

The Role of Stress and Relevant Social Factors in Food Addiction

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Abstract: This study delves into the complex relationship between stress and eating behavior, with a particular focus on how stress affects food addiction. The study explores the role of stress perception, chronic stress, and social stress, highlighting their important impact on eating habits, especially on vulnerable groups such as women. The main findings suggest that stressed people tend to exhibit increased food intake, decreased emotional eating, and decreased intuitive eating, all of which increase the risk of obesity and related health problems. In addition, previous study also showed that chronic stress is a major factor associated with food addiction, with excessive workload, social stress, and long-term anxiety being important predictors. Recent research highlights the importance of stress management strategies, including cognitive behavioral therapies that target distorted beliefs. However, Previous studies also have... limitations, including a small sample size and heavy reliance on self-reported data, which may affect the generalizability and external validity of the findings. It is suggested that future studies address these limitations by expanding sample sizes, employing more objective and diverse measurement tools, and exploring the effectiveness of corresponding interventions in different populations. This review could help develop more effective treatment and prevention strategies for stress-related eating disorders.

Keywords: food addiction, stress, social factors.

1. Introduction

Pressure is a type of behavioral reflection reflects cognitive perception while experiencing uncontrollable or unpredictable events. Eating disorder (ED) is a type of extreme eating behavior disability or disorder, it includes over-concern to one's eating habits, weight or body shape. ED has three main categories, they are: anorexia nervosa, bulimia and binge eating disorder. These disorders often come with other side effects in the mental health area such as depression or anxiety. Another negative consequence of an individual's eating habit is food addiction in which the individual will show a craving for certain food and cannot control their behavior. Social factors are those variables that exist in social, cultural environments including family, friends, education etc. These factors will influence an individual's behavior, attitude and lifestyle.

Understanding the impact of stress and social factors on one's eating habit requires a deeper look into how these concepts interact. In this article, it discussed the relationship between stress and eating disorders, and also introduces relevant issues regarding adjustment and adaptive ability [1]. Range of adjustment refers to how individuals react under different environments under casual conditions.

Adaptive ability is an individual's ability to adapt to stress or changes in environment. The decrease in stress may also cause a drop in one's adaptive ability or range of adjustment, which leads to higher risk of developing eating disorder. Stress can influence eating disorders in both psychological and physiological mechanisms. On physiological aspect, stress stimulates hypothalamic-pituitary-adrenal (HPA) axis and sympathetic-adrenomedullary (SAM) system and changes the secretion of appetite-regulating hormones. In psychological way, chronic stress can cause anxiety and depression which also makes individual's food intake or weight control become unhealthier. Thus, stress not only affects eating behavior through physiological pathways, but also increases the risk of eating disorders through changes in mental health. An effective way to regulate stress is crucial for treating eating disorders. The importance of integrated physiological and psychological treatment is also noteworthy.

The relationship between eating disorders and stress is complicated. Stress is both the reason and the outcome of abnormal eating behavior [2]. Eating disorders might get even more vulnerable when an individual is under stressful event or chronic stress. For example, anorexia nervosa, bulimia and binge eating disorder are usually the Outcomes of coping with stress or chronic stress. Stress increases cortisol production through HPA which can lead to a change in appetite or eating behavior. People with eating disorders might have higher sensitivity to stress, and their maladaptive eating behaviors in turn exacerbate stress, creating a vicious cycle. Biological, psychological and environmental factors are all relevant to the relationship between stress and eating behavior. Biologically, neurotransmitter systems, especially the change in level serotonin and dopamine, are related to stress and eating disorder. Psychologically, perfectionism, low self-esteem and dissatisfied with body shape are important factors. Cultural pressure, trauma and family are also key environmental factors that interact and cause stress or eating disorders. Understanding this mechanism could improve the treatment. That is crucial for breaking this loop and provide relief to affected individuals.

2. The Complex Relationship between Stress and Food Addiction

2.1. Perceived Stress and Eating Behaviors

To better understand the relationship between stress and eating behavior, this paragraph examines the effects of stress on daily food intake and food cravings. This research has discussed how stress affects daily food intake and craving [3]. The research carried out a sample of 83 aged 18-38 years old adult that have interest in food diet. The experiment used EMA and Salzburg Stress Eating Scale (SSES) as tool to collect data. Information about participants' stress, negative emotion, the food craving and amount of food intake were collected four times a day. The result shows that participants with higher SSES score are more likely to intake more food under stressful situations, and the opposite way in participants with lower score in SSES. This research addressed that individual difference plays a crucial role in the relationship between stress and eating habit and suggested that interventions could be made based on SSES score so that individual could deal with eating habit changes under stress.

Since perception of stress is an important variable in the relationship between stress and eating behavior, another research has a more detailed explanation for this. This research has talked about the relationship between sensing stress and eating behavior [4]. The research has used a sample of 297 Finland working overweight people. The research uses a self-report questionnaire as a tool and used 48-hour dietary recall method to evaluate the amount of eating and drinking. The research found that, stress is associated with lower intuitive eating (eating behavior that is triggered by biological signals instead of emotions or other factors), more out-of-control eating (uncontrollable eating behavior, often shows as eating too much or unstoppable) and emotional eating (Intake food due to emotional changes). Also, stress leading eating behavior could be a significant risk factor of obesity. It addressed that further interventions should be made to help the obese population face stressful situations and their eating behavior under it.

If perceived stress was not handled properly, it might develop into a chronic stress which is an ongoing state of stress. Research carried out in 2024 discussed the relation between various types of chronic stress and food addiction (FA) [5]. Data in this experiment is collected from LIFE - Adult - Study which is a sample of people that are between 18-20 years old. The experiment used cross-sectional design and collected 1172 participants' data. The experimenter controls variables including age, gender, marriage status, social economic status, personality trait and smoking habit. After collecting data, the experimenter carried out multiple analysis and found out that all types of chronic stress, which includes overload of work, overload of social pressure, the pressure to perform, too much demands from work, job discontent, low social recognition, conflicts in social life, lack of connection with social network and chronic worrying have a positive correlation, social overload and unpleasant working experience and other stressors are also positively correlated with FA. In short, this research suggests that social overload, excessive work requirements and chronic worry are key predictors to FA.

2.2. The Impact of Relevant Factors

Also, other relevant factors that affect an individual's eating habit and how that reacts while under pressure are also worth discussing. A study conducted in 2019 has discussed the relationship between life balance and work addiction in those high pressure, high demand careers [6]. In this research, it mainly studied about the relevance between multiple aspects of life balance and work addiction, especially pressure, anxiety and sleeping disorder. Research carried out between a sample of higher education advancement professionals, it uses transect survey design and collects through Workaholism Analysis Questionnaire and Juhnke-Balkin Life Balance Scale online. The result shows that there is a significant relationship between life balance and work addiction, and pressure, anxiety and sleeping disorder are crucial prediction factors for that. Therapists could evaluate these important fields to help design personal treatment methods.

Life balance could be shown in an individual's life in multiple ways. Work family conflict, which is incompatibility between work and family needs, as a major life balance individual may face. This study explored whether work-family conflict mediates the relationship between work stress and binge drinking. The study's sample consisted of 12,084 working civil servants, aged 35-74 years, who participated in the Brazilian Longitudinal Study of Adult Health (ELSA-Brazil) [7]. The results showed that for normal-weight individuals, skill freedom was positively associated with binge drinking. Psychological job demands were positively associated with work-family conflict, but no significant indirect effects were found. Among overweight individuals, psychological job demands, skill freedom and work-family conflict were positively associated with binge drinking. Work-family conflict partially mediated the effects of psychological job demands and decision-making authority on binge drinking. It was shown that high psychological job demands and low decision-making authority influence binge eating behavior in overweight individuals through work-family conflict, and that skill freedom was positively associated with binge eating independent of BMI category. It is recommended that family support measures be established in the workplace to minimize the impact of binge eating and its associated disorders.

Female as an important group that often shows more work family conflict due to the traditional gender role. The article published in 2022 has discussed how pressure influences one's eating behavior. The experiment is carried out with a sample of 1222 German adults with an average 31.5 years old, 80.8% of them are female [8]. The result of this research shows that 42.1% of the sample are stress eaters, women with higher BMI were more likely to overeat under pressure. Also, stress eaters' PSS value, the motivation for emotion regulation and weight control are significantly higher than other groups' of participants. This group often chooses chocolate, coffee, cookies etc. as comfort food. Moreover, stress eaters are higher in neuroticism score, lower in likability. This research addressed that BMI,

personality and motivation of eating are key factors for predict stress overeating. Identifying these personality or individual differences is helpful for design interventions to promote healthy eating habits under stress.

3. The Effectiveness of Intervention for Disordered Eating

Cognitive-behavioral therapy (CBT) is a commonly used psychotherapy approach that aims to help individuals cope with emotional distress and behavioral problems, such as anxiety, depression, and eating disorders, by changing unhealthy thought patterns and behaviors. A journal published in 2018 has discussed the dynamic relationship between bulimia and the style of interpersonal issues and how serious it is [9]. The research carried out by a sample of 107 women under bulimia therapy with the age between 22 - 65 years old. The research used longitudinal design, data were collected from four different time and randomly allocated participants into three different treatment condition, the reason for select these types of treatment is because social stress are always related to one's thoughts and moods, if stress didn't been deal correctly or on time, it might lead to change in eating behavior. The treatments are weight loss therapy, 12 weeks of CBT followed by 24 weeks of weight loss therapy and cognitive behavioral therapy combined with weight loss therapy and drugs. The results of three different treatment methods are different. The group that only take weight loss therapy and cognitive behavioral therapy combined with weight loss therapy and drugs shows no significant changes in both terms of weight change and bulimia symptoms. However, the group that took CBT and weight loss therapy shows that binge eating symptoms reduced, and it's even more significant reduction 3 months after the end of treatment, but the difference in overall effect was not significant. The result shows that the servility of bulimia and interpersonal issues are relevant on time but have no direct impact on each other. These findings show that interpersonal issues have multiple impacts on the development of bulimia and the paper addressed the importance of using dynamic models to investigate directionally. Also, the faith or attitude people hold themselves are also crucial for prevention and treatment on multiple eating disorders.

Except those three-treatment condition discussed in the paper above, the effectiveness of another popular therapy method which is group therapy has discussed in this paper. Group therapy is a form of psychotherapy, which helps individuals improve their mental health and relationships through group interaction and support. Using this treatment could help individuals have more interactions with other people and reduce the feeling of loneliness. The investigation has included 101 overweight bulimia women and compared with 46 overweight women and 49 normal weighted women [10]. The research used longitudinal design which includes four-time spots: before therapy, after therapy, 6 months after therapy, 12 months after therapy. Evaluate the interpersonal issue before and after group therapy of people with bulimia issue and how has their interpersonal issue been 6-12 month after group therapy. This research finds out that bulimia people have a higher score on interpersonal issues compared to control group. they often show a Non-assertive and available styles. There is an improvement after therapy, but these styles still exist. Bulimia patients often show significant difficulty in interpersonal communication, the therapy should focus more on the improvement of interpersonal skills.

4. Conclusion

In conclusion, this research reviewed the impact of pressure on eating behavior, craving on food and so on. According to previous research, people with higher sensitivity of stress are more likely to eat more under pressure. Nevertheless, when the researcher caried an experiment with 297 Finland overweight adults, they found out that pressure is related to low intuitive eating, out-of-control eating. Emotional eating is associated with increased risk of obesity. Chronic stress is also related to food

addiction. Work addiction, social pressure and chronic worrying are key prediction factors of food addiction. Other research shows that the balance between work and life in high pressure career are strongly correlated with stress, anxiety and sleeping difficulties. Work family conflict plays an intermediary role between bulimia and stress. Based on past research, women are more likely perform stress overeat under pressure, BMI, personality and reason of eating are key factor to predict stress overeat.

Even though these findings show how stress reacts on eating behavior or eating disorder, but the previous research still has some limitations. First, the sample size of these research is comparatively small, which may limit the result's external validity. Secondly, most of this research used self-report data, it might have subjective bias between data. Moreover, each research has used different tools or scale to measure the variable, this makes the result of each paper have limited comparability between them. Future research should extend sample size, use multiple objective measuring methods and provide a deeper view on different population and individual differences to improve result's reliability and validity. Also, future research should focus more on stress management and effectiveness of cognitive behavioral therapy in different populations to provide customized more accurate intervention, help individual maintain healthy eating behaviors under stress.

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