Disruption Tired Food Habits during Pandemic (Covid-19) and Its Relationship to Self-Regulation Strategies, Psychological and Behavioral Responses Overweight Women

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Abstract

This study sought to reveal the relationship between the disruption of food habits followed during the COVID-19 pandemic for overweight women, self-regulation strategies, and psychological and behavioral responses. It also aimed to identify the most prominent disruption of food habits followed during the Covid-19 pandemic to the target-group study and to identify the differences in food habits, self-regulation strategies, and psychological and behavioral responses according to a number of variables (age, weight, exercise, economic level, the presence of chronic diseases such as blood pressure and diabetes). Moreover, this study aimed to determine the degree of relative contribution to predicting self-regulation strategies and psychological and behavioral responses through food habits followed during the pandemic. The study sample consisted of (398) women who regularly visit obesity clinics and fitness centers before and after the pandemic (COVID-19) because they suffer from overweight in Riyadh city. Those who responded to the study tools after verifying their psychometric properties, namely: The scale of disturbance of food habits during the Covid-19 Pandemic) prepared by (Johnson, Wardle, & Griffith, 2002), the brief self-regulation strategies scale was prepared by (Chen & Lin, 2018) and the psychological and behavioral response scale was prepared by (Balkhi, Nasir, Zehra, &Riaz, 2020).

The results of the study indicated that there were apparent differences in the arithmetic means and standard deviations, as the disturbance of the food habits followed during the Covid-19 pandemic came to a high degree with the arithmetic mean (47.05). Then the higher arithmetic means of the measure of self-organizing strategies scale (the first dimension) to achieve the aim where the arithmetic mean, reaching (27.54), and in the last place was the third dimension (modification) with arithmetic mean (10.73). Finally, the psychological and behavioral responses came at a high level, as the arithmetic mean was (17.79). The results showed that there was a negative relationship with statistical significance at the level (0.05) and less between the food habits during the pandemic and the total degree of the self-regulation strategies scale and the presence of a positive relationship between food habits during the pandemic and the total degree of psychological-behavioral responses. As well as it is clear that there is no relationship between the total degree of the scale of self-regulation strategies and the scale of psychological-behavioral responses.

The results indicated that there were statistically significant differences at the level (0.05) in the disruption of food habits followed during the Pandemic (Covid-19), and self-regulation strategies according to the variables are (age in favor of those aged 40 years and over), weight in favor of overweight people, exercise aerobic exercise for the benefit of those who do not exercise regularly and the presence of chronic diseases for the benefit of those without chronic diseases). Moreover, there were no statistically significant differences at the level (0.05) in the disruption of food habits followed during the Pandemic (Covid-19) and self-regulation strategies according to the economic level variable. Finally, the results showed the possibility of predicting self-

regulation strategies and psychological and behavioral responses through the food habits followed during the pandemic, the explanation for the variance was (17.9 %) for self-regulation strategies and (10.1 %) for the psychological and behavioral responses.

Keywords: Disruption Tired Food Habits during Pandemic (Covid-19), Strategies for Self-Regulation, Psychological and Behavioral Responses, Overweight Women.

Introduction

The COVID-19 pandemic has caused unprecedented changes in people's lives, such as health measures to control infection and widespread closures of education, workplaces, commercial institutions, and health care. Which contributed to the breakdown of the normal daily routine and the increase in levels of depression and anxiety among the public. Furthermore, this has negatively affected health behaviors, especially among those who experience high levels of stress, social isolation, and health concerns, as well as symptoms of depression and anxiety. While it is important to explore changes in weight-related behaviors during the epidemic in the general population and it is important to study the impact on individuals with pre-existing obesity. Thus, these individuals have high rates of concurrent mental health conditions, which put them at risk of deteriorating their mental and physical health during these trying times (Melamed, Selby, & Taylor, 2022).

A relationship between unhealthy food habits and unpleasant feelings (such as fear, loneliness, and sadness) is evident for many obese individuals the stressors caused by the pandemic have triggered "emotional eating" in this group. In fact, surveys of people with obesity have shown greater percentages of change in weight-enhancing behaviors during COVID-19 than those observed in the general population. For example, (63%) ate in response to stress, and (53%) increased food stocks and thus found it difficult to stick to diet plans. In addition to that, a decrease in physical activities, in relation to mood, it was noted that obese individuals decreased the duration of exercise compared to (17%) only who increased it (Almandoz, et al, 2020).

Disruptions of food habits can be defined as "stress eating" in general it is defined as the occasional eating of foods with a high-calorie content, rich in fat and sugar in response to stress (Klatzkin, et al, 2019). Consumption of calorie-rich foods also activates the reward centers in the brain, which gives a pleasant feeling that relieves stress or unpleasant feelings with repeated exposure to the brain to stress-eating bouts. Thus sensitization occurs in the reward center for palatable foods (Volkow, Wang, Tomasi, & Baler, 2013). Also, knowing the food habits and their limits is essential in order to analyze the nutritional schemes in any society. Food habits are one of the most obvious distinguishing features of people because they reflect and are affected by the cultural features of society. In addition, Fauzia al-Awadi defined it as behaviors that people follow in how to choose, prepare, cook, serve, eat and preserve foods (Fawzia Al-Awadi, 2004). Food habits are also defined as the behavior or methods used in preparing and eating food, starting from the period of food production or harvesting until eating it, and depend on a combination of psychological, social, and economic factors. The food habits of each individual are of great importance in all stages of their life because they are related to resistance to diseases and the ability to bear the burdens of life. Thus its evaluation requires identifying the nutritional situation, the family's economic situation and the level of food culture, the general cultural level, or the living situation. In addition to the food customs and traditions prevailing in the family, the preferred and non-preferred foods, the food prices available in the markets, and the facilities and means available for preparing

food. As well as knowing the growth and development and quantity of items taken up by an individual (Al-Najjar& Anwar 2020).

It is clear from the foregoing that food habits are the behaviors followed in eating foods frequently, and they reflect the culture of the society in the way it feeds its members. As many of the health problems that individuals suffer from in societies are caused by unhealthy eating habits and practices. Thus, some habits related to improper nutrition are the main factor behind the weakness of the immune system because the immune system is positively affected by proper nutrition. So in order to ensure a strong immune system, we must do it with a healthy and proper diet (Muhammad, 2020).

Food habits are divided into good dietary habits and bad dietary habits, and all of this is determined according to the society to which the individual belongs. Every society has food habits acquired and inherited by its members, even in the same society, food habits vary according to a combination of the cultural and environmental aspects of the family and its level of food awareness (Hussein &Suleiman, 2012). Some of the psychological determinants of obesity play a role in successful weight loss among a number of psychological combinations, such as self-efficacy, restraint, and emotional eating. Furthermore, additional psychological interventions that appear helpful in treating emotional eating are vigilance and self-compassion. Where vigilance-based interventions provide participants with the skills to recognize and acknowledge unpleasant emotions rather than trying to mitigate them with unhealthy behavior (such as reckless eating). Emerging evidence suggests that vigilance is beneficial for improving emotional eating as well as other forms of pathological eating patterns (eg binge eating), given the relative ease of understanding the basic skills of vigilance (Teixeira, et al, 2015).

At the individual level, major life events are associated with changes in healthy behaviors such as alcohol intake, sleep, diet, and physical activity. Thus, it is possible that the complex interrelationship between these health behaviors leads to the increase in body weight observed during adulthood, which affects the number of overweight adults and the consequent diseases which is a major threat to public health. Understanding how health behaviors change in the context of a long-term pandemic is therefore critical to improving our understanding of its long-term consequences (Mazidi, et al, 2021).

Self-regulation strategies are defined as thoughts, feelings, and self-actions that are planned and adapted periodically to achieve personal goals (Zimmermann, 2000), It also includes the cognitive, emotional, and behavioral aspects of work activities. Also, self-regulation in psychology refers to the processes by which individuals control or direct their thoughts, emotions, and actions to achieve their goals.Saeed defines self-regulation as a regulatory process for all aspects of an individual's personality and stems from within the individual, and includes his ability to monitor, evaluate, enhance the self, and determine the goal (Saeed, 2012). Rashwan also defined it as the individual's attempts to organize the different aspects of knowledge, motivation, behavior, and context for the purpose of optimal utilization of time and effort in achieving the desired goals (Rashwan, 2006). Al-Fiqi mentions that self-regulation is a set of methods used to manage, control, evaluate and promote self-management and set clear goals in order to lead a better life (Al-Fiqi, 2013).

The self-regulation strategy is distinguished from other strategies in that it is carried out by the individual himself, and does not require a physical cost. If the individual acquires the skills of this strategy, he can control his own emotions, feelings, and thoughts, and then apply this strategy in many

of the situations and problems he faces. Self-regulation also helps to increase the individual's awareness of negative ideas that affect his or her performance and increase his or her effectiveness in evaluating situations and identifying the real reasons for the goals (Abu Salima, 2010). Furthermore, it is also considered that self-regulation is of great importance in that it can be considered as an alternative to treatment with drugs and chemicals. Especially if it comes to cases of excess obesity, weight control, overcoming the problems of smoking, sleep, etc. (Boekaerts, Zeidner, &Pintrich, 1999).

Hence, self-regulation strategies have an important role in solving psychological and behavioral problems faced by the individual. As it is considered a component of emotional competence and also contributes to dealing with life situations through training on activities that contribute to improving the individual's behavior in painful situations (Judeh, 2021). On the other hand, failing to regulate the self is insufficient in controlling the behavior of the individual. This takes two forms, the first is minimal self-regulation, and the second is poor self-regulation. With minimal self-regulation, individuals are unable to exercise self-control. On the contrary, poor self-regulation is an attempt to exercise self-control in two ways, either misleading, or counterproductive, and the result is another type of failure in self-regulation (Al-Salmani, 2021).

On the other hand, the pandemic (COVID-19) and the measures to combat it have caused a significant psychological impact on different population groups, as studies reported the prevalence of (35%) of mental disorders in Chinese adults, the prevalence of (15%, 8%, and 5%) of moderate and severe depressive symptoms, respectively, in US adults and the prevalence (27%) of clinically significant mental distress in UK adults during the early phase of the pandemic (Liao, et al, 2021). Weight-related behavioral and psychological responses, including physical activity and a high-quality diet, were negatively associated with poor mental health. The pandemic has also negatively affected health behaviors, especially among those who suffer from high levels of stress, social isolation, and health concerns, as well as symptoms of depression and anxiety. While it is important to detection of changes in weight-related behaviors during the epidemic in the general population. In addition, it is important to study the effect on individuals with pre-existing obesity.These individuals have high rates of concurrent mental health conditions, and more than (60%) of disorders are indicated in mental health services for vulnerable people, including children and adolescents (72%), the elderly (70%), women in need of certain services before or after birth (61%), (67%) noted disturbances during counseling and psychotherapy, (65%) for critical damage reduction services; and (45%) to preventive treatment. Moreover, many countries (70%) have adopted telemedicine or teletherapy treatment to overcome interruptions in in-person services, but there are significant disparities in the uptake of these interventions (Brunier, &Drysdale, 2020).

Protective behavior also develops over time, the use of a face mask has overtaken, and handwashing, which as the most commonly used preventive measure. Whereas, other measures, such as social distancing, avoiding close contact, avoiding large groups, and staying at home, fell between the two study periods. Furthermore, there is a growing awareness of risk with a significant concentration among the higher-income groups, the educated, and the elderly.Our findings demonstrate the health belief model, with perceived risks, self-efficacy, perceived awareness, and barriers to adopting a preventive strategy. Which have been identified as important drivers of healthy response behavior. Among the preventive measures are social distancing, avoidance of

close contact, and the use of disinfectants (Kollamparambil, &Oyenubi, 2021).

Psychological responses focus on perceived risk which consists of two components perceived susceptibility and severity. Perceived risk refers to an individual's belief in vulnerability to a particular risk of behavioral response, and the practice of precautionary behaviors among the general public, such as hand hygiene and wearing masks, to prevent human-to-human transmission. In addition, following proper hand hygiene is an activity often recommended by health authorities to prevent transmission of the virus during outbreaks of infectious diseases. These are frequently researched preventive behaviors and have been shown to influence the spread of epidemics, to a large extent. Furthermore, the protective effect of wearing face masks reduces the transmission of respiratory viruses (Na & Yang, 2022).

Avoidance behaviors, such as canceling or postponing social events, reducing public transportation use, keeping children out of school, and avoiding crowded places due to fear of transmission, often occur. In addition to that, individual avoidance behaviors that limit contact with others are forms of social distancing known as "informal social distancing." However, previous studies indicate that social distancing behaviors among large numbers of people within a population can damage daily life and lead to negative social effects. Regarding behavioral response, we focus on practicing recommended behaviors (such as practicing hand hygiene and wearing face masks), as well as social distancing (i.e. limiting the use of public transportation, avoiding crowded places, and postponing or canceling social events (Lee, & You, 2020).

The responses in which the emotions manifest themselves are cognitive, behavioral, and physiological. These three dimensions are related to anxiety, but they should not go hand in hand. The triple response system is a classic model emphasized by the three dimensions related to emotions, concern for the behavior, and personality of the patient without ignoring their processes on the psychological level. While Fear is associated with self-protective responses and risk-avoidance behaviors and enhanced self-perseverance. Accordingly, fear of COVID-19 was associated with the employment of public health behaviors, and compliance with health guidelines to prevent the spreading virus of COVID-19 (Parlapani, et al, 2020).

Behavioral response is the actual expression of feelings. Behavioral responses include a smile, a frown, a laugh, or a sigh, along with many other reactions that depend on societal and personal norms. Therefore, the effect of the three essences is the basic emotions which are tension - fear and anger, reward - happiness or joy, punishment - sadness or disgust. The main types of emotions include fear, sadness, anger, surprise, excitement, guilt, shame, disgust, interest, and happiness. These feelings develop in an orderly sequence throughout childhood. Moreover, a useful picture of emotions includes a combination of perception, physical experience, pre-conscious experience, and even action. Let's take a closer look at these four parts of emotion (Huang, Luo, Wang, Jin, & Zeng, 2021).

To better understand what emotions are, the focus is on their three basic components, known as subjective experience, physiological response, and behavioral response. Behavioral responses are important for informing others of how an individual is feeling, but research shows they are also vital to an individual's well-being. The study in the Journal of Abnormal Psychology found that while watching negative and positive emotional movies, suppression of behavioral responses to emotion had physical effects on participants. Where effects included an elevated heart rate. This suggests that

expressing behavioral responses to stimuli, whether positive or negative, is better for overall health than keeping those responses inside the body. Thus, there are benefits of smiling, laughing, and expressing negative emotions in a healthy way (Bratu, 2021).

Previous studies

Previous studies that dealt with study variables were tracked and presented according to their most recent chronological order. As Barcın-Güzeldere et al., (2022) conducted a study on the relationship between body mass index (BMI), emotional eating, and perceived stress during quarantine for healthy adults during the pandemic (Covid-19). The study sample consisted of (506) participants whose ages ranged from (20-65) years. The results of the study indicated that BMI was positively correlated with the gender variable in females, where emotional eating and weight gain were positively associated with BMI, and participants with high BMI showed more emotional eating behaviors (Barcın-Güzeldere, &Devrim-Lanpir, 2022).

Coulthard et al., (2021) also conducted a study on indoor eating during the COVID-19 pandemic and self-reported changes in eating behavior, association with body mass index, eating style, coping, and anxiety healthy. The study sample consisted of (620). The results indicated that there were changes in eating patterns and food consumption during the closure, and these increases were associated with consumption of snacks with gender and eating behavior before the closure such as emotional eating and uncontrolled eating, and health anxiety which is reflected in the high body mass index, self-efficacy and inability to adapt when closure occurs (Coulthard, Sharps, Cunliffe, & van den Tol, 2021).

Saaty et al., (2021) also conducted a study in Saudi Arabia regarding the effect of closure on determinants of health, physical eating behaviors, and physical activity using social cognitive theory. The study sample consisted of (41) participants through structured interviews. The results of the study indicated that the women participating in the study were concerned about being overweight, eating sweets and snacks, as the degree of their anxiety was higher than that of men. Participants indicated that they ate more fruits and vegetables than sweets to boost their physical immunity, and increased their intake of snacks and high-calorie foods. The results indicated a higher level of health awareness, lower physical activity, and less dependence on outside food. While increasing attention to food habits and focusing on healthy and beneficial foods. So it can be said that the closure led to a change in food habits, an increase in snacking, and a focus on vegetables, and fruits (Saaty, &Aljadani, 2021).

The study conducted by Alah et al., (2021) aimed to assess food habits and lifestyle behaviors among the population of the Middle East and North Africa region during the closure. A cross-sectional study was conducted among adults residing in the Middle East and North Africa region. The study sample consisted of (2970) participants from eighteen countries in this study. The results of the study indicated that more than (30%) were overweight, (2.6%) consumed five or more meals a day compared to (2.2%) before the pandemic, and (8.48%) did not consume fruits on a daily basis. Furthermore (1.39%) did not engage in any physical activity, and more than (35%) spent more than 5 hours/day on screens. A significant association was found between the frequency of training during the pandemic and the reported change in weight ($P < 0 \cdot 001$). Also significantly marked rise in levels of physical and emotional exhaustion, irritability, and tension was observed in the participants (Alah, Abdeen, Kehyayan, &Bougmiza, 2021).

The study of Mazzolani et al., (2021) confirmed that emotional changes due to the pandemic (Covid 19) may lead to some food

habits, affect body mass index, food selection determinants, and some psychological symptoms accompanying and general characteristics. The study sample consisted of (1183) participants, (60.4%) of whom were overweight, (26.2%) were obese, and the rest of the individuals did not suffer from obesity. The results of the study indicated that the determinants of food choice were more related to food intake, and the determinants of choosing overweight women were different compared to those of normal weight (Mazzolani, et al, 2021).

The study of Al-Qaisi, (2020) aimed to know the forms of eating disorders among female students of the International Islamic Sciences University and their relationship to the body image and food habits of the mother. The study sample consisted of (500) female students from the International University of Islamic Sciences. To achieve the objectives of the study, the descriptive survey method was used, and three scales were used are the food disorders scale, body image, and the mother's food habits. The results of the study indicated that "loss of appetite and tendency towards thinness" is the most common eating disorders among female students. It was also found that there is a positive, statistically significant, correlation at the significance level (0.05) between loss of appetite, the tendency towards thinness, body image, and food habits of the mother. The results of the study also indicated that there was a statistically significant inverse relationship between binge eating, body image, and the mother's food habits (Al-Qaisi, 2020).

A scientific review of studies conducted on the psychological effects of quarantine was also conducted by Brussels et al., (2020). The results indicated that most of the studies reviewed agreed on the existence of negative psychological effects of quarantine, including symptoms of post-traumatic stress, confusion, and anger. These psychological effects also included influencing psychological pressures, such as fears of infection, frustration, boredom, insufficient supplies and information, and financial loss. The researchers recommended that in cases where quarantine is considered necessary, officials must isolate individuals for a period not exceeding the period necessary for this. Moreover, providing a clear rationale, accurate information on quarantine protocols, and ensuring adequate supplies for citizens (Brooks et al., 2020).

In the same context to study the psychological effects of the COVID-19 pandemic, Li et al., (2020) collected and analyzed the posts (n = 17865) of an active Chinese user on the Chinese web before and after the declaration of the pandemic (COVID-19). The results showed that, compared to the period before the illness, there were increased indicators of negative emotions (such as anxiety, depression, anger), sensitivity to social risks, and decreased positive feelings and life satisfaction. In addition, individuals also became more focused on health and family matters, and less on issues of entertainment and friends (Li et al., 2020).

Al-Musharafm, (2020) also conducted a study on the prevalence and expectation of emotional eating among girls in Saudi Arabia during the spread of the COVID-19 pandemic. The study sample consisted of (638), whose ages ranged from (18-39) years. The results of the study indicated that the percentage of emotional eaters reached (12.4%), the percentage of those suffering from depression (27%) and those who suffer from anxiety (71%), and the percentage of those who suffer from psychological stress. While the percentage of body mass index increased for the target study category (Al-Musharafm, 2020).

The study by Newby et al., (2020) examined behavioral and psychological responses during the COVID-19 pandemic. The study sample consisted of (5070) Australian participants. The results of the

study indicated an increase in the level of depression, anxiety, stress, health anxiety, and some concerns about pollution. In addition to some negative behaviors such as alcohol abuse, decreased physical activity, and increased rates of respiratory distress. An increase in personal hygiene behaviors and some psychological disorders were also observed (Newby, O'Moore, Tang, Christensen, &Faasse, 2020).

It is clear from the presentation of previous studies that most of them agreed with the current study in terms of the general objective and the (relational) method used, as well as the method in which it was applied, and the place of its conduct. While it differs from some studies in that it dealt with important variables during the spread of the pandemic and some disorders of food habits followed among members of society. Specifically, overweight women and their relationship to self-regulation strategies as well as their psychological and behavioral responses. The presentation of previous studies has been taken advantage of in the gradual presentation of the theoretical framework and the formulation of study hypotheses. As well as benefiting from the previous tools that were applied to the target group in the current study. Previous studies was also used in formulating the objectives of the current study and presenting the approach used in the current study. In addition to benefiting from those previous studies in interpreting and justifying the results of the current study. The current study is characterized by being one of the first studies that dealt with the disruption of food habits followed during the pandemic (Covid-19) and its relationship with self-regulation strategies and psychological and behavioral responses among overweight women in the community. In addition to the time period during which the study was conducted (during the pandemic), and the high number of patients who visit obesity and surgery clinics. As well as the high demand for nutritional supplements and the emergence of a high body mass index.

Study Problem

More than one billion people worldwide are obese (650) million adults, (340) million adolescents, and (39) million children. This number is still increasing. The World Health Organization (WHO) estimates that by the year (2025), approximately (167) million people - adults and children - will become less healthy due to being overweight or obese (WHO, 2022).

The prevalence of obesity has been increasing in most countries over the past five decades, making this phenomenon global and a major public health concern. According to the World Health Organization report, more than (1.9) billion people are overweight, and (650) million people are obese (World Health Organization, 2022). Changes in lifestyle and weight gain have contributed to the COVID-19 epidemic in the United States, and women of socioeconomic status are particularly vulnerable to weight gain due to a lack of safe outdoor spaces and healthy food options (Goitia, et al, 2022), and individuals often point out the importance of Fitness and weight control as a prerequisite for achieving attractive personal conditions and they always warn about the dangers of being overweight, and such social messages can lead to feelings of dissatisfaction with the body image of women, and seek to change the body image as seen by women in particular (Ibrahim, 2015).

Some studies conducted in different countries have focused on how eating habits, physical activity, and weight gain are affected during the COVID-19 pandemic. In Italy, for example, a study was conducted on (3533) people between the ages of (12 - 86) years; The majority of participants (46.1%) did not change their eating habits while (37%) felt that they had worsened and (48.6%) noticed an increase in weight (Orlandi, et al, 2021). In Poland, a study consisting of (1097) people

was the majority of women have a normal body mass index. They snack between meals more frequently and (43.5%) reported eating more during quarantine periods. In this study, weight gain (29.9%) was reported, and weight change was associated with body mass index and age (Sooriyaarachchi, (Francis, King, & Jayewardene, 2021). In a study from the United Arab Emirates that was conducted on (1012) people, an increase appeared In the percentage of participants who ate five or more meals a day, from (2.1%) before the pandemic to (7%) during it. Regarding physical activity, before the pandemic, (32.1%) did not do any physical exercise, a percentage that increased to (36.5%) during quarantine periods (40.3%) also noted an increase in body weight.

The results of studies that dealt with cognitive beliefs from different sides, and in multiple environments, indicated the variation of the sample members and the variables that were studied, such as the study (Güzeldere, & Devrim-Lanpir, 2022; Coulthard, Sharps, Cunliffe, & van den Tol, 2021; Saaty, & Aljadani, 2021; Alah, Abdeen, Kehyayan, & Bougmiza, 2021; Mazzolani, et al, 2021; 2020, Brooks et al; 2020, Li et al), Which emphasized the justified relationship between food habits and disruption of food during the COVID-19 pandemic, self-regulation strategies, and psychological and behavioral responses in overweight women.

Therefore, the problem of the current study crystallized from the results of previous studies and the experience of the three researchers, which confirmed that the impact of the pandemic on food habits anddisruption of foodsfollowed during the Covid 19 pandemic, self-regulation strategies, psychological and behavioral responses in overweight women, the effects of which were reflected on women's weight gain during the quarantine period and the widespread fears among individuals and not going to clubs related to the practice of sports activities and exercises and maintaining the ideal weight, which affected the body mass index of individuals in general.

Study questions

The current study seeks to answer the following questions:

1. What is the prevalence of disruption of food habits during the COVID-19 pandemic among overweight women?
2. What is the level of self-regulation strategies, psychological and behavioral responses in overweight women?
3. What is the relationship between disruption of food habits during the COVID-19 pandemic, self-regulation strategies, psychological and behavioral responses in overweight women?
4. What are the differences in the disturbance of food habits followed during the Covid-19 pandemic among overweight women according to a number of demographic variables (age, weight, exercise, economic level, presence of chronic diseases: such as pressure, and diabetes)?
5. What are the differences in self-regulation strategies for overweight women (age, weight, exercise, economic level, presence of chronic diseases such as pressure, and diabetes)?
6. What are the differences in the psychological and behavioral responses of overweight women (age, weight, exercise, economic level, presence of chronic diseases such as pressure, and diabetes)?
7. What is the predictability of psychological and behavioral responses and strategies for self-regulation through food habits followed during a pandemic?

Study Objectives

The current study aimed at the following:

1. Determining the prevalence of disruption of food habits during the COVID-19 pandemic, self-regulation strategies, and

psychological and behavioral responses in overweight women.

2. Detecting the relationship between disruption of food habits during the COVID-19 pandemic, self-regulation strategies, and psychological and behavioral responses in overweight women.
3. Identifying the differences in the disturbance of food habits followed during the Covid 19 pandemic, self-regulation strategies, psychological and behavioral responses among overweight women according to a number of demographic variables (age, weight, exercise, economic level, presence of chronic diseases such as pressure and diabetes.
4. Determining the relative contribution to predicting psychological and behavioral responses and strategies for self-regulation through food habits followed during the pandemic.

Important of study

The importance of the theoretical study stems from the variables it deals with, as the current study is of particular importance on the theoretical level. As it is objective to identify the food habits followed during Covid 19, the importance of this study also stems from the variables and objectives that it seeks to achieve, and the relationship between variables, disorders of food habits, strategies of self-regulation, psychological behavioral responses, and being a new addition to the scarcity of Arab and local studies that reveal the relationship between the variables, highlighting the importance of studying the psychological and behavioral responses of the target study group and determining the food habits followed during the pandemic, which resulted in a difference in behavioral practices, food habits, and daily routine, due to home quarantine and some precautionary measures and high-level closures, which was reflected on Autonomous Strategies also contributes to providing tools for the target variables in the local environment, which are considered a scientific addition.

On the practical side, the results of the current study may contribute to identifying the dietary habits that were followed by community members during the (Covid 19) pandemic, drawing the attention of those interested and decision-makers to the level of self-regulation and its strategies, psychological and behavioral responses, and working on developing appropriate plans that can organize and assist individuals' strategies on self-control and getting rid of excess weight, and the ability to self-commitment to deal with eating disorders at the time of crises that the individual may go through and open the way for researchers to study these variables and the importance of studying them for women with overweight accurately; As well as directing research to design preventive and extension programs to educate the target group about these disorders during the pandemic (Covid-19). The results of the study provide some standards and tools directly related to some psychological variables, and highlight the importance of the applied study in opening the way for more field studies, whether at the local community level, or in similar environments and societies, and holding workshops regarding the importance of cognitive therapy related to training in strategies Self-regulation to deal with negative food habits during the Covid-19 pandemic, and the results of the study will also contribute to drawing the attention of those concerned with providing psychological services, developing treatment plans and programs, conducting group activities and programs to reduce the level of disorder severity, and negative psychological and behavioral responses to these habits and maintaining an ideal weight.

Terminology Study

- **Disruption of food habits during the Covid 19 pandemic**: The definition of disorder of food habits during the Covid 19 pandemic was adopted according to the authors of the tool Johnson, Wardle, and Griffith Johnson, Wardle, & Griffith, 2002). Disruption of food habits followed during the pandemic as the methods, habits, practices, and behaviors that individuals followed during the pandemic in eating and snacking, maintaining healthy eating, eating daily breakfast, balancing healthy and unhealthy practices in eating patterns and daily foods such as eating fruits, items that contain fiber, monitoring available food choices, reducing fats and substances high-fat density, and maintaining healthy eating through self-dieting and personal control. It is measured by the overall score obtained by the respondent on the scale used in the current study (Johnson, Wardle, & Griffith, 2002).
- **Self-regulation strategies**: The definition of procedural self-regulation strategies have been adopted according to the authors of the tools (Chen, & Lin, 2018) as aim-directed behaviors, and allow a person to precisely achieve gratification and desired aims later. These strategies are important for the person to adapt to a variety of contextual conditions that Lead to the healthy development of life, self-regulating individuals have their own abilities, monitor progress in their work, make efforts strategically, take advantage of opportunities in the environment to help achieve their aims, achieve better psychological well-being in different contexts, and try to monitor, regulate, and control their perception, motivation, and behavior are guided and constrained by their aims and contextual features in the environment measured by the degree to which the respondent will score on the Healthy Behavior Scale, prepared by (Chen, & Lin, 2018).
- **Psychological and behavioral responses**: The definition of the authors of the tool was adopted (Balkhi, Nasir, Zehra, &Riaz, 2020). Psychological and behavioral responses are defined as focusing on the psychological impact and behavioral changes of participants in relation to the epidemic in terms of assessment of concerns about illness and severity and personal efforts, and assessment of the psychological impact of COVID-19. Such as fear, anxiety, confidence inability to fight infection, self-control, and their psychological response to news Daily, panic, and what is related to daily and family behavioral practices that have been applied to drive infection with this epidemic, and behavioral commitment to precautionary measures and restrictions, and it is measured by the total score obtained by the respondent on the scale used in the current study (Balkhi, Nasir, Zehra, &Riaz, 2020).
- **Pandemic (Covid-19):** The World Health Organization (WHO) (2020) defines a pandemic (Covid-19) as the disease caused by the emerging coronavirus called SARS-CoV, first discovered on December 31, 2019, after a group was reported one of the cases of viral pneumonia, described as rapidly spreading, and its most important symptoms are shortness of breath, clots in the lung, high temperature, feeling tired, and headache, and the term (Covid-19) is the abbreviation of COVID-19 (Disease Virus Corona).
- **Women who are overweight:** Overweight women are defined procedurally as women whose total body weight value is kilometers and is not proportional to their height in centimeters by calculating the body mass index, which measures the ratio of weight to the square

of height according to measurements of the ideal healthy weight for women.

Limitations of the study

The subject of the current study was limited to objective limits, disruption of eating habits followed during the Covid-19 pandemic, strategies for self-regulation, and psychological and behavioral responses according to their demographic characteristics. The generalization of the results can be limited to the category of overweight women in the current study from members of the Saudi community in the city of Riyadh.

Hypotheses of study

According to the results of previous studies, its hypotheses can be formulated as follows:

1. The prevalence of disruption of food habits during the COVID-19 pandemic varies among overweight women.
2. The prevalence of self-regulation strategies, psychological and behavioral responses varies among overweight women.
3. There is a relationship between disruption of food habits during the COVID-19 pandemic, self-regulation strategies, and psychological and behavioral responses in overweight women.
4. There are differences in the disturbance of food habits followed during the Covid-19 pandemic among overweight women according to a number of demographic variables (age, weight, exercise, economic level, and the presence of chronic diseases such as pressure and diabetes).
5. There are differences in self-regulation strategies for overweight women (age, weight, exercise, economic level, and the presence of chronic diseases such as stress and diabetes).
6. There are differences in the psychological and behavioral responses of overweight women (age, weight, exercise, economic level, and the presence of chronic diseases such as pressure and diabetes).
7. Psychological and behavioral responses and strategies for self-regulation can be predicted by food habits followed during a pandemic.

Study procedures

To achieve the objectives of the study, the descriptive approach was used in its two parts (correlative - comparative) to reveal the relationship between the disorder of eating habits followed during the pandemic (Covid-19) and strategies of self-regulation and psychological and behavioral responses of the target group.

Community and sample of the study

The study Community consisted of all women who regularly visit obesity clinics and fitness centers before and after the pandemic (Covid 19) because they suffer from overweight in the city of Riyadh. The number of study sample members was (398) women who were randomly selected from the study population of women who suffer from being overweight and visited frequented fitness centers before and after the pandemic (Covid 19). and by Body Mass Index (BIN) (weight (kg)/(height) m2 (weight (kg)/height) (M2 25-29.9 kg/m2 (WHO, 2006).) and visited obesity clinics and they have dissatisfaction with their body image, and they want to get the ideal body, and the ideal image of the body, and they have the desire to participate in the study tools, and the following is the distribution of the study members according to the demographic study variables, according to Figure (1).

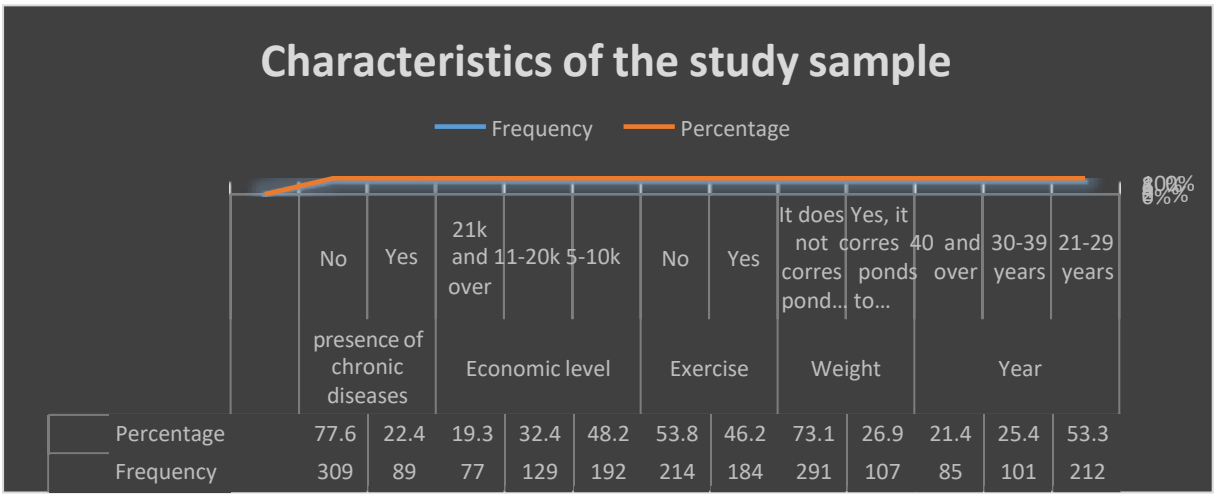

Figure (1) shows the distribution of study members according tothe demographic variables that were addressed, namely: (age, weight, exercise, economic level, the presence of chronic diseases) and the percentage of each variable.

Study Measurements

To achieve the study objectives, the following tools were used:

1. Demographic information questionnaire, which included variables (age, weight, exercise before the pandemic, economic level, and the presence of chronic diseases such as (pressure and diabetes).
2. The scale of disruption of food habits during the COVID-19 pandemic.
3. Brief Self-Regulatory Strategies Scale.
4. The psychological and behavioral response scale.

And the following is an explanation of these tools:

1. **Eating Habits disruption Scale during the (COVID-19) Pandemic.**

In the current study, the Johnson, Wardle, & Griffith scale (Johnson, Wardle, & Griffith, 2002) was used, which consisted of (23) items. The authors of the tool verified validity and validity by applying it to a sample of adolescents consisting of (24) adolescents whose ages ranged between (13-14) years, and the internal correlation validity coefficient was (0.083) and the stability was verified through the stability of the tool's repetition after some time. The method of correcting the tool is represented by a binary gradation (it applies to me and gives two degrees, and does not apply to me and gives one degree), where the degree of answering the tool ranges between (23-56) and the values are reversed if the statements are negative.

2. **Brief Self-Regulation Strategies Scale**

In the current study, the Jin and Lin scale (Chen, & Lin, 2018) was used, consisting of (22) items, distributed over five dimensions:

1. Achieving the goals consists of (7) items and is defined as the individual proceduresare exposed to reach his objectives.
2. Mental vigilance: It consists of (7) paragraphs and it means the individual's ability to be aware, will, and adhere to his objectives.
3. Modification: it consists of (3) paragraphs and refers to the perception of the individual's ability to make adjustments for the mistakes he commits or the challenges he faces in his life.
4. Proactivity: it consists of (3) paragraphs, and it means the behaviors practiced by the individual to quickly learn from mistakes, search for a new plan and be active about the possibilities that he faces to change something.

5. Setting the goal: It consists of (2) paragraphs and it means the individual's ability to plan and be clear about the objectives he seeks to achieve.

The authors of the tool verified the validity and reliability by applying it to a sample of Taiwanese university students consisting of (1.988) and verified the exploratory and factorial validity. The values of the correlation coefficients for the internal validity of the internal paragraphs ranged (0.051 -0.088). The stability was verified, as the stability values ranged from (0.803 - 0.875), and the overall stability was (0.90). The method of correcting the tool is represented by a five-degree gradation (always five degrees are given, often four degrees are given, sometimes three degrees are given, rarely two degrees are given, and never one degree is given) where the degree of the answer to the tool ranges between (22-110), and the values are reversed if they are Phrases are negative.

3. Psychological and Behavioral Responses Scale

In the current study, the Balkhi, Nasir, Zehra, &Riaz scale (Balkhi, Nasir, Zehra, &Riaz, 2020) was used, consisting of (21) items. The tool's authors verified validity and reliability by applying it to a sample of Chinese according to a number of variables consisting of (430) respondents, The overall stability was (0.95). The method of correcting the tool is represented by a binary gradient (yes, a degree is given, and no, and zero is given), where the test scores range between (0-21) the opposite of the values in the event that the statements are negative.

Validity and reliability of the study Measurements

1. **ValidityLogical**: The apparent validity of the tools was extracted, reviewed in its original form and its paragraphs were translated from Arabic into a foreign language by presenting it in its initial form to a group of foreign language specialists (languages and translation) and they were asked to re-translate them into English to verify the validity of the study tools. The appropriateness of the translation for the target group, and after formulating the phrases in their initial form, they were presented to a number of arbitrators specialized in psychology, counseling, psychometrics, and pedagogy from university professors who hold doctorate degrees. (In its initial form of (23) items, the psychological and behavioral response scale consisted of (21) items, and the brief self-regulation strategies scale consisted of (22) items. And making any amendment they deem to be on some of the paragraphs to conform to the objectives of the study, and adding or rejecting some paragraphs. An agreement criterion (80%) has been adopted by the arbitrators to indicate the validity of the paragraph and its suitability to remain included n the scale, and the arbitrators agreed that it was not clear, amended, or changed its wording, and therefore the wording was amended for some paragraphs and all standards retained the number of their paragraphs.

2. **Validity Construct** to measure the Internal Consistency Validity of the scale and to determine the extent to which the paragraphs are related.

The scale was applied in its final form on an exploratory sample equivalent to the original study sample composed of (40) overweight women, and the correlation coefficients of the scales' paragraphs with the degree of dimension and the total degree of the instruments as a whole were shown in the Table (1).

Table (1) shows the correlation coefficients of the paragraphs with the dimension and total degree of the disruption food habits scale during the COVID-19 pandemic, the measure of self-regulation strategies, and the scale of psychological and behavioral responses (n = 40)

Paragraph	**Correlation coefficient**	**Paragraph**	**Correlation coefficient**	**Paragraph**	**Correlation coefficient**	**Paragraph**	**Correlation coefficient**	**Paragraph**	**Correlation coefficient**	**Paragraph**	**Correlation coefficient**
disruption of food habits scale during the COVID-19 pandemic				Brief self-regulation strategies				Psychological and behavioral response scale			
-1	0.574**	**-13**	0.725**	**-1**	0.633**	**-13**	-0.477-**	**-1**	0.616**	**-13**	*0.385
-2	0.701**	**-14**	0.328*	**-2**	0.536**	**-14**	-0.562-**	**-2**	0.609**	**-14**	*0.317
-3	0.275	**-15**	0.821**	**-3**	0.579**	**-15**	-0.566-**	**-3**	0.637**	**-15**	0.220
-4	0.576**	**-16**	0.647**	**-4**	0.653**	**-16**	0.245	**-4**	0.401**	**-16**	0.411**
-5	0.484**	**-17**	0.309*	**-5**	0.407**	**-17**	0.608**	**-5**	0.392*	**-17**	0.340*
-6	0.608**	**-18**	-0.177-	**-6**	0.473**	**-18**	0.484**	**-6**	0.583**	**-18**	0.595**
-7	0.547**	**-19**	0.831**	**-7**	0.412**	**-19**	0.498**	**-7**	0.305	**-19**	0.476**
-8	-0.301-	**-20**	0.696**	**-8**	-0.311-*	**-20**	0.701**	**-8**	0.57**	**-20**	0.517**
-9	0.405**	**-21**	-0.339-*	**-9**	-0.440-**	**-21**	-0.829-**	**-9**	0.281	**-21**	0.208
-10	0.673**	**-22**	0.658**	**-10**	-0.467-**	**-22**	-0.618-**	**-10**	0.234		
-11	0.484**	**-23**	0.636**	**-11**	-0.575-**			**-11**	0.592**		
-12	0.423**			**-12**	-0.678-**			**-12**	0.570**		

** Statistically significant at the level (0.01), ** (0.05).

It is clear from Table (1) that the correlation coefficients of the paragraphs with the dimension of the scale of disruption of food habits during the Covid-19 pandemic and the scale of self-regulation strategies ranged between (t = 0.245 - 0.829) and the correlation coefficients for the scale of the psychological and behavioral response ranged (t = 0.208 - 0.637**), which indicates that the tools of the purposes of the current study are suitable for the current study.

Stability Of the Study Measurements

The stability of the study was extracted, it is the measure of disruption of food habits during the Covid-19 pandemic, where the Cronbach's alpha stability coefficient for the tool as a whole was (0.709), while the values of the partition stability coefficient (0.928) for the total degree of the scale, and the scale of strategies of the self-regulation of Cronbach's alpha stability coefficients for the whole tool ranged (0.691). While the values of the partition stability coefficient (0.872) and the scale of the psychological and behavioral response, where the Cronbach's alpha stability coefficient for the tool as a whole was (0.732), and the partition stability coefficient reached (0.861), and thus the scale is suitable for the purposes of the current study, where the value of the reliability coefficient was higher than (70%), indicating the appropriateness of the psychometric properties of the tool.

Study Procedures

The procedures for the study were to view previous studies relevant to the topic of the current study, identify appropriate tools, verify their psychometric efficiency, identify the target group and build an electronic model. (Google drive), obtaining official approvals for the application of tools to the target group, sorting out the responses of study participants and excluding incomplete responses, sorting out responses and data entry to the SPSS program, and conducting statistical processing.

Statistical Methods

To verify the efficiency of the psychometric instruments, Pearson and Alpha Cronbach were used, and to test the hypotheses of the study arithmetic means and standard deviations of individual responses have been calculated. As well as use the multiple variation analysis to answer differences in food habits during the pandemic, self-organization strategies, and psychological and behavioral responses according to a number of demographic variables. "t" test was used, and the simple regression factor (enter) test to determine the relative contribution of the predictability of food habits through self-regulation strategies and psychological and behavioral responses.

Results

The following is a detailed presentation of the results of the study, their discussion, and interpretation, according to the hypotheses of the study.

Results related to the first and second hypotheses

To verify the first hypothesis of the study, which states that "the prevalence of disruption of food habits followed during the COVID-19 pandemic varies, self-regulation strategies for overweight women and psychological and behavioral responses", the arithmetic means and standard deviations were extracted from the sub-dimensions and the total score of the disruption food habits scale followed during the COVID-19 pandemic, as shown in Table (5).

Table (5) Arithmetic mean and standard deviations of the scale (disruption of food habits followed during the COVID-19 pandemic), psychological and behavioral responses, and self-regulation strategies (n = 398).

Dimensions	Arithmetic mean	Standard deviation
The total degree of the disruption of food habits scale during the COVID-19 Pandemic	47.0528	6.39936
The first dimension: Achieving the goal	27.5402	5.33815
The second dimension: Mental vigilance	21.2085	6.02507
third dimension: Modification	10.7387	1.96623
The fourth dimension: Proactivity	10.7538	2.26898
The fifth dimension: Setting the goal	6.0678	2.23165
Total degree for the self-regulatory strategies scale	76.3090	11.40076
The total degree for the scale of the psychological and behavioral response	17.7990	4.07608

Table (5) shows that there are apparent differences in the arithmetic means and standard deviations, where the total degree of the scale of disruption of food habits followed during the Covid (19) pandemic came to a high degree, where the arithmetic mean reached (47.05) with a standard deviation (6.39), the highest arithmetic means for the scale of strategies Self-regulation (the first dimension) achieved the goal, which amounted to (27.54), and a standard deviation reached (5.33), and comes in second place after mental vigilance, with an arithmetic mean of (21.20) and a standard deviation of (6.02). In third place came the fourth dimension: Proactivity, with arithmetic, mean of (10.75) and a standard deviation of (2.26), and in the last rank, the third dimension of modification came with an arithmetic mean of (10.73) and a standard deviation of 1.966. The total arithmetic mean of the scale of self-regulation strategies was (76.30), with a standard deviation of (11.400). Finally, the psychological and behavioral responses came to a high degree, with an arithmetic mean (17.79) and a standard deviation (4.07).

The results of the study agree with the results of the study conducted by (Li et al., 2020), whose results showed that compared to the period before the disease, there were increased indicators of negative feelings (such as anxiety, depression, anger), sensitivity to social risks, and a decrease in positive feelings and life satisfaction. The attention of individuals has become more focused and focused on health and family matters, and less on issues of entertainment and friends. It also agrees with the results of the study (Al-Musharafm, 2020), whose results indicated that the percentage of those who eat emotionally reached (12.4%), and the percentage of those who suffer from depression (27%) and those who suffer from anxiety by (71%), and the percentage of those suffering from psychological stress, while the body mass index increased in the target study group, and less on entertainment and friends issues.

It also agrees with the results of the study (Al-Musharafm, 2020), whose results indicated that the percentage of those who eat emotionally reached (12.4%), and the percentage of those who suffer from depression (27%) and those who suffer from anxiety by (71%), and the percentage of those suffering from psychological stress, while the percentage of body mass index increased among the target study group. It also agrees with the findings of a study (Newby, O'Moore, Tang, Christensen, &Faass, 2020), which found a rise in depression, anxiety, stress, health anxiety, some fears of pollution, and

some negative behaviors such as alcohol abuse and reduced physical activity. The rates of psychological distress have increased, and a rise in personal hygiene behavior and some psychological disorders have been observed.

It also agrees with the results of a study (Coulthard, Sharps, Cunlife, & van den Tol, 2021), the results indicated changes in eating patterns and food consumption during the closure, and these increases were associated with sex-related consumption of light foods and pre-closure eating behavior such as emotional and uncontrolled eating, health anxiety reflected in a high body mass index, self-efficacy, and inability to adapt when closure occurred.

The previous result is explained by the high level of food habits in the target study group to the effects resulting from the pandemic and the restrictions and procedures imposed on individuals during the quarantine, in addition to the poor practice of individuals for social activities and the multiple and different skills that they were doing in the natural conditions before the pandemic, this was negatively reflected on their role, their personal and social skills, and the practices they perform regularly, this is reflected in their weight, and the pathological fears, specifically the compulsive malaise, of disease and pollution, especially in the light of the knowledge of the nature and speed of the spread of the virus, have led to less reliance on ready-made food, restaurants, fast food, domestic food, and home cooking. This increased their obesity rate, as well as the fact that the study sample is housewives who bear the burden and demands of preparing food. It also explains after achieving the goal and mental alertness as dimensions of self-regulation strategies that the target study members have basic goals during the pandemic and are working to achieve them

This can be explained by the fact that they are aged women who have an acceptable level of psychological and social balance and desire self-control and to organize their lives. while was clear that there was a decrease in the dimension of setting the goal and after being proactive, and this may be due to the nature of the pandemic and the recentness of its effects, and its role because it is new to the study members and they have never been infected with such a pandemic before and the lack of experience in dealing with it especially the quarantine and its demands represented in sitting at home and general reservation in society.

With regard to the rise in the arithmetic average of psychological and behavioral responses, it is explained by the fact that these responses came suddenly and the whole world has to deal with these changes and events that emerged in the society in which the study was conducted and the world in general, especially developments directly related to the individual such as (social distancing, general closure of markets and centers Shopping, the general closure of schools and universities, the turn to e-learning) and another process that necessitated the emergence of some changes in the lifestyles of individuals in general, and requirements related to the foundations of dealing with others, some social skills, psychological fears that emerged and some common disorders as a result of this pandemic.

Results related to the third hypothesis

To verify the third hypothesis of the study, which states that "**there is a relationship between disruption of food habits during the COVID-19 pandemic, self-regulation strategies, and psychological and behavioral responses in overweight women."** The correlation coefficient (person) was calculated to reveal the relationship between the variables between the disruption of food habits followed during the COVID-19 pandemic, self-regulation strategies, and psychological and behavioral responses, as follows:

Table (7): shows the Pearson correlation coefficient of the relationship between the disruption of food habits followed during the COVID-19 pandemic and the psychological and behavioral responses of overweight women (n = 398).

Variable	Food habits scale during the pandemic	Total degree for the self-regulatory strategies scale	The total degree for the scale of the psychological-behavioral response
Food habits scale during the pandemic	1	-0.101-*	0.228**
Total degree for the self-regulatory strategies scale	-0.101-*	1	0.062
	0.045		0.215

* Significant at the level (0.01)
** Significant at the level (0.05).

It is evident from Table (7) that there is a negative statistically significant relationship at the level (0.05) and less between the scale of food habits during the pandemic and the total degree of the scale of self-regulation strategies, and a positive relationship between food habits during the pandemic, the total degree of psychological behavioral responses. It is clear that there is no relationship between the total score of the scale of self-regulation strategies and the scale of psychological-behavioral responses.

The previous result is justified by the existence of a negative relationship between the dimensions of the scale of food habits during the pandemic and the total degree of the tool and the scale of self-regulation strategies with the nature of the sample and the logicality of the result that was reached, it is that the individuals who have a high degree of self-regulation and precise goal setting are more able to deal with positive psychological and behavioral responses. On the contrary, this corresponds to the results of the first and second questions, which show a low level of psychological responses in the study population, a high level of non-positive behavioral and psychological responses, and the low level of self-regulation. The result also explains that persons with high and positive self-regulation are higher in the psychological and behavioral responses of members of society and vice versa. The relationship between the dimensions of the scale of self-regulation strategies and the scale of food habits followed during the pandemic and psychological and behavioral responses were also calculated.

Table (7) shows the Pearson correlation coefficient of the relationship between the dimensions of the scale of self-regulation strategies and the scale of food habits followed during the pandemic and the psychological and behavioral responses of overweight women (n = 398).

Dimensions of the Self-Regulatory Strategies Scale	Food habits scale during the pandemic	The total degree for the scale of the psychological-behavioral response
The first dimension: Achieving the goal	-0.215-**	0.022
The second dimension: Mental vigilance	0.050	0.080
third dimension: Modification	-0.088-	-0.027-
The fourth dimension: Proactivity	-0.028-	0.046
The fifth dimension: Setting the goal	-0.028-	0.028

It is clear from Table ( )

- There is a negative statistically significant relationship at the level (0.05) and less between the first dimension (self-actualization) and the scale of food habits during the pandemic, and there is no relationship between the same dimension with psychological and behavioral responses.
- There is no relationship between the rest of the dimensions of the scale of self-regulation strategies with the scale of dietary habits during the pandemic, psychological and behavioral responses.

This result can be explained by the presence of a negative relationship between the dimensions of disruption of food habits followed during the pandemic and self-regulation strategies with the nature of the disruption, which deals with a category of groups that suffer from overweight, have emotional eating disruption and want to build their bodies, achieve their balance and help them organize themselves, especially with regard to their emotional awareness and mental alertness and the achievement and set of goals. Its weakness leads to a decrease in the level of positive psychological and behavioral responses they have, This demonstrates the logic of the relationship in terms of its overall logical framework. The higher the self-regulation individuals have the greater the ability to control eating habits. this result is consistent with what Vygotsky pointed out, which drew attention to social experiences and emphasized the role of internal processes and restructuring in improving self-organization, which is a continuation of the behavioral actions that emphasize the observable real subjective structure. (Al-Taei, 2011).

This result is consistent with the results of the study conducted by Barcın-Güzeldere, &Devrim-Lanpir, 2022)) whose results showed a positive correlation of BMI according to the gender variable in females, where emotional eating and weight gain were positively associated with BMI, where Participants with a higher BMI showed more emotional attachment behaviors.

It partly agrees with the results of the study conducted by (Saaty, &Aljadani, 2021) whose results indicated that the women participating in the study were more concerned about gaining weight and eating sweets and snacks, as the degree of their anxiety was higher than that of men. More than eating sweets to enhance their physical immunity, and increasing the intake of snacks and high-calorie foods. The results indicated a high level of health awareness among them, a decrease in physical activity, and a lack of reliance on external food while increasing care for eating habits and focusing on healthy and beneficial foods. It can be said that the lockdown has led to a change in eating habits, an increase in snacking, and a focus on vegetables and fruits. It also agrees with the results of the study (Mazzolani, et al, 2021) whose results showed that the determinants of food choice were more related to food intake, and the different determinants of choosing overweight women compared to those of normal weight.

It also agrees with the results of the Al-Qaisi study (2020), which indicated a statistically positive correlation at the significance level (0.05) between anorexia, a tendency towards thinness and body image, and mother's nutritional habits, and the study results indicated that there is a significant inverse relationship statistically between binge eating, body image, and maternal food habits.

Results related to the fourth, fifth and sixth hypotheses

To verify the fourth hypothesis of the study, which states that "**there are differences in the disturbance of food habits followed during the Covid-19 pandemic, self-regulation strategies, and psychological and behavioral responses among overweight women according to a number of**

demographic variables (age, weight, exercise, economic level, and presence of chronic diseases such as pressure, and diabetes.) to find out the differences in the disturbance of eating habits during the COVID-19 pandemic among overweight women. The multivariate analysis of variance was conducted, as follows:

Table (9) shows the multiple variance analysis (non-interaction) differences in the disturbance of food habits followed during the Covid 19 pandemic, self-regulation strategies, and psychological and behavioral responses of overweight women according to a number of demographic variables (age, weight, exercise, economic level, and presence of chronic diseases such as pressure, and diabetes). (n = 398).

First: The differences in the disturbance of food habits followed during the Covid 19 pandemic					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Age	187.722	2	93.861	3.180	0.043
Weight	196.379	1	196.379	6.653	0.010
Exercise	562.716	1	562.716	19.063	0.000
Economic level	36.720	2	18.360	0.622	0.537
Do you suffer from chronic diseases?	267.382	1	267.382	9.058	0.003
Error	11512.443	390	29.519		
Total	981401.000	398			
Corrected Total	13316.475	397			
Second: The differences in the strategies of self-regulation					
Age	895.997	2	447.999	3.236	0.040
Weight	1057.849	1	1057.849	7.642	0.006
Exercise	3213.800	1	3213.800	23.217	0.000
Economic level	383.526	2	191.763	1.385	0.251
Do you suffer from chronic diseases?	1291.886	1	1291.886	9.333	0.002
Error	53985.238	390	138.424		
Total	2450956.000	398			
Corrected Total	64651.668	397			
Third: Differences in psychological and behavioral responses					
Age	146.784	2	73.392	2.804	0.062
Weight	956.136	1	956.136	36.530	0.000
Exercise	177.871	1	177.871	6.796	0.009
Economic level	.980	2	.490	0.019	0.981
Do you suffer from chronic diseases?	116.298	1	116.298	4.443	0.036
Error	10207.899	390	26.174		
Total	126076.000	398			
Corrected Total	11665.186	397			

It is clear from Table ( )

- There are statistically significant differences at the level (0.05) in the disruption of food habits

followed during the Covid-19 pandemic, and self-regulation strategies according to the variable (age, weight, exercise, and the presence of chronic diseases), and there are no statistically significant differences at the level (0.05) in the disruption of food habits during the Covid pandemic and strategies for self-regulation, the economic level.

- There are statistically significant differences at the level (0.05) in psychological and behavioral responses according to the variable (weight, exercise, and the presence of chronic diseases), and there are no statistically significant differences at the level (0.05) in psychological and behavioral responses according to the variables of age and economic level.

To reveal the significance of the differences in the variable (age) in the two measures of dietary habits followed during the Covid-19 pandemic, and self-regulation strategies, the post-comparison test (LSD) was conducted with the least significant differences as follows:

Table ( ) shows the dimensional differences in dietary habits and self-regulation strategies according to the variable (age) among overweight women.

Variable	Age	21-29	30-39 years	40 and over
Food habits during the pandemic	21-29 years	---------	-1.4305-*	0.1835
	30-39 years	-1.4305-*	------	1.6140*
	40 and over	-0.1835-	1.6140*	------
Self-regulating strategies	21-29 years	---------	-0.6750-	*4.5653
	30-39 years	-0.6750-	---------	
	40 and over	*4.5653	5.2403*	---------

It is clear from Table ( ) that the differences in food habits during the pandemic came in favor of those aged (40) years and over, followed by those aged (30-39 years), and with regard to self-regulation strategies, the differences came in favor of those aged (30-39). One year, in the second rank, those aged (40) years and over. The reasons for the differences in food habits during the pandemic were in favor of those aged (40) years and over, followed by those aged (30-39 years), perhaps due to the nature of women's work, as the older ones try as much as possible to maintain physical fitness and are more aware and conscious of physical diseases and the danger of obesity in general. In addition to the fact that the sample on which the study was conducted suffers from a high body mass index, they exercise, they are conscious and aware and have a desire to maintain weight and physical fitness, and they often monitor calories and are keen to eat healthy food, and they have a desire to maintain their bodies regularly. This result partially agrees with the results of the study conducted by (Mazzolani, et al, 2021), whose results showed that the determinants of food choice were more related to food intake, and the different determinants of choosing overweight women compared to those with normal weight.

The (t-test) was also conducted to compare two independent samples as follows

Table ( ) shows the differences in the disturbance of eating habits followed during the Covid 19 pandemic, the strategies of self-regulation, and psychological and behavioral responses according to the variables (weight, exercise, and the presence of chronic diseases)

Variable	Variable	Mean	Std. Deviation	value (t)	Sig.
The variable (weight) is the weight healthy (the weight is considered healthy based on the mass index)					
Food habits during the pandemic	Yes, it corresponds to the body mass index	47.6168	6.01828	-3.609-	0.000
	It does not correspond to the mass index	49.9450	5.58728		
Self-regulating strategies	Yes, it corresponds to the body mass index	81.8598	15.70509	4.288	0.000
	It does not correspond to the mass index	75.8041	11.08554		
Behavioral psychological responses	Yes, it corresponds to the body mass index	14.1963	4.65901	0.278	0.000
	It does not correspond to the mass index	17.9691	5.33393		
Regular exercise variable					
Food habits during the pandemic	Yes	47.6304	6.47436	-5.596-	0.000
	No	50.7710	4.68229		
Self-regulating strategies	Yes	81.7120	14.25600	6.520	0.000
	No	73.7523	9.97459		
Behavioral psychological responses	Yes	16.2174	4.26660	-2.534-	0.000
	No	17.5888	6.18487		
Variable chronic diseases such as diabetes, pressure, etc.					
Food habits during the pandemic	Yes	46.6067	7.00749	-5.174-	0.000
	No	50.1003	5.14463		
Self-regulating strategies	Yes	83.3596	16.76864	5.129	0.000
	No	75.7249	10.79316		
Behavioral psychological responses	Yes	17.0112	4.37320	0.111	0.000
	No	16.9385	5.69285		

It is evident from Table (9) that there are statistically significant differences at the level (a = 0.05) in all study variables as follows:

- Disruption of eating habits during the Covid-19 pandemic: The differences in the weight variable were in favor of those who were overweight (not compatible with BMI) and with regard to the exercise variable, the differences came in favor of those who do not exercise, and in favor of those who do not have chronic diseases compared to those who suffer from chronic diseases. The current result explains the nature of the physiological needs that overweight women need, the nature of their physical structure, their multiple needs, and their constant desire to maintain their bodies and fitness and reduce the rate of body mass index, while they suffer from a weak ability to self-control, especially during the pandemic and staying at home, and fears related to the nature and the spread of it which has affected all areas and pillars of life.
- Self-regulation strategies: The differences in the weight variable came in favor of those who do not have excess weight (corresponding with BMI), and about the exercise variable, the differences came in favor of those who exercise compared to other non-exercisers, and

finally, with regard to the variable of the presence of chronic diseases, the differences came in favor of those who have chronic diseases compared to others.The current result is explained by the fact that overweight people are less able to self-regulate, perhaps due to their physiological and physical needs and the ability to self-regulate, and this may be due to enzymes or the difference in daily routines, especially the absence of exercise as a result of closures and general quarantine during the pandemic.

- Psychological and behavioral responses, where the differences in the weight variable came in favor of those overweight (not corresponding with BMI), and with regard to the exercise variable, the differences came in favor of those who do not exercise, and in favor of those who have chronic diseases compared to those who do not suffer from chronic diseases.

This result partially agrees with the results of the (Barcın-Güzeldere, &Devrim-Lanpir, 2022) study, whose results showed that BMI was positively related to the gender variable in females, where emotional eating and weight gain were positively associated with BMI, where participants with a body mass index showed. It also agrees with the findings (Coulthard, Sharps, Cunliffe, & van den Tol, 2021) in a study on indoor eating during the COVID-19 pandemic and self-reported changes in eating behavior, association with body mass index, eating style, coping, and anxiety healthy, the study sample consisted of (620). The results showed that there were changes in eating patterns and food consumption during the closure, and these increases were associated with the consumption of light foods by gender and eating behavior before the closure such as emotional eating and uncontrolled eating, and health anxiety, which was reflected in a higher body mass index, self-efficacy and inability to adapt when the closure occurred.

Results related to the sixth hypothesis

To verify the sixth hypothesis of the study, which states that "**self-regulation strategies and psychological and behavioral responses can be predicted through food habits followed during the pandemic**." Simple regression analysis was used (considering that the health behavior) practiced by the study members is a dependent variable (the test) and the independent variable (the cognitive beliefs prevalent during the pandemic), which are predictive variables for the study sample as a whole, and as shows inTable (12).

Table (12) Results of the multiple graded linear regression analysis, the increase in squares of correlation coefficients between dependent and independent variables that contributed to the interpretation of dependent variable variation (healthy behavior).

Independent variable	Dependent variable	Number	Multiple correlation coefficient (R)	R-Square	f-value	Significance Level (F)
Food habits followed during the pandemic	Self-regulating strategies	398	0.179	0.032	13.040	0.000
	Psychological and behavioral responses		0.108[e]	0.012	4.706	0.031

It is clear from Table (12) that the regression variance analysis (F value) through which the significance of the coefficient of determination (R Square) is tested is that the prediction model is statistically significant, it is that the ability of the independent variables (food habits followed during the pandemic) to predict the dependent variables (self-regulation strategies, psychological and behavioral responses) in the study sample, where the value of (F) was statistically significant at the level of significance (0.01) and this indicates the significance of the prediction model, and through The value of the coefficient of determination shows that the contribution of the independent variable to the dependent variables amounted to (17.9%; 10.8%), respectively, which is an appropriate proportion. The following table shows the ability of the independent variables to predict the dependent variables among the study members by reviewing the values of the regression coefficient, Beta, and "t" and their level of significance.

Table (13) shows the results of the regression analysis (regression coefficient, beta, t) to test the predictive power of self-regulation strategies, psychological and behavioral responses through food habits followed during the pandemic (Covid-19) among the study members.

Dependent variable	Predictor variable	Regression coefficient	Beta	t	Significance level (t)
Self-organizing strategies	Constant gradient	96.835	------	17.899	0.000
	Eating habits during the pandemic	-0.0393-	-0.179-	-3.611-	0.000
Psychological and behavioral responses	Constant gradient	11.952	------	5.148	0.000
	Eating habits during the pandemic	0.101	0.047	2.169	0.031

It is clear from Table (13) that the values of (t) were statistically significant at the level of significance (0.05), and this indicates that the independent variables contribute with statistical significance to the interpretation of the percentage of variance in the dependent variables (self-regulation strategies, psychological and behavioral responses) and therefore they are positively predictive of the variable It is clear from the values of (beta) that the most important variables in predicting the food habits followed during the pandemic are the total degree of psychological and behavioral responses with a regression coefficient of (0.101) and a positive variation. In the sense that the increase in psychological and behavioral responses contributes to predicting the eating habits followed during the pandemic, followed by the self-regulation strategies with a variance ratio (-.0393) and a negative significance, this indicates that the lower the individual's degree for self-regulation strategies, the more negatively it will be reflected on the food habits followed during the pandemic. The prediction equation is (self-regulation strategies) = 96.835 + (-0.0393), and the prediction equation for the second dependent variable (psychological and behavioral responses) = 11.952 + $_{(0.101).}$

From the previous presentation, it is clear that the most appropriate model to explain variation is the model of self-regulation strategies, which explained its ratio. (17.9%) of the event variation in the

dependent variable, the (f) value showed the significance of the model, and the (t) value of the variables was statistically significant through the standard beta values, the highest variables that contribute to the explanation of the variance occurring on the dependent variable is the variable of the total degree of self-regulation strategies, followed by the second dependent variable (psychological and behavioral responses) and the current result agrees with the results of the study conducted by Alah, Abdeen, Kehyayan, &Bougmiza, 2021) whose results showed a correlation between the frequency of training during the pandemic and the reported change in weight (P < 0. 001), significantly higher levels of physical and emotional exhaustion, irritability and tension were observed in the participants. It also partially agrees with the results of the Barcın-Güzeldere&Devrim-Lanpir, 2022) study, which indicated that BMI was positively related to the gender variable in females, where emotional eating and weight gain were positively associated with BMI, where participants with a high mass index showed A raised body is more emotional outgrowth behavior.

The previous result explains the predictability of food habits during the pandemic through self-regulation strategies this demonstrates the role of the individual in controlling himself and controlling his abilities and potential, charting and defining the goals, the ability to achieve them, and working to build them positively. The ability to act a positive self-balance and determine the individual's ability to interact with it ", especially after the World Health Organization (WHO) declared it a pandemic that has led to a number of cognitive and psychological problems and individuals' commitment to preventive health behaviors and significantly, It affected psychological and behavioral responses, making them more endeavoring to adhere to health behaviors exaggeratedly.

Recommendations

- In light of the results of the current study, the following recommendations can be made:
- Activating the role of preventive psychological counseling programs and spreading health culture and healthy behavior among community members.
- Holding guidance and training programs to rehabilitate overweight women on self-regulation strategies.
- Spread sound cognitive awareness from reliable sources about dietary habits and the importance of exercise and healthy behaviors during the pandemic such as the Ministry of Health.
- Training in positive behaviors and psychological responses to deal with different life activities.

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