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Emotional overeating and eating motives during COVID-19 in Polish women: Intergroup comparison among participants in various body mass index categories

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Abstract

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Keywords

emotional overeating, eating motives, COVID-19, body mass index

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Article

Emotional overeating and eating motives during COVID-19 in Polish women: Intergroup comparison among participants in various body mass index categories

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Abstract. Introduction: Taking into account the situation of the COVID-19 pandemic and the accompanying lockdown resulting in increased negative emotions, it is interesting to learn about eating motives and behaviors and check their intensity. The aim of this study was to investigate the differences between Polish women in various body mass index categories in terms of eating motives and emotional overeating during the COVID-19 pandemic. Material and methods: This study sample comprised 1,447 women ($M_{age} = 31.34 \pm 11.05$; $M_{BMI} = 23.79 \pm 4.59$). The research used the following tools: the Eating Motivation Survey, the Emotional Overeating Questionnaire, and socio-demographic questions. Results: Focusing on selected significant outcomes, women with obesity had a higher level of emotional overeating and affect regulation related-eating motive and a lower level of need & hunger- and health-related eating motives than women with normal body weight. Conclusions: In view of the results of this and other eating-behavior-related studies, it is worth considering the possibility of additional researches related to the COVID-19 pandemic and other crisis situations. Eating behaviors are an important aspect of maintaining proper mental and physical health of people, so it is worth remembering that public healthcare professionals (such as psychologists, nutritionists, and primary care physicians) can effectively help reduce incorrect eating behaviors.

Keywords: secular trends, underweight, overweight, physical fitness, girls, boys.

1. Introduction

The COVID-19 pandemic affected the daily lives of most people in the world for over a year. Lockdown restrictions, uncertainty about the future, and feelings of helplessness caused increased stress [1, 2]. Mostly environmental stressors were experienced, but it is important to note that there were individual differences in their severity, amount, and physiological and behavioral responses [3]. The World Health Organization [4] indicates that human functioning was severely disrupted, including that related to eating behaviors [5–8].

Nowadays, eating is treated by many people as a social activity, also as a method of coping with a negative situation or negative emotions and as a rewarding method [9]. Despite the many outcomes already available, the relationship between emotions and eating is still of interest to researchers around the world. It is well known that stress and negative emotions can trigger different reactions and consequences in the body – for example a sense of decreased satiety or increased appetite [10]. One of the studies indicate a positive correlation between emotional eating and body mass index (BMI), weight fluctuation, and weight gain [11]. Individuals who exhibit a higher level of emotional eating are most likely to eat for reasons other than to satisfy feelings of hunger, which subsequently can lead to obesity [12].

A change in a person's eating behavior triggered by emotions can also be motivated by some events, situations that go beyond everyday functioning [13], and the COVID-19 pandemic may be among such cases. Research shows that in these cases, most often dietary changes result in an increased intake of snacks, fast food and sugary products; moreover, they often replace regular meals [16]. This situation is also confirmed by previous studies related to the COVID-19 pandemic which read that people report a higher intake of high-calorie food [15, 16]. Also, higher food intake motivated by a desire to regulate emotional states may be a factor that increases the risk of frequent emotional overeating [17, 18]. Factors that affect food choices include psychological factors, i.e. hunger [22], sensory attraction [21], pleasure [20] and affect regulation [21].

Although studies prove that food choices do not change in adulthood [23], changes in habits are possible in the context of a changing environment, resulting in a non-automatic decision-making process [24], and the COVID-19 pandemic may be one of those situations. Other eating motives that influence consumers' decisions about food choices are health [20, 25] and liking, understood as a taste preference. On the other hand, taste preference may result in higher food consumption despite the lack of energy demand [26]. Moreover, considering that the current research indicates the body mass index (BMI) as a factor differentiating the level of motives and behavior related to food [8], it is worth making a comparison in different weight groups.

Considering the reports of previous studies related to changes in eating behaviors due to the epidemiological situation, this study aimed to explore the differences among Polish women with underweight, normal weight, overweight, and with obesity in terms of eating motives and emotional overeating during the COVID-19 pandemic. It should be emphasized that this study is exploratory because previous research related to such an aim has shown inconsistent results.

2. Materials and methods

2.1 Procedure

This study was reviewed and approved by the Committee for Ethics of the University of Bielsko-Biala (no. 2021/2/2E/2) and was performed in line with the principles of the Declaration of Helsinki. Participants were informed of their anonymous and voluntary participation in the study and the purpose of the study. They signed a consent form to participate in the study and completed an online survey. Recruitment of participants took place at workplaces and universities in Poland from January to April 2021 via flyers (e.g., paper or online flyers on social media networks). Participants were not rewarded.

2.2 Participants

Our sample was composed of 1,447 women ($M_{\text{age}} = 31.34 \pm 11.05$; $M_{\text{BMI}} = 23.79 \pm 4.59$): (a) 96 with underweight ($M_{\text{age}} = 23.14 \pm 4.85$; $M_{\text{BMI}} = 17.37 \pm 0.82$), (b) 908 with normal weight ($M_{\text{age}} = 29.59 \pm 10.30$; $M_{\text{BMI}} = 21.84 \pm 1.80$), (c) 308 with overweight ($M_{\text{age}} = 36.20 \pm 11.23$; $M_{\text{BMI}} = 27.07 \pm 1.36$), (d) 135 with obesity ($M_{\text{age}} = 37.82 \pm 11.39$; $M_{\text{BMI}} = 33.93 \pm 4.19$).

2.3 Measures

Participants completed the following measures:

(1) the Eating Motivation Survey (brief version) – it contains 45 items that measure different eating motives (liking, habits, need & hunger, health, convenience, pleasure, traditional eating, natural concerns, sociability, price, visual appeal, weight control, affect regulation, social norms, social image [27]. This scale offers a 7-point Likert-type scale (ranging from “never” to “always”). The higher the score obtained by the participants, the more strongly their eating is termed by the given motive. In this analysis, we selected only some of the subscales (liking, need & hunger, health, weight control, affect regulation and habits; for more information about the subscales, please check out the website: <http://www.health.uni-konstanz.de/eating-motivation-survey>) for which Cronbach's alpha was acceptable (> 80): $\alpha_{\text{Liking}} = 0.87$, $\alpha_{\text{Need \& Hunger}} = 0.80$, $\alpha_{\text{Health}} = 0.80$, $\alpha_{\text{Weight Control}} = 0.80$, $\alpha_{\text{Affect Regulation}} = 0.87$, $\alpha_{\text{Habits}} = 0.80$.

(2) the Emotional Overeating Questionnaire – it includes 9 items that measure overeating over the last 28 days in response to an emotional state (sadness, loneliness, anxiety, anger, tiredness, boredom, guilt, happiness) and physical pain [28]. The scores range from 0 (“no days”) to 6 (“every day”). The higher the score, the more often participants overeat under the influence of emotions and physical pain. In this analysis, Cronbach's alpha coefficient was acceptable (0.91).

(3) socio-demographic questions (including gender and age) and body mass index (BMI using self-reported and measured height and weight).

2.4 Statistical analysis

The IBM SPSS Statistics (version 26) was used to analyze our data. One-way analysis of variance (with Bonferroni multiple comparison test) in a between-group design was used to analyze the significance of differences between groups. Comparisons were made regarding eating motives and emotional overeating in the following four groups: (1) the group with underweight, (2) the group with normal weight, (3) the group with overweight, (4) the group with obesity.

3. Results

Table 1 shows the results of comparisons between women with different BMIs, taking into account emotional overeating and eating motives.

Table 1. Emotional overeating and eating motives during COVID-19 in Polish women: intergroup comparison among participants in various body mass index categories.

	1. Underweight (N = 96)	2. Normal weight (N = 908)	3. Overweight (N = 308)	4. Obesity (N = 135)	Post hoc
<i>M (SD)</i>					
<i>F(3, 1443) = 10.12, p < 0.001</i>					
Liking	16.80 (3.34)	15.22 (3.79)	14.45 (4.21)	14.47 (4.66)	1 vs 2*
					1 vs 3*
					1 vs 4*
					2 vs 3*
					2 vs 4
<i>F(3, 1443) = 6.74, p < 0.001</i>					
Habits	14.99 (3.48)	13.54 (4.14)	13.16 (4.43)	12.60 (4.54)	1 vs 2*
					1 vs 3*
					1 vs 4*
					2 vs 3
					2 vs 4
3 vs 4					

	1. Underweight (N = 96)	2. Normal weight (N = 908)	3. Overweight (N = 308)	4. Obesity (N = 135)	Post hoc
<i>M (SD)</i>					
<i>F(3, 1443) = 6.02, p < 0.001</i>					
Need & hunger	13.95 (3.75)	13.28 (3.83)	12.72 (4.08)	12.09 (4.37)	1 vs 2
					1 vs 3*
					1 vs 4*
					2 vs 3
					2 vs 4*
<i>F(3, 1443) = 14.14, p < 0.001</i>					
Health	13.76 (4.74)	13.01 (4.47)	12.13 (4.33)	10.68 (4.46)	3 vs 4
					1 vs 2
					1 vs 3*
					1 vs 4*
					2 vs 3*
<i>F(3, 1443) = 7.18, p < 0.001</i>					
Affect regulation	7.18 (3.59)	7.56 (4.00)	8.53 (4.65)	8.82 (5.26)	2 vs 4*
					3 vs 4
					1 vs 2
					1 vs 3*
					1 vs 4*
<i>F(3, 1443) = 5.41, p < 0.001</i>					
Emotional overeating	6.22 (8.50)	5.57 (6.93)	6.91 (8.95)	8.12 (10.44)	2 vs 3*
					2 vs 4*
					3 vs 4
					1 vs 2
					1 vs 3

To summarize, the results of the present study showed that emotional overeating and eating motives during the COVID-19 pandemic varied among participants depending on their body mass index. The score on the eating motive *liking* subscale among the group with underweight is higher than in the other groups. A higher score on this scale was also obtained by the group with normal weight as compared to the group with underweight. Also in the *habits* subscale, the group with underweight scored higher than the other groups. Similarly, on the *need and hunger* subscale, the group with underweight scored higher than the group with overweight and the group with obesity, while the group with normal weight also had higher scores than the group with obesity. Comparing the scores on the *health* subscale, the overweight and women with obesity had lower scores than the groups with underweight and normal weight, while the women with overweight had higher scores compared to the women with obesity. Regarding the *affect regulation* motive, our results indicate that women with obesity have higher scores than group with underweight and group with normal weight, also women with overweight have higher scores on this subscale than women with normal weight and women with underweight. When comparing all groups in terms of *emotional overeating*, significant differences can be seen between women with normal weight and women with obesity. Higher scores were obtained by women with obesity.

4. Discussion

The COVID-19 pandemic has undoubtedly changed the lifestyles of many people around the world, including changing eating habits, especially during quarantine and

lockdowns. Previous studies indicate increased consumption of fast food and packaged foods and decreased consumption of fruits and vegetables, resulting in weight gain [29]. Thus, it is very important for the planning and delivery of public health interventions to understand what group of people are more susceptible to obesogenic eating behaviors, especially during social isolation [30].

The results of our study on the *liking* eating motive subscale indicate that women with underweight have a higher score than the other groups, a similar score was obtained by women with normal weight but only compared to women with overweight. According to the theory of Berridge and Robinson [31], one may like food when it is easy to eat, when it is readily available, when we show positive affective reactions, when there is an energetic need, but also when we do not have such a need but crave dessert after a meal. Perhaps our results confirm that only women with underweight and normal weight, since they do not need food restrictions because their weight suits them, choose the food they like. Furthermore, research confirms that prolonged staying at home may promote the consumption of tasty meals [32]. Interestingly, other research reports indicate an inverse relationship as the propensity to eat tasty foods was significantly higher in individuals with obesity, particularly in coping with a negative situation [33].

Moreover, a comparison of scores on the *habits* eating motive subscale showed that only the group of women with underweight had higher scores than women in all other groups, which may be related to the fact that this motive indicates dietary compliance habits only in this group of women. A healthy, balanced diet according to already published studies may be an integral part of an individual's risk management strategy during pandemics such as COVID-19 [34], and the perceived stress associated with it may, on a daily level, play a more significant role in determining one's eating habits.

Regarding the *need-and-hunger* eating motive, the group with underweight scored higher than the groups with overweight and obesity, while the group with normal weight also had higher scores than the group with obesity. The findings so far indicate that, for example, during the lockdown associated with the COVID-19 pandemic, more than half of the Italian population surveyed had altered feelings of hunger and satiety. Interestingly, 17.8% of the respondents had a decreased appetite, and 34.4% had an increased appetite [35]. Similar research in the Australian population indicates that during the first month of the COVID-19 pandemic, more than half of the respondents reported having a smaller appetite than usual or a higher one [36]. Increased appetite may result in a change in eating habits and overall perceived weight gain [35]. The psychosomatic theory as well as research results suggest that people with obesity do not recognize physiological cues of hunger or satiety, which leads to frequent food cravings [37, 38], which, in turn, may explain the lower scores on the need and hunger subscale in women with overweight and obesity compared to underweight women and those with normal weight.

On the other hand, on the *health-related* eating motive subscale, women with overweight and obesity scored lower than groups with underweight and normal weight, while women with overweight scored higher compared to women with obesity. As shown in previous findings, motivation for healthy eating is most often associated with a healthy lifestyle [39], and thus is also associated with healthy food choices [40]. Perhaps, the women in the study who were found to be overweight do not want to allow their health to deteriorate and become more obese.

In the *affect regulation* subscale, our results indicate that women with obesity have higher scores than underweight and normal-weight women, also women with overweight have higher scores on this subscale than underweight and normal-weight women. It shows that women are more likely to have issues with their weight during stressful situations, in this case, the COVID-19 pandemic, and they reported both tantrum overeating and used dietary restrictions. It is well known that restrictions on social interactions and reorganization of daily life can increase stress [41], so it is not a new phenomenon that individuals who have had previous dietary problems show a higher risk of exacerbating

them. Such findings are supported by reports from studies conducted in the French population [5] or the American population [30].

Our last result showed that women with obesity tend to overeat emotionally more than women with normal weight. This is consistent with previous findings linking emotional eating to excessive consumption of unhealthy foods [42]. Interestingly, the tendency to overeat or consume unhealthy foods and emotional weakness and restraint are also associated with higher body weight also in people without overweight problems [43]. That people with obesity are more likely to indulge in emotional eating than non-obese people has long been known, albeit with reference to psychosomatic theories of obesity [37, 44]. Previous findings support the association of the COVID-19 pandemic with the presence of emotional eating during the lockdown in different groups of people [18, 45, 46].

This study has some limitations. The most important ones are: a) the measurement of variables is based on self-report (e.g. BMI estimated from self-reported height and weight; lack of current data about the reliability of self-reported weight and/or height); b) narrowing down the research group to the group of women only; c) social desirability bias; d) convenience sampling. Therefore, it is necessary to take these limitations into account when planning future studies.

5. Conclusions

Referring to the aim of the study, results showed that Polish women with obesity were characterized by a higher level of emotional overeating and eating motivation related to affect regulation and a lower level of eating motives related to need, hunger and health compared to women with normal body weight.

In conclusion, as more lockdowns cannot be ruled out in the future, the public health consequences that people around the world already experience due to poor nutrition should be taken into account. Interventions are needed to create proper and well-established eating habits and to maintain good human health, both mental and physical, also in crisis and stressful situations.

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