

Is The Eating Behavior Of Women Emotionally Influenced?" : The Phenomenon Of Gender-Based Differences In Eating Behavior In Adolescents

Nilareswari Haryana¹, Yatty Destani Sandy², Risti Rosmiati³, Hardi Firmansyah⁴

{nilareswariharyana@unimed.ac.id¹, yattysandy@unimed.ac.id², ristirosmiati@unimed.ac.id³, hardigizi@unimed.ac.id⁴}

¹Nutrition Study Program, Department of Family Welfare Education, Faculty of Engineering, Universitas Negeri Medan, Indonesia; ²Nutrition Study Program, Department of Family Welfare Education, Faculty of Engineering, Universitas Negeri Medan, Indonesia; ³Nutrition Study Program, Department of Family Welfare Education, Faculty of Engineering, Universitas Negeri Medan, Indonesia; ⁴Nutrition Study Program, Department of Family Welfare Education, Faculty of Engineering, Universitas Negeri Medan, Indonesia

Abstract. Adolescents and young adults around the world have experiences high rates of weight gain. The diet of adolescents today has begun to shift to an unbalanced diet, thereby increasing the incidence of overweight. When talking about eating behavior, there is a stereotype that women tend to crave snacks compared to men who tend to consume more food than craving. This study aims to determine differences in emotional eating behavior based on gender. This cross-sectional study was conducted on 114 young adults from one of the universities in Medan City in July 2023. Emotional eating scores were obtained using the DEBQ questionnaire which was then analyzed using the Mann Whitney test. The results showed that there was a significant difference between emotional eating in women and men ($p < 0.05$). The difference in eating behavior seen differently between young adult women and men lies when they feel depressed/discouraged, upset, and angry. Thus, there are differences between young adult women and men in eating behavior related to emotions.

Keywords: Depressed, emotional eating, gender, teenager, upset.

1 Introduction

Eating behavior is a multifaceted aspect influenced by various factors, including emotional states, social interactions, and individual characteristics. Adolescence is a critical period marked by significant physical and psychological changes, including puberty and hormonal fluctuations, which can impact emotional regulation and subsequently affect eating behaviors [1], [2]. During this developmental stage, adolescents may experience heightened emotional sensitivity and changes in emotional processing, potentially leading to alterations in their eating patterns [3].

Gender-based differences in eating behavior have been observed, with research indicating that women are more likely to be emotionally influenced in their eating habits compared to men [4]. Emotional eating, characterized by consuming food in response to negative emotions, is more prevalent among women and is associated with psychological factors like emotional dysregulation and depressive symptoms [5]. Understanding the psychological aspects of emotional eating and its connection to different emotional states is crucial for developing interventions to promote healthier relationships with food, particularly among adolescents [6].

Furthermore, parental feeding practices, knowledge, and attitudes have been found to significantly influence adolescent eating behavior [7]. Positive feeding practices and open communication about healthful eating within families can contribute to healthier dietary habits among adolescents [8]. Additionally, peer conformity has been identified as a factor influencing healthy eating behaviors among adolescents, highlighting the social aspect of eating habits [9].

In conclusion, exploring the emotional influences on eating behavior, especially in the context of gender-based differences and adolescence, is essential for promoting healthy dietary practices among young individuals. By considering the interplay of emotional regulation, social influences, and parental factors, interventions can be tailored to support adolescents in developing positive eating behaviors.

2 Method

This study employed a cross-sectional design, conducted in July 2023 in the city of Medan. The research aimed to explore the relationship between emotional eating and demographic factors among young adults, specifically university students. A total of 114 participants were recruited for the study, all of whom were young adults currently enrolled in a university program in Medan. The sample size consisted of 114 university students aged between 18 and 25 years. Participants were selected using a convenience sampling technique, where students were approached and invited to participate voluntarily. Inclusion criteria required participants to be enrolled in a university program and to have consented to participate in the study.

Exclusion criteria included any prior diagnosis of eating disorders, as this might confound the results. Data on emotional eating were collected using the Dutch Eating Behavior Questionnaire (DEBQ), a validated instrument widely used to measure different eating behaviors, including emotional eating. The DEBQ includes a series of items that assess how often individuals engage in eating in response to various emotional states. Participants completed the DEBQ independently, and responses were collected and scored according to standardized procedures. The primary analysis focused on comparing emotional eating scores across different groups within the sample. Given the non-parametric nature of the data, the Mann-Whitney U test was used to determine if there were significant differences in emotional eating scores between groups, such as between genders or other demographic variables. The significance level was set at $p < 0.05$ for all tests.

This methodological approach allows for the examination of potential gender-based or demographic differences in emotional eating among young adults in an urban setting. The use of the DEBQ ensures that emotional eating behaviors are accurately captured, while the Mann-Whitney U test provides a robust analysis of differences between groups

3 Results and Discussion

3.1 Emotional Eating

The results of the distribution Tabel. 1 regarding emotional eating behaviors reveal significant gender differences in how males and females respond to various emotional triggers. Specifically, when examining the item “Eating when upset or annoyed,” it was noted that 33.3% of male respondents reported never engaging in this behavior, while only 21.3% of female respondents indicated the same. Conversely, a higher percentage of females (20.0% often and 16.0% very often) reported eating in response to feeling upset or annoyed compared to males (23.1% frequently and 2.6% very frequently). This pattern suggests that women are more likely to use food as a coping mechanism for negative emotions, a trend that is well-documented in the literature [10], [11].

Table 1. Item Distribution of Emotional Eating Based Genders

Item	Men					Women				
	N	SL	SM	OF	VO	N	SL	SM	OF	VO
Eating When....	n (%)									
Irritated	13 (33.3)	6 (15.4)	10 (25.6)	9 (23.1)	1 (2.6)	16 (21.3)	13 (17.3)	19 (25.3)	15 (20.0)	12 (16.0)
Bored/restless	7 (17.9)	8 (20.5)	10 (25.6)	12 (30.8)	2 (5.1)	2 (2.7)	13 (17.3)	15 (20.0)	31 (41.3)	14 (18.7)
Have Nothing to Do	5 (12.8)	9 (23.1)	13 (33.3)	10 (25.6)	2 (5.1)	6 (8.0)	18 (24.0)	20 (26.7)	22 (29.3)	9 (12.0)
Emotional Upset	15 (38.5)	8 (20.5)	11 (28.2)	3 (7.7)	2 (5.1)	23 (30.7)	16 (21.3)	22 (29.3)	9 (12.0)	5 (6.7)
Depressed/Discouraged	15 (38.5)	7 (17.9)	11 (28.2)	2 (5.1)	4 (10.3)	13 (17.3)	15 (20.0)	22 (29.3)	15 (20.0)	10 (13.3)
Disappointed	16 (41.0)	9 (23.1)	9 (23.1)	2 (5.1)	3 (7.7)	17 (22.7)	24 (32.0)	16 (21.3)	15 (20.0)	3 (4.0)
Feeling Lonely	9 (23.1)	10 (25.6)	9 (23.1)	6 (15.4)	5 (12.8)	9 (12.0)	13 (17.3)	28 (37.3)	16 (21.3)	9 (12.0)
Anxious/worried	21 (53.8)	7 (17.9)	7 (17.9)	1 (2.6)	3 (7.7)	24 (32.0)	21 (28.0)	17 (22.7)	7 (9.3)	6 (8.0)
Somebody lets you down	21 (53.8)	11 (28.2)	3 (7.7)	2 (5.1)	2 (5.1)	21 (28.0)	27 (36.0)	13 (17.3)	11 (14.7)	3 (4.0)
Cross	10 (25.6)	16 (41.0)	7 (17.9)	2 (5.1)	4 (10.3)	21 (28.0)	20 (26.7)	16 (21.3)	13 (17.3)	5 (6.7)
Things are going against/have gone wrong	10 (25.6)	16 (41.0)	9 (23.1)	0 (0.0)	4 (10.3)	21 (28.0)	21 (28.0)	17 (22.7)	13 (17.3)	3 (4.0)
Approaching something unpleasant to happen	12 (30.8)	14 (35.9)	7 (17.9)	2 (5.1)	4 (10.3)	22 (29.3)	24 (32.0)	17 (22.7)	9 (12.0)	3 (4.0)
Frightened	19 (48.7)	13 (33.3)	3 (7.7)	2 (5.1)	2 (5.1)	35 (46.7)	27 (36.0)	9 (12.0)	2 (2.7)	2 (2.7)

Note : N (Never), SL (Seldom), SM (Sometimes), OF (Often), VO (Vey Often)

The item “Eating when bored” further illustrates these gender differences, with 41.3% of female respondents reporting frequent emotional eating due to boredom, compared to only 30.8% of males. This finding aligns with research indicating that women are more likely to engage in emotional eating as a response to both negative emotions and boredom [12], [13]. The tendency for women to eat when bored may reflect a broader pattern of using food as a source of comfort or distraction, which is often exacerbated by societal pressures regarding body image and emotional regulation [14], [15].

Moreover, the results for the item “Eating when feeling disappointed” reveal that only 5.3% of women reported never eating in response to disappointment, while 28.2% of men indicated they never did so. This disparity suggests that women may be more emotionally reactive to feelings of disappointment, leading them to seek solace in food more frequently than men [10], [16]. Similarly, the data on “Eating when feeling tired” showed that 21.3% of women reported eating very often when tired, compared to only 7.7% of men. This finding may indicate that women are more likely to turn to food for energy or comfort during times of fatigue, which can be linked to emotional regulation challenges [17], [18].

Research indicates that women are generally more susceptible to emotional eating than men, often using food as a coping mechanism for negative emotions such as stress, anxiety, and sadness [10], [19]. For instance, Santos et al. found that emotional eating and uncontrollable eating were statistically significantly higher in women compared to men, highlighting the role of emotional expression in eating behaviors [19]. This aligns with the findings of , who noted that women reported significantly more binge eating and negative affect than men, suggesting that emotional dysregulation plays a critical role in the eating behaviors of women [20].

The overall data suggest that women tend to engage in emotional eating behaviors more frequently than men, particularly in response to negative emotions such as disappointment and fatigue. This difference may be attributed to various psychological and social factors, including emotional dysregulation, societal expectations, and the internalization of stress [21], [22]. For instance, women often face societal pressures to conform to certain body ideals, which may lead to increased emotional distress and, consequently, higher rates of emotional eating [23], [24]. The pressure to conform to unrealistic body ideals may lead women to engage in emotional eating as a means of coping with negative self-perceptions and emotional distress [25]. In contrast, men may be less influenced by these societal pressures, resulting in lower rates of emotional eating behaviors [26].

Furthermore, the role of emotional regulation in eating behaviors is critical. Research has shown that women are more likely to experience difficulties in regulating their emotions, which can lead to maladaptive coping strategies such as emotional eating [27], [28]. This emotional dysregulation can be exacerbated by factors such as stress, anxiety, and depression, which are often more pronounced in women [29].

3.2 Comparative Analysis in Emotional Eating

The analysis of Emotional Eating scores reveals a significant difference between women and men, with women exhibiting higher emotional eating tendencies. The average Emotional Eating score for women was found to be 2.63 (SD = 0.87), compared to 2.28 (SD = 0.90) for men, with a Mann-Whitney U test yielding a p-value of 0.025, indicating statistical

significance ($p < 0.05$) (Table 2.). This finding aligns with existing literature that highlights gender differences in emotional eating behaviors, particularly during adolescence.

Table 2. The Difference Score of Emotional Eating Based on Genders

	Women	Men
Mean Score	2.63	2.28
Standard Deviation	0.87	0.9
P-Value	0.0025	

Additionally, gender-specific responses to emotional stimuli have been documented, with girls often reporting higher levels of interpersonal stress and emotional distress, which can exacerbate emotional eating tendencies. This is supported by findings from [30], who indicated that adolescent girls are more likely to experience disordered eating behaviors in response to emotional challenges compared to their male counterparts [30]. The interplay of these psychological factors suggests that the emotional landscape of adolescent girls is more conducive to emotional eating, potentially due to societal pressures and expectations regarding body image and weight.

Moreover, the implications of these findings extend to the development of targeted interventions aimed at reducing emotional eating behaviors among adolescents. Understanding that women are more likely to engage in emotional eating can inform the design of programs that focus on enhancing emotional regulation skills and addressing body image issues specifically for girls [30], [31]. This approach could help mitigate the risk of developing eating disorders and promote healthier eating behaviors among young women.

In conclusion, the significant difference in Emotional Eating scores between women and men underscores the importance of considering gender when examining eating behaviors. The findings suggest that emotional influences on eating are more pronounced in women, particularly during adolescence, and highlight the need for gender-sensitive approaches in addressing emotional eating.

Additionally, the role of emotional regulation in eating behaviors cannot be overlooked. Emotional regulation difficulties have been linked to disordered eating behaviors in both men and women, but the manifestation of these behaviors may differ by gender [13], [25]. For instance, men may experience emotional reactivity that leads to binge eating, while women may engage in emotional eating more frequently as a response to negative emotions [13]. This distinction is crucial for understanding the underlying mechanisms driving emotional eating in different genders.

4 Conclusions

In conclusion, the observed differences in emotional eating behaviors between males and females underscore the importance of considering gender-specific factors in the study of eating behaviors. The higher prevalence of emotional eating among women may be influenced by a combination of emotional dysregulation, societal pressures, and cultural norms. Interventions aimed at reducing emotional eating should be tailored to account for these

differences, focusing on enhancing emotional regulation skills and addressing the unique challenges faced by women. By fostering healthier coping mechanisms and promoting positive emotional health, it may be possible to mitigate the impact of emotional eating on overall well-being.

Acknowledgements

The authors express their gratitude to LPPM Universitas Negeri Medan who funded this study. Also, thank to all of research team and participants who willing join this study until its done.

References

- [1] C. D. Ladouceur, J. S. Peper, E. A. Crone, and R. E. Dahl, "White Matter Development in Adolescence: The Influence of Puberty and Implications for Affective Disorders," *Dev. Cogn. Neurosci.*, vol. 2, no. 1, pp. 36–54, 2012, doi: 10.1016/j.dcn.2011.06.002.
- [2] K. A. Lustig, K. A. Côté, and T. Willoughby, "The Role of Pubertal Status and Sleep Satisfaction in Emotion Reactivity and Regulation in Children and Adolescents," *Sleep Adv.*, vol. 2, no. 1, 2021, doi: 10.1093/sleepadvances/zpab003.
- [3] J. S. Silk, G. J. Siegle, D. J. Whalen, L. Ostapenko, C. D. Ladouceur, and R. E. Dahl, "Pubertal Changes in Emotional Information Processing: Pupillary, Behavioral, and Subjective Evidence During Emotional Word Identification," *Dev. Psychopathol.*, vol. 21, no. 1, pp. 7–26, 2009, doi: 10.1017/s0954579409000029.
- [4] S. Pickett, T. P. McCoy, and L. Odetola, "The Influence of Chronic Stress and Emotions on Eating Behavior Patterns and Weight Among Young African American Women," *West. J. Nurs. Res.*, vol. 42, no. 11, pp. 894–902, 2020, doi: 10.1177/0193945919897541.
- [5] M. E. Dominte, V. Swami, and V. Enea, "Fear of COVID-19 Mediates the Relationship Between Negative Emotional Reactivity and Emotional Eating," *Scand. J. Psychol.*, vol. 63, no. 5, pp. 462–467, 2022, doi: 10.1111/sjop.12828.
- [6] P. Joseph, C. d. O. Gonçalves, and S. A. Fleary, "Psychosocial Correlates in Patterns of Adolescent Emotional Eating and Dietary Consumption," *PLoS One*, vol. 18, no. 5, p. e0285446, 2023, doi: 10.1371/journal.pone.0285446.
- [7] S. Soraya, D. Hastuti, and I. R. Johan, "The Influence of Parents Feeding Practices, Eating Knowledge, and Attitude on Eating Behavior Among Senior High School Students in South Tangerang, Indonesia," *Open Access Maced. J. Med. Sci.*, vol. 9, no. E, pp. 913–918, 2021, doi: 10.3889/oamjms.2021.7147.
- [8] J. M. Berge, R. F. MacLehose, K. A. Loth, M. E. Eisenberg, M. M. Bucchianeri, and D. Neumark-Sztainer, "Parent Conversations About Healthful Eating and Weight," *Jama Pediatr.*, vol. 167, no. 8, p. 746, 2013, doi: 10.1001/jamapediatrics.2013.78.
- [9] R. Rifani, F. Firdaus, and S. Ilma, "Peer Conformity and Healthy Eating Behavior Among Adolescent," 2020, doi: 10.2991/assehr.k.201027.044.
- [10] F. Arbinaga, "Psychological Inflexibility in Spanish Adults: Characteristics of Emotional Eating and the Healthy Eating Index," 2023, doi: 10.20944/preprints202309.0927.v1.
- [11] J. Spinosa, P. Christiansen, J. M. Dickson, V. Lorenzetti, and C. A. Hardman, "From Socioeconomic Disadvantage to Obesity: The Mediating Role of Psychological Distress and Emotional Eating," *Obesity*, vol. 27, no. 4, pp. 559–564, 2019, doi: 10.1002/oby.22402.

- [12] G. Althemer and H. L. Urry, "Do Emotions Cause Eating? The Role of Previous Experiences and Social Context in Emotional Eating," *Curr. Dir. Psychol. Sci.*, vol. 28, no. 3, pp. 234–240, 2019, doi: 10.1177/0963721419837685.
- [13] S. Han and J. H. Kahn, "Attachment, Emotion Regulation Difficulties, and Disordered Eating Among College Women and Men," *Couns. Psychol.*, vol. 45, no. 8, pp. 1066–1090, 2017, doi: 10.1177/0011000017744884.
- [14] M. Kahrman, "Opposite Ends of the Spectrum: Does Emotional Eating Present More Barriers to Applying Mindful Eating and Intuitive Eating Strategies for Females?," *World Nutr.*, vol. 14, no. 3, pp. 14–26, 2023, doi: 10.26596/wn.202314314-26.
- [15] M. Bemanian et al., "Emotional Eating in Relation to Worries and Psychological Distress Amid the COVID-19 Pandemic: A Population-Based Survey on Adults in Norway," *Int. J. Environ. Res. Public Health*, vol. 18, no. 1, p. 130, 2020, doi: 10.3390/ijerph18010130.
- [16] E. L. Davis, E. Greenberger, S. T. Charles, C. Chen, L. B. Zhao, and Q. Dong, "Emotion Experience and Regulation in China and the United States: How Do Culture and Gender Shape Emotion Responding?," *Int. J. Psychol.*, vol. 47, no. 3, pp. 230–239, 2012, doi: 10.1080/00207594.2011.626043.
- [17] K. Işık and Z. Cengiz, "The Effect of Sociodemographic Characteristics of University Students on Emotional Eating Behavior," *Perspect. Psychiatr. Care*, vol. 57, no. 1, pp. 214–218, 2020, doi: 10.1111/ppc.12550.
- [18] H. Kontinen, T. v. Strien, S. Männistö, P. Jousilahti, and A. Haukkala, "Depression, Emotional Eating and Long-Term Weight Changes: A Population-Based Prospective Study," *Int. J. Behav. Nutr. Phys. Act.*, vol. 16, no. 1, 2019, doi: 10.1186/s12966-019-0791-8.
- [19] B. A. Özcan and B. Yeşilkaya, "Adverse Effect of Emotional Eating Developed During the COVID-19 Pandemic on Healthy Nutrition, a Vicious Circle: A Cross-Sectional Descriptive Study," *Rev. Española Nutr. Humana Y Dietética*, vol. 25, p. e1144, 2021, doi: 10.14306/renhyd.25.s2.1144.
- [20] D. Cheng and M. Wei, "Modified Dual Pathway Model for Binge Eating: The Role of Emotion Dysregulation," *Couns. Psychol.*, vol. 50, no. 4, pp. 536–560, 2022, doi: 10.1177/00110000221077936.
- [21] F. Q. d. Luz et al., "An Examination of the Relationships Between Eating-Disorder Symptoms, Difficulties With Emotion Regulation, and Mental Health in People With Binge Eating Disorder," *Behav. Sci. (Basel)*, vol. 13, no. 3, p. 234, 2023, doi: 10.3390/bs13030234.
- [22] A. R. Sepúlveda et al., "Identifying Loss of Control Eating Within Childhood Obesity: The Importance of Family Environment and Child Psychological Distress," *Children*, vol. 7, no. 11, p. 225, 2020, doi: 10.3390/children7110225.
- [23] M. Nagl, A. Hilbert, M. d. Zwaan, E. Brähler, and A. Kersting, "The German Version of the Dutch Eating Behavior Questionnaire: Psychometric Properties, Measurement Invariance, and Population-Based Norms," *PLoS One*, vol. 11, no. 9, p. e0162510, 2016, doi: 10.1371/journal.pone.0162510.
- [24] W. Jia et al., "Associations Between Abnormal Eating Styles and Irritable Bowel Syndrome: A Cross-Sectional Study Among Medical School Students," *Nutrients*, vol. 14, no. 14, p. 2828, 2022, doi: 10.3390/nu14142828.
- [25] A. M. Minnich, K. H. Gordon, M. Y. Kwan, and W. Troop-Gordon, "Examining the Mediating Role of Alexithymia in the Association Between Childhood Neglect and Disordered Eating Behaviors in Men and Women.," *Psychol. Men Masc.*, vol. 18, no. 4, pp. 414–421, 2017, doi: 10.1037/men0000060.

- [26] K. D. Mutiek, M. Fanani, and A. M. P. Nuhriawangsa, "Relationship Between Gender, Tryptophan and Vitamin B3 Consumption Patterns With Emotional Eating in Overweight Adolescents," *Media Gizi Indones.*, vol. 16, no. 2, p. 119, 2021, doi: 10.20473/mgi.v16i2.119-123.
- [27] A. G. Usubini et al., "The Relationship Between Psychological Distress During the Second Wave Lockdown of COVID-19 and Emotional Eating in Italian Young Adults: The Mediating Role of Emotional Dysregulation," *J. Pers. Med.*, vol. 11, no. 6, p. 569, 2021, doi: 10.3390/jpm11060569.
- [28] L. J. Nolan, L. B. Halperin, and A. Geliebter, "Emotional Appetite Questionnaire. Construct Validity and Relationship With BMI," *Appetite*, vol. 54, no. 2, pp. 314–319, 2010, doi: 10.1016/j.appet.2009.12.004.
- [29] J. Oh and S. Kim, "The Relationship Between Psychological Distress and the Health-Related Quality of Life of Middle-Aged Korean Females: A Serial Mediation Model," 2023, doi: 10.21203/rs.3.rs-2450215/v1.
- [30] D. Chen, G. E. C. Sun, and B. Levin, "Gender-Specific Responses to Multifaceted Factors Associated With Disordered Eating Among Adolescents of 7th to 9th Grade," *J. Eat. Disord.*, vol. 10, no. 1, 2022, doi: 10.1186/s40337-021-00524-3.
- [31] L. H. Shriver, J. M. Dollar, S. D. Calkins, S. P. Keane, L. Shanahan, and L. Wideman, "Emotional Eating in Adolescence: Effects of Emotion Regulation, Weight Status and Negative Body Image," *Nutrients*, vol. 13, no. 1, p. 79, 2020, doi: 10.3390/nu13010079.