

EMOTIONAL EATING: FROM MEASUREMENT TOOLS TO METHODOLOGICAL DECISIONS

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Purpose: Emotional eating, understood as eating in response to emotional states rather than physiological hunger, has been widely examined across psychology, public health, and behavioral sciences. Its relevance increased during the COVID-19 pandemic, when social and economic stressors significantly altered dietary patterns, underscoring the need for precise, comparable measurement tools. The purpose of this paper is to review and compare instruments for assessing emotional eating, systematize existing measurement approaches, and support researchers in selecting scales aligned with specific research objectives.

Design/methodology/approach: A two-stage literature review was conducted. In the first stage, instruments for measuring emotional eating were identified using predefined keywords in scientific databases. In the second stage, only tools that directly measured the emotional components of eating behavior were included. The selected scales were analyzed with respect to their theoretical foundations, assessed emotional dimensions, number of items, application contexts, and availability of cultural adaptations. Based on this analysis, a decision tree was developed to guide the selection of measurement instruments.

Findings: The review demonstrates considerable heterogeneity among emotional eating scales in terms of conceptual assumptions, emotional scope, and practical applicability. Instruments differ substantially in the types of emotions assessed, methodological focus, and suitability for specific research contexts. The decision tree integrates these differences into a structured framework, facilitating informed methodological choices.

Originality/value: This paper provides a comprehensive methodological synthesis of measurement tools for emotional eating and introduces a novel decision tree to support scale selection. The study adds value by addressing a critical gap in comparability and methodological transparency in emotional eating research, targeting researchers in psychology, public health, and behavioral sciences.

Keywords: emotional eating, eating behaviors, measurement tools, review of research instruments, decision tree.

Category of the paper: Literature review.

1. Introduction

Eating behaviors, including their psychological determinants, have been the subject of interest for researchers in fields such as public health, consumer behavior, the psychology of eating, and eating disorders. A crucial area of this research is emotional eating—a form of eating behavior in which food consumption occurs in response to emotions rather than physiological hunger (Arnouk et al., 1995; Bourdier et al., 2017). A significant increase in interest in this phenomenon was observed during the COVID-19 pandemic, when lifestyle changes, stress, social isolation, and economic uncertainty contributed to more frequent eating in response to emotions such as sadness, anxiety, or boredom (Barcın-Güzeldere, Devrim-Lanpir, 2022; Cecchetto et al., 2021; Di Crosta et al., 2021; Di Renzo et al., 2020). Emotional eating triggered by pandemic-related stressors has become not only a topic of numerous psychological studies but has also attracted the attention of economists, who analyze its implications for consumption, spending patterns, and purchasing decisions (Cai et al., 2024; Franklin et al., 2023; Khoshghadam, Rajabi, 2024).

Emotional eating is understood both as an emotion regulation strategy and as a response to diverse stimuli, often leading to maladaptive eating patterns. This phenomenon is associated with an increased risk of overweight, obesity, and eating disorders such as binge eating and bulimia (Frayn, Knäuper, 2018; Nolan et al., 2010). At the same time, research indicates that emotional eating is not limited to individuals with eating disorders. It also occurs in general populations and may vary in intensity depending on cultural context, gender, or life stage (Bozkurt et al., 2024; Frayn, Knäuper, 2018). Increasingly, it has also been examined by economists and market researchers who investigate its effects on consumer decision-making, impulsivity, product category management, and the broader consequences for public health and the economy.

In this context, there is a growing need for precise and reliable tools to measure emotional eating, both in scientific research and in clinical practice. Numerous measurement instruments have been developed to assess the emotional aspects of eating. Among these are scales focused exclusively on emotional eating (e.g., Emotional Eating Scale, EES), as well as scales capturing a broader spectrum of emotional eating behaviors (e.g., Three Factor Eating Questionnaire, TFEQ). Although each of these instruments was developed to address specific research needs, their abundance and partial overlap often create uncertainty and difficulties in selecting the most appropriate tool. For researchers, choosing the proper measurement instrument remains a challenge, as these scales differ in theoretical foundation, the scope of emotions included, their valence, and methods of assessment. As a result, researchers may unintentionally employ tools that are not fully aligned with the theoretical assumptions of their projects, leading not only to reduced measurement validity but also to problematic interpretation of results.

Despite the growing importance of this topic, in the fields of economics, management, and quality sciences, there is still a lack of in-depth methodological studies that would facilitate the selection of appropriate measurement scales. Researchers in these disciplines often rely on tools developed within psychological or medical literature; however, without a comprehensive guide, it is difficult to determine which scales are valid in the context of research objectives focused on consumer decision-making or emotions accompanying consumption. Methodological literature has repeatedly emphasized the need for systematic and methodological supporting tools that assist in the process of selecting measurement instruments in a logical, transparent, and theory-driven manner (DeVellis, 2016). Such tools serve an analogous function: they guide the user step by step through key questions concerning the scope, structure, and content of the instrument until the most suitable solution for a specific research problem is identified. A similar approach has been applied, for example, in reviews of instruments measuring physical activity in adolescents (Sallis et al., 2000), parental self-efficacy (Alderfer et al., 2008), or health decision-making (Shields et al., 2016), where authors organize available scales according to logical criteria (e.g., scope, target age group, cognitive vs. emotional dimension) and create guides that support instrument selection. Such solutions help avoid methodological errors and enhance the transparency of research procedures.

The aim of this article is therefore to review selected measurement tools for eating behaviors, with particular emphasis on scales directly addressing emotional eating. The presented review includes nine scales and compares their theoretical framework, type of emotions measured, number of items, contexts of application, and availability of cultural adaptations. In addition, the study is based on a systematic, expert-based reconstruction of the actual content of emotional eating subscales and individual measurement items, which allows for a more fine-grained analysis than approaches limited to declared scale characteristics. On this basis, a structured classification of constructs was developed, together with a practical decision tree for selecting emotional eating measurement scales, designed to support a more transparent and theory-consistent choice of instruments. In this way, the article seeks to complement existing reviews by offering methodological guidance that may be particularly useful to researchers in economics, management, and consumer behavior.

2. The nature of emotional eating and its measurement

Emotional eating is a term used to describe the tendency to eat in response to emotions and constitutes one of the key subscales within the broader category of emotion-related eating behavior. Within this category, alongside emotional eating, other manifestations such as binge eating are also included (Sultson, Akkermann, 2019; Tuluhong, Han, 2023). Emotional eating is defined as the tendency to consume food in response to emotions rather than physiological

hunger (Nolan et al., 2010). Initially, this concept was developed mainly in the context of negative emotions—such as sadness, anger, or anxiety—and was understood as a strategy for suppressing unpleasant emotional states. Food was assumed to serve as a mechanism of rapid emotional regulation, providing immediate but short-lived relief (Macht, 2008; Wallis, Hetherington, 2009). However, subsequent studies have also highlighted the role of positive emotions (e.g., joy, excitement), which may lead to increased food intake (Bourdier et al., 2017; Martins et al., 2023). Nevertheless, eating triggered by positive emotions is generally considered less harmful in the context of weight control than eating in response to stress or sadness. For this reason, negative emotional states (anxiety, anger, boredom, depression) have traditionally remained the primary focus of research on emotional eating (Manzoni et al., 2008). Chawner and Filippetti (2024) further note that emotions may lead either to overeating or appetite suppression. According to the authors, these behaviors are likely based on different psychological (e.g., type and intensity of emotion) and physiological mechanisms, and their occurrence depends on individual predispositions and situational context. Emotional eating can thus serve both adaptive functions (e.g., deliberately eating to improve mood) and maladaptive ones (e.g., impulsive overeating in response to stress) (Macht, 2008). Moreover, Nolan et al. (2010) emphasize that not only the type of emotion, but also everyday life situations may trigger emotional states that activate the mechanism of emotional eating.

Emotional eating can be conceptualized either as an independent phenomenon or as one component of broader models of eating behaviors, in which it is treated as one of several complementary dimensions regulating food intake. This extended perspective highlights the importance of emotional eating as part of wider eating behavior structures, rather than merely an isolated habit.

Emotional eating is a subscale of significant importance in both population-based and clinical studies. It is a measurable phenomenon associated with body weight, risk of eating disorders, and the tendency to consume energy-dense foods in an uncontrolled manner (Bourdier et al., 2017; Bozkurt et al., 2024). Its presence has been demonstrated across various groups, including the general population, individuals with overweight and obesity, as well as those with eating disorders and depressive symptoms (Frayn, Knäuper, 2018; Nolan et al., 2010; Skolmowska et al., 2023). In many cases, emotional eating is perceived as a maladaptive coping strategy, consisting of food consumption in response to difficult emotional states. Such behavior may lead to the development of uncontrolled eating patterns, an increased risk of food addiction, weight gain, and adverse health consequences (Bozkurt et al., 2024; Ljubičić et al., 2023).

As indicated above, both emotion-related eating behaviors and emotional eating itself have significant practical implications, which highlights the need to account for them in clinical practice and in the prevention of psychophysical health issues (Frayn, Knäuper, 2018; Nolan et al., 2010). At the same time, it is increasingly recognized that emotional eating extends beyond psychological issues and fits within the broader framework of purchasing behaviors and

decisions made under the influence of emotions—an area explored in economics, particularly behavioral economics. The underlying assumption is that emotions constitute a key determinant of purchasing decisions and strongly influence consumer behavior (Kahneman, 2024; Thaler, Sunstein, 2009). Consequently, emotional eating represents a complex, interdisciplinary phenomenon, the analysis of which requires consideration not only of psychological but also economic mechanisms.

In response to the growing interest in the determinants of eating behaviors, including emotional eating, numerous tools (scales) have been developed to measure them. These scales differ in terms of their theoretical assumptions, the number and type of included items, and the scope of assessment. Some of them focus on a broad spectrum of eating behaviors, while others are oriented explicitly toward selected subscales, such as emotional eating, which is the focus of the present analysis.

An additional conceptual challenge in the measurement of emotional eating concerns the distinction between emotional states and situational triggers that may evoke them. In some measurement instruments, situational contexts are implicitly treated as proxies for emotions, which may lead to a partial conflation of situational antecedents and emotional responses and, consequently, affect construct clarity and interpretation. From a consumer behavior perspective, this overlap is particularly relevant, as emotions often operate as mediating mechanisms between situational stimuli and consumption-related decisions (see Macht, 2008; Nolan et al., 2010; Kahneman, 2024).

The selection of instruments for measuring emotional eating poses a significant methodological challenge for researchers investigating eating behaviors. Although many available scales demonstrate high reliability and validity, they differ substantially in theoretical foundation, the range of emotions assessed, the number of items, response formats, and the availability of linguistic versions and cultural adaptations. An additional challenge lies in distinguishing between instruments that conceptualize emotional eating as the primary construct and those that treat it as a subscale within a broader assessment of eating behaviors. It is also important to note that not all tools differentiate between positive and negative emotions—a factor that may be crucial in studies where emotional context is considered as a moderating or mediating variable.

3. Methodology

To identify instruments used for measuring emotional eating, a literature review was conducted in the Scopus and Web of Science databases. The search process followed a two-stage procedure and was based on the analysis of publication abstracts. In the first stage, a set of key phrases was applied, divided into two thematic groups. The first group referred to

emotional eating behaviors as a phenomenon and included the terms: emotional eating, emotions & eating, emotional-related eating, emotional eating behavior, and emotional behavior. The second group referred to measurement instruments and included the terms: scale, questionnaire, and measure. These phrases were used in search queries covering publication titles, abstracts, and keywords. The aim of this stage was to obtain a general overview of the scientific literature on the relationship between emotions and eating, as well as to identify measurement tools employed in this area. An abstract screening procedure was then performed, during which recurring names of scales were extracted, both in their complete form and abbreviations (e.g., “Emotional Eating Scale”, “EES”). Based on this, a preliminary list of 13 instruments potentially related to the measurement of emotion-related eating behaviors was compiled. In the second stage, each of these scales was re-entered into the databases as a separate search query (using both the full name and abbreviation), followed by another round of abstract screening. The purpose of this stage was to verify whether a given scale was indeed designed to measure eating behaviors associated with emotions—that is, whether it contained an emotional component in its structure—or whether it had only been mentioned contextually or mistakenly in the literature.

Ultimately, nine scales directly addressing emotional eating as a subscale were qualified for further analysis. Among them are instruments specifically designed to measure this phenomenon: the Emotional Eater Questionnaire (EEQ), Emotional Eating Scale (EES), Emotional Appetite Questionnaire (EMAQ), and the Emotional Overeating Questionnaire (EOQ). In addition, several multidimensional scales that include subscales on emotional eating alongside other aspects of eating behavior were identified: the Three Factor Eating Questionnaire (TFEQ), Adult Eating Behaviour Questionnaire (AEBQ), Dutch Emotional Eating Questionnaire (DEEQ), Weight-Related Eating Questionnaire (WREQ), and the Mindful Eating Questionnaire (MEQ).

Conversely, four instruments were deliberately excluded from further analysis: the Binge Eating Scale (BES), Eating Disorder Examination Questionnaire (EDE-Q), Intuitive Eating Scale (IES), and the Yale Food Addiction Scale (YFAS). Although these scales appear in the literature on eating disorders and impulsive eating, they do not contain a component directly referring to emotional eating. Including them in the analysis would risk unjustifiably broadening the scope of this study beyond its primary objective, which is the classification of instruments specifically measuring emotional eating.

During the analysis of the empirical material, it became evident that some of the research instruments included not only the dimension of emotional eating but also a range of subscales addressing other aspects of eating behavior regulation. This created the need to systematize them so that results could be interpreted in a comprehensive and comparable manner across different questionnaires. To develop a classification of these additional subscales that do not directly address the emotional eating dimension, all constructs present in the selected instruments (e.g., TFEQ, DEBQ, WREQ, AEBQ, MEQ) were identified and aligned with their

corresponding measurement items. This approach made it possible to capture not only the subscale names but also their actual content scope. Subsequently, a comparative analysis was conducted at the level of the content of individual items and subscales. This process had an expert-based character, aiming to identify similarities and differences in what the specific items measure or reflect regarding eating behaviors and attitudes. During this stage, elements related to similar mechanisms were grouped together, such as physiological signals of hunger and satiety, responses to external stimuli, or restrictive strategies.

The next step was synthesis—merging detailed constructs and items into broader, coherent overarching categories that organize them in a structured way. The final classification was achieved through an iterative process of adjustment, in which the initial groups were verified and refined to reflect both the meaning of the items and the broader psychological context they referred to.

This procedure enabled the development of a structured overview of nine scales measuring emotional eating (Table 1), which had previously been characterized in terms of their theoretical framework, application scope, and suitability for specific populations and respondent groups. A subsequent classification included the presence of additional subscales extending beyond the emotional eating dimension (Table 2). The outcome was the development of a decision tree (Figure 1), which transparently classifies the instruments used for measuring emotional eating. This tree serves not only as a valuable methodological tool but also as a foundation for designing complex research models that incorporate multidimensional aspects of eating behaviors.

4. Emotional eating – comparative analysis of measurement instruments

Below, the nine scales included in the study are presented. Their discussion facilitates a deeper understanding of both the potential and limitations of individual instruments in scientific research as well as in practical applications.

Adult Eating Behaviour Questionnaire (AEBQ)

The AEBQ was developed by Hunot et al. (2016) based on the CEBQ (Children's Eating Behaviour Questionnaire), which was designed to assess eating behaviors in children (Wardle et al., 2001). Thus, the AEBQ represents an adaptation of the CEBQ for the adult population. It is an instrument used to assess individual appetite-related traits in adults, which may be relevant for body weight and eating patterns. The original version of the AEBQ contained 35 items forming eight subscales related to food-approach traits and food-avoidance traits: Hunger, Food Responsiveness, Emotional Overeating, Enjoyment of Food, Satiety Responsiveness, Emotional Undereating, Slowness in Eating, and Food Fussiness.

The questions addressing emotional eating referred to situations of both excessive eating and food restriction (e.g., “I eat more when I’m upset/worried/anxious/annoyed/angry; I eat less when I’m annoyed/worried/anxious/upset/angry”).

Dutch Emotional Eating Questionnaire (DEEQ)

The DEBQ is widely used in research on obesity, eating disorders, appetite control, and the influence of emotions and environmental cues on eating habits. Developed by Van Strien et al. (1986), it consists of 33 items assessing the frequency of specific behaviors: Restrained Eating—the tendency to consciously restrict food intake in order to control body weight; Emotional Eating—the tendency to eat in response to negative emotions such as sadness, stress, or anxiety; and External Eating—eating triggered by external cues (e.g., the sight or smell of food) regardless of hunger.

There is also a DEBQ-parent version, which has been shown to be a more reliable method for assessing eating behaviors in children (Braet, Van Strien, 1997). Although the original DEBQ includes 33 items, shortened versions have been used in some studies, such as DEBQ-C with 20 items (van Strien, Oosterveld, 2008) and a 16-item DEBQ (Bailly et al., 2012). The DEBQ Emotional Eating subscale consists of 13 items assessing the urge to overeat in response to negative emotions (e.g., “Do you have a desire to eat when you are irritated/nothing to do/depressed/lonely/feeling let down/cross/awaiting something unpleasant/anxious/things go against you/frightened/disappointed/upset/bored?”).

Emotional Eater Questionnaire (EEQ)

The EEQ was developed and validated by Garaulet et al. (2012) to assess emotional eating, particularly in the context of individuals with overweight and obesity. Its primary aim is to identify the extent to which emotions influence an individual’s eating habits. The questionnaire consists of 10 items concerning general eating behaviors in response to different emotional states. Only one item directly refers to three emotions (“Do you eat when you are stressed, angry, or bored?”). Responses are provided on a four-point Likert scale, where respondents indicate the frequency of specific behaviors (0 – never; 1 – sometimes; 2 – generally; 3 – always). Higher scores on the EEQ indicate stronger tendencies to eat under the influence of emotions, thus reflecting higher levels of emotional eating (0-5: non-emotional eater; 6-10: low emotional eater; 11-20: emotional eater; 21-30: very emotional eater).

Emotional Eating Scale (EES)

The original Emotional Eating Scale (EES) was developed by Arnow, Kenardy, and Agras (1995) to examine the intensity of the relationship between mood and eating among obese women. This 25-item scale used a five-point response format ranging from “no appetite” to “enormous appetite”, with intermediate values (“slight appetite”, “moderate appetite”,

and “strong appetite”). The scale included three subscales: anger/frustration (11 items), anxiety (9 items), and depression (5 items), identifying increased desire to eat in response to negative emotions.

Based on the EES, the EES-II was developed, which expanded the instrument to include positive emotions as well as both appetite suppression and appetite increase. It was assumed that some emotional states stimulate the desire to eat, while others suppress it. The EES-II included 34 items covering 23 negative and 11 positive emotions and was tested in a nonclinical sample. Mood states were identified using the Profile of Mood States (McNair, Lorr, Doppleman (1971). POMS Manual for the Profile of Mood States. San Diego, CA Educational and Industrial Testing Service. - References - Scientific Research Publishing, n.d.), which explains the different number of emotions. Similar to the original EES, the items were grouped into three subscales—depression, anxiety, and anger—with an additional fourth subscale for positive mood. The structure of emotions in EES-II was as follows:

- Depression: lonely, blue, sad, bored, inadequate, helpless, guilty, upset, frustrated, discouraged, worried, confused.
- Anger: furious, angry, irritated, resentful, on edge, rebellious.
- Anxiety: jittery, shaky, worn out, nervous, uneasy.
- Positive mood: happy, enthusiastic, pleased, alive, active, strong, excited, warm-hearted, satisfied, kindly, elated.

Further modifications of the scale include the Emotional Eating Scale for Children (EES-C), designed for use in children and adolescents (Tanofsky-Kraff et al., 2007).

Emotional Appetite Questionnaire (EMAQ)

The EMAQ, developed by Nolan, Halperin, and Geliebter (2010), assesses the tendency to increase or decrease food intake under specific emotional states and social situations. It consists of 22 items divided into four subscales corresponding to two dimensions of emotions (positive vs. negative) and two types of contexts (emotional vs. situational). Respondents rate how their appetite changes in response to the listed emotions and situations:

- Negative emotions include: sad, bored, angry, anxious, frustrated, tired, depressed, frightened, lonely.
- Positive emotions include: confident, happy, relaxed, playful, enthusiastic.
- Examples of positive situations are: when falling in love, when engaged in an enjoyable hobby, and after receiving good news.
- Negative situations include: under pressure, after a heated argument, after a tragedy of someone close to you, after ending a relationship, after losing money or property.

The EMAQ thus makes it possible to distinguish emotional eating patterns depending on both the valence of emotions (positive vs. negative) and the nature of the stimuli (emotions vs. social situations).

Emotional Overeating Questionnaire (EOQ)

The EOQ, developed by Masheb et al. (2006), measures the frequency of overeating in response to emotions, specifically assessing how many episodes of overeating participants reported during the past 28 days. Respondents evaluate the frequency of overeating triggered by five negative emotions and one positive emotion: anxiety, sadness, loneliness, tiredness, anger, and happiness. Responses are summed to determine the emotional overeating score, with higher scores indicating more frequent overeating under the influence of emotions. Scores range from 0 to 46, with values above 17 considered indicative of moderate to severe overeating and thus associated with an increased risk of eating disorders. The EOQ has been used, for example, to assess changes in eating behaviors under social isolation during the COVID-19 crisis (Constant et al., 2023). Its advantage lies in its brevity (6 items), which minimizes cognitive burden for respondents. A modified version, EOQ-5, excludes the positive emotion item (Casu et al., 2020).

Mindful Eating Questionnaire (MEQ)

The MEQ, designed by Framson et al. (2009), measures the level of mindful eating, defined as the practice of being fully present during eating, paying attention to sensory experiences such as taste, texture, and smell, as well as to internal hunger and satiety signals. Respondents evaluate their experiences of mindful eating using a four-point scale (1 = never/rarely, 4 = always/usually), with higher scores reflecting greater mindfulness in eating behaviors. The 28 items of the MEQ are grouped into five constructs: Disinhibition, Awareness, External Cues, Emotional Response, and Distraction. The Emotional Response construct includes items such as: “When I’m sad I eat to feel better”, “When I’m feeling stressed at work I’ll go find something to eat”, “I have trouble not eating ice cream, cookies, or chips if they’re around the house”, “I snack without noticing that I am eating”.

Shortened versions include the MEQ-20 (Clementi et al., 2017) and the MEQ-C for children (Hart et al., 2018).

Three Factor Eating Questionnaire (TFEQ)

The TFEQ was developed by Stunkard and Messick (1985) to measure three main aspects of eating behaviors: Cognitive Restraint (conscious restriction of food intake to control body weight), Disinhibition (tendency to overeat in response to emotional or situational cues), and Hunger (susceptibility to feelings of hunger and their influence on eating behavior). The original TFEQ included 51 items, later shortened to an 18-item version by Karlsson et al. (2000), which renamed the constructs slightly and explicitly included Emotional Eating as a subscale. In this version, emotional eating is assessed with three items: “When I feel anxious,

I find myself eating”; “When I feel blue, I often overeat”; “When I feel lonely, I console myself by eating”.

An extended 21-item version (TFEQ-R21) was developed by Tholin et al. (2005). Modified versions have also been designed for children, such as the CTFEQ-R17 and CTFEQ-R21. The TFEQ is widely used in research on obesity, weight control, and eating disorders.

Weight-Related Eating Questionnaire (WREQ)

The WREQ, developed by Schembre, Greene, and Melanson (2009) was designed to assess eating behaviors related to weight control. It identifies patterns that may influence the balance between food intake and the body’s needs, which is relevant in both weight reduction and weight maintenance contexts. The 16-item scale is organized into four subscales: Routine Restraint (everyday restriction of food intake), Compensatory Restraint (restricting intake following episodes of overeating), External Eating (eating triggered by environmental cues such as sight or smell of food), and Emotional Eating (eating as a coping mechanism for negative emotions such as stress, sadness, or tension).

The Emotional Eating subscale includes items such as: “I eat more when I’m having relationship problems”; “I tend to eat when I am disappointed or feel let down”; “When I’m under a lot of stress, I eat more than I usually do”. Several adaptations of the WREQ exist, including versions tailored to specific populations, such as pregnant women (Yeh et al., 2024), children (WREQ-C), and ethnic groups (Schembre, Geller, 2011).

The scales described above are most used by researchers in clinical psychology, psychiatry, dietetics, and public health, where emotional eating is analyzed in the context of eating disorders, overweight, addictions, or coping strategies. However, there is a growing recognition of the need to integrate these tools into research conducted within economics and management sciences, particularly in studies on consumer behavior, well-being, purchasing decisions, and relationships with food brands.

Table 1.*Comparison of emotional eating scales: psychometric and practical aspects*

| Scale Authors | Theoretical construct (number of items) | Emotion valence | Scale format | Reliability | Language and cultural adaptation |
|--|--|---------------------|---|-------------|--|
| AEBQ Hunot, Fildes, Croker, Llewellyn, Wardle, Beeken (2016) | Measurement of eight traits grouped into two subscales (35 items), each linked to specific eating responses: – food approach: Hunger (H, 5 – usually excluded), Food Responsiveness (FR, 4), Emotional Over-Eating (EOE, 5), Enjoyment of Food (EF, 3) – food avoidance: Satiety Responsiveness (SR, 4), Emotional Under-Eating (EUE, 5), Food Fussiness (FF, 5), Slowness in Eating (SE, 4) | Negative | 5-point Likert scale from <i>strongly disagree</i> to agree strongly | 0.70+ | Examples: French (Canada) (Jacob et al., 2022), Italian (Gritti et al., 2024), Arabic (Alruwaitaa et al., 2022), Turkish (Yardımcı et al., 2023), Spanish (Mexico) (Hunot-Alexander et al., 2022) |
| DEBQ van Strien et al. (1986) | Measurement based on three subscales (33 items): – Restrained Eating (10): conscious restriction of intake to control body weight – Emotional Eating (13): eating in response to negative emotions (anxiety, anger, sadness) – External Eating (10): eating triggered by external cues such as smell or sight of food | Negative | 5-point Likert scale from <i>never</i> to <i>very often</i> | 0.80-0.94 | Examples: French (Brunault et al., 2015), Brazilian (Almeida, 2017), Italian (Dakanalis et al., 2013), German (Nagl et al., 2016) |
| EEQ Garaulet et.al. (2012) | Measurement based on three subscales (10 items): – Disinhibition (6): loss of control over eating in response to emotions – Type of Food (2): preferences for specific foods in emotional situations – Guilt (2): negative feelings after emotional eating episodes Does not measure single emotions directly, but refers generally to negative affect and emotional stress | Positive & negative | 4-point Likert scale from <i>never</i> to <i>always</i> | 0,61-0,77 | Examples: Romanian (Putnoky et al., 2023), Spanish (Bernabéu et al., 2020) |
| EES Arnou, Kenardy, Agras, (1995) | Measurement of the tendency to eat in response to negative emotions (25 items): – Anger/Frustration (11) – Anxiety (9) – Depression (5) | Negative | 5-point Likert scale from <i>no desire to eat</i> to <i>an overwhelming urge to eat</i> | 0,87-0,91 | Examples: Arabic (Lebanon) (Rahme et al., 2021), Turkish (Bektas et al., 2016), Greek (Kalogiratou et al., 2019) |
| EMAQ Geliebter, Aversa (2003) | Measurement of tendencies (22 items) to eat in response to: – Emotions (14) – Situations (8). Assumption: different emotions and situations may increase or decrease appetite depending on their nature | Positive & negative | 9-point Likert scale from <i>much less</i> to <i>much more</i> | 0.81-0.87 | Examples: French (Bourdier et al., 2017), Portuguese (Martins et al., 2023), Turkish (Demirel et al., 2014) |

Cont. table 1.

| | | | | | |
|--|---|-----------------------|---|-----------|--|
| EQO Masheb, Grilo (2006) | Measurement of the frequency of overeating episodes triggered by emotions (6 items). Focus on assessing how often individuals consume excessive amounts in response to specific emotions | Negative + 1 positive | 7-point frequency scale (number of days), from <i>no days</i> to <i>every day</i> | 0.88-0.89 | Italian (Casu et al., 2020) |
| MEQ Framson et al. (2009) | Measurement of mindful eating based on five subscales (28 items): – Disinhibition (8) – Awareness (7) – External Cues (6) – Emotional Response (4) – Distraction (3) | Negative | 4-point Likert scale from <i>never/rarely</i> to <i>usually/always</i> | 0.70-0.85 | Examples: Chinese (Zhang et al., 2022), Brazilian (Rodrigues et al., 2024), Romanian (Serban et al., 2022), Malaysian (Abdul Basir et al., 2021), Persian (Rezaei & Jahanbin, 2022), Turkish (Kaya et al., 2022) |
| TFEQ-R18* Karlsson et al. (2000) | Measurement of eating behaviors based on three subscales (18 items): – Emotional Eating (3): tendency to eat in response to negative emotions – Uncontrolled Eating (9): eating in response to external cues – Cognitive Restraint (5): extent to which individuals consciously restrict food intake to control or reduce body weight + 1 item on perceived self-restraint | Negative | 4-point Likert scale from <i>definitely true</i> to <i>definitely false</i> | 0.70-0.90 | Examples: Polish (Brytek-Matera et al., 2017; Dzielska et al., 2009), Persian (Mostafavi et al., 2017), Arabic (Alhebshi et al., 2023), Greek (Kavazidou et al., 2012), Malaysian (Rosnah, 2013), Canadian (Yabsley et al., 2019), Taiwanese (Lin et al., 2021), Italian (Rossi et al., 2024), Hungarian (Szakály et al., 2020), Mexican (Vázquez-Velázquez et al., 2022), Turkish (Karakus et al., 2016) |
| WREQ Schembre, Greene, Melanson (2009) | Measurement of eating behaviors based on four subscales (16 items): – Routine Restraint (3): consistent restriction of intake to control body weight – Compensatory Restraint (3): restriction after overeating or weight gain – Susceptibility to External Cues (5): tendency to eat in response to external stimuli – Emotional Eating (5): eating in response to negative emotions | Negative | 5-point Likert scale from <i>not at all</i> to <i>completely</i> | 0.80+ | Chinese (Ho et al., 2022) |

Source: author's own work based on the literature.

A comparative overview of the scales used to measure emotional eating and emotion-related eating behaviors reveals considerable diversity in both theoretical constructs and practical applications. Among them, some scales focus exclusively on measuring emotional eating (e.g., EMAQ, EEQ, EOQ), although they differ in terms of the range of emotions assessed, the number of items, and the response scale applied. Their design most often considers only negative emotions, although the EMAQ, for instance, assesses both negative and positive emotions. Another category consists of scales with a broader measurement scope, such as AEBQ, DEBQ, TFEQ-R18, or WREQ, which include emotional eating subscales but also account for other aspects of eating behavior. There are also intermediate tools whose theoretical framework is not directly centered on emotional eating but incorporates elements related to it. An example is the MEQ, which measures mindful eating but includes an emotional component.

The scales also differ in terms of the number and structure of subscales (ranging from the unidimensional EOQ to the eight-subscale AEBQ) and the total number of items, which varies from as few as 6 to more than 50, thus allowing for different levels of measurement detail. In terms of response formats, most employ 4- or 5-point Likert scales, although the EMAQ stands out with a 9-point scale that captures subtler variations in the intensity of emotional influences on eating. Most instruments demonstrate high reliability ($\alpha > 0.80$), and many have been adapted into multiple languages and cultural contexts, which enhances their utility in international comparative research.

Table 2 presents a classification of additional subscales beyond emotional eating, included in the analyzed instruments. Some scales, such as the TFEQ and WREQ, were designed not only to assess emotional responses but also other mechanisms regulating eating behavior. Including these components is particularly valuable in studies aiming to capture the broader psychological and behavioral context of food consumption. The constructs summarized in Table 2 indicate five areas that may accompany or moderate emotional eating.

The first area concerns eating control and dietary restraint, including conscious food restriction, calorie counting, or compensatory reduction of intake—strategies aimed at regulating body weight through controlled eating behaviors. Constructs such as cognitive restraint, routine restraint, or restrained eating appear in scales such as the WREQ, DEBQ, and TFEQ.

The second area relates to susceptibility to external cues, i.e., the tendency to eat in response to environmental stimuli such as the smell or sight of food, or the presence of others eating. These constructs are measured, for example, through subscales like susceptibility to external cues or external eating, as in the WREQ and DEBQ.

The third area includes responses to hunger and satiety, capturing individual differences in perceiving physiological signals regulating eating. Indicators such as hunger, satiety responsiveness, or uncontrolled eating appear in instruments like the AEBQ and TFEQ.

The following two components are more subtle. One is eating pace, measured by subscales such as slowness in eating, which may indirectly affect satiety regulation. The other concerns attitudes and preferences toward food, such as enjoyment of food, food fussiness, or awareness—indicators that reveal individual differences in food-related affect and cognition.

The final category refers to distraction and impulsivity during eating, which may interfere with self-regulation, especially when coupled with emotions. Such components, captured for instance in the MEQ, are particularly relevant for research on automatisms and lack of mindfulness in emotional eating.

Table 2.*Categories and constructs of selected scales – examples*

| Category | Constructs of individual scales | Example items |
|-----------------------------|---|--|
| Dietary restrictions | Routine Restraint (RR) (WREQ) | - I often refuse foods or drinks offered because I am concerned about my weight. - I purposefully hold back at meals in order not to gain weight. - I count calories as a conscious means of controlling my weight. |
| | Compensatory Restraint (CR) (WREQ) | - When I know I'll be eating a big meal during the day, I try to make up for it by eating less before or after that meal. - If I eat more than usual during a meal, I try to make up for it at another meal. - When I have overeaten during the day, I will often eat less than usual the following day. |
| | Restrained Eating (DEBQ) | - I deliberately eat less than I want. - I avoid eating certain foods because I am on a diet. |
| | Cognitive Restraint (CR) (TFEQ) | - I consciously hold back at meals in order not to gain weight. - I do not eat some foods because they make me fat. |
| External stimuli | Susceptibility to External Cues (EX) (WREQ) | - Some foods taste so good I eat more even when I am no longer hungry. - When I'm offered delicious food, it's hard to resist even if I've just eaten. - If I see others eating, I have a strong desire to eat too. |
| | External Eating (DEBQ) | - I eat more when I see others eating. - When I see a real delicacy, I often get so hungry that I have to eat right away. |
| | Food Responsiveness (FR) (AEBQ) | - When I see or smell food that I like, it makes me want to eat. - I am always thinking about food. |
| | External Cues (MEQ) | - I recognize when food advertisements make me want to eat. - I notice when I'm eating from a dish of candy just because it's there. |
| Satiety & hunger | Satiety Responsiveness (SR) (AEBQ) | - I often leave food on my plate at the end of a meal. - I get full up easily. |
| | Hunger (H) (AEBQ) | - If I miss a meal, I get irritable. - I often feel so hungry that I have to eat something right away. |
| | Uncontrolled Eating (UE) (TFEQ) | - Sometimes when I start eating, I just can't seem to stop. - I am always hungry, so it is hard for me to stop eating before I finish the food on my plate. |
| | Disinhibition (MEQ) | - If there are leftovers that I like, I take a second helping even though I'm full. - If there's good food at a party, I'll continue eating even after I'm full. |
| Eating speed | Slowness in Eating (SE) (AEBQ) | - I am often last at finishing a meal. - I eat more and more slowly during the course of a meal. |

Cont. table 2.

| | | |
|--|-------------------------------|---|
| Food attitude & preferences | Enjoyment of Food (EF) (AEBQ) | - I love food. - I enjoy eating. |
| | Food Fussiness (FF) (AEBQ) | - I often decide that I don't like a food before tasting it. - I refuse new foods at first. |
| | Awareness (MEQ) | - I notice when there are subtle flavors in the foods I eat. - I taste every bite of food that I eat. |
| Distracted eating | Distraction (MEQ) | - My thoughts tend to wander while I am eating. - I eat so quickly that I don't taste what I'm eating. |

Source: author's own work based on the literature.

The decision tree presented in Figure 1 responds to the need for developing systematic, methodological tools that support the process of selecting measurement scales in the domain of emotional eating. It accounts for the most critical distinctions between the instruments: the scope of the emotional construct (emotions vs. emotions + situations), the valence of emotions (negative emotions vs. both positive and negative emotions), the direction of consumption (eating more vs. eating less or the same and more), as well as the presence of additional components (e.g., eating control, susceptibility to external cues). This approach enables a rapid yet accurate alignment of the scale with the research objective. The application of such a tool enhances both the validity of methodological choices and the comparability of results across studies, which is of particular importance in the context of meta-analytic syntheses and the advancement of the research paradigm on emotional eating—extending beyond medical and psychological disciplines.

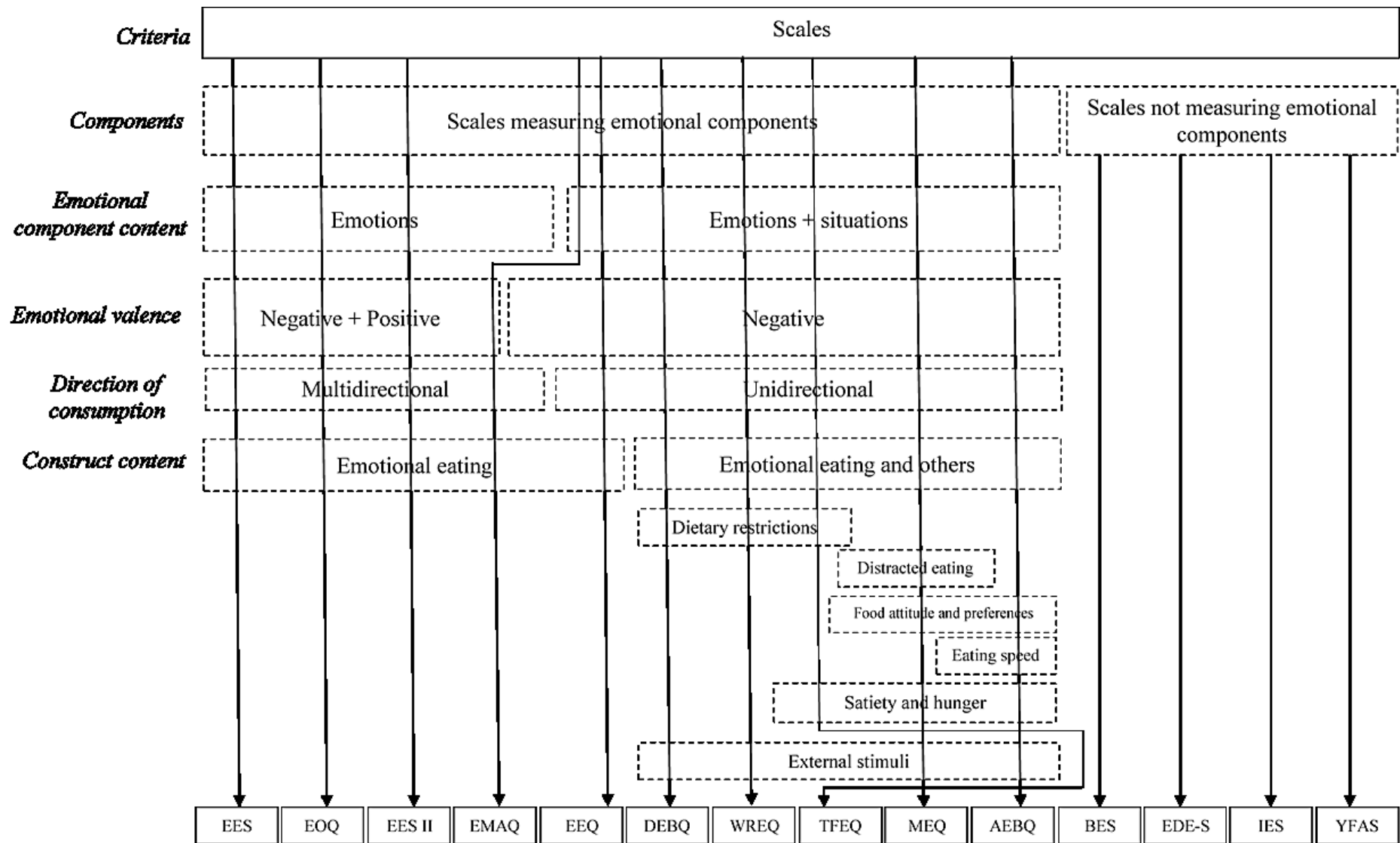


Figure 1. Decision tree for the selection of an emotional eating scale.

The logic of navigating the decision tree is based on a systematic progression through successive decision levels, starting from the most general distinction—the presence or absence of an emotional component in each scale. This initial branching serves as the starting point of the entire structure. Scales that do not include an emotional component, such as BES, EDE-Q, IES, or YFAS, are excluded from further analysis at this stage. Although these tools can provide valuable insights into eating behaviors, they do not allow for the direct assessment of the relationship between emotions and eating and are therefore not adequate for measuring emotional eating *sensu stricto*.

For scales that do include an emotional component, the structure of the tree guides the user through subsequent layers of differentiation, enabling increasingly precise alignment of the instrument with the specific research objectives. The first of these levels concerns the content of the emotional component—whether the scale measures reactions to emotions without reference to situational context, or whether it also incorporates life situations that trigger emotions. For instance, EMAQ employs items such as “When I am sad, I eat less/same/more”, directly addressing a given emotional state. Other scales, however, refer to more complex scenarios such as relationship problems or experiences of criticism, thereby broadening their application in research that considers the socio-psychological context of emotional eating.

The next level of differentiation concerns the valence of emotions, i.e., their affective direction. A key question is whether a given scale captures only negative emotions—such as sadness, anger, or frustration—or also includes positive emotions, such as joy or excitement. This distinction carries both theoretical and practical importance: scales focusing solely on negative emotions emphasize eating as a coping strategy for discomfort, while those also incorporating positive emotions allow for the identification of hedonic eating, i.e., eating that serves to sustain positive well-being.

The following step in the decision tree relates to the direction of consumption. This criterion addresses whether emotions lead to an increase in food intake, a decrease, or no change at all. While most scales assume a unidirectional effect—an increase in food intake in response to emotions—there are also instruments, such as EMAQ, that capture multiple behavioral variants by allowing respondents to indicate whether they eat less, the same, or more depending on the emotional state. This enables the identification of different regulatory strategies and individual differences in coping with emotions through eating.

The application of a decision tree in the process of selecting an appropriate measurement scale thus ensures a systematic and transparent alignment of the instrument with the specific research problem. Below, two examples are presented to illustrate how moving through successive decision criteria leads to a logical and justified selection of a particular scale.

Research Question 1: What mechanisms link compulsive buying tendencies with eating behaviors under the influence of negative emotions?

The researcher has at their disposal a tool for measuring compulsive buying (e.g., the Compulsive Buying Scale – CBS, (d’Astous et al., 1990)) and seeks to examine which shared regulatory mechanisms link compulsive buying with emotional eating. To address this research problem, the researcher begins the procedure of selecting an appropriate tool with the first distinction in the decision tree – the presence of an emotional component in the scale. At this stage, questionnaires that do not directly measure the emotional aspects of eating, such as BES, EDE-Q, IES, or YFAS, are excluded, as they do not allow for capturing the role of emotions in consumer behavior. The next step involves analyzing the scope of the emotional component. The researcher decides that they are interested not only in reactions to emotions in isolation but also in the situational context, since compulsive buying, much like emotional eating, is shaped not only by emotions themselves but also by broader social and psychological circumstances. For this reason, scales that focus solely on emotions, such as EES, are eliminated, while priority is given to instruments that encompass both emotions and situational triggers.

The following level of analysis concerns the valence of emotions. The research problem focuses on negative emotions. The next criterion is the direction of consumption. Since the research question concerns mechanisms that foster an increase in consumption, scales that only capture decreases in food intake are excluded. Finally, the presence of additional measurement components is considered. In a study aiming to connect compulsive buying with eating regulation, not only indicators of emotional eating but also constructs such as disinhibition and cognitive restraint become particularly relevant.

As a result of this systematic progression through the decision tree, the optimal choice is the Three-Factor Eating Questionnaire. This scale enables the simultaneous assessment of the impact of negative emotions, regulatory mechanisms in eating, and additional psychological factors that may constitute a shared foundation with compulsive consumer behaviors.

Research Question 2: How is consumer well-being related to the direction of changes in eating behaviors under the influence of emotions and life situations?

The researcher, equipped with the Satisfaction with Food-related Life Scale (SWFL) (Grunert et al., 2007), aims to explore how consumer well-being is connected to changes in eating behaviors triggered by emotions and life situations. To select an appropriate measurement tool, they follow the logic of the decision tree. The first distinction concerns the presence of an emotional component. Instruments lacking this dimension, such as BES, EDE-Q, IES, or YFAS, are excluded, as they do not directly assess the affective processes relevant to the study.

The next step involves the scope of the emotional component. Because the research question addresses not only emotions themselves but also the broader circumstances in which they occur, scales that measure emotions in isolation—such as the EES—are set aside. Instead, preference

is given to instruments that capture both emotional states and situational contexts, which are necessary to fully examine how well-being shapes emotional eating.

The third level of the decision process concerns the valence of emotions. Since consumer well-being reflects both positive and negative affect, the researcher opts for a tool that incorporates both. As a result, scales focusing exclusively on negative emotions are excluded.

Another important criterion is the direction of consumption. The study requires a multidirectional measure that can distinguish whether emotions and situations lead to greater food intake, reduced intake, or no change at all. Instruments that only capture increases in consumption are therefore deemed unsuitable.

Through this systematic narrowing of options, the Emotional Appetite Questionnaire (EMAQ) emerges as the most suitable instrument. It captures responses to both positive and negative emotions, incorporates situational triggers, and allows for multidirectional assessment of consumption. These features make EMAQ particularly appropriate for investigating the complex interplay between consumer well-being and emotional eating.

5. Conclusion

The review of nine scales applied in studies on emotional eating indicates substantial differences in their theoretical underpinnings and practical applications. These differences directly affect research outcomes, comparability of findings, and the validity of conclusions. Some tools focus solely on excessive food consumption (e.g., EES, EOQ), while others also capture the direction of consumption changes (e.g., EMAQ), and still others include emotional eating as part of a broader assessment of eating behaviors (e.g., DEBQ, TFEQ). A limitation of many scales is the uneven representation of emotions of different valences. Most focus exclusively on negative emotions, which may oversimplify the understanding of emotions in eating behavior. Yet, research shows that positive emotions can also trigger food intake impulses, serving as a reward or as a way of maintaining positive mood. Failure to capture this dimension may result in a measurement gap and hinder conclusions regarding emotional eating behaviors. In some scales, such as MEQ or AEBQ, the emotional component is only indirectly represented, which reduces their usefulness for studies focusing strictly on emotional eating.

To address these challenges, this article proposes a decision tree that systematizes scattered knowledge and organizes the criteria for selecting appropriate scales. Although the decision tree is not itself a measurement tool, its value lies in supporting the decision-making process of scale selection and in increasing the validity of methodological choices. The tree's structure improves navigation through this complex research domain, highlights differences between available scales, and enables researchers to align instruments more closely with their research

objectives. This approach helps minimize methodological errors resulting from inappropriate tool selection and shortens the preparation time for empirical studies.

Beyond its immediate application, the decision tree also has developmental potential. It encourages reflection on the strengths and limitations of different measurement methods and can serve as a foundation for comparative, validation, and cross-cultural studies, as well as the design of new, more comprehensive approaches to measuring eating behaviors, including emotional eating. Notably, the tool has interdisciplinary potential. It can be applied not only in psychology, dietetics, and public health but also in management and economics. Emotional eating is increasingly analyzed as an element of consumer behavior, associated with purchasing decisions, food product choices, and susceptibility to marketing communication. By pointing to appropriate measurement scales, the decision tree can help researchers better understand how emotions affect consumption, which situations intensify emotional eating tendencies, and which factors limit the rationality of consumer choices. From a behavioral economics perspective, this tool may support market research design and segmentation analyses in which emotional eating serves as a differentiating variable.

In addition to its applied value, the decision tree contributes methodologically by supporting the standardization of measurement tool selection, enhancing transparency in researchers' decisions, and improving the comparability of studies conducted across countries and cultures. Its flexible structure also allows for further development and updates as new scales, validation studies, cultural adaptations, and language versions emerge.

In conclusion, the proposed decision tree can be considered a tool of high applied and methodological value. It serves not only as a guide for selecting scales but also as a means of integrating knowledge, standardizing research practices, and inspiring the development of new approaches to studying and measuring eating behaviors. Its interdisciplinary character creates a bridge between theory and practice, as well as between medical and health sciences and the social sciences. In this sense, it represents a valuable contribution and inspiration for further research on emotional eating and for generating meaningful implications for both science and practice.

We postulate that constructs and tools for measuring emotional eating should also be incorporated into research projects aimed at designing health interventions, promoting responsible consumption, and improving consumer well-being. Integrating psychological and economic perspectives in the analysis of emotional eating may contribute to the development of more holistic models of consumer behavior, as well as to the formulation of more precise recommendations for health policies and marketing strategies. Given the growing interest in emotional eating across disciplines, the combination of psychological and economic approaches becomes not only possible but indeed necessary.

The scope of this review was restricted to two databases (Scopus and Web of Science) and to publications in English, which may have led to the omission of some relevant studies. Furthermore, although the proposed decision tree is a useful tool, it does not account for all

possible theoretical, cultural, and contextual factors that may play a role in the selection of measurement instruments.

An additional limitation of this review is its exclusive focus on self-report instruments used to measure emotional eating. Although such measures are widely applied in consumer and management research and provide insight into subjective consumption-related experiences, they may be susceptible to common-method bias and social desirability effects; therefore, future studies could benefit from combining self-report scales with behavioral or experimental approaches to enhance measurement validity.

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