

Influencing Factors to Overeating in Restrained Eaters :An Analysis Based on Specific Occupation

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Abstract: Driven by the mainstream aesthetic in society, many people have begun to restrict their diet in pursuit of a better shape. Especially for specific occupations, such as dancers and figure skaters, the requirement of their careers has led to long-term restrained eating to keep a low BMI. However, a large proportion of people fail to restrict their diet or even develop eating disorders such as overeating at the end. Given the necessary restrained eating needs of specific occupation, the reasons why they may still break the dietary boundaries deserve to be investigated. Based on the definitions of restricted eating and overeating, this study summarizes previous research on overeating in restrained eaters, including psychological factors, attentional bias for food cues, lack of inhibitory control, and self-regulatory resource depletion. Then this study considers the particularity of specific occupations, including the influence of peer evaluation and repeated body surveillance, trying to conduct detailed analysis and reasonable inferences on specific influencing factors. Finally, based on the discussion, the study provides possible suggestions for the intervention of overeating and also directions for future empirical research.

Keywords: overeating, restrained eating, specific occupation, influencing factors Introduction

1. Introduction

Influenced by the mainstream of society such as fashion and health, many people hope to maintain a good shape by restrained eating. Particularly for those specific occupation, such as dancers and figure skaters, may seek to achieve better performance by restricting their diet to attain a lower body weight and a more perfect figure. However, a large percentage of people fail during the process of restrained eating and even lead to overeating. Previous research has found that the prevalence of eating disorders among dancers is 12.0%, which has a direct impact on career and physical health.

Even if there are necessary reasons for specific professionals to restrict their diet, they may still fail in restricting and leads to overeating at the end.

Considering the particularity of occupation, which will have an impact on eating behavior, there should be other intrinsic motivations that result in the breaking of dietary boundaries compared with ordinary restrained eaters.

Therefore, based on the definition of restrained eaters and overeating, this study conducts a basic analysis from the perspective of three psychological factors: attentional bias for food cues, lack of inhibitory control and self-regulatory resources depletion. Then reference the research on dancers'

eating disorders, external factors were expanded, including peer appearance evaluation, weight criticism and self-objectification.

By summarizing previous studies on ordinary restrained eaters, this study elaborated on the influencing factors of overeating from different perspectives and combined with the features of specific occupations to make reasonable guesses about specific causes. At present, there are few studies on restricted eaters in specific occupations, so the significance of this study is to provide suggestions for the prevention of overeating and offer direction for future empirical research through reasonable inference.

2. Definition

2.1. Restrained Eating

Restrained eating refers to the continuous conscious control of calorie intake to reduce or keep one's shape, which is a very common way to lose weight. The difference with dieting is that restrained eating is to set boundaries on how much or what you eat, while dieting is more about simple food intake control. Additionally, restrained eating has different meanings for different groups, for example, diabetics need to limit the consumption of sugary foods because they cannot be metabolized. For female whose body already meet the normal standards, restrained eating may be excessive pursuit.

2.2. Overeating

Overeating refers to an individual who consumes more food than is physically necessary during period. The causes of overeating can be psychological stress, excessive diet, emotional eating, and people in special period such as pregnancy or lactation. Severe cases can develop bulimia, which can lead to a range of health problems, such as stomach problems, intestinal disorders, and mental trance.

Restrained eaters themselves should be in state of strict restraint, however, because of psychological or social factors, restrained eaters break the previous eating boundary and lead to overeating, which is obviously an impulsive and unrestrained behavior. That is, the behavior changes from restricted to impulsive. Also compared to unrestrained eaters, restrained eaters have greater motivations to lose weight, but they usually fail, the reason behind this phenomenon deserve to be investigated.

3. Influencing Factors

3.1. Attentional Bias for Food Cues

The attentional bias of food refers to the preattentive processing phenomenon that get close to or avoid from food. For example, find food around the mess or avoid looking at food when someone is dieting.

The attentional bias happens before the actual eating behavior. Since restrained eaters periodically stay in state of deprivation, they will be more sensitive toward food cues. Meanwhile, study has suggested that exposure to food cues before eating can cause appetitive response, the effect on restrained eaters was particularly obvious, which disrupting their usual restraint and result in significantly more food intake [1].

Through measurement of the Restraint Scale, the student scoring in the top third were defined as the High Restrained Eaters group, those scoring in the bottom third were defined as the Low Restrained Eaters group. The study indicated that high restrained eaters, as compared to low restrained eaters, presented rapid attentional switching to high calorie foods, instead of a greater ability to keep attention on high calorie foods when asked to do so [2]

One explanation for retrained eaters to indulge in exactly those foods that they want to avoid, is a temporal attentional bias for food cues. The research investigates the temporal characteristics of attentional bias in restrained eaters through three different types of RSVP. And the visual stimuli is provided by computer images, including high caloric stimuli, neutral stimuli and threatening. The experiment is designed to verify that, a) food cues can lead to attentional bias. b) when food cues and another target are present at the same time, whether the food cues have the priority for cognitive resources.

The result indicated that, especially in those high restrained eater, food cues get prioritized access to limited cognitive resources, even if this processing priority have conflict with their current goals [3].

3.2. Lack of Inhibitory Control

There might be two specific types of inhibition processes during the process of eating, which is response inhibition and interference suppression. Response inhibition is accomplished by controlling the distracting internal and external stimuli, often inhibit the habitual behavior. Interference suppression is more about inhibiting the stimuli that conflict with the current goal, which is driven by stimulus-response conflict [4].

In the case of restricted eaters, response inhibition refers to inhibiting their behavior directly when they have an urge to eat, either through distraction or by finding alternative attraction. Interference suppression means when people have the desire to eat, they may think of the conflict between eating and losing weight, eventually inhibiting the behavior on a cognitive level.

With the help of fMRI technique, the relationship between inhibitory control and overeating can be verified from neuroscience. Research has found that, when successful restrained eater facing food cues, their inhibitory control ability will be enhanced. In contrast, unsuccessful restrained eaters' inhibitory control ability will be weakened when exposed to food cues, which makes people pay more attention to hedonic values, rather than physiological values, and ultimately leads to overeating [5].

And through a food specific stop-signal task, it was found that people with weakened inhibitory control ability, usually have greater food intake, and frequently switching between eating and drinking during meals [6].

3.3. Self-regulatory Resource Depletion

The research used three different scales, including Dutch Eating Behavior Questionnaire, restraint subscales and disinhibition subscales, to divide all participants into three group, low-disinhibition restrained eaters (LDs), high-disinhibition restrained eaters (HDs) and unrestrained eaters(UREs). For HDs, they have high tendency to overeating, so the susceptibility to the failure of restraint is high. For LDs, they have low tendency to overeating, so the susceptibility is low.

The experiment result indicated that, there's no discernible disparity in food-related response inhibition among three groups when non-depleted. However, when self-regulatory resource is limited, HDs show decrease in food-related response inhibition.

After self-regulatory resource depletion occurs, the susceptibility to self-regulatory depletion and the inner motivations has a greater influence on behavior. Through the comparison between successful and unsuccessful restrained eaters, it suggested that enhanced resistance to self-regulatory depletion may significantly contribute to the long-term success of weight control.

The effect of intrinsic motivation on actual behavior is positively correlated with the depletion of self-resources, The stronger the motivation, the greater the releasing effect of self-regulatory resource depletion. The relationship between intrinsic motivation and self-control can be viewed as a tug-of-war, the result of the competition refers to the result of restrained eating [7].

Meanwhile, there is a study indicated that When individuals experience a depletion of self-regulatory resources, the association between food intake and impulsive behavior becomes more pronounced. And overeating can be regarded as an impulsive behavior. Resource depletion may have counter intentional effects on dietary restraint standards, that is, when self-regulatory resource is limited, the more people try to restrict their diet, the more likely they are to fail [8].

4. Present Study on Dancers

One previous study discusses the factors that contribute to dance students' eating disorder.

Culture influence, such as a preference for thinness based on aesthetic considerations has been found to be correlated with the development of disordered eating behaviors in sports emphasizing a lean appearance.

Environment influence, such as strong intensity training, a high level of competitiveness, and critical judgement on appearance may result in the high percentage of eating disorder in dance students.

Individual influence, dancers who presented a high level of perfectionism, intense discontentment with their body image, low self-esteem and receiving great stress from coaches on their weight and body shape are likely to struggle with disordered eating problems.

Through questionnaire and interview investigation the research indicated that, compared to non-eating disorder group, the eating disorder group exhibited a higher prevalence of historical teasing related to overweight, along with great body image concern, psychological distress, neuroticism, and decreasing self-esteem [9].

4.1. Body Surveillance

Body surveillance is a kind of behavior manifestation of self-objectification. And in self-objectification theory, people regard their body as an object meant to be observed and evaluated. When body is seen as an object, there will be comparison between each object, and lead to repeated body surveillance. This kind of surveillance will keep remind people the gap between their weight and the ideal weight, which result in body dissatisfaction and force people to find strategy, such as restrained eating.

4.2. Peer Appearance Criticism and Self-Objectification

“People evaluate others in ways that will best maintain or increase their own self-identity. ” And for restrained eaters, they may pay more attention on their shape and weight, compare to other stuffs, so weight criticalness of others is likely to do with body shape. “Especially in a close relationship, the target will be evaluated less positively on dimensions of high personal relevance to the evaluator”, which means negative evaluation is more easily to happen around peers [10].

Through weight criticism of others, it is assumed that individual will also accept body evaluation from others.

Based on identity-threat model, the study indicated that Fear of Negative Appearance Evaluation as a mediation, result in the change from body judgement to self-identity threat.

For dealing with self-identity threat, there are two kind of response, involuntary stress response and voluntary response. Involuntary response can be emotional and voluntary response refer to conscious efforts and coping strategies to regulate the involuntary response. Ultimately result in, a) people excessively concern about their body shape. b) force people to look for method to keep weight, such as restrained eating [11].

5. Discussion

Based on the exposition of restrained eating and influencing factors of overeating, the study will make a specific analysis of the causes of overeating, associated with the characteristic of specific occupation. Also to provide some suggestions for avoiding eating disorder.

5.1. Definition of Specific Occupation

The specific occupation here refers to the occupation that require people to keep shape by restrained eating, including dancers, figure skaters, actors, and model etc. This study focuses on those with high exercise intensity, that is dancers and figure skater. Mainly take female as the subject of the study. (specific occupation refers to dancers and figure skater in the following description)

Under the pursuit of physical beauty background, high percentage of female try to keep or lose weight by restrained eating. Most of their desire build on the higher expectation on themselves, which they do not have a necessary need, so the period and the goal of restrained eating are not clear enough. Thus, the study chooses specific occupation female, take dancer and figure skater as example.

The reason for choosing is down below, a) They have necessary reason for restrained eating. b) The failure of restrained eating will be magnified because of their occupation need, which may threaten their occupation. c) a long period of strict restrained eating might lead to mental problem or eating disorder, it is a big hidden danger for the development of this kind of career. d) Few studies on restrained eating focus on this specific occupation and physical health plays a crucial role in the development of their career.

For female restrained eaters in specific occupation, there are few characteristics,

- a) Have to stay in extreme shape for a long period of time, including very low body fat rate, fit shape, or extreme low weight, indirectly cause repeated body surveillance, such as weight themselves every day or even every half day and record calorie of each food they eat.
- b) This kind of occupation have regular training almost every day, such as physical training, finishing a dance drama and completing a figure skate competition, which all need a certain energy reserve.
- c) The attitude towards food of these groups' people, compared to other stimuli, food cues have a greater influence on them.
- d) According to the Boundary Model, people of specific occupation have a clear psychological boundary to eating, compared to a less sensitive biological boundaries
- e) Discuss from the perspective of society, there is tremendous competitive pressure among peers and judgement from the society around them.

5.2. Social Factors

In one prior study, except for negative evaluation, it mentioned that greater feedback of body acceptance by others and an emphasis on the functionality of the body were found to be significant predictors of increased appreciation for one's own body, thereby facilitating the promotion of intuitive eating [10].

For peer appearance teasing and weight criticism of others, few research of restrained eating on specific occupation, based on the two research[10,11], with the overlap of young female, peer evaluation on weight-related stuff and identity threat, this study can make two inference.

- a) The comparison between peers can result in direct or indirect evaluation on body, such as direct speech judgement or put the eyes on somebody unfriendly, this will make people put more attention on their body shape. If the evaluation is negative, it will cause body dissatisfaction, even develop into threat of occupational identity, ultimately force people to find strategies to fight back the threat. If the evaluation is positive, then is beneficial for building confidence on one's body.

b) Based on self-objectification, also combining the particularity of specific occupation, human body plays the most important role in performance. And the audience regard human body as an objective media for spreading art, which contributing to self-objectification. That is, when people see their bodies as object to be evaluated, they will have less emotional attitude toward their body ,and put more attention on the appearance.

According to the interference, to reduce unreasonable restrained eating, people should first avoid vicious competition. It is common and essential to pursuit a good figure in specific occupation, as it is good for career development and even contribute to society's aesthetic standards. So, to avoid restrained eating completely is unreasonable. And around peers, instead of focusing on appearance, it is more important to evaluate their professional level. Since human body is the base of art and sport, people should always put both mental and physical health on the first place.

5.3. Attentional Bias

Specific occupation requires them to keep a good figure during the whole career, so they always stay in a state of food deprivation, which leads to a higher susceptibility to food cues. So, they pay more attention to food cues in daily life, but a long period of attentional bias without obtains the food may result in counterintentional effects, that is, things would happen in the opposite way of your original goal. Although people of these specific occupation are supposed to avoid high calorie food cues, but in fact food cues has the priority in cognitive resources. If the craving for food steps in front of the goal to lose weight, it will likely result in the failure of restraint.

5.4. Self-regulatory Resource Depletion

In the definition of specific occupation, the author mentions that except for weight control, these groups of people must accomplish high intensity job, such as daily exercise, participate in sports competition. Most of the task are boring and tiring, which obviously require self-control ability. That is, the job itself will consume a large amount of self-regulatory resource, Therefore, the impact of self-control resource depletion on specific occupation groups may be more significant. At the same time, the result of restrained eating has a direct influence on their career achievement, so the susceptibility to failure of restraint is higher than in normal people. Fear of failure might stimulate them to break the psychological boundary of eating, finally resulting in self-abandonment.

After ego depletion, inner motivations exert a greater influence on behavior. That is, in other words, whether there will be a failure of restraint in the end depends on your internal attitude towards restrained eating.

Combine the three-dimension, inhibitory control ability, internal motivation and eating boundary together, the study come up with an explanation for why restrained eater turn to overeating.

Starting with the result of restrained eating, when successful restrained eaters are confronting with food cues, their inhibitory control ability will be enhanced, which can be seen as the positive effect of specific occupation requirement. It makes people think that keeping fit and avoiding high-calorie foods are reasonable requirements, so there is an intrinsic motivation for self-requirements.

But when unsuccessful restrained eaters are confronted with food cues, their inhibitory control ability will be weakened, which can be seen as the negative effect brings by specific occupation, such as the great pressure of maintain an extreme low weight.

According to the Boundary Model, the dietary boundary they set for themselves is triggered by psychological needs, which can be easily influenced by external factors. Meanwhile, long-term restrained eating makes people less sensitive of their original physiological boundary, so under the great pressure of failing, it is easy to break the eating boundary and eventually lead to overeating.

5.5. Body Surveillance

Body surveillance behavior such as repeated weight themselves, always looking in the mirror and keep comparing with peers. But as a specific occupational group, it is inevitable to surveil their body shape, which is a contradiction for them. Because constant surveillance can cause body dissatisfaction, but if not, there is a chance that people will relax their figure control. What is important is that the attitude towards body surveillance, is seen as a normal behavior then it would not turn into a bad thing.

6. Conclusion

Through analysis of the present study, the author infers that the ordinary research on restrained eaters can to some extent explain the overeating behavior of specific occupational group.

Meanwhile, for the particularity of specific occupation, such as inevitable peer competition, repeated body surveillance and strong intensity exercise while dieting, the study have a detailed discussion about the specific factors.

Based on the exposition above, the study suggests keeping people (like dance student, figure skater) away from negative weight-related comment by peers during the developmental stage. Also confront your own body with the right attitude and restrain eating based on physical health. Additionally, specific occupational group can choose a more scientific method to restrain their eating.

Future research could be based on the inference, conducting experiment to investigate the specific mechanism behind overeating in specific occupational group.

For instance, are the self-regulatory resource expended in the confront of food that same as expended in the strong intensity training? Perhaps weight criticism is not entirely negative but has a tipping point. Before the tipping point, weight criticism is good for keeping weight, over the tipping, it will have a negative effect on individuals. The tipping point may be measured by the perception of depression.

References

- [1] Fedoroff, I. D., Polivy, J., & Herman, C. P. (1997). *The effect of pre-exposure to food cues on the eating behavior of restrained and unrestrained eaters*. *Appetite*, 28(1), 33–47.
- [2] Dondzilo, L., Mills, C., Pollitt, S., & MacLeod, C. (2022). *Enhanced capacity to switch but not to maintain: The basis of attentional bias to high calorie foods in restrained eaters*. *Appetite*, 172, 105969.
- [3] Neimeijer, R., De Jong, P. J., & Roefs, A. (2013). *Temporal attention for visual food stimuli in restrained eaters*. *Appetite*, 64, 5–11.
- [4] Merson, B., & Pezdek, K. (2016). *Response inhibition and interference suppression in restrained eating*. *Journal of Applied Research in Memory and Cognition*, 5(3), 345–351.
- [5] Su, Yanhua. (2017). *Brain Mechanisms of Inhibitory Control in Successful and Failed Restrictive Dieters* (Doctoral Dissertation, Southwest University).
- [6] Cunningham, P. M., Roe, L. S., Pearce, A. L., Keller, K. L., & Rolls, B. J. (2024). *Poorer inhibitory control was related to greater food intake across meals varying in portion size: A randomized crossover trial*. *Appetite*, 194, 107168.
- [7] Zhou, Y., Gao, X., Chen, H., & Kong, F. (2017). *High-disinhibition restrained eaters are disinhibited by self-regulatory depletion in the food-related inhibitory control*. *Eating behaviors*, 26, 70–75.
- [8] Hofmann, W., Rauch, W., & Gawronski, B. (2007). *And deplete us not into temptation: Automatic attitudes, dietary restraint, and self-regulatory resources as determinants of eating behavior*. *Journal of Experimental Social Psychology*, 43(3), 497–504.
- [9] Liu, C. Y., Tseng, M., Chang, C. H., Fang, D. D., & Lee, M. (2016). *Comorbid psychiatric diagnosis and psychological correlates of eating disorders in dance students*. *Journal of the Formosan Medical Association*, 115(2), 113–120.
- [10] Vella-Zarb, R. A., & Mills, J. S. (2011). *Weight criticalness of others in restrained and unrestrained eaters*. *Body Image*, 8(2), 157–162.

- [11] Wang, Y., Qiao, X., Wang, J., Wang, H., & Lei, L. (2022). *Peer Appearance Teasing and Restrained Eating Among Chinese Adolescent Girls: A Mediation Model of Fear of Negative Appearance Evaluation and Body Surveillance*. *Child psychiatry and human development*, 10.1007/s10578-022-01478-6. Advance online publication.