison to the developed world. In 2010, overweight and obesity were estimated to have contributed to 3.4 million deaths worldwide, 3.9% of life-years lost, and 3.8% of disability-adjusted life-years (NCD Risk Factor Collaboration, 2014).

Cognitive Functions

The process through which sensory inputs are registered, screened through previous experiences, and processed via abstraction, concept formation, reasoning, and logical analysis in the cerebral cortex, consequently resulting to an appropriate response is known as cognitive functioning. It involves several cognitive dimensions such as attention, memory, and processing speed, which can be affected by factors like age, intelligence, and emotional states. Cognitive function can be defined as an umbrella term and executive function is its dimension encompassing a variety of cognitive processes and behavioral abilities to initiate, plan, regulate, sequence, and achieve complex goal-oriented behaviors and thoughts (Royall et al., 2002; Shallice, 1989; Stuss & Benson, 1986). McCloskey et al. (2009) offers a broader perspective on executive functions, stating, "Executive functions are directive capacities responsible for a person's ability to engage in purposeful, organized, strategic, self-regulated, goal-directed processing of thoughts, feelings, ideas, and actions. As a collection of directive capacities, executive functions also indicate the use of other mental capacities such as reasoning, language, and visuospatial representations." Executive function includes two primary domains that measure related, but distinct factors. These are behavioral regulation, defined as the ability to inhibit, shift, and maintain emotional control, and metacognition, defined as the ability to initiate, plan, organize, monitor, and use working memory (Gioia et al., 2000).

Various studies had shown that obesity negatively impacts cognitive functioning, particularly executive functioning. A core cognitive symptom in obesity appears to be executive dysfunction, focusing on three distal neurocognitive constructs: decision-making, response inhibition, and cognitive flexibility. Poor executive function performance has also been described in obesity (Brogan et al., 2010; Pignatti et al., 2006), with some associated characteristics, such as impulsivity and reduced decision-making capacity, resulting in inadequate self-control/self-regulation (Brogan et al., 2010; Danner et al., 2012; Pignatti et al., 2006). Specifically, it has been shown that obese individuals perform worse in decision-making, assessed by the Iowa Gambling Task, than peer drug users. These results demonstrate a significant impairment in decision-making associated with obesity and, once again, suggest that overeating palatable foods is an addictive behavior. Impulsivity, which links this inappropriate sensitivity to punishment, has also been observed in obese individuals, confirming an executive dysfunctional profile in obesity (Danner et al., 2012).

Yilmaz et al. (2025) conducted a comparative study of cognitive function and reaction time in obese and non-obese adults and concluded that obese participants showed poorer cognitive, auditory, and visual performance than non-obese individuals. Cecot et al. (2024) revealed that a complex relationship exists between obesity and cognitive function across different age groups. Being overweight often correlates with poorer cognitive test scores compared to those with normal body weight. However, it has also been suggested that obesity may provide a protective function against accelerated cognitive decline in older adults. In younger individuals, such as teenagers, obesity is associated with poorer performance on cognitive function tests, suggesting that obesity negatively impacts cognitive ability from an early age. The findings also revealed that weight loss can lead to a positive change in cognitive function.

Another study by Rukadikar et al. (2023) examined the impact of obesity on cognitive functioning among healthcare professionals, and the results revealed a significant relationship between memory scale parameters and percent BMI. Gandhi and Humaney (2022) studied the effects of obesity on cognitive function. The results showed that higher body mass index was associated with poorer cognition. Gender did not play a role in body mass index or cognitive function. Obesity affects cognitive function in healthy adult populations without comorbidities, regardless of gender.

In recent years, studies have been conducted on the physical health effects of obesity (Prickett et al., 2015; Yang et al., 2018; Fitzpatrick et al., 2013; Favieri et al., 2019). However, its impact on cognitive functions including attention, memory, decision-making, and thinking are rarely studied. Previous studies have shown mixed findings, and there are relatively fewer studies comparing cognitive functions among obese and non-obese individuals. Moreover, limited studies have been conducted among the Indian obese population. A lot of studies have examined the relationship between obesity and cognitive functioning; comparatively less attention has been given to executive functions specifically among obese and non-obese individuals. Existing studies have largely focused on cognitive performance, whereas executive functions- like working memory, planning, decision making, task maonitor, and initiate- play an important role in regulating self-control and goal-directed behavior. Therefore, there remains a need for further research to examine executive functioning more comprehensively and to determine whether obese individuals differ from non-obese individuals across executive functioning domains. This study attempts to address this gap by comparing executive functions between obese and non-obese individuals.

Rationale

Obesity is increasingly becoming the cause of impairments across many cognitive domains such as, memory, attention, executive functioning, and information processing. Various cross-sectional and longitudinal studies suggest that obese adults exhibit poorer cognitive performance in comparison with non-obese. A study conducted on South African cohort, reveals that obese adults performed poorly on tasks evaluating their memory, attention, and executive functions when compared to non-obese (Lentoor, 2022). In a similar way, research conducted on 486 healthy adults belonging to 21-82 years of age concluded that obesity was closely related with decreased performance in memory related tasks of verbal learning and delayed recall, even after removing participants facing known neurological or metabolic diseases (Gunstad et al., 2006). Furthermore, a meta-analysis of 72 studies (approximately 5,000 overweight /obese participants) reported that obesity is correlated with major deficits in executive functions comprising of inhibition, cognitive flexibility, working memory, decision-making, verbal fluency and planning, in comparison with participants of normal-weight controls (Yang et al., 2018). Potential associations explaining these links include metabolic along with vascular changes, neuroinflammation, oxidative stress, and changes in structural or functional brain (i.e., in the hippocampus and frontostriatal circuits) related with adiposity (Sui & Pasco, 2020).

In view of the above findings, a comprehensive comparison of cognitive functioning among obese and non-obese adults- controlling confounding variables like age, comorbidity, and socio-economic status- is needed. Such researches may provide insight whether obesity is necessarily associated with cognitive deficits, thereby guiding interventions managing both health and cognitive health.

Objectives

In view of the gaps in the existing literature the study was conducted to address the following objectives: -

1. To examine the differences between obese and non-obese control groups in the behavioral regulation dimension of executive function.
2. To examine the differences between obese and non-obese control groups in the metacognition dimension of executive function.
3. To find out the differences between obese and non-obese control groups in the global executive functions.

Hypotheses

On the bases of literatures, following hypotheses were formulated: -

H1: There would be significant differences between obese and non-obese control groups in behavioral regulation dimension of executive function.

H2: There would be significant differences between obese and non-obese control groups in metacognition dimension of executive function.

H3: Obese and non-obese control groups would differ significantly in global executive functions.

Method

Participants

The study was conducted on a sample of 300 participants, age- ranging between 20 to 40 years. Participants for the study were drawn from Kanpur city, Uttar Pradesh, India. A stratified randome sampling method was used for the selection of the participants.

The inclusion criteria for the selection of sample were: -

- Literate obese people with the age range of 20 to 40 years
- Literate non-obese participants with the age range of 20 to 40 years.

The exclusion criteria for the selection of sample were: -

- Illiterate people, people with history of psychotic and neurotic diseases, any coexisting neurological diseases, patients suffering from hypertension diagnosed by medical records, clinical depression and an established diagnosis of dementia and mental retardation, any history of past/current substance abuse/ dependence. Any medical/endocrinal disorder.

Participants who fulfilled the inclusion criteria were invited to participate. The participation was completely voluntary. Sample was divided into two Groups; Group 1 and Group 2. Group 1 involved 180 participants with obesity (BMI 30 and above). Group 2 comprised of 120 non-obese control participants.

Ethical considerations were maintained throughout the study. Informed consent was obtained from the participants. Participants were assured of confidentiality and anonymity. The research protocol was approved by the Research Development Committee, CSJMU, Kanpur, under the approval number CSJMU/R&D/979/2023.

Table-1: The Demographic Characteristics of People with Obesity (N= 180)

Age (in years)	**N**	**%**
20-30	99	55%
31-40	81	45%
Gender		
Male	90	50%
Female	90	50%
Marital status		
Married	110	61.1%
Unmarried	70	38.9%
Education		
Below high school	7	3.9%
High school to intermediate	34	18.9%
Graduation to Post graduation	73	40.6%
Above Post graduation	66	36.7%

Table-1 shows that out of the total sample of 180 individuals with obesity, 55 % belonged to the 20-30 years and 45% were in the 31-40 years age group. With respect to gender distribution, equal gender distribution was observed (50% male and 50% female). Most participants were married (61.1%). For education qualification, 40.6% were graduates or postgraduates and 36.7% possessed qualifications above the postgraduate level, while 18.9% had high school/ intermediate education and 3.9% had education below high school.

Table-2: The Demographic Characteristics of Non-Obese People (N= 120)

Age (in years)	**N**	**%**
20-30	74	61.66%
31-40	46	38.33%
Gender		
Male	60	50%
Female	60	50%
Marital status		
Married	62	51.7%
Unmarried	58	48.3%

Education		
Below high school	4	3.3%
High school to intermediate	24	20.0%
Graduation to Post graduation	52	43.3%
Above Post graduation	40	33.3%

Table-2 indicates that out of the total sample of 120 non-obese poeple, 61.7% were in the 20-30 years age group and 38.3% were in the 31-40 years age group. For gender distribution, sample had an equal distribution (50% male and 50% female). Regarding education, 43.3% were graduates or postgraduates and 33.3% possessed qualifications above postgraduate level, while 20% had high school/ intermediate education, and 3.3% had education below high school.

Measures

The Demographics and Clinical Profile: The demographic and clinical characteristics profile was prepared by the researcher. It comprised of questions related to age, gender, BMI, years of formal education, employment status, and marital status, monthly income of the family. Other information such as retinopathy, heart disease, dyslipidemia, and information relating to a previous history of depression, dementia, Parkinson's disease, and stroke were also included.

Behavior Rating Inventory of Executive function (Adult-A)-Self-report Form (Roth, Isquith & Gioia, 2005): The Hindi version of the scale was prepared by Yadav and Singh (2017). This is a standardized rating scale developed in order to provide a window into everyday behaviors associated with specific domains of the executive functions in adults' of 18 to 90 years. It consists of 75 items with 3-point rating scale. The scale composed of two broad dimensions: Behavioral Regulation Index and Metacognition Index. The dimension of behavioral regulation is further divided into four sub-scales namely, inhibit, shift, emotional control, and self-monitor. On the other hand, the Metacognition is divided to five sub-scales including, initiate, working memory, plan/organize, task monitor and organization of materials. Higher scores on the scale indicate poor executive functioning. The scale possesses fairly high reliability, with Cronbach alpha 0.95.

Results

SPSS version 20 was used in order to analyze the obtained data. Mean, Standard deviation and t-test of obese and non-obese control groups were calculated. Cohen's d was calculated as a measure of effect size using Jamovi 2.6.44 software. The obtained findings were reported in the following tables:

Table-3: Mean, Standard Deviation and t-ratio of Obese and Non-obese Control Groups on Behavioral Regulation Index of Executive Function

Variables	Obese (N= 180)		Non-Obese (N=120)		t-test	Cohen's d
	Mean	S.D.	Mean	S.D.		
Inhibit	15.55	2.73	12.33	2.38	10.49***	1.24
Shift	12.10	1.83	9.41	1.97	12.06***	1.42
Emotional control	12.38	1.84	9.84	1.94	11.46***	1.35

Self-Monitor	9.72	1.66	7.60	1.68	10.78***	1.27
Overall Behavioral Regulation	49.76	5.09	39.19	5.00	17.74***	2.09

***p<0.001

Table-3 presents the mean scores of obese and non-obese control groups. The obese group (M= 15.55, SD= 2.73) scored significantly higher in comparison to non-obese (M=12.33, SD= 2.38) for inhibit. The obtained t-value was 10.49, p<0.001, Cohen's d= 1.24, suggesting poor inhibitory control among obese group. For shift, obese group (M= 12.10, SD= 1.83) scored slightly higher than non-obese (M= 9.41, SD= 1.97) with t-value of 12.06, p<0.00, Cohen's d= 1.42, indicating obese individuals exhibit increased difficulty in adapting to changing tasks. The obese group (M=12.38, SD= 1.84) scored somewhat higher than non-obese (M= 9.84, SD= 1.94) for emotional control. The obtained t-value was 11.46, p<0.001, Cohen's d= 1.35, which shows that obese people show increased difficulty in regulating emotions. For self-monitor, the obese group (M= 9.72, SD= 1.66) scored higher than non-obese group (M= 7.60, SD= 1.68). The t-value of 10.78, p<0.001, Cohen's d= 1.27, clearly reveals that individuals with obesity exhibit greater difficulty in monitoring their behavior. For the total behavioral regulation, the obese group (M= 49.76, SD= 5.09) scored higher than non-obese group (M= 39.19, SD= 5.00). The t-value (17.74, p<0.001, Cohen's d= 2.09) is statistically significant. It indicates that obese group has decreased behavioral regulation abilities in comparison to non-obese.

Thus, Hypothesis-1 that there would be significant a difference between obese and non-obese control groups in behavioral regulation dimension of executive function, is supported.

Figure- 1: Comparative Bar Diagram of Obese and Non-obese Control Groups on Behavioral Regulation Index of Executive Functions

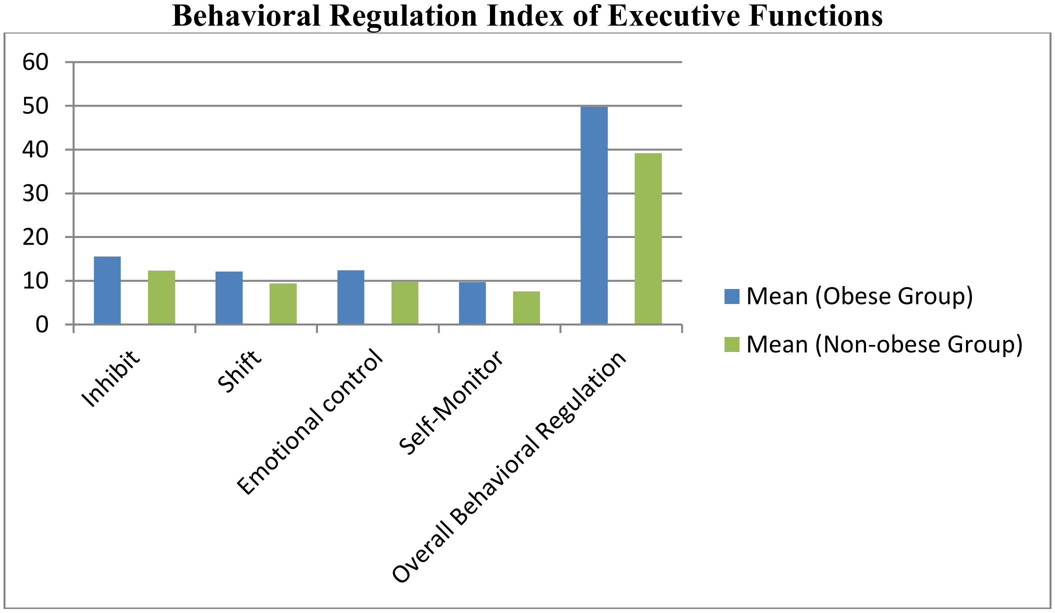


Table-4: Mean, Standard Deviation and t-ratio of Obese and Non-obese Control Groups on Metacognition Index and Global Executive Functions

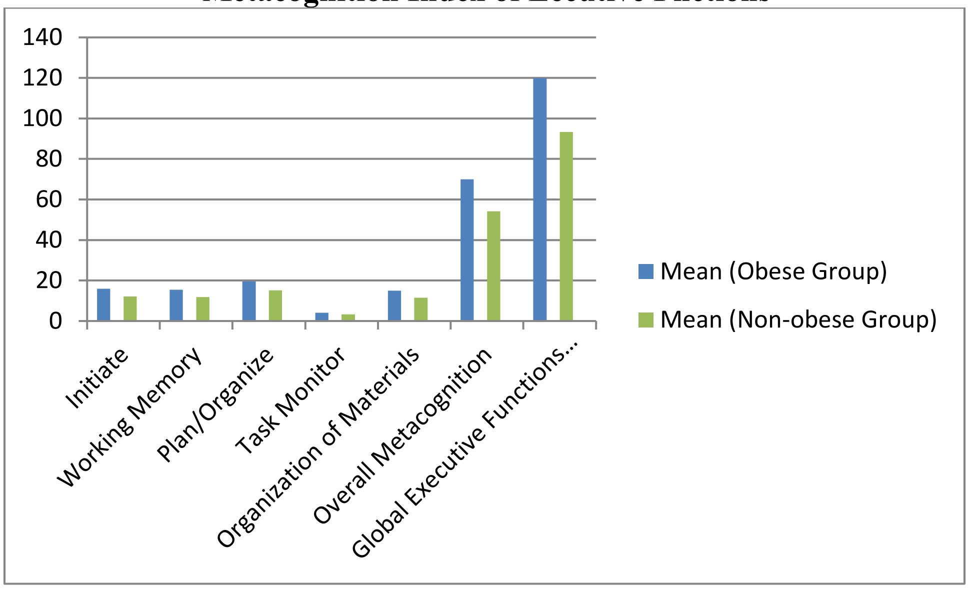
Variables	Obese (N= 180)		Non-Obese (N=120)		t-test	Cohen's d
	Mean	S.D.	Mean	S.D.		
Initiate	15.877	2.41	12.15	2.35	13.19***	1.55
Working Memory	15.40	2.67	11.89	2.07	12.16***	1.43
Plan/Organize	19.61	2.67	15.13	2.50	14.57***	1.72
Task Monitor	4.12	.87	3.32	1.01	7.24***	0.85
Organization of Materials	15.01	2.40	11.58	2.23	12.42***	1.46
Overall Metacognition	70.02	7.13	54.09	6.34	19.79***	2.33
Global Executive Functions (Behavioral Regulation + Metacognition)	119.79	10.52	93.28	9.45	22.24***	2.62

***p<0.001

Table-4 shows the mean scores of obese and non-obese control groups on metacognition dimension and global executive functioning. For initiate, obese group (M= 15.877, SD= 2.41) scored higher than non-obese group (M= 12.15, SD= 2.35). The t-value (13.19, p<0.001, Cohen's d= 1.55) was statistically significant. It reveals that obese participants have difficulty in initiating tasks. The obese group (M= 15.40, SD= 2.67) scored higher than non-obese group (M= 11.89, SD= 2.07) for working memory. The obtained t-value; 12.16, p<0.001, Cohen's d= 1.43, was found to be statistically significant. It indicates that obese participants face increased working memory deficits. For plan/organize, obese group (M= 19.61, SD= 2.67) scored higher than non-obese group (M= 15.13, SD= 2.50). The t-value (14.57, p<0.001, Cohen's d= 1.72) was found to be statistically significant. It clearly reveals that obese participants face more problems related to planning and organizing tasks. For task monitor, obese group (M= 4.12, SD= .87) scored higher than non-obese participants (M= 3.32, SD= 1.01). The obtained t-value (7.24, p<0.001, Cohen's d= 0.85) indicates that obese group experience greater difficulty in monitoring tasks. The obese group (M= 15.01, SD= 2.40) scored higher in comparison with non-obese group (M= 11.58, SD= 2.23) for organization of materials. The obtained t-value (12.42, p<0.001, Cohen's d= 1.46) was found to be statistically significant. It shows that obese group faces more problems in organizing materials. For total metacognition, the obese group (M= 70.02, SD= 7.13) scored higher than non-obese group (M= 54.09, SD= 6.34). The t-value (19.79, p<0.001, Cohen's d= 2.33) was found to be statistically significant. For global executive functions, the obese group (M= 119.79, SD= 10.52) scored higher than non-obese participants (M= 93.28, SD= 9.45). The obtained t-vale (22.24, p<0.001, Cohen's d= 2.62) was found to be statistically significant. It clearly indicates that obesity has a significant impact on executive functions of obese adults.

Thus, Hypothesis-2 & 3, that there would be significant differences between obese and non-obese control groups in metacognition and global executive functions, is supported.

Figure-2: Comparative Bar Diagram of Obese and Non-obese Control Groups on Metacognition Index of Eecutive Fnctions



Discussion

The study examined the significant differences between obese and non-obese control groups in executive function domain of cognitive function suggesting that obese people have more executive dysfunction in comparison to non-obese people. The first hypothesis stated that there would be significant differences between obese and non-obese control groups in behavioral regulation dimension of executive function, and it has been found that significant differences exist between obese and non-obese people on behavioral regulation and its dimensions. It indicates that obese adults possess reduced behavioral regulation than non-obese people. The reason behind this could be biological factors including changes in reward pathways and hormonal imbalances, psychological causes such as emotional eating and stress, along with environmental or habitual effects, which makes self-control a big challenge. Collectively, these factors make it difficult to successfully regulate behavior. Similar findings have been revealed in various researches. Jasinska et al. (2012) found that impulsivity as well as inhibitory control deficits is positively linked with multiple aspects like unhealthy eating including, overeating in reaction to external food cues and negative emotional states, and making food choices on the basis of taste preferences rather than health benefits. It has been also concluded that for executive functions (working memory, inhibition, shift) and delay discounting, obese adults in comparison to normal-weight adults possess weaker general as well as food-specific inhibition. Participants with better executive functions had more success in efforts related to weight-loss (Dassen et al., 2018). On the other hand, a study by La Marra et al. (2022) found no significant differences in executive functioning among obese/overweight and normal-weight participants (after controlling age, gender, and education), and obtained scores on executive function did not predict potential weight loss. Another study demonstrates that a negative relationship exists between obesity and inhibitory control (Liang et al., 2014). Studies on the relationship between obesity and working memory are inconsistent for adolescents and middle aged- adults (Ariza et al., 2012; Gonzales et al., 2010; Maayan et al., 2011; Strauss et al., 2006; Verdejo-Garcia et al., 2010).

The second hypothesis stated that there would be significant differences between obese and non-obese control groups in metacognition dimension of executive function and the findings indicated that significant differences exist in obese and non-obese groups on metacognition index. Such outcomes reveal that obese group tends to face more difficulties related to metacognitive processes like self-monitoring, analyzing their thoughts, and regulating thinking patterns. This can be because of impairments in metacognitive thinking (e.g., inability to control thoughts, elevated emotional distress, and increased reliance on maladaptive thinking). The findings of this study are in consistent with the findings of the previous researches. Sargénius et al. (2017) found that early adult and middle-aged obese people performed poorly on higher-order cognitive function tasks. Several other studies also reported that there is a significant difference in cognitive performance on tasks related to memory, attention, and executive function, in terms of BMI (Cheke et al., 2006; Farooq et al., 2018; West et al., 2021). In contrary to this, Dahl et al. (2013) concluded that overweight individuals have reduced mortality, which is suggestive of better health status in comparison with normal weight or underweight in later life. Some studies had suggested that being overweight is a protective effect against cognitive decline (Liang et al., 2022; Pedditzi et al., 2016).

The third hypothesis stated that obese and non-obese control groups would differ significantly in global executive functions, and the obtaine results revealed that significant differences exist in global executive functions among obese and non-obese people. As it has been well-established that excessive adipose tissue is linked to various chronic illnesses, which adversely impacts regions of the brain responsible for self-regulation along with decision-making skills. Reduced physical activity can also restrict cognitive stimulation and blood flow to the various regions of the brain. Behavioral regulation can also be impacted by psychosocial factors such as stress, poor mental health, low mood, decreased social support and self-esteem. Taken together, biological, social, and psychological factors can negatively impact behavioral regulation. Similar findings have been concluded in various studies. Yang et al. (2018) revealed that individuals with obesity exhibit impairments in executive functions like inihibition, cognitive flexibility, working memory, decision making, verbal fluency, and planning. Lentoor (2022) showed that obese individuals display reduced cognitive performance on tasks related to planning, decision making, regulation, and self-control. On the other hand, several studies had reported contradictory outcomes. Deckers et al. (2017) concluded in their study that the relationship between obesity and cognitive decline was confounded by the effect of age on rate of decline. Similarly, Sargénius et al. (2017) found that no significant performance differences exist in the cognitive dimensions such as visuospatial ability, motor function, and working memory.

Limitations & Future Research Suggestions

This study has several limitations. Firstly, the participants of the study were selected from Kanpur city, U.P., which makes it difficult to generalize the findings to the wider populations of all people with obesity (class 2 and class 3) in terms of ethnicity, socioeconomic status, and educational status. Additional studies can be conducted in different cities and countries, so that cross-cultural comparison can be done. Future studies can also consider other types of obesity; so that a comparative cognitive image could be evolve. And, this study is cross-sectional in nature. It precludes us to make reliable conclusion regarding the causal relationship among the variables. Thus, future researches can employ the longitudinal data to overcome this limitation.

Implications

The findings of the present study provide comprehensive understanding regarding significant differences between obese and non-obese control groups in executive functions and its dimensions. By developing better understanding, it can help policy makers to develop more effective health-related programmes in order to help obese people initiate and maintain self-care routines to reduce obesity. Cultivating healthy lifestyle as well as balanced diet can help obese people in minimizing the life-threatening conditions of obesity. Apart from this, studies showing association between obesity and cognitive dysfunction can help in early identification of cognitive impairments among the population who are at risk for or living with obesity.

Conclusion

Based on the outcomes of the present study, it can be concluded that a highly statistically significant association exists between obesity and cognitive dysfunction. The findings of the study indicate that obesity is linked with impairments in executive function. These findings suggest that obesity leads to various emotional, behavioral, and cognitive challenges. Identification of such challenges at an early stage is essential in order to implement comprehensive strategies for the enhancement of quality of life, overall well-being, and life satisfaction among obese people or who are at verge of developing obesity.

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