

PHYSIOLOGICAL AND PSYCHOLOGICAL EFFECTS ON INTUITIVE EATING SEZGİSEL YEMENİN FİZYOLOJİK VE PSİKOLOJİK ETKİLERİ

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ABSTRACT

Eating behavior is a behavior that is easily affected by the individual's lifestyle, social environments and emotional state. Intuitive eating is; It is a nutritional approach that the individual performs only in response to physical hunger and satiety signals without being affected by other stimuli. Intuitive eating is a new understanding of nutrition as an alternative to strict diet programs that tell individuals what foods to eat at what times and in what quantities. In intuitive eating, the individual's dietary guide is only his own body. Physiological signals from the body direct the person to the right food at the most appropriate time. Intuitive eating is a more sustainable method than dieting because it does not contain certain restrictions and is more effective in maintaining ideal body weight in the long run. In contrast to traditional weight loss methods, intuitive eating is thought to be a new intervention in the prevention and treatment of obesity. Intuitive eating behavior is associated with lower body mass index, lower blood pressure, and ideal cholesterol levels. From a psychological point of view, it has been seen that individuals who eat intuitively are negatively associated with body image disorders and eating disorders. There are many studies that include the effects of intuitive eating, which emerged as an approach to diet logic, on physiological and psychological health. Future studies are expected to reveal many more positive effects of intuitive eating on the human body. In this review, the effects of intuitive eating on human psychology and physiology are summarized.

Keywords: Intuitive Eating, Eating Behavior, Diet, Psychology Health, Physiology Health

ÖZET

Yeme davranışı, bireyin yaşam tarzından, sosyal çevresinden ve duygusal durumundan kolaylıkla etkilenen bir davranıştır. Sezgisel yeme, bireyin diğer uyaranlardan etkilenmeden sadece fiziksel açlık ve tokluk sinyallerine tepki olarak gerçekleştirdiği beslenme yaklaşımıdır. Sezgisel yeme, bireylere hangi yiyecekleri ne zaman ve ne miktarda yemeleri gerektiğini söyleyen katı diyet programlarına alternatif olarak yeni bir beslenme anlayışıdır. Sezgisel yemede bireyin beslenme rehberi sadece kendi bedenidir. Vücuttan gelen fizyolojik sinyaller, kişiyi en uygun zamanda doğru besine yönlendirir. Sezgisel beslenme, belirli kısıtlamalar içermediği ve uzun vadede ideal vücut ağırlığını korumada daha etkili olduğu için diyeteye göre daha sürdürülebilir bir yöntemdir. Geleneksel kilo verme yöntemlerinin aksine, sezgisel yemenin obezitenin önlenmesi ve tedavisinde yeni bir müdahale olduğu

düşünülmektedir. Sezgisel yeme davranışı, daha düşük vücut kitle indeksi, daha düşük kan basıncı ve ideal kolesterol seviyeleri ile ilişkilidir. Psikolojik açıdan bakıldığında sezgisel olarak yemek yiyen bireylerin beden imajı bozuklukları ve yeme bozuklukları ile olumsuz ilişkili olduğu görülmüştür. Diyet mantığına yönelik bir yaklaşım olarak ortaya çıkan sezgisel yemenin fizyolojik ve psikolojik sağlık üzerindeki etkilerini içeren birçok çalışma bulunmaktadır. Gelecekteki çalışmaların, sezgisel yemenin insan vücudu üzerindeki daha birçok olumlu etkisini ortaya çıkarması bekleniyor. Bu derlemede sezgisel yemenin insan psikolojisi ve fizyolojisi üzerindeki etkileri özetlenmiştir.

Anahtar Kelimeler: Sezgisel Yeme, Yeme Davranışı, Diyet, Psikoloji Sağlık, Fizyoloji Sağlık

INTRODUCTION

Eating is an action that starts from infancy and continues throughout life. This action may cause under/overnutrition and/or eating disorders (Canetti et al. 2002). While individuals meet their nutritional needs, many factors affect their actions. Emotional eating is defined as the eating action of individuals in response to emotional changes. Even in cases where the person does not feel hungry to get away from bad feelings, he performs the act of eating to get pleasure and repeats this act constantly (Geliebter, 2003; Wu, 2018). Contrary to traditional eating patterns, more attention has been drawn recently to the important effects of adaptive eating behaviors on health. (Linardon and Mitchell, 2017). Making conscious food choices by listening to the hunger and satiety signals created by the body creates a mindful eating style (Dalen et al. 2010). Intuitive eating is defined as a sustainable eating pattern based on awareness and response to internal cues with the capacity to support long-term health outcomes. Intuitive Eating is defined as “the harmony of mind, body, and food integrated with the dynamic process”. Adaptation to hunger and satiety signals is necessary for food intake control in intuitive eating. Therefore, inner awareness must be strong. Evelyn Tribole and Elyse Resch described this new nutritional approach in 1995. (Cadena-Schlam and López-Guimerà, 2014). Studies have shown that intuitive eating has health effects. For example, body acceptance is associated with blood pressure control and increased levels of physical activity. Weight control and loss is the most important effect of intuitive eating (Andrew et al. 2016).

Ten principles of intuitive eating

According to Evelyn Tribole and Elyse Resch, who developed the intuitive eating phenomenon, intuitive eating includes 10 principles. These principles are: “Denying the diet mentality”, “Honor your hunger”, “Making peace with food”, “Challenge the food police”, “Discovering satisfaction factors”, “Feeling your fullness”, “Coping with emotions without turning to food”, “Respect for the body”, “Feeling the difference by exercising”, “Honoring your health and eating indulgently” (Tribole and Resch, 2016).

Denying the diet mentality

Although calorie restriction is an effective way to control weight in overweight and obese adults, calorie restriction is not recommended for weight loss in children and adolescents who are still growing and developing [8]. Intuitive eaters do not accept the diet mentality. Because diet restricts what, when and how much they should eat. However, intuitive eaters make delicious food choices while choosing what is healthy for their bodies (Van Dyck et al. 2016).

Honor your hunger

Physiologically, the hunger that occurs when there is no energy left in the body is called homeostatic hunger (Lutter and Nestler, 2009). If the homeostatic hunger signal is not responded to in time, the overeating instinct will be triggered and conscious eating behavior will not be exhibited in case of hunger (Keith et al. 2006). Intuitive eating theorizes that the individual focuses on eating whatever he wants, it is his body's natural way of telling what it needs, he avoids eating for emotional and environmental cues, he is aware of the body's level of satiety. Intuitive eating encourages respect and honor of bodily signals (Linaardon and Mitchell, 2017).

Making peace with food

The approach of intuitive eating is to encourage acceptance of all foods rather than categorizing foods as acceptable or unacceptable. It takes as a guideline to focus on the inner cues of hunger and fullness for food. Increasing awareness of internal cues as guides for eating is a common goal in treating the eating disorder and obesity (Healy et al. 2015).

Challenge the food police

The fourth principle of intuitive eating aims to challenge the eating rules that cause guilt and anxiety while eating and to activate the sense of intuitive eating (Li, 2018). Intuitive eating encourages you to turn negative thoughts into positive ones. Rather than categorizing food as good or bad, it is concerned with what individuals actually want and what their bodies are hungry for. Intuitive eating challenges the food police by preventing individuals from interpreting the food they want to eat as good or bad (Healy et al. 2015).

Discovering satisfaction factors

Discovering the satisfaction factor increases the pleasure of eating and makes the eating experience more enjoyable. Feeling the feeling of satisfaction while consuming the meal reduces the desire to eat later (Herbert et al. 2013). Tribole and Resch argue that individuals who eat intuitively are less preoccupied with food and less likely to categorize food as good or bad, instead choosing foods for overall satisfaction, health, energy, performance, and stamina (Tylka et al. 2015).

Feeling your fullness

When physiological saturation is felt, the individual should listen to the signals his body sends to him. While consuming the food, the person should continue to eat or stop eating by listening to the signals coming from his body (Li, 2018). Lack of awareness can be overcome by developing an intuitive eating style. Individuals with binge eating disorder may have trouble perceiving fullness. Intuitive eating tends to be aware of cues of satiety as well as appetite (Bennett & Latner, 2022).

Coping with emotions without turning to food

Emotional factors can also trigger behaviors related to food choice and food intake. Although emotional eating is generally associated with negative emotions such as anxiety, depression, loneliness, anger, and boredom, it is also closely related to positive emotions such as happiness, excitement, and satisfaction (Li, 2018). Those with eating disorders tend to eat for external or emotional reasons. Unlike intuitive eaters, individuals with eating disorders rely on diet plans and their feelings of eating rather than body signals. Therefore, lower intuitive eating scores are expected in individuals with eating disorders (Van Dyck et al. 2016).

Respect for the body

There is a positive relationship between intuitive eating and respect for the body. Intuitive eaters show respect to their bodies, knowing how to focus on their inner impulses and listen to hunger-fullness signals. Respecting the body means accepting the body it is in and having a positive attitude towards it. Individuals who do not respect their bodies show behaviors to stay away from their own bodies, but also to be too busy and control their bodies (Linaardon and Mitchell, 2017). It has been observed that individuals who rely on their bodies to eat at the right time are less likely to have an eating disorder (Healy et al. 2015).

Feel the difference by exercising

Intuitive eating has been effective in reducing dietary restriction and the urge to be thin, as well as increasing physical activity, body satisfaction, and quality of life (Bennett and Latner, 2022). Intuitive eaters don't see exercise as just a waste of energy and weight loss. They are encouraged to focus on the enjoyment of exercise. Thus, it was observed that the duration of exercise increased (Gast et al. 2012).

Honoring your health and eating indulgently

Intuitive eaters focus on what their body is feeling. They value body functions more than their outward appearance. They make healthy food choices and exercise to honor their bodies (Gast et al. 2012). In intuitive eating, the body self-regulates its calorie needs by sending signals to eat the type and amount of food it needs to maintain its weight (Bas et al. 2017). In a population study, intuitive eating was not associated with the intake of more nutritious foods. But the findings point to intuitive eating as a new approach to promoting nutritional health. More research is needed to know the potential effects of intuitive eating. (Jackson et al. 2022).

Main components of intuitive eating

1. People who focus solely on their body's cravings do not categorize foods as good or bad. They do not form emotional bonds with any food (Ndahimana and Kim, 2018).
2. Physical hunger is not confused with emotional hunger. The act of eating is performed for physical hunger, not to cope with emotions (Stewart et al. 2002).
3. Natural signals generated by the body determine food selection and timing. However, these signals need to be reliable for intuitive eating (Stewart et al. 2002).
4. Body-food choice fit has been defined recently. This consists of using nutrition that includes respectful behaviors toward the body to guide food choices that meet both physical and sensory needs (Stewart et al. 2002).

Intuitive eating scales

Intuitive eating is evaluated with intuitive eating scales as a solution to impaired eating behavior (Tylka et al. 2015). Intuitive eating scale scores are negatively associated with eating disorder symptoms, body dissatisfaction, and body weight. Body appreciation, like self-esteem, is positively associated with psychological well-being (Van Dyke and Drinkwater, 2014). Most research reports examining intuitive eating behavior show significant differences in intuitive eating scores between men and women. Men seem to have higher intuitive eating scores than women on intuitive eating scales (Roman et al. 2021). Hawks et al. created the first intuitive nutrition scale. It contains 27 items addressing the 4 stages of behavior. These stages are: 1- the ability to recognize the physiological signs of hunger, fullness, and satiety, 2- eating what one wants from too much food, 3- rejecting the diet mentality, 4- giving more

importance to health and strength than appearance (Van Dyke and Drinkwater, 2014). The intuitive eating scale-2 consists of 4 subscales. 1- allowing to eat unconditionally, 2- eating for physical needs rather than emotional reasons, 3- relying on hunger-fullness signals, 4- choosing the right food for the body. The 1st scale includes 6 items, the 2nd scale includes 8 items, the 3rd scale includes 6 items, and the 4th scale includes 3 items. Each item is rated from 1- strongly agree to 5- strongly disagree. The mean score of each subscale (in the range of 1-5) is calculated. High scores indicate a high level of intuitive eating (Malachowska and Jeżewska-Zychowicz, 2022). Individuals who score high on the intuitive eating scale do not exhibit eating behavior as a solution to their emotional distress (Roman et al. 2021).

Intuitive eating and psychological health

Diet has been shown as a risk factor for psychological health problems such as depression and eating disorders. Restraint theory argues that by preventing the feeling of internal hunger, it causes overeating by increasing the response to external stimuli (Hazzard et al. 2021). It has been reported that individuals with bulimia nervosa are on a diet before a binge eating attack. This condition has also been associated with individuals with anorexia nervosa (Hilbert et al. 2014). Since the long-term efficacy of the diet has not been found to be effective, alternative ways need to be found (Hazzard et al. 2021). Intuitive eating has been proposed for a positive eating-body relationship with a focus on internal balance, independent of stereotypical eating rules. Intuitive eating versus impaired body image has been associated with low body dissatisfaction and positive body image in individuals with eating disorders. Overall findings support the association of intuitive eating with positive eating behavior, improved mood, and improved body image (Carrard et al. 2021). Regardless of one's body mass index, reduced anxiety about body weight and shape is associated with more intuitive eating. The most important reason for this is that the person frees himself by eating and focusing on his inner hunger. Being too concerned with the body weight and shape of the individual prevents him from eating comfortably by listening to his physiological needs. These individuals eat more food than their physiological needs and follow more diets (Keirns and Hawkins, 2019). Internal perception is the brain's perception of the feedback from internal organs. According to these perceptions, the body exhibits adaptive behaviors. Individuals with anorexia nervosa may have less intrinsic sensitivity. The inability to perceive and apply body signals is a factor in the onset and maintenance of anorexia nervosa. In a study, it was observed that increased inner sensitivity and intuitive eating may contribute to healthy weight gain in patients with anorexia nervosa and to ideal weight in healthy individuals (Richard et al. 2019). In a Portuguese population study, intuitive eating significantly moderated the association between negative affect and the symptomatology of binge eating (Duarte et al. 2016). Diet negatively affects psychological health along with depression and eating disorders (Hazzard et al. 2021). Emotional eating has many factors. The individual's having impaired eating behavior, increased body weight and depression are among these factors. Emotional eating behavior is more common in women, as depression is more common in women than in men (Deveci B, 2017; Tan, 2014). In a study comparing a group using non-diet methods and a group on a diet, significant improvements were made in the treatment of depression in both groups. An increase in the self-esteem of individuals in the non-diet groups was observed. Although body image avoidance improved significantly in both groups, these improvements were greater in the non-diet group (Bacon et al. 2002). Intuitive eating has been associated with lower obsessive thoughts, depression, and anxiety (Tylka and Kroon Van Diest, 2013).

Intuitive eating and physiological health

There are cross-sectional studies showing that intuitive eating is associated with lower body weight. In the 2010-2018 cohort, which was followed for 8 years from adolescence to adulthood, intuitive eaters were found to be less likely to display unhealthy eating behaviors. Cross-sectional studies have noted that intuitive eating is associated with constant body weight. In a 5-year follow-up study, intuitive eating was associated with a lower risk of weight gain in both male and female participants (Christoph et al. 2021). In a study investigating the effect of body mass index on the relationship between intuitive eating and body image, the relationship between intuitive eating and body image was found to be strongest in healthy individuals with normal body mass index. Only up to a certain body mass index does intuitive eating have a positive relationship with body image. Although eating for physical needs is one of the goals of intuitive eating, hunger, and satiety signals disrupted by increased body mass index can complicate this situation (Keirns and Hawkins, 2019). Individuals with a higher BMI (body mass index) value were found to have a higher appreciation of functionality. With an increased BMI (body mass index) value, individuals rely less on hunger and satiety signals and thus can respond more to external stimuli (Argyrides and Anastasiades, 2022). In a 1-week study in the elderly group, low triglyceride levels were seen with intuitive eating. Intuitive eating may be an intervention to prevent cardiovascular disease (Teas et al. 2022). Intuitive eating is associated with lower cholesterol and blood pressure (Denny et al. 2013). A study of American-African women with type 2 diabetes found that intuitive eating was likely to benefit these patients, and adherence to intuitive eating was associated with glycemic control. Statistically significant weight loss was observed in both men and women as a result of intuitive eating attempts. In addition, these individuals showed reduced emotional eating behavior, greater self-efficacy, and lower CRP (C-reactive protein) levels (Richardson et al. 2015). In cross-sectional analyzes performed at postpartum 1 year in women with gestational diabetes, intuitive eating was inversely proportional to BMI (body mass index), and body insulin sensitivity was directly proportional. Higher subscale scores during pregnancy increased adherence to higher consumption of milk, dairy products, fruit, and fiber after pregnancy (Quansah et al. 2022). Weight loss is recommended in the treatment of obesity. However, individuals who can achieve weight loss may experience weight gain and psychological wear again. The aim of non-dietary treatment is to provide health improvements without weight loss in individuals who cannot achieve weight loss or weight control, and to minimize psychological wear in individuals who can achieve weight loss (Bacon et al. 2002). Chronic dieting can disable the body's naturally generated regulatory signals. In this case, individuals are prevented from establishing a healthy relationship with food. Intuitive eating is an adaptive eating behavior that increases the motivation of the individual for a healthy diet and supports the positive relationship between food and the body (Roman et al. 2021). The application of intuitive eating in the treatment of eating disorders can promote healthy eating behaviors while reducing the risk of obesity. The principle of unconditional eating, which is one of the main components of intuitive eating, has been associated with high restriction, increased BMI (body mass index), and disordered eating behaviors, although it does not comply with traditional weight loss behavior (Anderson et al. 2016). A calorie-restricted diet is followed to achieve weight loss. At the same time, physical activity is increased to support weight loss by increasing the energy burned. Intuitive eating includes feeling the difference by exercising, but 3 cross-sectional studies did not find a significant relationship between intuitive eating and physical activity (Van Dyke and Drinkwater, 2014). Instead of focusing on weight loss for obese individuals, curative health behavior changes are recommended. There is evidence of the importance of healthy lifestyle change without weight loss to prevent or minimize the

adverse effects caused by obesity-related diseases. The obesity treatment model supports homeostatic regulation and an intuitive focus on eating rather than cognitively restricting food intake (Jackson et al. 2022). Although higher levels of intuitive eating are associated with lower body mass index, it is possible that higher weight may directly or indirectly reduce sensitivity to intrinsic cues, making intuitive eating less attainable (Carrard et al. 2021).

CONCLUSION

Studies have found that intuitive eating has positive effects on both psychological and physiological health. Intuitive eating is associated with weight loss and weight control. It has effects on improving psychological health. Impaired eating behavior is a risk factor for eating disorders. Intuitive eating aims to correct impaired eating behavior by only listening to the body, without considering environmental factors. Improved eating behavior prevents eating disorders and emotional eating. Although there is no definite information about physical activity levels, which is one of the basic principles of intuitive eating, more research is needed on this subject. Intuitive eating versus restrictive diets may have positive implications for obesity treatment. For this, more studies should be conducted investigating the effects of intuitive eating on weight loss. Therapeutic applications used in weight loss and eating disorders and the development of intuitive eating principles as a whole are promising for new treatment applications. More extensive research is needed on this subject.

REFERENCES

- Anderson, L. M., Reilly, E. E., Schaumberg, K., Dmochowski, S., & Anderson, D. A. (2016). Contributions of mindful eating, intuitive eating, and restraint to BMI, disordered eating, and meal consumption in college students. *Eating and weight disorders: EWD*, 21(1), 83–90.
- Andrew, R., Tiggemann, M., & Clark, L. (2016). Predicting body appreciation in young women: An integrated model of positive body image. *Body image*, 18, 34–42.
- Argyrides, M., & Anastasiades, E. (2022). Intuitive eating in Greek-Cypriot adults: Influence of gender and body mass. *Frontiers in psychology*, 13, 1033720.
- Bacon, L., Keim, N. L., Van Loan, M. D., Derricote, M., Gale, B., Kazaks, A., & Stern, J. S. (2002). Evaluating a 'non-diet' wellness intervention for improvement of metabolic fitness, psychological well-being and eating and activity behaviors. *International journal of obesity and related metabolic disorders: journal of the International Association for the Study of Obesity*, 26(6), 854–865.
- Bas, M., Karaca, K. E., Saglam, D., Arıtcı, G., Cengiz, E., Köksal, S., & Buyukkaragoz, A. H. (2017). Turkish version of the Intuitive Eating Scale-2: Validity and reliability among university students. *Appetite*, 114, 391–397.
- Bennett, B. L., & Latner, J. D. (2022). Mindful eating, intuitive eating, and the loss of control over eating. *Eating behaviors*, 47, 101680.
- Cadena-Schlam, L., & López-Guimerà, G. (2014). Intuitive eating: an emerging approach to eating behavior. *Nutricion hospitalaria*, 31(3), 995–1002.
- Canetti, L., Bachar, E., & Berry, E. M. (2002). Food and emotion. *Behavioural processes*, 60(2), 157–164.

Carrard, I., Rothen, S., & Rodgers, R. F. (2021). Body image concerns and intuitive eating in older women. *Appetite*, 164, 105275.

Christoph, M., Järvelä-Reijonen, E., Hooper, L., Larson, N., Mason, S. M., & Neumark-Sztainer, D. (2021). Longitudinal associations between intuitive eating and weight-related behaviors in a population-based sample of young adults. *Appetite*, 160, 105093.

Dalen, J., Smith, B. W., Shelley, B. M., Sloan, A. L., Leahigh, L., & Begay, D. (2010). Pilot study: Mindful Eating and Living (MEAL): weight, eating behavior, and psychological outcomes associated with a mindfulness-based intervention for people with obesity. *Complementary therapies in medicine*, 18(6), 260–264.

Demirci, N., Yıldırım, İ., Toptaş Demirci, P. And Ersöz, Y. (2018). Why Should We Do Physical Activity? More Active People For A Healthier World. *Int J Disabil Sports Health Sci*;1(2);1-14

Denny, K. N., Loth, K., Eisenberg, M. E., & Neumark-Sztainer, D. (2013). Intuitive eating in young adults. Who is doing it, and how is it related to disordered eating behaviors?. *Appetite*, 60(1), 13–19.

Deveci, B., Avcikurt, C. (2017). Eating behavior: An investigation on gastronomy and culinary arts pupils. *Journal of Tourism and Gastronomy Studies*, 5(3):118-134

Duarte, C., Pinto Gouveia, J., & Mendes, A. (2016). Psychometric Properties of the Intuitive Eating Scale -2 and Association with Binge Eating Symptoms in a Portuguese Community Sample. *International Journal of Psychology and Psychological Therapy*, 16(3),329-341.[fecha de Consulta 26 de Marzo de 2023]. ISSN: 1577-7057.

Fletcher, GF., Landolfo, C., Niebauer, J., Ozemek, C., Arena, R., Lavie, CJ. (2018). Promoting physical activity and exercise: JACC health promotion series. *J Am Coll Cardiol* 2018;72(14):1622-1639.

Gast, J., Madanat, H., & Nielson, A. C. (2012). Are men more intuitive when it comes to eating and physical activity?. *American journal of men's health*, 6(2), 164–171.

Geliebter, A., & Aversa, A. (2003). Emotional eating in overweight, normal weight, and underweight individuals. *Eating behaviors*, 3(4), 341–347.

Hazzard, V. M., Telke, S. E., Simone, M., Anderson, L. M., Larson, N. I., & Neumark-Sztainer, D. (2021). Intuitive eating longitudinally predicts better psychological health and lower use of disordered eating behaviors: findings from EAT 2010-2018. *Eating and weight disorders: EWD*, 26(1), 287–294.

Healy, N., Joram, E., Matvienko, O.A., Woolf, S., & Knesting, K. (2015). Impact of an Intuitive Eating Education Program on High School Students' Eating Attitudes. *Health Education*, 115, 214-228.

Herbert, B. M., Blechert, J., Hautzinger, M., Matthias, E., & Herbert, C. (2013). Intuitive eating is associated with interoceptive sensitivity. Effects on body mass index. *Appetite*, 70, 22-30.

Hilbert, A., Pike, K. M., Goldschmidt, A. B., Wilfley, D. E., Fairburn, C. G., Dohm, F. A., Walsh, B. T., & Striegel Weissman, R. (2014). Risk factors across the eating disorders. *Psychiatry research*, 220(1-2), 500–506.

Jackson, A., Sano, Y., Parker, L., Cox, A. E., & Lanigan, J. (2022). Intuitive eating and dietary intake. *Eating behaviors*, 45, 101606.

Keirns, N. G., & Hawkins, M. A. W. (2019). The relationship between intuitive eating and body image is moderated by measured body mass index. *Eating behaviors*, 33, 91–96.

Keith, S. W., Redden, D. T., Katzmarzyk, P. T., Boggiano, M. M., Hanlon, E. C., Benca, R. M. & Allison, D. B. (2006). Putative contributors to the secular increase in obesity: exploring the roads less traveled. *International Journal of Obesity*, 30(11), 1585-1594.

Li, Y. (2018). Using a non-diet approach to prevent overweight and obesity among 6 th to 8 th grade youth in a low-income racial/ethnic community in Kansas. Kansas State University.

Linardon, J., & Mitchell, S. (2017). Rigid dietary control, flexible dietary control, and intuitive eating: Evidence for their differential relationship to disordered eating and body image concerns. *Eating behaviors*, 26, 16–22.

Liu, Y., Lee, DC., Li, Y., et al. (2019). Associations of resistance exercise with cardiovascular disease morbidity and mortality. *Med Sci Sports Exerc*;51(3):499-508.

Lutter, M., & Nestler, E. J. (2009). Homeostatic and hedonic signals interact in the regulation of food intake. *The Journal of Nutrition*, 139(3), 629-632.

Małachowska, A., & Jeżewska-Zychowicz, M. (2022). Polish Adaptation and Validation of the Intuitive (IES-2) and Mindful (MES) Eating Scales-The Relationship of the Concepts with Healthy and Unhealthy Food Intake (a Cross-Sectional Study). *Nutrients*, 14(5), 1109.

Ndahimana, D., & Kim, E. K. (2018). Energy Requirements in Critically Ill Patients. *Clinical nutrition research*, 7(2), 81–90.

Quansah, D. Y., Schenk, S., Gilbert, L., Arhab, A., Gross, J., Marques-Vidal, P. M., Gonzalez Rodriguez, E., Hans, D., Horsch, A., & Puder, J. J. (2022). Intuitive Eating Behavior, Diet Quality and Metabolic Health in the Postpartum in Women with Gestational Diabetes. *Nutrients*, 14(20), 4272.

Richard, A., Meule, A., Georgii, C., Voderholzer, U., Cuntz, U., Wilhelm, F. H., & Blechert, J. (2019). Associations between interoceptive sensitivity, intuitive eating, and body mass index in patients with anorexia nervosa and normal-weight controls. *European eating disorders review : the journal of the Eating Disorders Association*, 27(5), 571–577.

Richardson, B. S., Willig, A. L., Agne, A. A., & Cherrington, A. L. (2015). Diabetes Connect: African American Women's Perceptions of the Community Health Worker Model for Diabetes Care. *Journal of community health*, 40(5), 905–911.

Román, N., Rigó, A., Gajdos, P., Tóth-Király, I., & Urbán, R. (2021). Intuitive eating in light of other eating styles and motives: Experiences with construct validity and the Hungarian adaptation of the Intuitive Eating Scale-2. *Body image*, 39, 30–39.

Stewart, T. M., Williamson, D. A., & White, M. A. (2002). Rigid vs. flexible dieting: association with eating disorder symptoms in nonobese women. *Appetite*, 38(1), 39–44.

Tan, C. C., & Chow, C. M. (2014). Stress and emotional eating: The mediating role of eating dysregulation. *Personality and Individual Differences*, 66, 1–4.

Teas, E., Kimiecik, J., Ward, R. M., & Timmerman, K. (2022). Intuitive Eating and Biomarkers Related to Cardiovascular Disease in Older Adults. *Journal of nutrition education and behavior*, 54(5), 412–421.

Tribole E, R. E. (2016). *Intuitive eating: A revolutionary program that works*. 3rd edition, N.Y.: St. Martin's Press.

Tylka, T.L. (2006) Development and Psychometric Evaluation of a Measure of Intuitive Eating. *Journal of Counseling Psychology*, 53, 226-240.

Tylka, T. L., & Kroon Van Diest, A. M. (2013). The Intuitive Eating Scale-2: item refinement and psychometric evaluation with college women and men. *Journal of counseling psychology*, 60(1), 137–153.

Tylka, T. L., Calogero, R. M., & Daniélsdóttir, S. (2015). Is intuitive eating the same as flexible dietary control? Their links to each other and well-being could provide an answer. *Appetite*, 95, 166–175.

Van Dyck, Z., Herbert, B. M., Happ, C., Kleveman, G. V., & Vögele, C. (2016). German version of the intuitive eating scale: Psychometric evaluation and application to an eating disordered population. *Appetite*, 105, 798–807.

Van Dyke, N., & Drinkwater, E. J. (2014). Relationships between intuitive eating and health indicators: a literature review. *Public health nutrition*, 17(8), 1757–1766.

Wu, J., Willner, C. J., Hill, C., Fearon, P., Mayes, L. C., & Crowley, M. J. (2018). Emotional eating and instructed food-cue processing in adolescents: An ERP study. *Biological psychology*, 132, 27–36.