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Intuitive Nutrition Co-factor of Emotional Equilibrium for Maintaining Nutritional Balance: A Prospective Study

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Abstract

Background and objectives: Intuitive nutrition represents a disputed topic when subjects about weight loss and diets are approached worldwide. The current study aims to emphasize the causal relationship between emotional status and intuitive eating, starting from the hypothesis that a nutritional imbalance can be determined by an emotional imbalance.

Materials and Methods: This prospective study included 73 subjects, aged between 18-70, with a sex ratio of 21:52 male to female and it was designed to use digital methods to collect data from the sample of subjects through online questionnaires, collection software and automatic statistical analysis of data. The collected data was analysed in parallel using the Minitab software and Office Excel.

Results: Data processing confirmed the working hypothesis, namely that emotional status influences the way of eating and intuitive eating can contribute to maintaining emotional balance. Also, the statistical analysis show Mean=24.33, SD= 14.46, a Median of 17 and a level of Confidence of 35.94%.

Conclusions: Intuitive nutrition can be a helpful factor in maintaining emotional balance directly related to nutrition. Disturbance of emotional balance facilitates the adoption of a way of nutrition that can be classified under the category of eating disorders, attracting a procession of somatic and psychological consequences.

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1. Introduction

It is known and recognized worldwide that an unbalanced or fragile emotional status does not represent a good time to start a weight loss program (Vorlet & Carrard, 2023; Bremner et al., 2020; Blanc Monthuy et al., 2023a). On the other hand, scientific medical data provide evidence to support the hypothesis that subjects who need to lose weight put their body into a psychic shock, even if this is necessary (Adan et al., 2019; Grajek et al., 2022; Schlam-Cadena & Guimera-Lopez, 2014; Mazzolani et al, 2023; Anglin, 2012). From a psychological point of view, such a situation is even more dramatic because the ingestion of food equally represents the need to bring into the body an intake of nutrients and energy indispensable for survival, as well as a dimension of pleasure (Bédard et al., 2020; Rodgers et al., 2023). It is known how psychological factors influence the progress of chronic pathologies and have a role in the overall functioning of the individual (Barchetta et al., 2021; Bochicchio et al., 2023; Ebrahimpour-Koujan et al., 2019; Martino et al., 2021; Price et al., 2019; Santonocito et al., 2022; Sicari et al., 2023; Smith & Kobayashi, 2020; Vita et al., 2020). In this way, the concept of nutrients can be related to a series of indicators such as body image, eating behavior, self-esteem, and mental health (Linardon et al., 2021; Blanc-Monthuy et al, 2023b; Van Dyke & Drinkwater, 2022; Van Dyke & Drinkwater, 2014). In this context, dietitians tried to find a diet option that would allow weight loss without significantly affecting the organism from the point of view of its physiological functioning (Rochefort et al., 2021) and especially without creating emotional imbalances (Nelson, 2017; Cherpak, 2019; Christoph et al., 2021) generated by the frustration born from the prohibition of the ingestion of some favourite foods considered undesirable in the diet (Horwath et al., 2019; Madden et al., 2012). Thus, the diet intuitively, instead of forbidding the consumption of foods considered "forbidden" during weight loss treatments, encourages the consumption of favorite foods according to the desire of the moment, establishing a series of rules in this context and giving up restrictive diets (Malachowska & Jezewska-Zychowicz, 2022; Schaefer &

Magnuson, 2014; Leong et al., 2012). It is necessary to clarify the distinction between healthy eating behavior and adherence to a diet (Ahmed et al., 2020; Burnette et al., 2023; De Ridder et al., 2017; Hazzard et al., 2022; Varkevisser, 2019) The paradigm shift, which should otherwise represent the central element of what we call intuitive nutrition, consists of the idea that overweight patients could overcome the "critical" moment of the diet period (Ruzanska & Warschburger, 2020), in which they become increasingly obsessed with food (Pigsborg et al., 2023; Kerin et al., 2019; Bennet & Latner, 2022).

The current study aims to establish a causal relationship between emotional status and intuitive eating (IE), starting from the hypothesis that a nutritional imbalance can be determined by an emotional imbalance (Barraclough, 2019). It does not materialize in any case in an anti-diet plea nor does it combat the need to lose weight, especially for people for whom this is a vital desire (for diabetics, those with cardiovascular diseases, dyslipidaemia, etc.) (Hayashi et al., 2021; Patti et al., 2020). In this context, a correspondence has been established between the biological indicators of hunger and satiety and the way of eating (Morillo Sarto et al., 2019). In the classical acceptance of a strictly medical approach, the medical– psychological correlation of the diet with reference to the emotional aspect is almost absent.

The studies published over the years have shown that diets carried out repeatedly are burdened by the risk of failure to lose the extra kilos and even weight gain, over the time. Regarding the effects on psychological health, the repeated failure and the yo-yo effect with reference to weight, lead to a decrease in self-esteem and represent an additional psychological burden for individuals who already experience depression, isolation or frustration due to excess weight.

In this context, intuitive eating (IE) as an alternative to diets based on the theoretical model of withholding food, has as its theoretical substrate the foundation of a positive emotional relationship with food and one's own body. In this sense, a current meta-analysis with reference to this positive relationship provides arguments in favor of adherence to IE a means of weight loss associated with better psychological and behavioral health (Hazzard et al., 2021; Koushiou et al., 2021; Linardon et al., 2017; Marchini et al., 2021; Orru et al., 2021; Popoviciu et al., 2022; Ricciardi et al., 2023).

The purpose of the current study is aligned with this idea, of ensuring a psychological comfort during weight loss measures, trying to bring in a different approach, new arguments in support of adopting a type of diet that harmonizes with a series of psychological variables of the individuals, universally valid. It is emphasized at the same time that the idea of a diet is aggressive, inducing the patients to feel a limitation regarding their own choices. The idea of

diet, doubled by the possibility of respecting one's own food choices and preferences within certain limits, negotiated both with oneself and with the medical staff, creates an emotional balance for the patient who will have a different perspective on the notion of diet by integrating it more easily into one's own style of life. In addition, the idea that the diet is something temporary and then the patient can return to the old eating habits is destructive and unrealistic for the idea of the diet per se, and on the other hand it induces a series of irrational thoughts in the patient's mind. He will look forward to the end of the diet in order to "indulge" with the forbidden foods, losing at that moment control over the amount of his favorite foods ingested, and with the accumulation of extra pounds compared to those he had hardly lost, he will also lose his confidence in own motivation as well as self-esteem.

Therefore, this study proposes a double approach that brings to the fore the emotional side and can be considered a psychological-medical interface (Beintner et al., 2019) of a complex concept such as the notion of diet correlated with weight loss management (Montero-Marin et al., 2019; Salvo et al., 2018). Analysis of the medical framework and psychological aspects of a weight loss program leads to a not encouraging conclusion: weight loss is followed by the yo-yo phenomenon, which becomes a pattern of diets resulting in weight loss (Evans Molina, 2011). Thus, the question that legitimately arises is whether there exists a physiological explanation (Peschel et al., 2018) for this phenomenon or if it is just a behavioral aspect (Tylka et al., 2015a; Ogden et al., 2020). We also need to take into consideration the impact of obesity on general health in children (Christoph et al., 2019; Burnette et al., 2022; Harendza & Herzog, 2022; Plante et al., 2019). Starting from this hypothesis, the need to approach intuitive nutrition in an emotional-behavioral-medical (Bruce et al., 2016; Camilleri et al., 2016) and even transgenerational context appears (Berge et al., 2023; Lemstra et al., 2016; Erhardt, 2021; Tylka et al., 2015b; Carbonneau et al., 2015).

2. Material and method

2.1. Study design and subjects

The current study, which is a prospective one, was conducted in 2023 and included a number of 73 subjects. It was designed to use digital methods to collect data from the sample of subjects through online questionnaires, collection software and automatic statistical analysis of data. Analysis of the collected data was performed in parallel, using Microsoft Excel and Minitab Software.

Participants who agreed to take part provided digital informed consent before being asked to complete an online questionnaire containing the scale IES- 2, but IP addresses were examined to ensure that no participant took the survey more than once. Our subjects received a link to complete the form, and anonymity was their option.

The questionnaire was structured in four sections: the first section contains structural data, the second section (A) addresses eating habits, the third section (B) is related to emotional eating, the fourth section (C) addresses IE over time, and the last section (D) is related to the type of food (nutritional, energetic, which ensures the proper functioning of the body).

2.2. Data analysis

The statistical analysis was performed using Microsoft Excel application and Minitab software (Table 1).

Table 1. Sample of 73 subjects aged between 18-70 years

Mean	24.33333
Standard Error	8.353309
Median	17
Mode	#N/A
Standard Deviation	14.46836
Sample Variance	209.3333
Kurtosis	#DIV/0!
Skewness	1.694891
Range	26
Minimum	15
Maximum	41
Sum	73
Count	3
Confidence Level (95.0%)	35.94139

2.3. Instruments

The questionnaire used for our study was the Intuitive Eating Assessment Scale-2 translated and adapted to respondents from Romania (Vintilă et al., 2020; Tylka & Kroon van Diest, 2013).

The study was conducted in accordance with the Declaration of Helsinki, and approved by the Institutional Ethics Committee of Clinical Hospital of Psychiatry “Elisabeta Doamna” Galați, Romania (01/10.04.2023) for studies involving humans. Digital informed consent was obtained

from all subjects involved in the study by approving and completing the questionnaire. The inclusion criteria for the subjects admitted in our study: subjects' age at least 18, subjects who understood and agreed to complete the questionnaire, subjects with no psychosis or alimentary pathology discovered before.

We have restructured the Intuitive Eating Assessment Scale-2 questionnaire translated and adapted to respondents from Romania (Vintilă et al., 2020), according to the design of the current study and in concordance to the aimed objectives. Thus, we created four profiles of the patient's attitude in relation to food (intuitive) - *profile I* – 6 items, concerning the food restrictions imposed consciously and deliberately; *profile II* – 8 items in relation to the emotions that generate a certain eating behavior; *profile III* – 6 items that referred to "intuition" in connection with the physical signals of hunger and satiety and *profile IV* – 3 items that implied healthy eating. The purpose of creating these profiles was to establish correlations between corresponding items, making associations in the chain of cognition -emotion –behavior (food).

3. Results

3.1. Characteristics of structural data (socio-demographic)

The statistical analysis realised for our 73 responders (21 males and 52 females) shows Mean=24.33, SD= 14.46, a Median of 17 and a level of Confidence of 35.94%. Among the 73 subjects, 41 (56.2%) belonged to the 18-30 age group, 17 (23.3%) were between 31-50 years old and 15 (20.5%) subjects belonged to the age group of 50-70 years (Fig. 1).

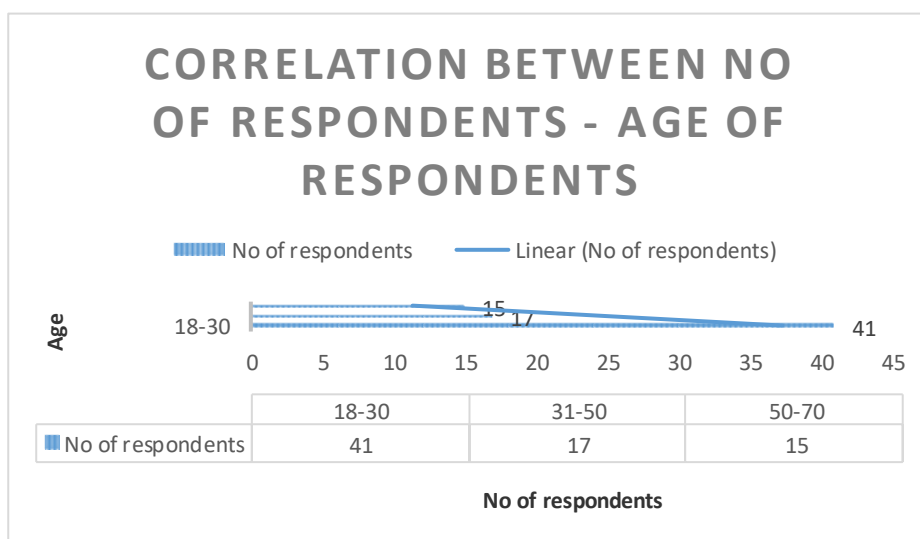


Figure 1. Correlation between the number of subjects and age

We used the Pearson correlation coefficient related to the correlation of the study's internal data, namely, the linear correlation of two variables, age-number of respondents. We obtained values in the range $[-0.89851; -0.84605]$ (normal values $-1;1$).

Regarding the sex ratio, we describe M:F 21:52. (Fig. 2)

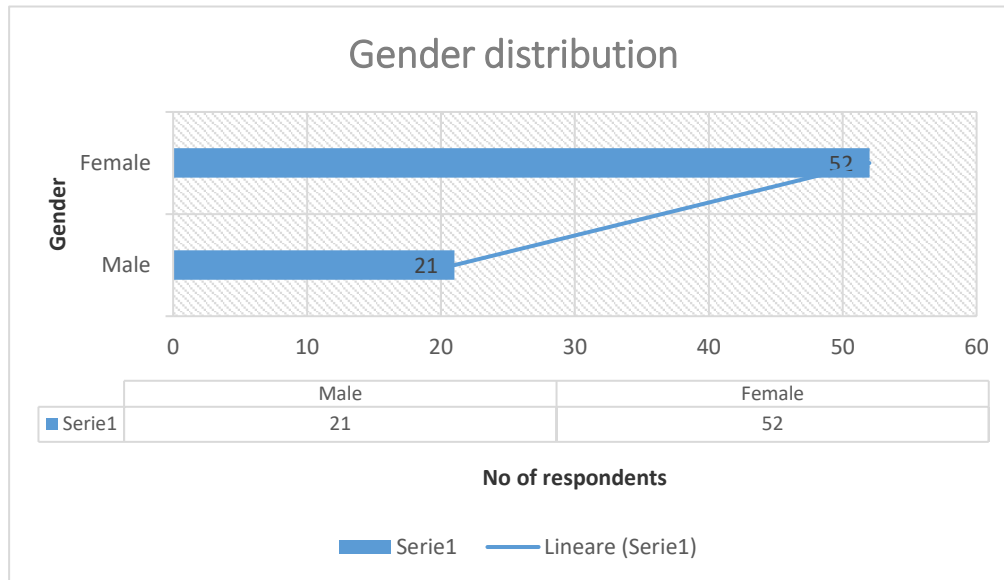


Figure 2. Gender distribution

Study participants belong to different categories: 45.2% are employees, 52.1% are students, and 5.5% are pensioners. The area of origin divides the subjects into 19.2% from the rural area and 82.2% from the urban area.

Concerning the level of education, 15.1% of subjects have high school education, 60.3% university education, 26% postgraduate education and 1.4% post-high school education.

The majority adhere to Orthodox religion 95.9%, 1.4% to Catholicism and 2.7% belong to other religious denominations.

3.2. Profile I- dietary restrictions imposed consciously and deliberately

67.1% of subjects stated that they avoid foods rich in fat, carbohydrates or calories, while 32.1% consume these foods without restrictions. 84.9% avoid eating foods they want at a certain moment, while 15.1% satisfy their food cravings.

52.1% of the participants have remorse when they give in to culinary temptations compared to 47.9% who resist "cravings". By contrast, 75.3% of the participants consumed any food while 24.7% have a list of prohibited foods. 78.1% of the participants in the study at the time of completing the questionnaire had food restrictions, being in opposition to the percentage of 21.9% who did not impose restrictions of this type.

The percentage for our subjects to item A5 was correlated with that of the previous item, and lead to the conclusion that the respective participants were on a diet or had a series of dietary restrictions at that time.

3.3. Profile II- emotions that generate a certain eating behaviour

The analysis of the figure below (Fig. 3) demonstrates that the subjects participating in this study adhere to emotional eating in a reduced proportion.

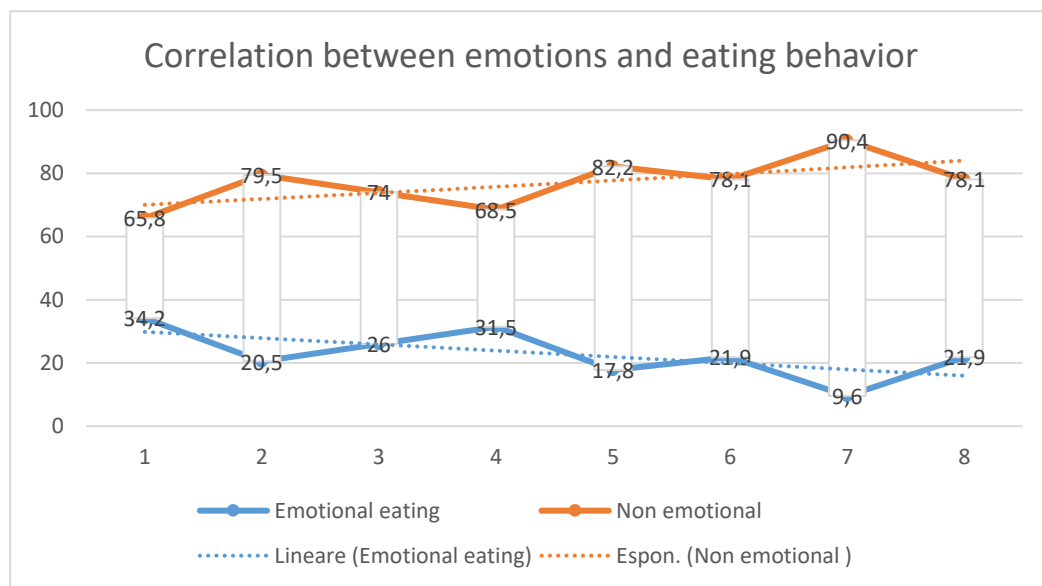


Figure 3. Emotional Eating Vs Non-Emotional Eating (Emotion-Eating Behavior Correlation)

3.4. Profile III - "intuition" in relation to the physical signals of hunger and satiety)

The analysis of the graph in figure 4 shows that the majority of subjects adhere to intuitive nutrition with an average of 73.95% in the category of those who adhere to IE and 26.05% for those who do not adhere to IE, the ratio of means being 2.82% in favor of those who adhere to IE.

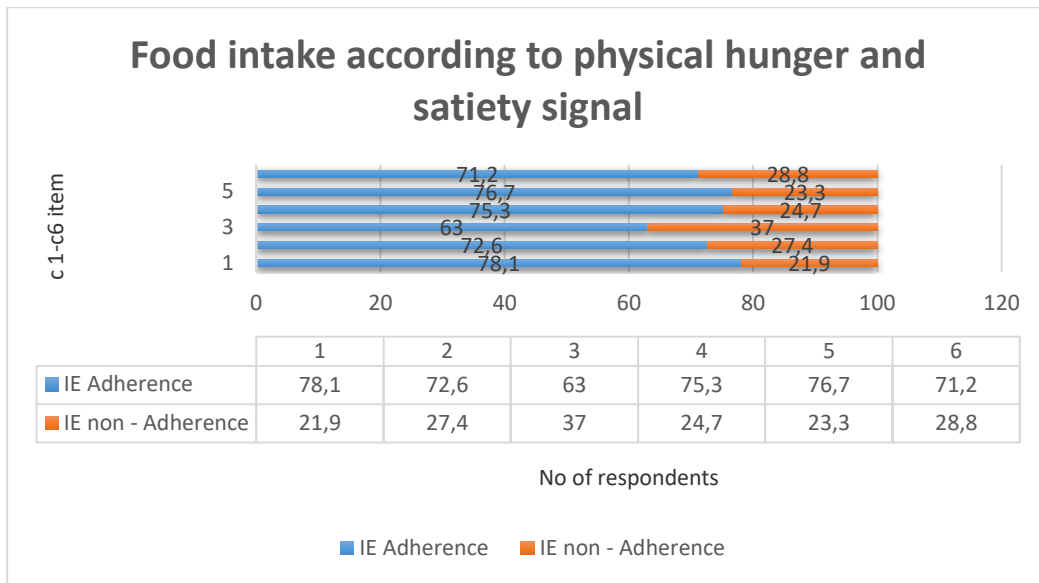


Figure 4. Intuitive Eating depending on the physical signals of hunger and satiety

3.5. Profile IV - healthy diet

Analyzing the figure below (Fig. 5), it can be seen that most of the subjects adhere to a healthy diet.



Figure 5. Correlation between healthy foods and non - healthy foods (healthy, responsible eating behaviour)

4. Discussion

Since the items were not designed with answers on a Likert scale, we cannot use Cronbach's alpha coefficient as an indicator of the reliability of the questionnaire. Moreover, in the article “The Intuitive Eating Scale -2: item refinement and psychometric evaluation with college

women and men” by Tylka and Kroon Van Dienst in 2013, they discuss the reliability and validity of their study, which were improved compared to the initial version from 2006. "The exploratory and confirmatory factor analyzes of the second order supported its hypothetical structure of 4 factors (the 3 initial factors, plus body-food choice congruence) and a higher-order factor. The IES-2 was largely invariant by gender, although negligible differences were detected on the factor loadings and intercepts of 2 items." "IES-2 scores also achieved incremental validity by predicting psychological well-being beyond eating disorder symptomatology. Applications of the IES-2 to empirical research and clinical work are discussed." (Tylka & Kroon Van Dienst, 2013). In another article entitled "Intuitive eating scale: an examination among early adolescents" supporting its validity, IES scores were inversely related to body mass index, body dissatisfaction, negative affect, pressure to be thin, and internalization of the thin and positive ideal with satisfaction towards life and positive affect.

The basic structure of this measure appears to hold for early adolescence, although it may be best defined by fewer items and one additional factor. (Dockendorff et al., 2012). Moreover, the cross-cultural validity of the Intuitive Eating Scale 2 was also discussed, in the article Cross-cultural validity of the Intuitive Eating Scale-2. Psychometric evaluation in a sample of the general French population (Camilleri et al., 2015) and in the article Psychometric evaluation of the German version of the Intuitive Eating Scale-2 in a community sample, thus highlighting the general intercultural validity valid in the case of different populations, at least at the European level. (Ruzanska & Warschburger, 2017). As a final argument of the indisputable validity of the IES-2, we bring into discussion the large number of studies that use this instrument and not least the development of an Arabic version of the IES-2 whose usefulness was recognized at least "among the adults in the speaking community of Arabic" as stated in this very recent study published in April 2023. (Fekih- Romdhane et al, 2023).

We made a series of correlations between the four sections of the study based on the similarity of the answers and their corresponding percentages. Thus, analysing items I.1, I.2, I.3 and II.1, II.2, II.3, we observed an approximately inversely proportional correlation of the percentages in the pairs of items I.1-II.1; I.2-II.2 and I.3-II.3. The questionnaire is designed so that there is a congruence of the meaning of these couplets. Thus, item I.1 (awareness, positive affectivity) has an emotional counterpart that is in antithesis in the content of item II.1 (yielding to impulse; negative affectivity), and the percentage report confirms this: I.1 [67.1%]- II.1 [65.8%]; I.2[15.1%]-II.2[20.5]; I.3[52.1%]-II.3[74%] (Table 3, Fig. 5)

Table 2. Correspondence of item pairs I1-II.1; I.2-II.2; I.3-III.3

Item	Statement
I.1	I try to avoid certain foods high in fat, carbohydrates or calories
I.2	If I crave a certain food, I cannot allow myself to eat it.
I.3	I get mad at myself for eating something unhealthy.
II.1	I find myself eating (I realize I'm eating) when I'm feeling emotional (anxious, sad, depressed), even when I am not physically hungry.
II.2	I find myself eating when I am lonely, even when I am not physically hungry.
II.3	I use food to help calm my negative emotions

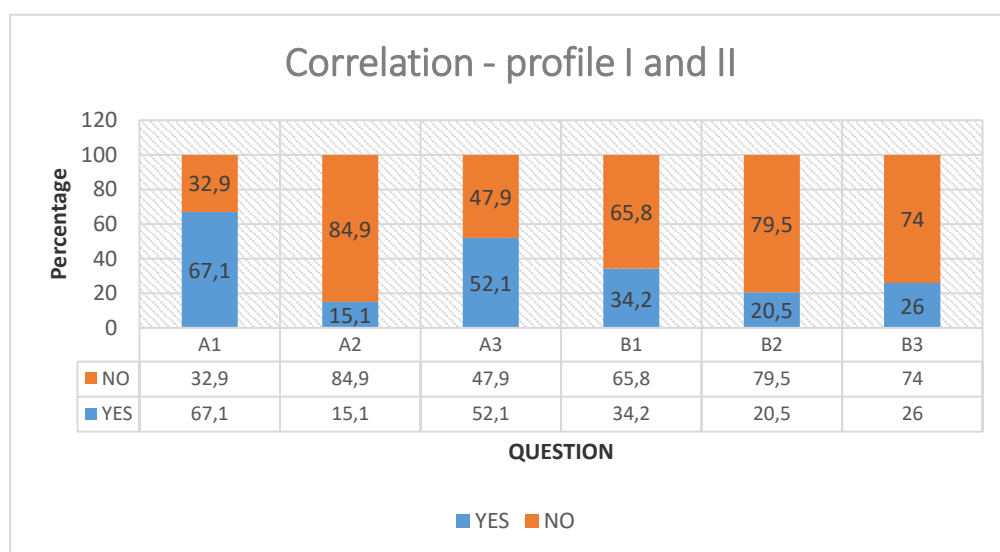


Figure 5. The chart of correspondence of item pairs I.1-II.1; I.2-II.2; I.3-II.3

The results obtained in our study can be correlated to those of a study that shows that variable permissiveness leads to the adoption of unhealthy eating behavior and strategies that consider promoting food intake in response to signals translated by the brain as hunger or satiety are an optimal strategy in promoting a healthy diet (Camilleri et al., 2017, Cheng et al., 2022).

Similarly, we analyzed the correspondence of items III.2-IV.1, III.3-IV.2, and III.4-IV.3. The analysis of the content and percentages of the subjects led to a congruence similar to that discovered in the case of the couplets analyzed previously.

Thus, the correspondence observed between the couplets of items above has also been confirmed by the percentages obtained by analyzing the responses of the subjects participating in the study: III.2 [72.6%]-IV.1[82.2%]; III.3[63%]-IV.2[67.1%]; III.4[75.3%]-IV.3[72.6%] (Table 3., Fig. 6.)

Table 3. Correspondence of item pairs III.2-IV.1; III.3-IV.2; III.4-IV.3

<i>Item</i>	<i>Statement</i>
<i>III.2</i>	I trust my body to tell me what to eat.
<i>III.3</i>	I trust my body to tell me how much to eat.
<i>III.4</i>	I rely on hunger cues to tell me when to eat.
<i>IV.1</i>	Most of the time, I want to eat nutritious food.
<i>IV.2</i>	Most of the time, I want to eat nutritious food.
<i>IV.3</i>	I mostly eat foods that give my body energy and stamina.

The obtained results correlate with those of a study in which the awareness and balance of body-food choice correlates positively with the intake of healthy foods and negatively with the intake of unhealthy foods. In other words, the action of eating for physical reasons, rather than for emotional reasons, is explained.

In the mentioned study, variables such as eating for physical reasons, before emotional ones (according to the questionnaire also used in this study, IES-2) and the act of eating consciously favored a lower intake of unhealthy foods, while the permission variable unconditional to eat and the variable called trust on hunger and satiety cues - (according to the questionnaire used in this IES-2 study) showed an inverse relationship (Malachowska & Jezewska- Zychowicz, 2022). Also, during pandemic, anxiety and psychomotor agitation, hypnotic disorders and appetite disorder were the three symptoms for which many patients were hospitalized (Droahnã et al., 2023).

A series of studies have brought into discussion the differences in eating behavior between female and male persons, with express reference to the adolescent, considering the fact that at this age there are behaviors that shape the choices of the future adult, both in those it concerns eating behavior as well as a series of general behavioral behaviors - substance addiction, identity problems or suicidal ideation. All these components of individual psychology are related to self-image and self-esteem, the variable directly related to body image. Thus, it was found that while boys adhere to body shaping behaviors through physical exercises, girls' resort to diet. Regarding the behavior related to the consumption of substances, suicidal ideation or self-harming behavior, they are common choices for both genders (Biolcati et al., 2021; Pace & Muzi, 2019; Yoon et al., 2022).

There are studies that provide arguments in favor of the finding that negative affectivity (AN) correlates positively with the interoceptive deficit of the feeling of hunger or satiety, resulting in an eating behavior characterized by excessive food intake (Di Nardo et al., 2020).

The problem of healthy eating is closely related to the educational aspect implemented in the family and in the school. A recent study has highlighted the direct connection of obesity in children, with aspects related to the nutritional habits of the family and consequently the connection between the family and the school is essential and the method of solving it is adapted to the age of the children, namely, through SG (serious game) (Marchetti et al., 2018).

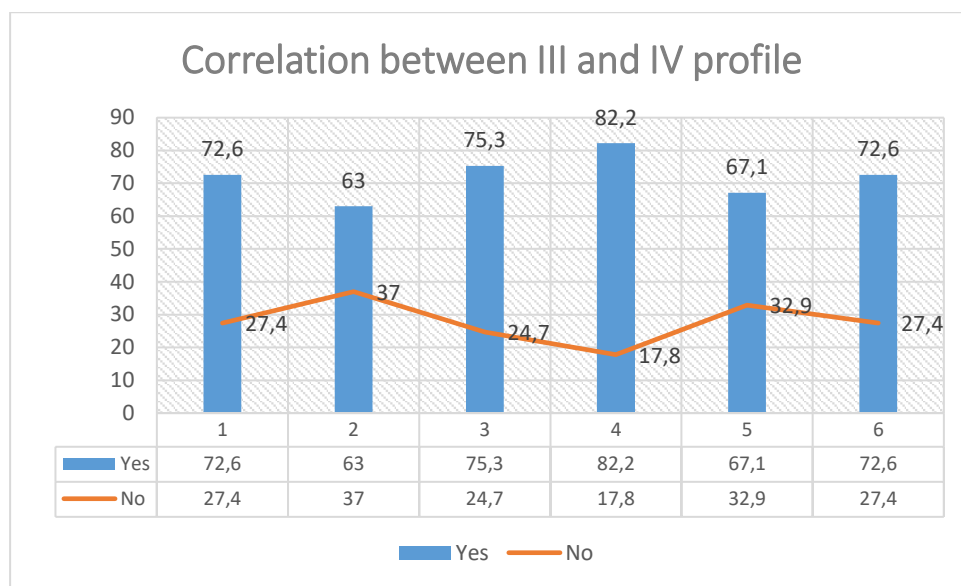


Figure 6. Correspondences of item pairs III.2-IV.1; III.3-IV.2; III.4-IV.3

Studies carried out during the Covid 19 pandemic highlighted the fact that anxiety and negative affectivity in a sample of students quarantined in the first wave of the pandemic also determined behavioral manifestations related to eating disorders (Commodari et al., 2021).

In addition, the self-determined motivation variable for the type of food is associated with a better quality of the diet (Carbonneau et al., 2021). In this way, IE can be considered as an adaptive approach to eating, and it has been identified as a plausible positive determinant of physical and mental well-being statuses. (Román et al., 2021).

The correspondence of the association of the contents of the mentioned couplets [I.1-II.1; I.2-II.2; I.3-II.3] is confirmed through the corresponding percentages (inversely proportional, respectively, directly proportional in accordance with their meaning) resulting from the analysis of the responses of the study participants. [67.1 % vs. 34.2%; 15.1% vs 20.5% and 52.1% vs 26%).

The correspondence of the association of the contents of the mentioned couplets is confirmed by the corresponding percentages resulting from the analysis of the responses of the study participants, more precisely between IE and the type of food. Considering the correlation of this study performed on some patients whose results correlate positively with studies performed on larger population samples, IE is a useful tool in weight management (Rodgers et al., 2022). This statement is supported by numerous recent studies (Caferoglu & Toklu, 2022) that highlight the multiple implications and medical and psychological advantages of IE. An example of this would be the fact that IE can be considered as a mediator of the relationship between self-regulation and BMI. Regarding this aspect, there is evidence that in weight management

interventions, it could be useful to promote IE, especially for people with low self-regulation. (Ruzanska & Warschburger, 2019). Previous studies have discussed physiological mechanisms such as interoceptive sensitivity, which are closely related to recognizing hunger and satiety signals and regulating food intake accordingly (Herbert et al, 2013; Herrero & McCrea, 2023, Carbonneau et al., 2017). This is how current research resumes and confirms a series of available data regarding the psychological and physiological mechanisms of IE involvement in weight management, diet programs and its participation in weight maintenance in the general population as a prerequisite for optimal health and the prevention of chronic cardiovascular and metabolic diseases (Warschburger et al, 2022). Dental problems and depression, two seemingly unrelated issues, often intertwine in a complex web of physical and emotional well-being. The literature increasingly highlights their connection, revealing that patients with severe dental problems frequently experience psychosocial consequences, distress, and psychiatric challenges, particularly depression. This association underscores the importance of a multidimensional approach to healthcare that recognizes the profound impact of mental health on oral health (Moroianu et al., 2022). By promoting balanced and conscious nutrition, intuitive eating not only aids in managing depressive symptoms but also plays a role in preventing dental issues exacerbated by poor dietary choices. In essence, intuitive eating bridges the gap between dental health and depression, acknowledging the bidirectional relationship between the two (Moroianu et al., 2022). Of course, it is necessary to conduct some studies in the future to confirm the benefits of IE through validation in the context of evidence-based medicine. At this moment, it is possible to state that EI can be a promising approach that opens a different way of management regarding the weight control approach, representing at the same time an interface area between the medical and psychological approaches (Morales et al., 2022).

In the current study, analyzing the results through the cognition-emotion-behavior triad, we observe that a certain cognitive pattern leads to a profile of emotions followed by the adoption of a healthy or, on the contrary, unhealthy behavior. It is certain that emotional instability correlates positively with unhealthy (often undesirable) behavior and it is the result of irrational cognitions in relation to the way of eating. The correlation between certain cognitive coordinates based on emotional instability can be an explanation for the adoption of an unhealthy behavior, but it does not fully explain this phenomenon. Corroborating the results of our study with the one conducted in 2020 using the Intuitive Eating Assessment Scale-2 questionnaire translated and adapted to respondents from Romania (Tylka, 2006; Tylka & Kroon van Diest, 2013, Vintilă et al., 2020) as a work tool, we find a limitation of the possibility of using the construct of intuitive eating in the management of eating disorders and implicitly in the management of

obesity due to the fact that the Romanian people are still in the stage of nutritional transition (Vintila, M., et al., 2020). This fact should not be seen as a limitation. It can be considered a challenge for the creation of some personality profiles of populations that are still in the stage of nutritional transition, thus representing the theoretical premises for the use of a method that offers the advantage of the possibility of correlating food preferences (of course, with the establishment of strictly defined coordinates), the nutritional needs and cognitions based on a certain personality profile of the individual

This study is not without limitations that may affect research and statistical analysis. First, our study did not have a control study. It will also need to mention that the study is strictly limited to the subjects who agreed to respond at our questionnaire, and the reason for which the issuance of some conclusions is based on hypotheses detected strictly in the case of these patients. For this reason, we can consider as a future research perspective the continuation of the study over an extended period of time as well as more subjects.

5. Conclusions

Approaching intuitive eating as a simple nutritional behavior in which there is a congruence between the body and the choice of food is simplistic and useless for managing effective weight control behaviour. Therefore, an integrative biopsychosocial perspective is necessary to allow the creation of theoretically valid and applicable patterns in clinical specialties that work with patients with weight control problems.

Thus, the association between the choice of food according to the body signals determined by the feeling of hunger and a series of psychosocial factors (information related to nutrition, individual food preferences, socio-economic factors, social category, a specific individual food profile and last but not least the social and environmental influences) intervene in food behaviour.

Numerous studies published recently have attempted to decipher the subtle connections between healthy food choices and the emotional factors that determine these choices as an expression of appropriate eating behaviour. In essence, it is about the promotion of an ecological food model in which the promotion of positive food choices prevails at the expense of the stigmatization of negative food choices.

Ethical approval

prospective study. The study was conducted in accordance with the Declaration of Helsinki, and approved by the Institutional Ethics Committee of Clinical Hospital of Psychiatry “Elisabeta Doamna” Galați, Romania (01/10.04.2023) for studies involving humans.

Informed consent statement

Informed consent was obtained from all subjects involved in the study by approving and completing the questionnaire.

Data availability statement

All data presented in this study are available upon request.

Conflict of interest statement

There are no known conflicts of interest in the publication of this article. The manuscript was read and approved by all authors.

Authors' contribution

Conceptualization, L.A.M. and C.C.; methodology, C.C and L.A.M; software, L.A.M., C.C., D.R.P, and M.M; validation, V.A. ,A.B ,and B.M; investigation, L.A.M, C.C and M.M.; writing—original draft preparation, L.A.M and C.C; writing—review and editing, L.A.M, A.P.S and M.M.; visualization V.A and A.P.S. All authors have read and agreed to the published version of the manuscript.

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