HOW CONSUMER EMOTIONAL INTELLIGENCE CONTRIBUTES TO THE DESIGN OF SOCIAL MARKETING STRATEGIES: THE CASE OF HEALTHY ALIMENTARY BEHAVIORS

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Abstract

Consumer's food choice is a very complex process with a relevant impact on the health of individuals. In the case of Mexico, several public efforts have been done to guide this process, mainly by providing nutritional information and advice to individuals. However, food choice is affected by many individual factors, some of them like the nutritional knowledge and physical activity have been largely addressed, but others like the consumer's emotional intelligence are only recently considered. This research extends the emotional intelligence framework by studying how this factor influences the consumers' food choices and consequently determines their weight status. By using quantitative data gathered through a survey among young consumers, the influence that this novel factor (Consumer Emotional Intelligence) along with the nutritional knowledge, healthy goals, food choice values, physical activity and eating habits have on the body mass index was assessed. Emotional intelligence was found to affect the weight of an individual in specific through the Understanding Emotions dimension. Additionally, the statistical analysis performed lead to the conclusion that the effect of nutritional knowledge and healthy goals are moderated by the emotional intelligence of individuals. The theoretical and practical implication of these findings are discussed.

Keywords: Food choice, consumer emotional intelligence, social marketing, overweight.

Introduction

Social marketing is the use of marketing concepts to design strategies and actions aimed to influence the voluntary change in behavior of target audiences in order to contribute to social welfare. Multiple social marketing interventions have proven the effectiveness of influencing individual behaviors as a complement to governmental policies and regulations regarding the consumption of alcohol, tobacco and illicit drugs (Gordon et al., 2006), and the promotion of healthy habits and practices (Coulon et al., 2012; Sharma, 2006). The extant research evidences social marketing could be efficiently used as a core public health strategy for influencing voluntary lifestyle behaviors that result in overweight and obesity. Overweight and obesity is an increasing concern to many governments and international associations because it is reaching pandemic levels worldwide; around 3.4 million of deaths were associated to these conditions during 2010 (Murdás, Solís, & Sánchez, 2014). The alarming increase in the obesity and overweight rates in Mexico has been associated with multiple chronical diseases such as heart diseases, hypertension and diabetes. The prevalence of overweight and obesity in Mexico is estimated in 38.8% and 32.4% respectively, (Barquera et al., 2012; Gutiérrez et al., 2012) meaning that most Mexicans (71.3%) are in an unfavorable health condition. Thus, it is imperative to address this problem from a novel perspective such as the social marketing, but this requires of an understanding of what factors determine the food preferences of consumers in order to induce healthier food choices and the interest to support current Mexican regulations regarding food advertising and sales.

The overweight problem is mainly a result of an energy imbalance caused by unhealthy eating patterns and poor physical activity or sedentary lifestyle (WHO, 2015). Food choice is the central process to examine to enhance the comprehension about the current weight status of an individual. The food choice or eating behavior has been related to many factors such as nutritional knowledge (Parmenter & Wardle, 1999; Kidwell, Hardesty, & Childers 2008a), food craving (Flegal, Carrol, Odgen, & Waller, 2001), attitudes towards health and taste perception (Luomala et al., 2015), food choice values (Steptoe et al., 1995; Lyerly & Reeve, 2015) and more recently to the Consumer Emotional Intelligence (CEI) or emotional ability (EA) (Kidwell et al. 2008a). The emotional ability concept is a novel interesting variable to consider that refers to the ability to use emotional information to improve decision-making. Most of the studies that use consumer behavior theories to explain alimentary lifestyles, focus on the study of one factor influencing food choice, resulting in

a limited interpretation of the interrelationships among the multiple factors that define the food choice process. Thus, it becomes important to address the complexity of the process by taking into consideration altogether the factors that have been proved to influence food choices and subsequently the weigh status of the individual. In particular, studying how the emotional ability factor affects decisions results interesting because little research has considered the role of this concept on the control of food consumption.

The objective of this study is to describe how the Consumer Emotional Intelligence, nutritional knowledge and healthy goals relate to the Body Mass Index (BMI) of young adults. The BMI is proposed as a surrogate variable of the consistent decisions that encompass the food choice process of an individual. By understanding the combined effect of these three critical factors, this research looks to identify new approaches to induce healthy food choices that can be integrated in social marketing campaigns that complement regulatory policies. Two research questions are formulated: How do emotional ability affects BMI? And, how the effect of other individual factors such as knowledge, healthy goals and healthy habits (physical activity and eating lifestyle) interrelate with the individual emotions to define the food choice process?

Theoretical Background

Healthy Food and Food Choice

To better understand the reasons that derive into bad food choices is important to understand first what healthy food is. Healthy food is food considered as beneficial to improve health; however, there is a lack of a precise authoritative definition because almost any food may be healthy if properly consumed (portion size and plate combinations). Lobstein and Davies (2008) propose a methodology to categorized food as "less healthy"; their approach take in account the content of energy, saturated fat, sugar, sodium, and also the overall consumption of fruit, vegetables, nuts, fiber and protein. Following this methodology, a food or a drink is classified as 'less healthy' based on a computed score which is a good proxy to decide if a food is healthy or not. Overall indicators like this are intended to facilitate the decisions about what food to consume while compensating the deficiencies in nutritional knowledge of the population. In an attempt to assess the level of nutritional knowledge an individual has, Parmenter & Wardle (1999) developed an instrument which meets the psychometric criteria for reliability and construct validity. The

proposed instrument represents a proper tool to identify the current level and gaps in the public's nutrition knowledge and evaluate the success of health education campaigns. Although the instrument properly measures the nutritional knowledge of the general population, its relation with food behavior may be attenuated by the intervention of other factors.

Many questionnaires focused on declarative knowledge about nutrition which is factual knowledge, often use scientific terms with which respondents might be unfamiliar (e.g. "Oily fish contains polyunsaturated fatty acids") (Dickson-Spillmann, Siegrist, & Keller, 2011). The results provided by such questionnaires might have underestimated individuals' knowledge leading to a weak relation between nutritional knowledge and actual dietary behavior. To address this measurement problem Dickson-Spillmann et al. (2011) developed and validated a new scale that measures nutritional knowledge based on a consumers' common language about food. It is important to mention that the validity of this scale has been confirmed via correlation with the scores of the Nutrition Knowledge Questionnaire (GNKQ) developed by Parmenter and Wardle (1999).

Although is quite known that the general population does not have a good knowledge about how healthy food is, sometimes even when they have a good nutritional knowledge, they rely on other factors to choose food. Additionally there are differences in the perceptions about health and taste of food between dieters and non-dieters, and among individuals with different BMIs. In a recent study, Luomala et al. (2015) found that dieters have in average a body mass index (BMI) of 33.4 compared to the average BMI of 24.4 of non-dieters, and that dieters tend to rate more food as healthy in comparison to non-dieters. This suggests that the more rigorous perception of unhealthy foods of the non-dieters prevent them to gain weight. These findings show consumers do not process health and nutritional information in a systematic manner, but rely on less conscious heuristics such as food category and familiarity (Luomala et al., 2015).

The factors that influence individual's choices may be conscious and unconscious. When we talk about conscious factors there are measures and scales that we can use to understand how these factors impact every particular decision (Steptoe et al., 1995; Lyerly & Reeve, 2015). In the context of healthy diet, one of these measures is the Food Choice Value scale proposed by Lyerly & Reeve in 2015. This is a 25-item measure which contemplates eight dimensions of food choice values, they are identified by the authors as:

convenience, access, tradition, comfort, organic, safety, sensory appeal and weight control/health. This measuring tool could help us to better understand the interrelationship between the factors influencing food choice and other intrinsic or individual factors.

Regarding unconscious factors, Thomas, Desai and Seenivasan (2011) discussed natural impulses to overconsume unhealthy food and under consume healthy food runs counter to the desire of "most people to cherish long and healthy lives". This tension highlights the inherent conflict between the impulsive and reflective or regulatory behavioral systems, most recently denoted as Systems 1 and 2 by Kahneman (2011). System 1 is present oriented and driven by emotion and desire, while System 2 is future based and driven by cognition and willpower. For example, "urges to consume ... junk food occur in System 1 and lead to impulsive behavior when System 2 is not able to control System 1" (Talukdar & Lindsey 2013; Ladez 2012). So it seems that the process of food choice is more impulsive, mindless and emotional.

When talking about food choice drive by impulse or desire, we need to talk about food craving. Food craving can be defined as involving the experience of intrusive thoughts, urges or desires, often felt as distressing for particular foods (Duarte et al. 2016; Hill, 2007; Lowe & Levine, 2005). Also it has been reported that difficulties in managing food cravings is associated with perceptions of lack of control and compulsive eating behaviors (Greeno, Wing, & Shiffman, 2000; Joyner, Gearhardt, & White, 2015) resulting in overweight and obese status (Flegal et al., 2001). Thus, this behavior is also an important variable to manage when understanding weight status. Duarte et al. (2015) develop and validate the Cognitive Fusion Questionnaire—Food Craving, a measure assessing the extent to which an individual is fused with food-craving undesirable and disturbing thoughts and urges. This CFQ-FC also revealed very good internal consistency; construct reliability, temporal stability and being positively associated with similar constructs and with indicators of eating (Duarte et. al., 2015).

Consumer Emotional Intelligence

In 2008, Kidwell, Hardesty and Childers find a negative relationship between low levels of emotional ability (also known as "emotional intelligence") and healthy eating, with participants higher in EA making significantly better food choices. When Kidwell et al. (2008a) develop and test their CEIS they found that consumers who understand emotional ability could make higher-quality

decisions related to their health and to product choices. The respondents in their study were given with a scenario in which their goal was to decide what foods to eat for an entire day from a menu at a fictitious local restaurant that offers a wide range of healthy to unhealthy food options. While not told explicitly to choose items low in calorie content, the respondents were instructed to choose for their daily food intake from a computer-administered menu of items that would help them maintain a healthful diet. They found that individuals possessing greater consumption-related EI were more effective in minimizing their caloric intake. Although individuals with higher EI and primed with a goal of maintaining a healthful diet were able to make higher-quality food decisions, this study does not explain what happen in real life when individuals are presented with food and where we do not know if they have or not healthy eating goals. In order to understand if there is a real relationship, it is imperative to explore the EI and the eating goals of individuals under when making actual healthy eating choices. Although many factors determine the weight of individuals, one of the most important is precisely unhealthy food choices. Differences in consumption of nutrient rich versus nutrient poor foods have been directly associated with the weight status of children (Vernarelli et al. 2011) and adults (Ledikwe et al. 2006). Therefore, the BMI could be used as a surrogate variable that helps to discriminate between individuals who consistently do healthy food choices against those who do unhealthy food choices.

The concept of emotional intelligence is defined as: "the capacity to reason about emotions, and of emotions to enhance thinking. It includes the abilities to accurately perceive emotions, to access and generate emotions so as to assist thought, to understand emotions and emotional knowledge, and to reflectively regulate emotions so as to promote emotional and intellectual growth" (Mayer & Salovey, 1997; Mayer, Salovey & Caruso, 2004). Mayer and co-authors (2003) developed a comprehensive EI measure, the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT). The MSCEIT measures the individual's ability to perceive, facilitate, understand and manage emotions. This instrument has been found to be a valid and reliable measure of EI (Mayer et al. 2003). However, and despite the advantages of the MSCEIT and its acceptance as the state-of-the-art assessment of emotional ability, this instrument has disadvantages that makes it difficult to apply, including cost, length, and format inflexibility. Additionally, the MSCEIT is designed as a general measure of emotional ability to be used in a wide range of interpersonal contexts. Little is known about its appropriateness for assessing specific emotional abilities within the domains of consumer behavior and diet in

particular (Kidwell et al. 2008a). To address the disadvantages of the MSCEIT, Kidwell et al. (2008) develop and validate a measure of emotional intelligence (the Consumer Emotional Intelligence Scale—CEIS; http://www.ceis-research.com). The domain of this scale is specific to consumer EI and then seeks to identify unique competencies that people have and make them more effective as consumers. To provide evidence of domain specificity, they validate the CEIS by comparing it with a domain-general alternative (MSCEIT), findings indicate the domain-specific scale of consumer EI predicts consumer outcomes better than the domain-general alternative. Thus, the CEIS provides researchers with a more manageable tool that also better predicts consumer-related outcomes.

Since consumer emotional ability is a subset of the more general emotional ability construct described by Mayer and colleagues, the same dimensionality applies. The CEIS elicit a higher-order factor structure with four reflective first-order dimensions—perceiving, facilitating, understanding, and managing. These four dimensions are represented by a second-order factor of consumer EI. The Perceiving emotions dimension is the ability to perceive, appraise, and express emotions accurately (Mayer et al. 1999). Implicit in this dimension of EI is the individual's awareness of both the emotions and the thoughts that accompany them, the ability to monitor and differentiate among emotions, and the ability to adequately express them. The Facilitating emotion component is the ability to access, generate, and use emotions to facilitate thought (Mayer and Salovey 1997). This dimension of EI involves assimilating basic emotional experiences into mental processes (Mayer et al. 2000), which includes weighing emotions against one another and against cognitions allowing emotions to direct attention. With this ability, emotions are marshaled in the service of a goal, which is an essential component for selective attention and self-motivation, among others (Roberts et al. 2001).

Understanding emotion is the ability to analyze complex emotions and to form emotional knowledge (Mayer and Salovey 1997). This dimension of EI involves reasoning and the understanding of emotional problems, such as knowing what emotions are similar and what relation they convey. Finally, managing emotion is the ability to regulate emotions to promote a desired outcome (Mayer and Salovey 1997) by understanding the implications of social acts on emotion and the regulation of emotion in the self and in others. This dimension involves knowing how to relax after stress or how to alleviate the stress and emotion of others. This final component of EI allows the control of impulses, social adaptation and problem solving (Kidwell et al. 2008a). The authors

applied the scale to 219 undergraduate students and used the information collected to assess the reliability and internal structure of the scale. A confirmatory factor analysis was used to ratify the multi-dimensionality of the scale; the specified model with four dimensions was confirmed. The scale's reliability was assessed by computing the split-half reliabilities, this approach was selected because of the item format heterogeneity. This split-half reliability of the total CEIS was .83 while the reliability per each dimensions were: 0.78 for the perceiving dimension, 0.81 for managing, 0.69 for understanding and 0.68 for facilitating (Kidwell et al. 2008a).

In summary, previous research has found a relation between consumer emotional intelligence and the food choice process (Kidwell et al., 2008a; Kidwell et al., 2008b; Kidwell, Hasford, & Hardesty, 2015). To our knowledge this work is the first one that explores the relation between different factors associated with the food choice process (Duarte et al., 2016; Hill, 2007; Turconi et al., 2008). Specifically, this paper extends the extant literature by analyzing the role of the consumer emotional intelligence on the food process while taking into account the effect that the nutritional knowledge and healthy goals have on consumer food choice. By using a quantitative approach, the present research provides a more comprehensive understanding of the food choice process that can be the basis for the design of effective social marketing strategies focused on reducing the problem of overweight and obesity.

Hypothesis

The literature review proved an individual with high EA makes better food choices. Kidwell et al. (2008a) report a negative relationship between the emotional ability measure provided by the CEIS and the total calories of the food chosen from a fiction menu by a group of consumers. In particular, they found that the dimensions of understanding and managing emotions have the most significant effect. Additionally, a direct relation between consistent food choices and weight status has been found (Ledikwe et al., 2006; Vernarelli et al., 2011). Based on these results we state the following research hypothesis.

H1a: The understanding dimension of the customer emotional ability will negatively influence the BMI.

H1b: The managing dimension of the customer emotional ability of will negatively influence the BMI.

Also in agreement with previous research, healthy goals and nutritional knowledge of an individual are important factors that contribute to make better food choices and consequently to the BMI. However, their effect may be attenuated by the EA as expressed in the next hypothesis.

H2a: Emotional ability levels of managing and understanding emotions will moderate the relation of the nutritional knowledge with the BMI.
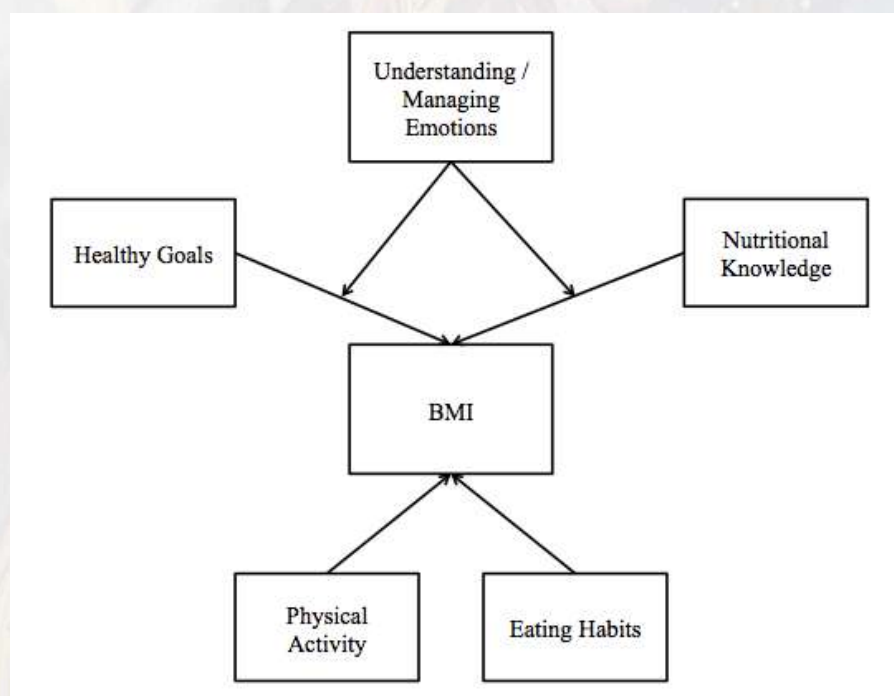
H2b: Emotional ability levels of managing and understanding emotions will moderate the relation of the healthy goals with the BMI.

Finally, the effect of other individual factors is taken into consideration in the last research hypothesis:

H3: The individual factors –healthy goals, physical activity, - will have a negative relation with the BMI.

All hypothesis are graphically summarized in the model of Figure 1. Demographic control variables that are well known to be related with BMI, such gender and age, are also included.

Figure 1
Individual factors influencing the BMI

Methodology

This research is typified as a causal study based on quantitative data collected by means of a survey. In the following sections we describe in detail how the sample was selected and how the measurement instruments were designed.

Sample and Data Collection

A convenience sampling method was used to carry out this study. This type of sampling was selected to guarantee participation and a high rate of response. The sample size is 217 participants, a size very similar to the one reported in the study of Kidwell et al. (2008a) which was of 219 undergraduate students. A structured questionnaire was used to collect relevant data from participants of two schools of the Universidad Autónoma de Coahuila; the first one was the Facultad de Ingeniería Mecánica y Eléctrica, and the second the Facultad de Contaduría y Administración, both established on Monclova, Coahuila, Mexico. Data where collected during April 2016. The authorities of the university authorized the survey and collaborate with the authors in the selection of the groups of students.

The participants received instructions to answer an online survey using Qualtrics in a special room of each university that has computers available for the students. The complete CEIS scale, and others designed to evaluate the nutritional knowledge, physical activity, eating habits and healthy eating goals were integrated in the questionnaire provided to participants (Turconi et al., 2008). The instrument included also items related to food choice value plus two explicit questions addressing the healthy eating goals. The explicit questions designed to measure healthy eating goals were: "In general, I am interested in maintaining a healthy life style" and "I am interested in watching my diet". Respondents register they responses on a seven-point ordinal scale. Also, the participants' weight and height were measured by providing the required scales in the room. All the scales have been used in past studies and proved to discriminate between individuals with normal weight and overweight (Turconi et al., 2008). The description of each one follows.

Design of Measurements

Each of the multi-scales used in this research were drawn from different academic reference in qualified journals either in the area of marketing or nutrition, these journals are Journal of Consumer Research and Appetite. The

researchers who designed each scale validated the instrument by different means detailed in each of the descriptions of this section. All the scales were translated by the principal author of this study and revised by an English professional. Previous to the survey all instruments where applied to a pilot sample of students from a private university. Items that were judged as redundant by the respondents or not statistical related to the BMI were eliminated and those that resulted confusing were reformulated. The structure of these measures, except the CEIS, which was extensively described in the theoretical background section, are described as follows:

Cognitive Fusion Questionnaire-Food Craving (CFQ-FC). This a one-dimensional structured questionnaire with 7 items using a 7-point scale ranging from "Never true" (1) to "Always true" (7). The authors report that this questionnaire has good internal consistency, construct reliability and temporal stability. This measure is introduced as a control variable based on the evidence of past studies that relate the underlying construct with the BMI (Flegal, Carrol, Odgen & Waller, 2001).

Consumer-oriented Nutrition Knowledge Questionnaire (CoNKQ). The scale is comprised by 20 true or false items that assesses the consumer's knowledge about nutrition by using a common language. This measure shows acceptable internal reliability, criterion and construct validity (Dickson-Spillmann et al., 2011).

Food choice values scale (FCV). This 25-item scale measures eight empirically defined dimensions. Lyerly & Reeve (2015) define the construct space of food choice values (FCV) as the collection of values that individuals consider when deciding what foods they want to purchase and/or consume. The eight-factor model of food choice values consist of: convenience, access, tradition, comfort, organic, safety, sensory appeal and weight control/health. The scale demonstrated good internal consistency, test–retest reliability and predictive validity; scores do not appear to be overly influenced by social desirability and measurement invariance was met across low and high income groups (Lyerly & Reeve, 2015). After the pilot study we take into account only 15 items because the dimensions of tradition and comfort were not a significantly food choice value to the respondents.

Eating habits. This measure consists of 14 questions and was designed to investigate the food habits of the adolescents, especially regarding breakfast contents, number of meals per day, daily consumption of fruit and vegetables

as well as soft and alcoholic beverages. Eight of the questions had the following response categories: always, often, sometimes, never; the other 6 have instead 4 response categories structured in different ways. The score assigned to each response ranged from 0 to 3, with the maximum score assigned to the healthiest habits and the minimum score to the least ones. The total score of this section was 42 (Turconi et. al., 2008).

Physical activity. This measure comprised 6 questions aimed at investigating the level of physical activity. All responses were structured to create a score ranging from 0 to 3, with the maximum score assigned to the healthiest habits. The total score of this section was 18. (Turconi et al., 2008)

Analysis of Results

The final data set includes 214 participants, 3 participants was excluded because they do not completed the questionnaire. The percentage of women in the sample was 44.3% (94). The age range of the participants was 17-35 years old; 90% of the participants was in the age range of 18-24. The body mass index (BMI) was calculated by dividing the weight of the participant by the square of his/her height and is universally expressed in units of Kg/m2. The data show that 3.2% of the participants are underweight, 48.1% have a normal weight, 27.5% have overweight, and 21% are obese. Table 1 shows the general sample characteristics.

Table 1
Sample characteristics

Variables	Underweight mean ± SD	Normal weight mean ± SD	Overweight mean ± SD	Obese mean ± SD	Total mean ± SD
Number of participants	7 (3.2%) [a]	103(48.1%) [a]	59(27.5%) [a]	45(21%) [a]	214(100%) [a]
Age (years)	20.29 ±1.6	20.76 ±2.06	21.49 ±3.35	21.40 ±3.29	21.08 ± 2.74
Weight (kg)	44.3 ± 4.2	62.1 ±9.6	79.1 ±8.7	98.5 ±15.7	73.9 ±18.6
Height (m)	1.59 ±0.07	1.66 ±0.1	1.70 ±0.08	1.70 ±0.09	1.68 ±0.09
BMI (kg/m^2)	17.3 ±0.4	22.25 ±1.8	27.2 ±1.34	33.88 ±3.73	25.9 ±5.26

The percentage of subjects is reported between parenthesis.

The first part of the analysis was the assessment of he internal reliability of all instruments. The corresponding Cronbach's alphas are reported in Table 2; all reliabilities are fairly acceptable as they nearly exceed the recommended value of 0.7. The reliability of the CEIS was not computed because the recorded values of this scale are transformed to ratings that are not homogeneously distributed among the items (Kidwell et al. 2008a). However, the split reliabilities reported by the scale's proponents are satisfactory, thus we rely on these results and only verify the influence of the understanding and managing dimensions on the BMI as evidence of predictive validity.

Table 2
Internal reliability of measures

Measure	Cronbach alpha	Number of items
Food craving (CFQ-FC)	0.793	7
Food choice values (FCV)	0.867	15
Eating habits	0.651	13
Physical activity	0.679	6
Healthy goals	0.875	2

The next step in the analysis was to evaluate the influence of the emotional intelligence on the BMI to validate the suitability to use this novel factor to better understand the food choice process. The BMI was categorized into four groups based on the WHO categorization of weight status. These groups are: underweight, normal weight, overweight, and obese. The groups were compared in terms of their CEIS means with a one-way ANOVA. Each one of the four dimensions of the CEIS was analyzed separately. The statistical analysis shows significant differences in the understanding and managing dimensions; therefore only these two component are subsequently considered in the statistical analysis. Finally a factor analysis was performed using as input all the items except those of the CEIS. Six factors where extracted and a varimax rotation applied to verify all items comprising the same measurement scale were grouped together while items associated to different constructs, including the two dimensions of FCV, grouped in different factors. All items clustered as expected then providing evidence of convergent and discriminant validity.

The second part of the analysis empirically tests the model of Figure 1. Two linear regression models were estimated by Using IBM SPSS Software, the dependent variable is the BMI of the respondent. The results of the regression analysis are shown in Table 3. The first regression model only includes the

direct effects of all hypothesized factors while the second includes the interactions between the EI dimensions of Managing Emotions and Understanding Emotions with Healthy Goals and Nutritional Knowledge. Effects significant at the 5% significance level are identified with one (*) and those significant at the 1% level are identified with two (**).

Table 3.
Two different linear regression models and their variable significance.

Significance	Model 1 (R^2=16.74)	Model 2 (R^2=17.69)
Understanding emotions	0.054*	0.736
Managing emotions	0.005**	0.730
Eating Habits	0.055*	0.067[a]
Nutritional Knowledge	0.175	0.913
Healthy goals	0.000**	0.081*
Physical Activity	0.005**	0.004**
Age	0.254	0.197
Gender	0.005**	0.003**
Nutrition K. * Und. Emotions		0.111[a]
Nutrition K. * Man. Emotions		0.172
Healthy goals * Und. Emotions		0.195
Healthy goals * Man. Emotions		0.119[a]

Discussion of results

The results of the statistical analysis provide empirical support to hypothesis H1a and H1b. The level of emotional ability has a direct effect on the BMI, specifically the higher the EI the lower the BMI. These results are consistent with the study of Kidwell et al. (2008a). Contrary to the results in the literature, the nutritional knowledge has a non-significant impact on the BMI. All the other factors –healthy goals, eating habits, physical activity and gender- have a significant effect on BMI as expected, then supporting H3. In respect to age there is a very low variation among participants that may explain why this variable is non-significant.

Hypothesis 2 is supported by the results of the second linear regression model. The direct effect of managing emotions and understanding emotions was annulled when the variables were introduced as moderators. Although at a higher significance level (12%), recommendable to use to prevent the elimination of critical variables in a multiple regression model, the interactions of the two dimensions of emotional ability with nutritional knowledge and

healthy goals are declared significant. The positive regression coefficient of the interaction term implies that understanding emotions enhances the effect of the nutritional knowledge on the BMI. Similarly, the managing emotions dimension enhances the effect of the healthy goals on the BMI. Analyzing the data more in detail, the mean of nutritional knowledge of the obese groups is the lowest as well as the EI mean of the understanding emotion dimension. These results confirm H2a. Likewise, the healthy goals of the obese and overweight groups are lower than the healthy goals of the normal group whereas the emotional intelligence (understanding plus managing) is the highest for the normal group. This confirms H2b.

In conclusion, the study confirms the direct and moderator effects of the emotional ability construct measured by the CEIS on the consumer food choices exposed through the BMI. Specifically, the understanding emotions dimension is the dimension with the most significant impact on the BMI, consistent with past studies (Kidwell et. al., 2008a).

Theorethical and practical implications

This research contributes to a better understanding of the food choice process and the emotional intelligence theory. In specific our study adds to other research by exploring how decision-making is affected by the emotional ability in the context of health. The understanding of how different factors interact to influence food choices help us to find new ways to change individuals' choice towards healthier food then reducing the risk of overweight and obesity.

In terms of practical implications, the findings of this research may support marketers to develop better marketing campaigns of new nutritious products and guide the design of social marketing campaigns that contribute to national efforts to reduce overweight and obesity. In this regard, is important to say that recent research shows that emotional ability could be trained by means of activities intended to strengthen people's ability to focus on goal-relevant emotional information (Kidwell et al., 2015). A proper EA training may improve food choices over a program centered on nutritional knowledge. Kidwell et al. (2015) even developed a conceptual model of EA training to help consumers be more mindful about their food choices. Specifically, the authors show that consumers trained in EA think more about their emotions, rely less on the unhealthy = tasty intuition and ponder more their healthy goals. Given these results, the social marketers' attempts to induce voluntary changes may be adjusted by applying the principle of exchange, i.e. help consumers to

recognize that there is a clear benefit or health goal, and visualizing the management of the competition component of a social marketing intervention. This last component refers to defining strategies to counter act the effect of competing forces to the behavior change (Stead, 2007). Based on our study results, we suggest to complement the nutritional information provided in mass media, school and health institutions with workshops focused on EA training. Ingenious strategies to implement these workshops, for example the use of social media, are required. Additionally, market segmentation based on innovative variables such as EA, perceptions about health and nutritious food, and BMI is recommended to select target groups for different marketing actions. Working on the definition of social marketing interventions that integrate the six essential components (benchmarks) of an authentic social marketing program is expected to be more effective than the social advertising and nutritional information campaigns extensively used to modify alimentary behaviors.

This study is not without limitations. One limitation is the dependent variable used, because even though BMI has been a response extensively used in health research, this measure has low consistency and depends on other (biological and genetic) factors besides regular food choices (Roubenoff, Dallal & Wilson, 1995). From the consumer behavior perspective, a more meaningful variable would be actual food elections and consumption, but the proper operationalization of such variable still needs to be developed. The other limitation of the study is the sample, which is representative of the young adult (18-24 years old) and well-educated population. Future research based on a random sample of individuals with different demographic characteristics will be relevant to generalize this research results. Comparing the factors that influence the food choice process of different demographic, psychographic and socioeconomic segments of consumers is a clear extension of this research. For example, the comparison of individuals with different socioeconomic levels is relevant to define if the access to nutritious food and knowledge makes a difference in consumption patterns. Also, health condition could be another important factor to take into account to explore how it influences food choices.

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