

Perception of emotional eating in nursing students: a mixed-methods study

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Submission: 11/09/2023

Approved: 07/28/2024

ABSTRACT

Objective: To assess the perception and prevalence of emotional eating among nursing students in order to design participatory and tailored strategies for a nursing school. **Method:** A mixed-methods approach was used, including an online self-administered questionnaire, a "World Café" focus group, and a community forum to design community nursing strategies. **Results:** A total of 95.7% of students identified as emotional eaters, demonstrating awareness of the concept, triggers, and consequences of emotional eating. The primary actions proposed included the establishment of nutrition and psychology offices within the nursing school. **Conclusion:** Assessing needs and involving students in the research process is essential for designing strategies to address the issue of emotional eating.

Keywords: Nursing Methodological Research; Nursing Students; Eating and Feeding Disorders; Community Health Nursing.

INTRODUCTION

Although the original definition of emotional eating referred to eating in response to unpleasant emotions, studies have linked emotional eating to depression, weight gain, and binge eating, showing that eating in response to emotions—whether negative or positive—can be harmful. Emotional eating can also have immediate and long-term consequences, such as feelings of guilt and obesity⁽¹⁻³⁾. One of the most evident causes of emotional eating is that, beyond satisfying hunger, food appears to have the ability to reduce emotional tension. Overeating contributes to obesity, particularly because fast food often has a high energy density⁽¹⁻⁴⁾.

Worldwide, 650 million adults, 340 million adolescents, and 39 million children are obese. By 2025, the World Health Organization (WHO) predicts that 167 million adults and children will experience health deficits due to being overweight or obese. Obesity is known to affect all systems of the human body⁽⁵⁻⁷⁾.

In Portugal, regulations are in place to restrict the promotion of foods and beverages high in fat, sugar, and salt; tax sugary drinks; and improve access to healthy and affordable meals—measures proven to be effective. Additionally, cities and municipalities are encouraged to create safe spaces for cycling, walking, and recreational activities. Schools are also expected to collaborate with families to promote healthy lifestyles from an early age^(5,8).

Amorim et al.⁽⁹⁾ conducted a scoping review to map programs promoting healthy lifestyles in school health settings. They concluded that, although a few programs were identified, these are heavily focused on obesity prevention. While they have proven to be effective, there is no consensus on holistic interventions. Kim⁽¹⁰⁾ argues that promoting healthy lifestyles, regardless of the target population, requires comprehensive, community-based strategies. These strategies should be built on participatory diagnostics and community-driven intervention plans.

From this perspective, the use of participatory strategies can be an essential tool not only for better understanding problems but, more importantly, for identifying perceived needs.

The World Café is a participatory data collection technique inspired by focus groups. It was developed by the World Café Community Foundation, which aims to establish a living network of cooperative dialogues around issues of real-world importance. This approach is based on the idea that everyone possesses the knowledge and skills needed to address complex problems.

In other words, while we already have explanations and solutions for current challenges, collaboration and mutual inspiration are necessary to discover new ways to improve our lives and workplaces⁽¹¹⁻¹²⁾. In fields such as community development, organizational development, strategic planning, the medical industry, and others, this technique is employed by community organizations, small non-profits, institutions, and large multinational corporations⁽¹²⁾.

World Café is an innovative data collection technique that drives action and promotes group learning. It is grounded in constructivist knowledge theories and social interaction within a comfortable and welcoming environment. To successfully implement a World Café, six key principles must be followed⁽¹¹⁾. This method provides a space for open debate, gathering the opinions and knowledge of a diverse group of individuals. Since its creation in 1995, it has been applied in various contexts⁽¹³⁾. Additionally, it fosters discussion and mutual learning, which in turn encourages engagement and diverse responses⁽¹³⁻¹⁵⁾.

The World Café is an effective tool for quickly gathering relevant information from many participants while maintaining the methodological rigor required by the scientific community. It has proven particularly useful for addressing the topic of "emotional eating," as it facilitates the collection of exploratory data within a qualitative research framework⁽¹⁴⁾. When comparing its advantages and disadvantages to those of semi-structured interviews and focus groups—two well-established qualitative research methods—evidence suggests that the World Café significantly outperforms these methodologies^(12-13,15-16).

The objective of our research is to assess the perception and prevalence of emotional eating among nursing students to design participatory and tailored strategies for a nursing school.

METHOD

The research was conducted following the participatory action research paradigm, using a mixed-methods approach: an online self-administered questionnaire, a World Café session, and a community forum for designing community nursing strategies. This study received approval under Ethical Opinion No. P896_09_2022 from the Ethics Committee and is part of the PEER project—Consolidating the Nursing School (ESEnC) as a Health-Promoting Institution within UICISA: E.

Participant recruitment

In this study, participants were nursing students from a school in the central region of Portugal, selected through nonrandom sampling. Students who participated in all stages of the study were informed of its objectives, and their free and informed consent was obtained in person. The number of participants in the study was as follows: 140 students completed the questionnaire; 15 students participated in the three World Café sessions; and 29 students attended the community forum. Some students declined to participate due to a lack of interest or academic stress. Quantitative data collection took place from November 9 to December 12, 2022, while qualitative data collection occurred between November 23, 2022, and February 9, 2023.

The Emotional Eater Questionnaire evaluates the relationship between calorie intake and emotions to categorize individuals. A ten-item questionnaire was developed to determine how emotions influence eating behavior. This tool, also known as EEQ, was used in this research⁽¹⁷⁾. Each question offered four response options: 0) never, 1) sometimes, 2) generally, and 3) always. Responses were scored from 0 to 3, with lower scores indicating healthier responses. Based on their scores, participants were categorized into four groups for clinical practice purposes: scores from 0 to 5: non-emotional eater; scores from 6 to 10: low emotional eater; scores from 11 to 20: emotional eater; scores from 21 to 30: highly emotional eater. The questionnaire also includes three categories that together account for 60% of the total variance: disinhibition, eating type, and guilt. EEQ was distributed to nursing students through hand-delivered leaflets and posters placed across the two campuses of the nursing school and in the student residence. Both the leaflets and posters included a QR code that linked

to the online questionnaire hosted on Google Forms. Data collection took place from November 9 to December 12, 2022. Participation was voluntary, and responses were submitted anonymously, with students providing only the last four digits of their identification document and a single letter.

Internal consistency analysis showed a Cronbach's alpha of 0.773 for the "Disinhibition" subscale, 0.656 for the "Eating Type" subscale, and 0.612 for the "Guilt" subscale. Test-retest reliability was $r = 0.70$. Data indicated that the agreement rate between the EEQ and MEQ was approximately 70%, with a Kappa index of 0.40 ($p = 0.0001$).

Following the principles outlined by the creators of the World Café format, we structured the data collection process around six guiding principles: (a) we created a welcoming environment within the school; (b) among the researchers, we defined four key questions; (c) Using the "fruit salad" group dynamic, we encouraged everyone to contribute; (d) the four questions facilitated connections between participants, cross-pollinated ideas, and generated diverse perspectives; (e) at the end of the four discussion rounds, we collectively reviewed the insights, patterns, perceptions, and deeper questions that emerged. This approach made collective knowledge visible⁽¹¹⁾.

The three "World Café" sessions were conducted across the two campuses of the nursing school, with a minimum of 15 nursing students participating in each session, and an average duration of 30 minutes. Sessions were facilitated by two female researchers, with the lead researcher consistently accompanied and supported by the coordinating professor. First, the technique was explained to the students. Then, random groups were formed, and finally, after the students had answered the four questions, they presented their responses to the entire group. The "World Café" questions were: 1) What is emotional eating?; 1.1.) What factors might lead to this situation?; 2) What are the possible consequences of emotional eating?; 3) How can emotional eating be managed?; AND 4) What could the school do to help people struggling with emotional eating? Specify who would be responsible (administration; faculty; non-teaching staff; students; other structures or groups). Transcriptions of discussions were shared with the group immediately after the activity, allowing participants to make comments and/or corrections. Data collection and tran-

scription were conducted by the first author, while content analysis was performed by the first two authors. Audio-visual recordings were not used at this stage. Field notes were taken to document the data collection process, location, and method, but the written data came directly from the participating students during the different World Café sessions. Data saturation was discussed, and it was decided that no further World Café sessions would be conducted.

The community forum for designing community nursing strategies was conducted after analyzing the data from the questionnaire and the World Café sessions. This data was presented to another group of final-year nursing students who had not participated in the World Café sessions. The findings from the research were shared, and the students were then asked to respond to two questions to suggest intervention actions. These questions were answered anonymously using the Mentimeter platform⁽¹⁸⁾.

Data analysis procedures

Quantitative data from the questionnaire were analyzed by using SPSS software, version 27. EEQ did not exhibit normality, as indicated by the Shapiro-Wilk test ($p = 0.001$). Internal consistency analysis showed Cronbach's alpha of 0.880 for the total scale, 0.851 for the "Disinhibition" subscale, 0.478 for the "Eating Type" subscale, and 0.695 for the "Guilt" subscale.

Qualitative data obtained from the World Café sessions were coded inductively, or openly, by two researchers. Following the readings, codes emerged in multiple and indeterminate forms, based on the vocabulary of the participants and what was deemed relevant in the data. The authors chose to represent the findings using a word cloud, created with wordcloud software, rather than a coding tree. As the World Café fosters successive dialogues, it also enables the discussion of minor issues. However, it does not allow for the identification of individual participant quotes, offering greater guarantees of participant anonymity.

Community forum

The responses to the questions were collected anonymously via the Mentimeter platform. This information was coded deductively by two researchers. The deductive categories corresponded to various types of community nursing interventions, including Health communication; health education; strengthening health policies; health engineering; community health-related

services; community mobilization; and health advocacy.

RESULTS

Emotional Eater Questionnaire

The median score of the students on the Emotional Eater Questionnaire was 18 points, with the highest score being 30 points. A total of 95.7% of the respondents were classified as emotional eaters (Table 1).

Table 1 – Categorization of students according to emotional eating levels. Survey. Coimbra, PT, Portugal, 2023

	Score range	Frequency	Percentage
Non-emotional eater	0–5	6	4.3
Low emotional eater	6–10	29	20.7
Emotional eater	11–20	65	46.4
Highly emotional eater	21–30	40	28.6
TOTAL		140	100.0

World Café

In response to question 1, “What is Emotional Eating?”, nursing students expressed that emo-

tional eating involves eating uncontrollably and beyond one’s needs to manage, alleviate, substitute, or escape from negative and/or positive emotions.

As shown in the word cloud (Figure 1), students describe emotional eating as a way to cope with both negative and positive emotions, or even as a substitute for them.

According to participants, various factors can contribute to emotional eating, with sadness, anxiety, and stress being the most prominent. They also highlighted internal factors such as happiness, loneliness, emotional disorders, addiction, escapism, and depression. External factors were also noted, including family arguments, cultural events, celebrations, responsibilities, social pressure, academic stress, and poor workplace environments.

As shown in the word cloud (Figure 1), the factors most emphasized by the students are social pressure, anxiety, and sadness.

According to the nursing students, emotional eating primarily affects an individual’s mental health and secondarily leads to physical illnesses. Mental health consequences include eating disorders, guilt, sadness, and reduced self-esteem. Regarding physical illnesses, they highlighted various conditions, with overweight being the most prominent. Additionally, they mentioned other consequences such as temporary pleasure, financial strain, and the reinforcement of unhealthy lifestyles.



Figure 1 - Word cloud for question 1: what is emotional eating? and 1.1) what factors can lead to this situation? World Café. Coimbra, PT, Portugal, 2023

In the word cloud (Figure 2), students emphasize mental and physical illnesses. The strategies proposed by nursing students as effective for managing emotional eating are primarily focused on distracting oneself from cravings and improving eating habits. Some

mention is also made of stress reduction, but no other behavioral strategies were highlighted. In the word cloud (Figure 3), the prominent strategies include distracting from cravings, eating according to energy needs, and drinking more water.



Figure 2 - Word cloud for question 2: what are the possible consequences of emotional eating? World Café. Coimbra, PT, Portugal, 2023



Figura 3 - Word cloud for question 3: how to manage emotional eating? and question 4: what could the school do to help people struggling with emotional eating? specify who would be responsible: (administration; faculty; non-teaching staff; students; other structures or groups). World Café. Coimbra, PT, Portugal, 2023

The students suggest that the main institutional stakeholders (administration, faculty, psychologists, and student associations) could help individuals struggling with emotional eating through strategies related to nutrition. These include providing nutrition consultations, organizing stress-reducing activities, offering healthier food options in vending machines, allowing more time for lunch breaks, hosting cooking workshops, and distributing leaflets with alternative strategies for managing emotional eating. Additionally, they believe that spacing out assessments and offering more activities to reduce stress could be highly beneficial. Finally, creating a podcast on the topic was proposed as a supportive resource among peers. All these ideas are reflected in the word cloud (Figure 3).

Community Forum

In the community forum, attended by final-year nursing students, a discussion was initiated based on the data collected and analyzed during the World Café sessions. This data was outlined in Figure 4 to facilitate the discussion. By using the Mentimeter platform with an open-response

option, participants addressed the question: "What could the school do to help people struggling with Emotional Eating?".

Data obtained were coded according to the categories outlined in Figure 5. Regarding the open-ended question, "What can the school do to help people struggling with Emotional Eating?", the category that emerged most prominently was "Community Health-Related Services," with students frequently emphasizing the need for "Psychological Support" and "Nutrition Consultations." Noteworthy is the importance students attributed to the categories of "Health Communication," "Health Education," and "Strengthening Health Policies," represented respectively by the following suggestions: "Informative forums on healthy eating," "Health education sessions," and "Promoting/prioritizing healthier food options in the cafeteria/canteen." Additionally, proposals related to Health Policy Reinforcement, Health Engineering, and Community Health-Related Services were also highlighted.

On the other hand, for the second open-ended question, the category with the greatest

relevance was “Strengthening Health Policies,” where students emphasized the need for “Offering more fruit and healthy food in the cafeteria/canteen” and “Reducing the prices of healthy foods compared to unhealthy ones.” Students also placed significant importance on the categories of “Health Communication” and “Health

Education,” with suggestions such as “Debate forums,” distributing “Posters/leaflets,” and organizing “Workshops,” “Health education sessions on healthy eating,” and “Training actions.” Additionally, proposals related to “Community Mobilization” were highlighted.

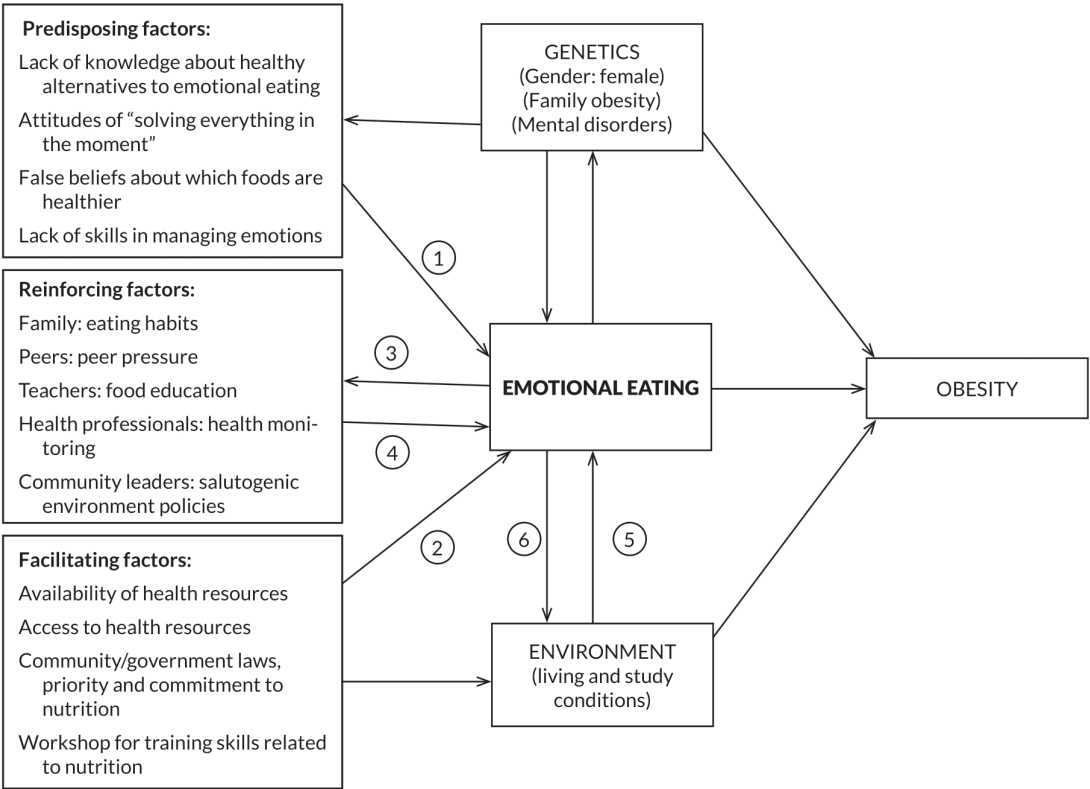


Figure 4 - Outlined Data. Community Forum. Coimbra, PT, Portugal, 2023

Category	Question 1: How can the ESEnFC help people struggling with emotional eating?	N.	Question 2: “Healthy Eating.” What can the school do to promote healthier eating?	N.
Health communication	Inform	1	Recipes for university students	1
	Create an Emotional Eating Day, inviting psychologists, nutritionists, and nurses to speak on the topic and distribute leaflets to students	1	Promote campaigns to encourage healthy eating	1
	Awareness campaigns	1	Awareness and promotion campaigns for healthy eating	2
	Informative debate forums on healthy eating	3	Posters/leaflets	4
		0	Use of social media	1
		0	Debate forums	4

Health education	Promote educational actions to help students identify if they struggle with emotional eating	1	Workshops	1
	Health education sessions	3	Health education on healthy eating	1
	Healthy eating workshops	1	Training actions	1
	Promote health campaigns to prevent mental illness	1		0
	Promote campaigns for healthy eating	1		0
Strengthening health policies	More breaks to reduce the urge to eat between classes	1	Reduce prices of healthy foods compared to unhealthy ones	4
	Provide healthy snacks in the bar and cafeteria	1	Greater variety of healthy foods in the school bar	1
	Promote/prioritize healthier foods in the cafeteria	3	Offer fruit and healthy food in the cafeteria	7
	Plan with ESEnfC's school health services to give students free access to nutritionists, psychologists, etc.	1	Maintain menu diversity in the cafeteria, with attention to salt content	1
	Affordable pricing for healthy foods	1		0
Community health services	Psychological support through extended psychologist hours or weekly sessions	2		0
	Support from school health services	1		0
	Psychological support	15		0
	Referral for specialized help	1		0
	Alternative treatments such as Reiki to manage anxiety	1		0
	Weight monitoring programs with specialized teams	1		0
	Nutrition consultations	6		0
Community mobilization	Organize activities as a means of escape (e.g., group activities)	1	Organize healthy walks with snack offerings	1
	Create fun moments with healthy food	1		0
Health engineering		0	Vending machines with healthy options	2
Health advocacy		0		0

Figure 5 - Community forum results. Community Forum. Coimbra, PT, Portugal, 2023

DISCUSSION

According to our results, 95.7% of the 140 nursing students who completed the online questionnaire are classified as emotional eaters. This prevalence is notably higher compared to other studies conducted at different universities (20–45%)⁽¹⁹⁾. This discrepancy is likely due to the data collection strategy, which was neither random nor census-based. We believe that those who chose to respond to the questionnaire were individuals who, upon seeing the posters, may have had some perception of experiencing emotional eating. This awareness might have influenced their decision to participate, as they could assess their health status during the questionnaire completion process. Regarding the results of the World Café sessions, nursing students are familiar with the true concept of emotional eating. They do not limit their understanding to the original notion, which identified negative emotions as the sole cause, but also emphasize its relationship with positive emotions^(1,20-22).

There are numerous factors that can lead a person to engage in emotional eating, and according to this study, nursing students recognize many of them. Due to significant academic and social pressures, higher education is often a particularly challenging period of growth for young adults worldwide. Hedonic hunger can be triggered by positive feelings, such as happiness, especially in contexts of celebrations and socialization. However, negative emotional eating is linked to difficulties in emotional regulation, with internal triggers such as bad moods or more persistent negative feelings creating a vicious cycle. This can lead to unfavorable emotional states such as stress, depression, boredom, and anxiety^(2-3,23-25).

Data reveal that students are correct in asserting that emotional eating can affect both physical and psychological health. This behavior is associated with eating disorders and changes in the body mass index. Such circumstances generate feelings of guilt, which lead the brain to send signals that perpetuate a vicious cycle, resulting in increased food consumption. This eating pattern contributes to both physical and mental health problems^(2-4,20,24-25).

Habits are formed during childhood and are particularly difficult to change, especially when it comes to eating behaviors⁽²⁶⁾. Nursing students propose some strategies that are already established. The most frequently described in the scientific literature for reducing or eliminat-

ing this behavior include: distinguishing physical hunger from emotional hunger, keeping a journal of one's emotions, finding alternative ways to cope with emotions, avoiding situations or thoughts that may trigger emotional eating, engaging in physical exercise, practicing mindfulness or mindful eating, eating healthily, and managing hunger effectively. Additionally, it is crucial to mitigate personal factors that lead to emotional eating. Lastly, seeking support from friends, family, or, if necessary, professionals is essential^(2,24,27-30).

One of the factors consistently mentioned by students is stress and the use of emotional eating as a coping strategy, even if only temporarily. With higher education already well-documented as a source of stress, it is also worth reflecting on the use of food as a stress management strategy. In a study conducted with university students, stress and low self-esteem were associated with avoidant coping strategies and depressive moods. Furthermore, low self-esteem and avoidant coping strategies were linked to unhealthy eating behaviors⁽³¹⁾. The development and promotion of stress management and coping strategies among students were also explicitly highlighted by participants. This underscores the need to help students recognize and actively adopt more adaptive stress-coping strategies that focus on resolving difficulties rather than avoiding them.

We can affirm that the students correctly proposed interventions such as establishing nutrition or psychology offices and involving management and faculty in this task. This aligns with the understanding that the most direct consequence of emotional eating is obesity, which is recognized as a disease that should not be addressed solely through diet and exercise but rather from a multidisciplinary paradigm⁽³²⁾.

CONCLUSION

This study allows us to conclude that, through the needs assessment, the evaluation of students' perceptions of emotional eating, and their involvement in the research process, tailored strategies can be proposed in schools to address this issue. Such initiatives can enhance the development of salutogenic higher education institutions.

CONFLICT OF INTERESTS

The authors have declared that there is no conflict of interests.

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