EGADE Business School
TECNOLÓGICO DE MONTERREY

THE ROLE OF MINDFULNESS IN CONSUMER'S FOOD CHOICES

DOCTORAL DISSERTATION

DANIELA RACHEL RODRIGUEZ DELGADO

MONTERREY, N.L. MEXICO,

MAY 2019

THE ROLE OF MINDFULNESS IN CONSUMER'S FOOD CHOICES

by

Daniela Rachel Rodríguez Delgado

Dissertation

Presented to the Faculty of EGADE Business School, Monterrey

in Partial Fulfillment of the Requirements for the degree of

Doctor of Management Science

EGADE Business School

May 2019

THE ROLE OF MINDFULNESS IN CONSUMER'S FOOD CHOICES

APPROVED BY
THE MEMBERS OF
THE DISSERTATION COMMITTEE

Claudia Maria Quintanilla Dominguez, PhD (Chair)
Professor
EGADE Business School, Monterrey
Instituto Tecnológico y de Estudios Superiores de Monterrey

Edgardo Arturo Ayala Gaytán, PhD
Professor
Tecnológico de Monterrey, Campus Monterrey
Instituto Tecnológico y de Estudios Superiores de Monterrey

Raquel Minerva Castaño González, PhD
Professor
EGADE Business School, Monterrey
Instituto Tecnológico y de Estudios Superiores de Monterrey

DEDICATION

This thesis is wholeheartedly dedicated to my beloved parents, who have been my source of inspiration and gave me strength when I thought of giving up, who continually provide their moral, spiritual, and emotional support.

To my sisters, Martha and Priscila, and brothers in law, Eustolio and Rodrigo, for all the support and patience they had during these four and a half years. To Julia and the baby that is on the way because as little as you are, you were also part of my motivations.

To all the important people that were there since the beginning… Alberto, Ana, Caty, Elda, Gerardo, Itzel, Jesus, Javier, Miriam, I don't know what I would have done without you. And those who joined along the way… Julian, thank you for your love, sacrifices, support and advices.

To my closest friends who witnessed my decision to start the PhD and who continued supporting me to finish it.

To my advisors that were very helpful and encouraged me to give my best so this thesis would become what it is.

To all of you, thank you for trusting me and believing in me.

Index

CHAPTER I: INTRODUCTION

1.1 INTRODUCTION AND STATEMENT OF THE PROBLEM

In the last few decades, mindfulness has been studied as a way of helping consumers make better decisions. A state of awareness leads people to pay more attention to what they are doing (Brown and Ryan, 2003) and therefore to make better choices. This state of awareness is called mindfulness, the act of being aware of the present moment (Williams & Kabat-Zinn, 2011). In marketing research, mindfulness has been classified as part of transformative consumer research, which seeks to empower consumers to make conscious decisions to preserve their well-being (Bahl et al., 2016). Sheth, Sethia, and Srinivas (2011) present the concept of mindful consumption, where they take into consideration the consumer's temperament in showing care toward the self, the community, and nature. Furthermore, Ndubisi (2014) mentions the marketing implications of consumer mindfulness, indicating that highly mindful consumers have greater satisfaction with a service and greater loyalty, but not greater switching restraint.

In this same line of research, Brown, Ryan, and Creswell (2007) describe the salutary effects that mindfulness has, specifically in mental health, physical health, behavioral regulation, and interpersonal relationships. An example of physical health is the consequences of poor eating habits (Willmott and Parkinson, 2017), making mindfulness an important activity in which all humans should engage in order to live well. The combination of activities of eating and mindfulness activities create an interesting concept called "mindful eating."

Mindful eating can be defined as the activity of being present for everything involved in eating and making conscious food choices (Warren, Smith, and Ashwell, 2017). Framson et al. (2009) describe it as "a nonjudgmental awareness of physical and emotional sensations while eating or in a food-related environment." This has been studied in different research areas. For instance, psychological and nutritional fields have been concerned with developing new research

involving mindful eating; marketing, being interested in consumer well-being, also has incorporated this topic into field research.

Several researchers have been helping the field grow and explain this concept in broader terms. Bahl and colleagues (2013) do not study mindful eating as a concept but rather incorporate mindfulness into the mindless eating habits of students, finding that such mindlessness is correlated to overeating and skipping meals, which contributes to obesity. In addition, Van de veer, Van Herpen, and Van Trijp (2016) study mindfulness as related to food intake but do not specify their topic as mindful eating. The authors find that consumers in a mindful state compensate more for previous food intake when consuming later. Egan and Mantzios (2016) apply the concept of mindful eating in a clinical context of cystic fibrosis, suggesting that being mindful may help to improve the nutritional well-being of individuals with this condition.

The concepts of mindfulness and mindful eating can be included as a way to help consumers make better food choices. For instance, all over the world, people are experiencing obesity and overweight (WHO, 2014). Some statistics indicate that the average body mass index has been increasing in the past years (OECD, 2017). Health authorities even consider this as a social problem, and ameliorating the problem is one of nine global targets to be attained by 2025, as proposed by the World Health Organization (WHO, 2014). However, even as medical authorities have been developing different programs to reduce weight and improve people's health (Tseng at al., 2018), obesity and overweight remain a problem for many. These two diseases have a great impact on health because they are linked to more serious conditions, such as diabetes and hypertension (Rtveladze, et al., 2013). To help with these issues that consumers are experiencing today, one way that obesity and overweight can be decreased is by changing people's diet.

Some experts have linked the problem of obesity to lifestyle factors such as the amount of food consumed and the level of sedentary behavior (George and Tanner, 2014). Therefore, the

focus on overcoming the obesity problem has shifted to the adoption of better nutritional habits (Briz Hidalgo, Cos Blanco and Amate Garrido, 2007). As mentioned, one important aspect of food consumption is the state of mind consumers have when making a decision about eating. Mindfulness is a great option that can help consumers pay attention to what they are choosing to eat and help them to make healthier choices.

Mindful eating has been used to refer to the process of actually eating the food, but not to the process of choosing what to eat. We argue that this step of food consumption is important because decisions influence the actual consumption of food. This new context has not been explored; therefore, it is important to start by developing a proper measurement. Because this concept is a beneficial one for people, it is important to study the effect that it can have on food choice as part of looking for a way to help decrease food consumption and consequently decrease obesity and overweight.

Authors have identified "global food" as the main cause of the increase in the obesity problem (Swinburn, et al., 2011). The way that pre-packaged food is portrayed to consumers is a particular problem. Many products now include on their packaging nutritional claims that specify food content information that cannot be seen on other parts of the packaging, such as the nutritional label (van Trijp & van der Lans, 2007). The main objective of these claims is to benefit consumers (van Buul & Brouns, 2013), but it has been found that such claims can also encourage consumers to consume more (Leathwood, Richardson, Sträter, Todd, & van Trijp, 2007). In the same way, nutrition labels are included on pre-packaged foods by regulation but are not helping consumers make informed decisions. Mindfulness, being a beneficial aspect of paying attention, could reverse this effect by making consumers choose while being fully aware of the food product's characteristics.

1.2 RESEARCH OBJECTIVES

Based on the aforementioned information, the aim of this thesis is to contribute to showing how mindfulness acts as a way to help consumers choose a healthier food option, with the effect of decreasing obesity and overweight in the world. To address this main aim, we propose the following specific objectives:

- Dive into the main motivations of female consumers to get involved in and stay engaged with a nutritional program that helps them eat better and lose weight.
- Develop and validate a scale that measures consumers' mindfulness at the stage of choosing the amount of food they will eat.
- Evaluate the effect that a nutritional claim has on consumers' food choices and how mindfulness can help to improve these choices.
- Explore the relationship between mindfulness and nutritional information attention and how this affects purchase intention of healthy and non-healthy products.

To address these objectives, four essays are presented in this thesis. The first is a qualitative study exploring the motivations of female consumers to start and continue a specific nutritional program. We develop a framework showing the internal and external motivations that were found. The second essay discusses internal characteristics of consumers, such as their state of mind; this section of the thesis shows the development and validation of a scale that is intended to measure mindfulness while choosing food. The third essay integrates these internal characteristics with an external cue that is included on pre-packaged food. Specifically, using a quantitative approach, this section studies the effect that mindfulness has on food choice when a nutritional claim is present. Lastly, the fourth section focuses on nutritional information, such as nutrition labels and nutritional

claims, and how the attention they receive from consumers is related to mindfulness. By conducting an eye-tracking study, we analyze the relationship between mindfulness, attention, and purchase intention. Through these qualitative and quantitative essays, this doctoral thesis seeks to generate knowledge about how mindfulness helps to improve consumers' food choices.

1.3 STRUCTURE OF THE RESEARCH

This thesis is structured as follows. After this first chapter of introduction, Chapter 2 presents an exploratory study of factors motivating Mexican women to undertake and continue with nutritional programs. This section describes a qualitative study that explores the motivations of female consumers to start and continue with a nutritional program. The specific characteristics of this nutritional program, described in the chapter, make it an interesting context to explore. We found several internal and external motivations, along with some barriers that can keep female consumers from continuing with a weekly nutritional plan. This chapter helped us explore consumer characteristics that can help them make healthy food decisions. It is important to mention that this chapter has been accepted for publication in the *Health Marketing Quarterly* journal.

Chapter 3 includes the development and validation of the Food Choice Mindfulness Scale (FCMS). The paper presented in this chapter takes into consideration the consumer characteristics mentioned in the chapter preceding it. Specifically, we focus on the consumers' state of mind. Because it is known that being aware can help consumers make conscious decisions to preserve their well-being (Bahl et al., 2016) and health status, we bring the mindfulness concept into consideration. We found that mindfulness scales did not take into consideration the food choice decision process, only focusing on the process of ingesting the food and not on choosing it. Hence, we decided to develop a scale that will give us a sense of the consumer's mental state in the moment

of making the food choice. We present the final scale, integrates two dimensions: rational and emotional response. Using a robust scale development process, the final scale is presented here. We conclude that this scale is fully prepared for use to measure mindfulness when consumers are in the food selection decision process.

Chapter 4 present a quantitative study that focuses on an external cue from prepackaged food that we can find on supermarket shelves. Nutritional claims are studied as a way to help consumers make healthier decisions (van Buul & Brouns, 2013), but as mentioned, these claims have been described as misleading, not helping consumers but rather making them choose to eat a greater quantity than they would eat without the claim (Wansink and Chandon, 2006). Based on this finding, we argue mindfulness (an internal cue) can reduce this effect of nutritional claims (an external cue) on food choice. We conduct two experiments. In the first, we used cookies and the FCMS to measure mindfulness, finding that when a nutritional claim, such as Low Sugar, is present on a package, the mindful characteristic of the consumer affects the result, specifically the emotional response. Then, using chocolates and an actual mindfulness intervention, we found that a relationship exists between a state of mindfulness induced by a mindful eating audio prompt and fewer chocolates being chosen by consumers.

Chapter 5 introduces a quantitative study that uses neuro-research to measure attention to different nutritional information. We argue that the inclusion of a short mindfulness audio prompt serves as a way to improve attention to nutrition labels and nutritional claims; therefore, purchase intention will be affected. Using three product categories (cereal, yogurt, and chips) and two product types (healthy or non-healthy), we conducted an experiment with students. We found that mindfulness positively affects the attention to nutritional information. Interestingly, we also found that the attention to monochrome nutrition labels and mindfulness have an effect on purchase intention.

Finally, Chapter 6 includes the main conclusions of these three papers, as well as the managerial implications. We conclude this chapter with limitations and future research that can be developed after this work.

CHAPTER II: AN EXPLORATORY STUDY OF FACTORS MOTIVATING MEXICAN WOMEN TO UNDERTAKE AND CONTINUE WITH NUTRITIONAL PROGRAMS

2.1 INTRODUCTION

"The anxiety to always be eating, and at the same time wanting to look great, get me to make the decision to lose weight" Olga Bañuelos, Success Stories in Weight Watchers Mexico.

As the world grows in number, people grow in size (Philipson, 2001). For example, in Mexico, more than 70% of the adults are overweight, a proportion that is higher than that in any other OECD country (OECD, 2014). The percentage of overweight and obese individuals is slightly higher among women than among men, with the trend being higher among adults aged 40–49 years (Barquera et al., 2013; OECD, 2014). In literature, the problem of obesity has been attributed to lifestyle factors such as the amount of food consumed and the level of sedentary behavior (George and Tanner, 2014).

Given the above characteristics, special activities that can help overcome the problem of obesity would be of interest to investigate, e.g., nutritional programs. Authors have associated these plans with weight loss (Cox et al., 2011), thereby making them relevant for reducing obesity. Just as the OECD (2014, p. 2) estimates, programs "of counseling of obese people by their family doctors would also lead to an annual gain of over 150,000 years of life in good health.". Studying how these programs work and how consumers adopt them is relevant when considering that obesity is on the rise along with an increase in the health expenditure on related chronic diseases (Finkelstein et al., 2012).

Specifically, women tend to have a disadvantage in terms of morbidity in contrast to men (George and Tanner, 2014), making it interesting to focus on this segment of consumers. Therefore, our main question is, aside from weight loss itself (Gould, 1989), what are the main motivations for women to continue with a nutritional program? This objective is different from other research that has included women in their contexts but on other topics such as the effects of weight-loss

advertising on mothers (Basch, Roberts, Samayoa-Kozlowsky and Glaser, 2015), and the results of a particular weight-loss program on lactating mothers (Bertz, Winkvist and Brekke, 2015). In this paper, we aim to answer this question with a qualitative approach based on previously studied theories.

In agreement with some psychological theories, it is suggested that two types of motivation exist: intrinsic and extrinsic. While in literature we can look at research conducted in this area focusing on weight loss, self-determination theory-based interventions are used to promote physical activity, healthy eating and weight control (Silva et al., 2010; Fortier et al., 2012; Girelli et al., 2016). Furthermore, using the consumers' health behavior model, Moorman and Matulich (1993) suggest that specific themes related to perception, environment (e.g., family), and one's self could be used to construct a motivation model for a physician–dietician counseling nutrition program.

This paper focuses on literature about the self-determination theory. We add to literature by focusing on women participating in a nutritional program in order to lose weight and inquire about their motivations to do it. We develop a model based on self-determination theory to understand the main intrinsic and extrinsic motivations driving these women to undertake and continue with nutritional programs.

2.2 LITERATURE REVIEW

2.2.1 Goal-setting and achievement

When we want to achieve something, we focus on what we want to do and set a goal. To achieve a goal, you have to start and be persistent until it is attained (De la Peña and Quintanilla, 2015). A goal refers "to future valued outcomes" (Locke and Latham, 2006, p. 265) and is what

we expect to accomplish and have in the future. The goal-setting theory posits that the level of goal difficulty has a relationship with performance (Locke and Latham, 2006); however, even though it has been empirically tested (Locke, 1996), it does not focus on what makes consumers achieve these goals.

Different categories of studies on goal theory can be found in the literature. Goal choice is influenced by self-efficacy, past performance and other social influences (Locke and Latham, 2006). It has been found that goals do not need to be consciously activated in order to be pursued; on the contrary, it can be unconscious and still make a person work towards it (Bargh et al., 2001; Latham, Brcic and Steinhauer, 2017). Apart from this, an important factor when studying goals is how individuals are motivated to achieve the goals they set when trying to accomplish a mission.

For instance, motivation is an important force when a goal is set and we are determined to achieve it. Psychological theories have presented different perspectives about this. One of these is the self-determination theory, which explains personal behavior in terms of fulfilling basic psychological needs by separating motivations as intrinsic, extrinsic and amotivational (Deci and Ryan, 1985). What self-determination proposes is that motivations exist when individuals feel free to behave any way they want, and that reflects their values (Lee et al., 2003).

The self-determination theory focuses on deciding which kind of motivation arises in certain situations. Ryan and Deci (2000, p. 70) define intrinsic motivation as an "inherent tendency to seek out novelty and challenges, to extend and exercise one's capacities to explore, and to learn." They mention that humans are born with this innate desire to explore new things, but the self-determination theory is more concerned with how to induce and maintain this motivation. Some findings have shown that autonomy, competence and relatedness are the three main factors affecting internal motivations, but it is important to remember that humans have an innate interest

for specific activities, which gives way to the extrinsic motivation (Ryan and Deci, 2000; Deci and Ryan, 2000).

Extrinsic motivations are present from childhood; consider when society pressures a child to adopt certain actions or behaviors. Defined by Ryan and Deci (2000, p. 71), this kind of motivation indicates "the performance of an activity in order to attain some separable outcome and, thus, contrasts with intrinsic motivation." In this definition, the self-determination theory explains internalization and integration, the former being the process whereby people internalize social norms as their own values and self-regulations, thus causing them to feel more integrated (Deci and Ryan, 2000). Other theories have studied how to facilitate the internalization and integration of extrinsic motivations in order for them to make people feel committed to achieving their goal (Ryan and Deci, 2000).

This theory helps to understand motivational outcomes in different settings. Wide-ranging literature can be found regarding educational context (Köseoglu, 2013; Gonzalez and Wolters, 2006), work (Vansteenkiste et al., 2005; Gagné and Deci, 2005), and health activities such as those for weight loss and those involving engagement in physical activities (Fortier et al., 2012; Teixeira et al., 2012a; Teixeira et al., 2012b). Related to the goal-achievement process, the self-determination theory has been connected with the goal-orientation theory to examine how personality characteristics influence performance and satisfaction toward achieving goals (Lee et al., 2003).

2.2.2 What is the relationship with the health background?

For many years, marketing researchers have been focusing on topics related to the well-being of consumers (Pancer and Handelman, 2012). Researchers as well as consumers are concerned about this issue and are now paying more attention to their behaviors in order to increase

their level of well-being so that they feel better (The Nielsen Company, 2015). Setting healthy goals is a way of paying attention to their health, and achieving those goals is how they make sure they are, in fact, doing something positive regarding their health. The self-determination theory explains how they do it.

In a health context, other models and theories have been developed within wellness programs to help consumers attain a healthy goal (Moorman and Matulich, 1993; Goh and Agarwal, 2008; George and Tanner, 2014; De la Peña and Quintanilla, 2015). Wellness programs can be specifically nutritional programs based on physician–dietician counseling about nutrition that has been cataloged as being of great importance to increase years of good health (OECD, 2014). These nutritional or slimming programs (The Nielsen Company, 2015) involve the difficult task of changing the way consumers eat in order for them to attain more nutritional value from their food. For Cox et al. (2011, p. 622), changing behavior related to losing weight "requires considerable effort to alter established habits." As this is a difficult, although very important decision, personal motivations to achieve the goal are crucial. Webber et al. (2010) study motivations and how they help consumers adhere to their goals in a 16-week, Internet-based weight-loss program; in this case, they measure autonomous and controlled motivation, and find that autonomous motivation is a more functional intervention for adherence and weight loss. We attempt to look for the motivations that the self-determination theory proposes in the particular health area of a nutritional program.

2.3 METHODOLOGY

This study was conducted in Monterrey, Mexico, a city with a high prevalence of obesity, with over 70% of its adult population having been identified as obese or overweight (ENSANUT,

2012). In 2015, INEGI estimated the city's population to be more than 5 million, approximately half of whom were females. Research has been conducted in a Mexican context regarding social marketing that encourage prevention of obesity (Carrete and Arroyo, 2014), therefore, making it an interesting context to explore. With these characteristics, and as mentioned before, the study will be focusing on adult women, who have a higher prevalence and risk of being overweight.

More recently, consumers have started to make some changes related to their alimentation (The Nielsen Company, 2015). One of the nutritional programs that can be found throughout the city, is the physician–dietician counseling program where a medical doctor and a nutritionist have a single consulting room where they provide a weekly nutrition plan. While previous studies have focused on more established programs that have more recognition online or in the media, we focus on this kind of program due to the importance given to it as it has been stated that general physicians are in a position to best help their patients as they can identify those who are at greater risk (Nicholas, Pond, and Roberts, 2005).

According to the physician in charge of the physician–dietician program in this study, 80% of the program's participants are women. This is interesting, as women in the family are perceived as the ones most interested in providing healthy food for the family compared to fathers (Fielding-Singh, 2017). There is also a tendency for older women to become involved in this type of activity due to health issues such as knee pain or elevated glucose, likewise, some patients attend the program for a specific event, and after it, they do not go back.

This physician–dietician program consists of a weekly appointment any day from Monday through Friday. Patients arrive and mark their presence by submitting their card of records, where they write down their weight each week. On the first visit, the doctor calculates the optimal weight of the patient based on height, age and current weight. The goal is then set, and the process begins.

As the number of patients involved in this particular program is large, they work in groups of approximately 18 or 20 people.

When a group is formed on the waiting room, a nurse calls the patients' names, and they form a queue so the nurse can wipe their ears to prepare them for acupuncture. This practice is used in this program, to reduce eating anxiety as patients are trying to change their eating habits. This is a common method used for weight loss programs in alternative medicine. In a study conducted in the northwestern region of Mexico, Robles-Zepeda et al. (2011) found that 73% of individuals accepted the use of complementary or alternative medicine such as acupuncture. Also, users of acupuncture perceive it as an effective treatment for different diseases (Chan, Siu and Fung, 2016)

Patients are weighed privately by the nurse; the patients do not get information about others' weight unless they comment about it. Then, they get a sheet that includes the nutritional plan for the week and enter a room where the doctor and dietician explain each of the options presented on the plan. If patients have doubts or are not used to eating a particular kind of food, they can ask the doctor to suggest alternatives. After the explanation, the doctor places acupuncture, and they are dismissed, with the session lasting approximately 20 min. The cost of each session is $50.00 mxn.

As mentioned by the doctor, patients arrive with different motivations to engage in the program, but the real motivation that women have to continue with the nutritional program has to be explored in order to help them achieve the desired results. Owing to the exploratory nature of this research, the data collection method was in-depth interviews.

We conducted 10 interviews with female consumers aged 30–60 years. Each in-depth interview was audio-taped and lasted between 30 and 40 min. Participants were selected from the patients that arrived more than 30 min prior to their scheduled group sessions because the interviews were conducted in the waiting room. The participants gave consent to an interview after

explaining to them that the information gathered was going to be for research purposes only and would be anonymous as the findings were used in an aggregated way.

The in-depth interviews were initiated by talking about the program in general, then focusing on their lives apart from the program, and finally, talking about the problem of obesity among Mexican women. Also, a projective technique of finishing four sentences regarding Mexican women who were overweight was incorporated in order to get in-depth information from the participants. This technique was used with the purpose of encouraging more personal, rich and profuse responses from the participants (Lindzey, 1961; Sutton, 2011) into what they actually think of their persona, even though we were not talking about them specifically. Demographic data were collected at the end with the objective to classify the respondents; only their first names were requested in order to maintain anonymity. A table with participants' data is presented in Table 2.1. At the end of the interview, they received a payment equivalent to one consultation as an expression of gratitude for their time and information.

All interviews were transcribed verbatim including the information gathered from the projective techniques. The document containing the transcripts contained 84 pages which served as the data source when analyzing. The analysis followed the analytical operations described in Spiggle (1994). For instance, the data was categorized according to the self-determination theory, namely, into reasons for undergoing a nutritional plan. The data was sectioned several times until new categories stopped emerging. At the end, relationships were taken into account to link the constructs that could be connected and separate the ones that could not. This was the integration process that needed to be carried out to join every category into a model.

Table 2.1 Profile of Participants

Name	Age	Civil Status	Family Members	Level of Study
Martha	55	Married	5	Secretary
Ana	47	Married	5	Half of Law School
Maria del Socorro	47	Married	5	High school
Francisca	57	Married	4	Specialization in Psychology
Lucia	32	Single	6	High school
Magda	52	Married	6	Bachelor's in Nutrition
Maricela	39	Married	6	High school
Rita	54	Married	5	Elementary
Maria de la Luz	59	Married	2	Nursing
Imelda	34	Married	5	High school

2.4 FINDINGS

As the self-determination theory posits, two main themes, intrinsic and extrinsic motivations, emerged in relation to the motivations of women to continue with a nutritional plan. Amotivation was not encountered as the research was only directed toward women already undertaking nutritional plans; thus, they are considered motivated. Each one of these themes is developed by more specific sub-categories that describe how the different motivations function to help women achieve their goals.

2.4.1 Intrinsic motivations

2.4.1.1 Outcome-related

There are different motives for engaging and maintaining a nutritional program; even for one person, there can be multiple reasons. Women who are overweight or obese tend to start a program because they want to lose weight. As nutrition programs have the objective of giving people healthier options, it seems understandable that this is the main reason behind their engagement with a program like this. In other cases, looking good was mentioned as one motive

for undertaking the diet plans each week. They want to not only look good, but also feel good about and be satisfied with themselves. Women in these programs have a goal to achieve, and they know that by following the doctor's recommendations, they will be satisfied.

> "I seek to be satisfied with myself, I mean, feel good with myself […] to be proud of me, love myself and that if I look in the mirror, I feel good, as right now, I do not look like myself." (Magda, 52 years)

For some women, sickness and pain are big reasons to undertake and continue with nutritional plans. Excessive weight can sometimes cause pain in the knees, as the legs bear more weight than what they are capable of carrying. This pain can sometimes be so excruciating that it interferes with daily activities like taking the kids to school. However, there are other kinds of discomforts associated with being overweight or obese: diabetes and hypertension. These ailments are well-known by women and are a sign that the future may hold bigger health problems, which is why women know that weight loss and healthy nutrition can reduce the probability of becoming ill.

> "I have a brother, my mom, who died from diabetes, so I don't want to have the surprise that I get diabetes for not taking care of myself, and as I know, more than anything it is the alimentation (Francisca, 57 years)

Women know that by following these diets, they will see results. That is what they want. They tend to think about the benefits, and they want to lose weight, feel good and look good; sometimes, however, they begin to see unexpected benefits. Usually, eating the recommended combinations of food and the correct amount of calories can increase a person's energy levels and happiness in general, apart from losing excess weight. If they somehow, for any reason, eat

something that is not related to the plan, then they feel bloated, dizzy and without energy. With these programs, women learn what to eat so that when they start feeling as desired, they go back home and start following what the doctor and dietician recommend.

> "It motivates you that you see changes because, like I tell you, you wake up without sleepiness, you have more energy, and you even sleep better." (Lucia, 32 years)
>
> "When I follow the nutrition plan I'm fine, but then I cheat so I constipate. I think that the body itself (tells me) I loaded it with more." (Ana, 47 years)

2.4.1.2 Self-efficacy and independence

Women tend to make the decision of engaging in a nutritional program themselves. Even when other people sometimes mention that they look different or that they have gained weight since the last time they saw each other, they decide to get involved in a nutritional program for themselves. They consider it their job to take care of themselves and lose weight, and not someone else's. Their will to maintain their new diet and achieve their goal is one of the reasons motivating them to continue to keep on track. Women feel that they can engage in nutrition programs because it is their responsibility alone to achieve what they want.

> "A lot of will, that is what I do have, and then I say, I have to do it because I want to lose weight and only me, I am the one that has to do this." (Imelda, 34 years)

Even when women socialize and their life is centered on their families, when they know they can succeed, they do it no matter what obstacles are presented. Sometimes support is not even necessary because women know they alone can achieve their goals of having a controlled alimentation. When negative comments are made by other people, they tend to ignore them and

follow what they think is best. They have the autonomy to make their own decisions, and not even their family gets in the way of accomplishing their goals.

> "I cook my food apart from theirs [her family is not following the program]. I make them their food." (Ana, 47 years)
>
> "My husband […] is the one who makes me battle my diets […], he's eating tortas, tacos in front of me, it is a really big problem but I have to say: first me, and me." (Magda, 52 years)

2.4.1.3 Barriers

Barriers can also be identified when examining the elements that help women achieve a state of motivation. These barriers can be described as intrinsic as they come from within the person. For example, each person has cravings. Women tend to have desires for churros, pizza and other types of food that are known for their high caloric content when they are participating in a nutritional program, as they are changing the way they eat. It's a common feeling, the desire for something that you used to have that is now prohibited. One craves sweet food, and it depends on each person whether they break the diet or ignore the cravings and overcome the barrier.

> "Sometimes you feel guilty because you say, oh, just for a little craving and that's it, everything is gone, I think it is a lot my will to want to lose [weight]." (Maricela, 39 years)

2.4.2 Extrinsic motivations

2.4.2.1 Context characteristics

The consumer's external motivations are derived from the characteristics of their environment. Women pay attention to the program description when they decide they want to engage with a particular physician–dietician counseling program. For example, for this type of

platform, the physician is a very important motivator to engage and behave as expected. The doctors' attitudes toward patients, the way they act, and their experience are some of the determinants for women participating in the nutrition program.

> "The doctor also has a lot of charisma and motivates you a lot. And what's important is that he is a doctor who knows what he is doing." (Magda, 52 years)

Women also tend to think that a natural lifestyle is better. The majority of them mention medicines and other kinds of pills as one thing they do not like in other programs. This program includes acupuncture, but never recommends using pills to lose weight; the core of the program is better nutrition. Why do women think it is a bad thing to use supplements in the form of tablets? Because they associate bad experiences, either personal or second-hand, with these medications. If a program does not include medicines, then women are motivated as they know they are doing an activity that will not harm them.

> "There are more programs, of course, with other doctors, but you know they give you tablets and all of that and well, it hurts you for what I've heard from my parents." (Maria del Socorro, 47 years)

Similarly, the way that the program is organized is an important motivation for the participating women. Women do not want to feel they are doing something they do not like; they want to feel they are learning something. Basically, nutritional education is what they are seeking so they can later teach their children or partners. Weekly plans are not looked at by women as something that they need to follow, but as something they are learning to do as if it was another common activity.

"You are being educated in things like quantity, combinations, all of that stuff is very important." (Magda, 52 years)

An interesting practice that women like about this program specifically is the weekly group sessions instead of the common one-on-one meetings with the doctor or dietician. It acts as a motivator as you can feel that you are not the only person in the world trying to lose weight. For women, this characteristic imparts social support, wherein their friends and family can keep them from feeling demotivated or disappointed if they are not losing weight or if they end up gaining some weight. In addition, it also serves as a motivation because when you are part of a group for a session, you become committed to other people.

"Well, it is okay like that in groups, because as I tell you, sometimes we do it [the diet] as it is and then we don't see results and you do feel a little sad, and between ourselves we encourage each other, you can, or this diet is like that, or you'll see next week you'll lose weight." (Imelda, 34 years)

Price can be mentioned as another motivation, as these programs are not government-funded or subsidized. Patients have to pay a consultation fee, and sometimes another program can be similar but more expensive, and consumers end up choosing the cheapest one. However, this fee is not the only expense; the plans presented each week involve buying food that may not be affordable for all socioeconomic levels.

"Sometimes diets are a little bit heavy to buy." (Imelda, 34 years)

2.4.2.2 Overweight perception

All women know about the problems of obesity in Mexico. They can mention some statistics about it and even discuss how significant it is, but the main outcome when asked about overweight women is related to the perception of how they feel and who they are. What is interesting is that a reason for their participation in a nutritional program is to lose weight; however, most women referred to "overweightness" as a problem suffered by others and not them.

A Mexican woman tends to be looked at as intelligent, independent and pretty by other women; however, this perception significantly changes when a woman is "overweight." All women think an overweight Mexican woman looks bad and feels sad and depressed; such as stigmatization posits. Some of them tell about their life experiences, whereas others just talk about what they see and think. Also, the perception of overweight is the total opposite of what a non-overweight person looks like.

> "[Talking about overweight Mexican women] she doesn't love herself and, therefore, she looks like when a person is abandoned, I mean that I dress bad, I don't dress up, why? I'm fat, I don't look good, nothing fits me, so she looks abandoned." (Francisca, 57-years-old)

Similar to how women talk about being overweight and not referring to themselves but to others, the personal perceptions of obesity shaped by society are evident in the interviews. When an event wherein their excess weight becomes salient occurs, women tend to make the decision to undertake programs of nutrition. Friends and family have the most effect when they make comments related to the women's weight. However, other experiences include not finding their sizes for clothes. These experiences and conversations make them think that being overweight is not a good thing, and they become motivated to engage in nutritional programs.

> "Here, it's more difficult to buy clothes for an obese person […] you look bad because they don't fit you and sizes reach a certain limit, and you don't find anything." (Magda, 52 years)

"You do feel like depressed, that you see your friends and we go in group, we go to buy clothes, and nothing fits you and you don't want to go inside the stores." (Lucia, 32 years)

Other perceptions related to being overweight or obese are related to their causes. Women argue about some causes of being overweight that are not 100% their responsibility. An important issue arises around pregnancy and the difficulty to lose the weight gained during those nine months. Genes are also seen as causes or, at least, for them, some people's genes are related to their overweight and that is why they suffer this condition. Even though these two constructs are not total responsibility of them as women, they act as motivators to get involved in nutritional programs in order to overcome the connection they have with being overweight via these constructs.

"She [her daughter] is going to look fat because from my husband side, he comes from a packed family, so yeah, she disciplined herself and is skinny." (Ana, 47-years-old)

"For heritage, that's how they are, fat. That even though they put on diets and more diets, they can't lose weight. Especially women, we are more prone because of pregnancies […] it's more difficult to lose what was gained." (Maria de la Luz, 59 years)

2.4.2.3 Social support

Just like intrinsic motivations explain the way women act alone to achieve their goal of weight loss, social support is also important for them to feel motivated to maintain the nutritional plans. Family and friends, as mentioned above, have more impact than anyone else in a women's motivation when they decide to change their nutrition to lose weight. This support can manifest in different ways; for example, not letting them eat what is not permitted, telling them they look good, or accompanying them to buy the food they need or to the weekly appointments with the doctor and dietician. Women mention they look at this as motivation to continue doing the plans.

"I mean, supporting me, just by listening to me, that they know, look in what the diet consists, that my husband, comes and keeps me company, that for me, is support." (Maricela, 39 years)

2.4.2.4 Barriers

Extrinsic barriers also exist when women are engaged in trying to achieve their goal of weight loss. These barriers are related to the socialization level of women compared to men. Women do not accept non-attendance to an event such as parties, little reunions with friends, family visits and so on. However, another, barrier is the working life. The majority of women in this program were housewives dedicated to the attendance of their family and house chores. But women that worked described the dynamics of their job as an impediment to follow the nutrition plan. These two barriers are extrinsic as they emerge from their social life and depend on each person to overcome or not.

"Suddenly I don't (follow the plan) because of x, work, whatever you want, that something else comes in the way, that I have to go to different towns (while working) and it gets hard." (Ana, 47 years)

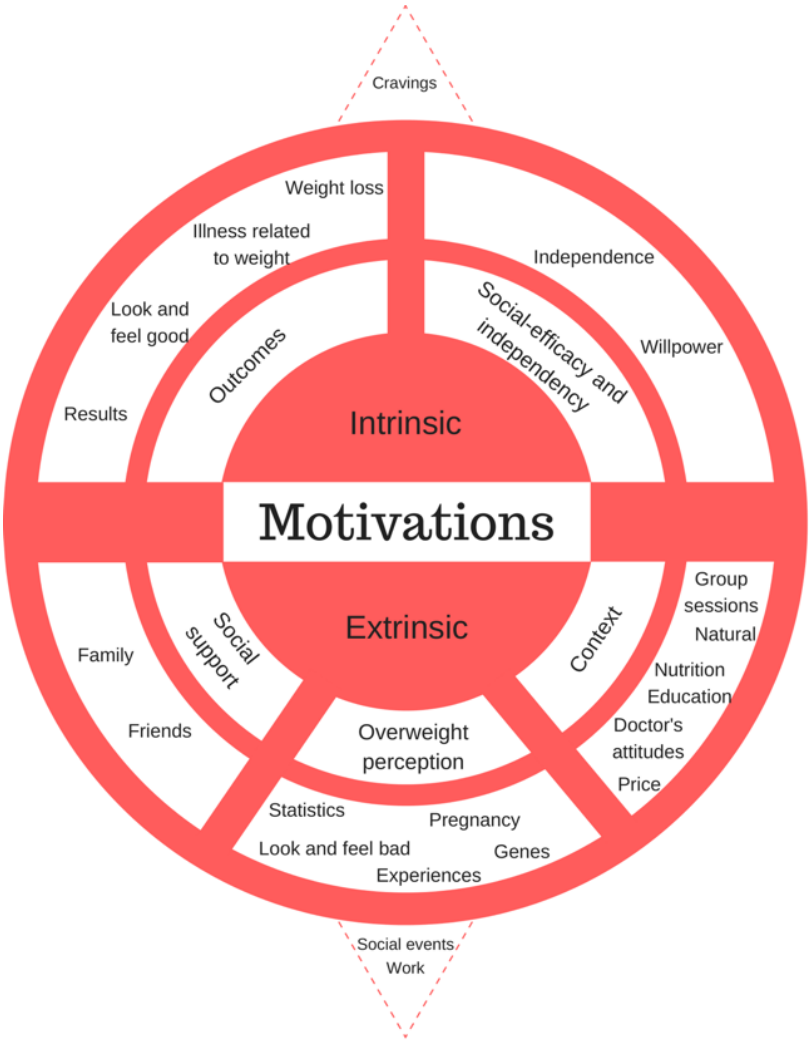
"We go to parties and well, you desire it, or family arrives, and you have to offer other things, or you visit someone else and well, they don't have the diet there." (Francisca, 57 years)

2.5 DISCUSSION

Overall, this study contributes to a better understanding of the motivators for women's engagement in and maintenance of a nutritional program focused on weight loss. The results

propose the separation of the main factors in two categories, intrinsic and extrinsic, in line with the findings of Ryan and Deci (2000). But, as this theory posits that in order to get results, extrinsic motivations should become so important that they internalize into intrinsic motivations, the findings express that these extrinsic motivations can still be outer motivations and get the expected results. This is useful for marketing practitioners to make their weight loss campaigns attract more consumers concerned about their health. Findings are arranged in a model (Figure 2.1) that shows the relation between the different kinds of motivations.

Figure 2.1 Motivations Model



This study demonstrates that beyond the categories of intrinsic or extrinsic, the motivational sub-categories are more important as they are the real motivations behind women's engagement in a nutritional program. For example, it seems that family and friends are important motivators because what they do and say have an impact on what women decide regarding their weight. Similar to what Cronin et al. (2015) posit in their article about consumer discipline, members of the family are aware of what mothers eat, and even if they can act as barriers, they also can act as motivators by watching if they are sticking to the diet plan. But there is also an interesting exploration of the personal willpower that women have, which they mention is a very important aspect in order to achieve their weight loss. In this case, an advertisement for these nutritional programs can invite participation from family or friends, without setting aside the inclusion and importance of will-power.

A relevant characteristic identified in this nutritional program versus other nutritional dynamic programs, was the presence of an expert: a physician in the group. These types of activities may resemble the well-known programs of WeightWatchers as they interact in groups of people that are interested in the same thing: losing weight. The difference between these two programs is the type of leadership that is shown here. For instance, in the WeightWatchers program, the meetings are arranged by the community and people who have experienced the program and have lost weight (Weightwatchers, 2018); on the other hand, the nutritional program discussed here has a physician as the leader of the program. Participants looked at this feature as an important factor to continue because the doctor has the knowledge, he is an expert and "knows what he is doing" (Magda, 52 years). Opposed to what has been done in this type of community program such as WeightWatchers, Mexican women prefer to have a physician as a leader because they trust they are going to get the desired results.

Also, an interesting finding is the perception of obesity that Mexican women have about overweight Mexican women. It is evident that a stigmatization exists as they all generalize the image of an overweight woman as a bad thing. This is consistent with Crandall's (1994) finding that people believe that fat individuals are perceived as "unattractive, aesthetically displeasing, morally and emotionally impaired, alienated from their sexuality, and discontent with themselves" (p. 883). He also mentions that they even denigrate themselves, just like participants in this study who mention that they felt bad and looked bad. This conclusion results in having a perception that may work as another motivator, opposed to what Drury and Louis (2002, p.558) stated about "societal and medical stigmas of obesity act as barriers to the utilization of healthcare". This finding proposes women cope with this thought by going to a nutritional program, as Puhl and Heuer (2010) suggest.

At the same time, some barriers were discovered. These were also separated into intrinsic barriers (related to their cravings) and extrinsic barriers that emerged from their environment. It is interesting how participants overcome these barriers with the help of a very important force within themselves: willpower. This force can be translated to consumer discipline (Cronin et al., 2015) as women are aware of the barriers, but they know what their goal is, and they have strategies to overcome them and actually achieve their goals. The intrinsic motivation of willpower serves as a way of motivating women to continue their nutritional plan, but it also acts as a way to eliminate barriers and follow the diet. Similar to Carrigan and Szmigin's (2006) findings that "mothers still carry out numerous chores, their time is fragmented, complex and they experience disrupted flows of activity," in this work we found that women in a nutritional program have cravings, and their work gets in their way, but they decide to not pay attention to it or go to a party where there are a lot of temptations and still not get affected by them, thanks to their willpower.

CHAPTER III: FOOD CHOICE MINDFULNESS SCALE (FCMS): DEVELOPMENT AND VALIDATION

3.1 INTRODUCTION

Due to increasing obesity in the world (OECD, 2017), consumer researchers and public health professionals need to understand how consumers make food choices and how to encourage them to choose better options regarding their well-being (Willmott and Parkinson, 2017). Mindfulness, which has been helping consumers in the last few decades, is being aware of the present moment. The term "mindful eating" refers to the way people eat and how they relate to their food and everything that involves food intake. As more consumers worldwide are becoming obese and have more incidents of obesity-related diseases (Ma, Ailawadi, & Grewal, 2013), it is beneficial to discuss mindfulness practices in order to encourage consumers to start eating healthy.

For this reason, broader and more robust research should take place in the academic field. Mindful eating can have benefits for not only the obese but to help cure eating disorders such as anorexia or bulimia (Albers, 2010). However, as it is a relatively new concept and has not been researched enough, it is important to develop a scale to measure and understand how mindful eating interacts with consumers. Even though some existing scales measure the concept itself of mindful eating, they tend to focus on the process of intake and not on the decision of food choice. The aim of this research is to develop and show validation of a new mindful eating scale that focuses on the food choice process, which includes dimensions that have not been included before in a mindful eating questionnaire.

We contribute to the extant literature of mindfulness and mindful eating. Using a robust statistical approach of scale development, and by using previous existing scales, we provide a scale that measures mindfulness at the food choice process which has never been explored before. We simplify the measure of mindful eating by including two dimensions.

3.2 LITERATURE REVIEW

3.2.1 Mindfulness

Mindfulness as a construct has received broad acceptance in the academic environment (Williams & Kabat-Zinn, 2011). For instance, it has been studied several times and in different contexts. With this in mind, it is logical to understand a wide variety of definitions, depending on the nature of the research that is being conducted. Langer (1989) describes mindfulness as a cognitive state of alertness and proactive awareness. It has also been described as a state of "enhanced attention to and open awareness of current experience or present reality," like an attribute that varies between and within persons (Brown & Ryan, 2003). Meanwhile, Ndubisi (2014) refers to it as a mode of consciousness that commonly signifies presence of mind. In a more medical and psychological context, Bahl et al. (2013) define it as a practice (which refers to the repeated act of paying attention to an object or present experience in a nonjudgmental manner), a state (which is a transitory condition following the practice of mindfulness), and as a trait or disposition (which is a more permanent way of being that involves a reflective—rather than reflexive—response to stimuli). However, Kabat-Zinn (as cited on Bahl et al., 2016) offers a more general definition of mindfulness: "an awareness that arises by paying attention, on purpose, in the present moment, and nonjudgmentally." With this definition in mind, it is interesting to look for the work that academics have been doing in order to understand it better and explain its benefits.

Authors have developed different scales in order to measure mindfulness; some well-known scales are the Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003), the Kentucky Inventory of Mindfulness Skills (KIMS; Baer, Smith, & Allen, 2004), the Philadelphia Mindfulness Scale (PHMS; Cardaciotto et al., 2008), the Toronto Mindfulness Scale (TMS; Lau et al., 2006), Five-Factor Mindfulness Questionnaire (FFMQ; Baer et al., 2006), Cognitive and

Affective Mindfulness Scale (CAMS; Feldman et al., 2007). Also, in the psychological field, Brown and Ryan (2003) explore the role of mindfulness in psychological well-being, finding that mindfulness predicts self-regulated behavior and positive emotional states. Also, literature has explored mindfulness in a food context, which develops an interesting concept called "mindful eating."

3.2.2. Mindful eating

When mindfulness activities take place, different ranges of exercises are taught such as paying attention to your breathing, paying attention to a candle and everything that is happening in the candle burning, paying attention to the texture of a raisin, and others. These activities can be specifically shortened to emphasize eating in order to pay better attention to the whole experience. This is also referred as mindful eating (Framson et al., 2009; Hulbert-Williams et al., 2013)

As we have mentioned, mindful eating can be defined as the activity of being present for everything that involves eating and making conscious food choices (Warren, Smith and Ashwell, 2017). But all the research that has presented mindful eating, has focused on the experience of consuming the food and assessing if they are full along the characteristics of the food. For our knowledge, mindful eating has not included the beginning of the process of eating. As the definition of mindful eating propose, it consists of making conscious food choices (Warren, Smith and Ashwell, 2017), therefore, the consumers decision about food starts when they decide to buy it, that is to say, when they have different options of an article and decide to purchase certain products. Then, they will continue with the decision of eating it and the process of mindful eating, as has been researched, starts.

As this food choice process happens when taking the decision of acquiring certain food product, and is an important step referring to consumers' health (Fisher, Erasmus and Viljoen,

2016; Mc Keown and Nelson, 2018), we propose that this decision can be also researched and measured. Other authors have developed scales that specify mindful eating based on already existing mindfulness scales (Framson et al., 2009; Hulbert-Williams et al., 2013). But, even though these scales or questionnaires are already present in the literature, some limitations make it worthy to develop a new mindful eating scale. For instance, the inclusion of the food choice process at the acquisition stage.

The necessity to measure this stage of mindful eating, relies on helping health professionals to understand how mindful eating is associated with healthful eating behaviors; thus, more academics use the concept when referring to mindful eating in their research. As Hulbert-Williams et al. (2013) note, the existing mindfulness scales are based on different activities and cannot properly measure a specific domain, such as eating or deciding what to eat. Today, two mindful eating scales are in existence. The Mindful Eating Questionnaire (MEQ; Framson et al., 2009) measures five dimensions, which are broad to all food intake experiences: disinhibition, awareness, external cues, emotional control, and distraction. Some of these dimensions are similar to those of the mindfulness scales, but others are based on the eating activity. For this reason, the mindful eating scale (MES; Hulbert-Williams et al., 2013) was created. It measures six dimensions that, even though based on the MEQ, have more similarities with the mindfulness scales: acceptance, awareness, non-reactivity, routine, act with awareness, and unstructured eating.

However, both MES and MEQ have limitations that deserve attention. MEQ was recently developed and received acceptance because it was an initial evaluation, but it was not revised later for more robust validations. On the other hand, MES is also at an early development stage, so it did not receive more validation analysis. These two scales refer to the process of eating per se but without taking in consideration the initial stage that we call acquisition of food.

After expert analysis, an important dimension was discovered, which is not included in existing scales: well-being or rational response. The aim of this paper is to develop a food choice mindfulness scale, based on the mindful eating and mindfulness scales, that focuses not on the actual process of eating but on the initial food choice that is made by consumers. This, with a more robust validation analysis in order to make it clear that it is measuring a proper and complete construct.

3.3 METHODOLOGY

3.3.1 Procedures

The food choice mindfulness scale is based on the two previously introduced mindful eating scales, MEQ and MES; and questions from the mindfulness scales were adapted to fit the eating context and to make it more understandable and parsimonious.

The original pool of items (DeVellis, 2012) was developed after several interviews with five mindfulness experts. They are mindfulness coaches who give courses about mindfulness, trained to do so since approximately 5 to 10 years ago. In-depth interviews took place in order to obtain deeper insights about the topic of mindfulness in general. Mindful eating also was reviewed by experts who contributed with examples that later were taken into consideration for the development of items. After analyzing the interviews, a wide range of dimensions were gathered, which are similar to those already existing on the mindfulness scales. The dimensions that were exactly the same with those of mindful eating stayed as dimensions for the new scale. Then, items were developed based on examples and existing questions. Five tentative dimensions and 44 items made up the initial pool of items. According to Peterson (2000) a pretest took place with two

English experts in order to know if the questions were understandable for the average population. Two native English speakers reviewed the wording of the questions.

The scale chosen was a semantic differential scale with a bipolar rating in seven points. In addition, demographic variables measured, age, weight, and height were used as control variables.

The scale was distributed via Amazon Mechanical Turk, "a new and fast-growing method of Internet recruitment available today—marketplace crowdsourcing" (Casler, Bickel, & Hackett, 2013, p.2156), to US-located participants. An introduction section was included in order to establish rapport. It briefly described the survey and requested for complete and candid answers; also, it assured confidentiality and anonymity (Peterson, 2000). Participation in the survey was voluntary, and a participation agreement was presented to all individuals at the beginning of the questionnaire. Information was collected through a web-based survey program (Qualtrics). This way of distribution was chosen in order to gather a fast, diverse, and reliable sample for this measure (Buhrmester, Kwang, & Gosling, 2011).

3.3.2 Participants

A final sample of 153 participants presented the profile described in Table 3.1.

Table 3.1 Characteristics of study sample (n=153)

	n	%
Gender		
Female	88	57.5
Male	65	42.5
Age		
13-30	67	44
31-50	62	41
>51	24	16
Following a nutritional regime		
No	112	73.2
Yes	41	26.8

3.3.3 Data analysis

After a descriptive analysis of the variables, an exploratory factor analysis in SPSS 24 was developed (DeVellis, 2012). Internal reliability (Cronbach's α) of each factor and for the complete pool of questions was assessed (See Table 3.2). The measurement model was developed and tested using AMOS in SPSS. Convergent and discriminant validity of the scale was also assessed and results of the iterations to get a good fit and parsimonious model are presented below.

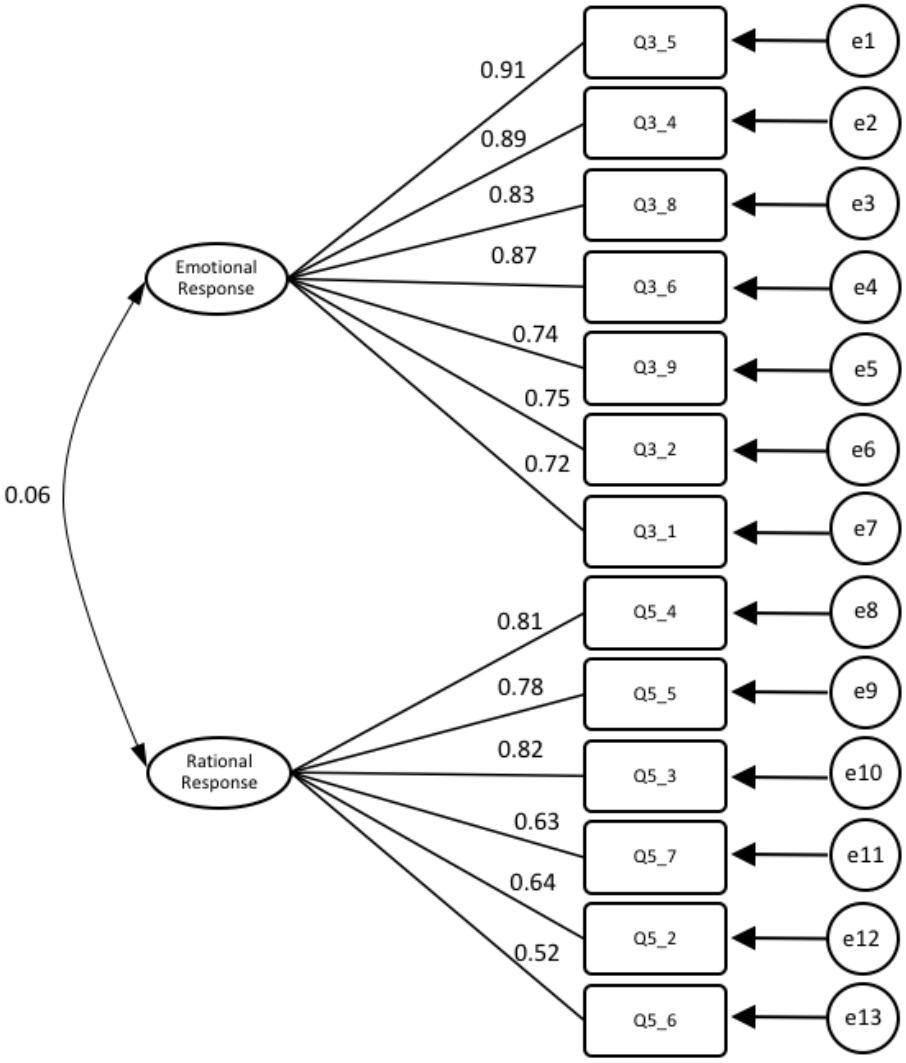
Table 3.2 Exploratory Factor Analysis of the FCMS

	Factor Number		
	1	2	
Factor 1: Emotional Control			
Q3_5R - When I feel something I don't like, I eat to suppress those feelings.	0.896		
Q3_4R - Food helps me to distract from what I am feeling.	0.894		
Q3_6R - When I have unpleasant thoughts, I eat to suppress those thoughts.	0.870		
Q3_8R - I tend to eat while feeling frustration.	0.869		
Q3_2R - When I'm feeling stressed I'll go find something to eat.	0.807		
Q3_9R - I try to suppress my feelings when eating.	0.781		
Q3_1R - When I'm sad I eat to feel better.	0.780		
Factor 2: Rational Response			
Q5_3 - I choose what to eat depending on the sugar amount it contains.		0.829	
Q5_4 - I decide to follow a nutritional regimen because it is good for me.		0.828	
Q5_5 - I check the nutritional values before eating something.		0.824	
Q5_2 - I choose what to eat depending on the fat amount it contains.		0.727	
Q5_7 - I am aware of how healthful my meal is every time I eat.		0.713	
Q5_6 - At a restaurant, I ask for the nutritional contents of the meals.		0.618	
% of total variance explicated	65.51	39.103	26.412
Cronbach's α	0.850	0.933	0.853

Extraction method: Principal components analysis. Rotation method: Varimax

A confirmatory factor analysis was performed, and the measurement model was tested using AMOS by drawing the two dimensions of the FCMS, with the corresponding items. In the final model 13 items had path loadings (above 0.5). Good fit indexes, internal reliability, and parsimony were achieved after the four initial intended factors (Figure 3.1).

Figure 3.1 Final Measurement Model with Standardized Estimates of the FCMS



The models' fit measures are presented on Table 3.3. For the CMIN, values should be 5 or less in order to be reasonable (Marsh & Hocevar, 1985). For the comparative fit index (CFI) and the incremental fit index (IFI), values over 0.90 are satisfactory, over .95 indicate a good fit (Kaplan, 2000), and a value of 1 indicates perfect data fit of the model (Byrne, 2001). Root mean square error of approximation (RMSEA) values below 0.08 are acceptable and it is not recommended to have a model greater than 0.1 (Browne & Cudeck, 1993), which is met by this model.

Table 3.3 Models' Fit of the FCMS

$\chi 2$ (df)	163.8
CMIN/df	2.559
IFI	0.921
CFI	0.919
RMSEA	0.100

3.4.2 Convergent and Discriminant Validity

Convergent and discriminant validity was examined by establishing correlations between the dimensions and items. Convergent validity was obtained by analyzing the factor loadings, the average of variance extracted (AVE), and the construct reliability (CR). The AVE measures the mean of the variance extracted for the items loading on a dimension and is a summary indicator of convergence. The CR measure also was obtained by dividing the squared sum of factor loadings for each dimension and the sum of the error variance terms for a dimension. For each loading, all of them indicated 0.5 or higher. Regarding the AVE, values above 0.5 are desirable; for CR, values should be 0.7 or higher (Fornell & Larcker, 1981). Results for the convergent validity are shown in the Table 3.4. All results are accepted, suggesting a convergent validity exists for the model presented previously.

Table 3.4 Convergent Validity of the FCMS

			1)FACTOR LOADING CRITERIA	2) AVE CRITERIA	3) CONSTRUCT RELIABILITY
			Li	AVE	CR
Q3_5R	<---	EmotionalC	0.908	0.666044	0.93265812
Q3_4R	<---	EmotionalC	0.886		
Q3_8R	<---	EmotionalC	0.827		
Q3_6R	<---	EmotionalC	0.869		
Q3_9R	<---	EmotionalC	0.738		
Q3_2R	<---	EmotionalC	0.745		
Q3_1R	<---	EmotionalC	0.717		
Q5_4	<---	RationalR	0.808	0.50070417	0.854411649
Q5_5	<---	RationalR	0.78		
Q5_3	<---	RationalR	0.818		
Q5_7	<---	RationalR	0.628		
Q5_2	<---	RationalR	0.642		
Q5_6	<---	RationalR	0.517		

In Table 3.5, discriminant validity values are presented for the two analyses that were used. Construct correlation (Anderson & Gerbing, 1988) compares the models chi-squared making the better model, the one with the chi-squared nearer to zero. For the conservative criteria, the squared correlation of the dimensions is compared with the minimum AVE value of the relationship; it is expected to have a lower squared correlation than the minimum AVE. All values are accepted, meaning the model has discriminant validity because the found dimensions are not the same.

Table 3.5 Discriminant Validity of the FCMS

Construct Correlation					
			$\chi 2$	DF	Difference of $\chi 2$
		Default Model	163.8	64	
EmotionalC	<-->	RationalR	173.3	63	9.5*
Conservative Criteria					
				Estimate[2]	Min AVE
EmotionalC	<-->	RationalR		0.003249	0.500704167

* $p<0.05$

We wanted to further examine into the validity of the FCMS. A total of 110 Mexican university students participated in the second application of the scale for additional validation (DeVellis, 2012). Demographics of the sample are described in Table 3.6. We conducted a confirmatory factor analysis in order to replicate the results from the first sample.

Table 3.6 Characteristics of the second application sample (n=110)

	n	%
Gender		
Female	38	34.5
Male	72	65.5
Age		
18-30	93	84.5
31-45	17	15.5
Following a nutritional regime		
No	70	63.6
Yes	40	36.4

After conducting a confirmatory factor analysis with the data of this new sample, the measurement model (Figure 3.2) Model's fit (Table 3.7), Convergent (Table 3.8) and Discriminant (Table 3.9) validity were obtained. With these results, we can see that for this sample, the criteria of the analyses was also met.

Figure 3.2 Final Measurement Model with Standardized Estimates of the FCMS

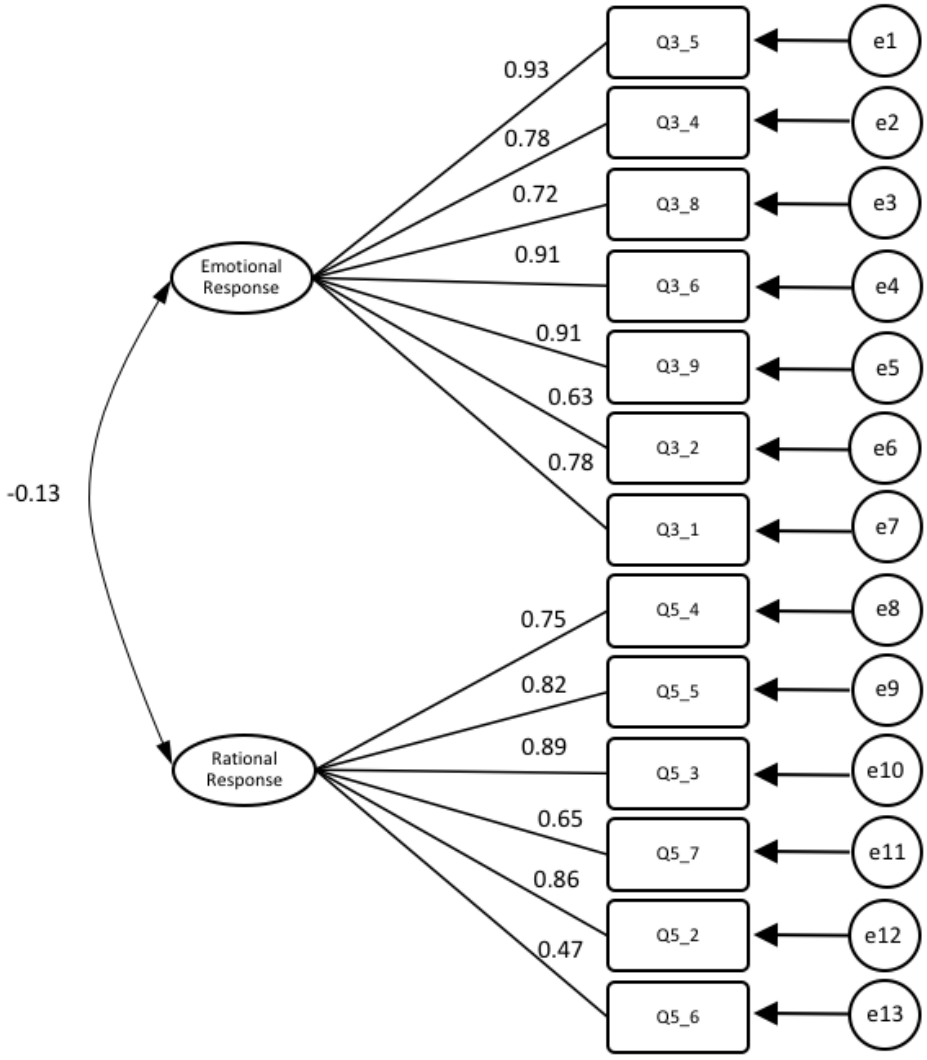


Table 3.7 Models' Fit of the FCMS

χ^2 (df)	161.03
CMIN/df	2.516
IFI	0.908
CFI	0.906
RMSEA	0.118

Table 3.8 Convergent Validity of the FCMS

			1)FACTOR LOADING CRITERIA	2) AVE CRITERIA	3) CONSTRUCT RELIABILITY
			Li	AVE	CR
Q3_2R	<---	EmotionalC	0.630	0.665387	0.931934
Q3_4R	<---	EmotionalC	0.784		
Q3_5R	<---	EmotionalC	0.931		
Q3_1R	<---	EmotionalC	0.777		
Q3_6R	<---	EmotionalC	0.910		
Q3_8R	<---	EmotionalC	0.722		
Q3_9R	<---	EmotionalC	0.909		
Q5_2	<---	RationalR	0.860	0.568184	0.883840
Q5_3	<---	RationalR	0.889		
Q5_4	<---	RationalR	0.748		
Q5_5	<---	RationalR	0.824		
Q5_7	<---	RationalR	0.645		
Q5_6	<---	RationalR	0.474		

Table 3.9 Discriminant Validity of the FCMS

Construct Correlation

			χ^2	DF	Difference of χ^2
		Default Model	161	64	
EmotionalR	<-->	RationalR	496.4	65	335.4*

Conservative Criteria

			Estimate2	Min AVE
EmotionalR	<-->	RationalR	0.015876	0.568183667

* $p<0.01$

We also conducted an independent-samples t-test to compare scale results in Mexican and American-nationality samples. There was not a significant difference in the scores for a Mexican sample (M= 4.26, SD= 1.03) and an American sample (M= 4.3, SD= 1.05); t(261) = -0.31, p=0.753.

3.5 DISCUSSION

The goal for this paper is to present the development of a food choice mindfulness scale, that includes the initial stage of the eating process, the food choice and acquisition. The final scale was explained by a confirmatory factor analysis of two dimensions with 13 items. The Cronbach's α showed adequate reliability of the two factors. The model presented high convergent validity and discriminant validity, thus making the Food Choice Mindfulness Scale a useful tool for subsequent research. Also, results from a second sample, validates the results of this scale which makes it suitable for implementation in different samples.

Although this paper represents only a preliminary validation of the food choice mindfulness scale, it is one important step toward the growth of the mindful eating topic and mindfulness in general. In some context, mindfulness is not well studied, which makes it difficult to generalize findings that are already published. In the eating context, the concept of mindful eating has been developed at the food intake stage, letting the initial stage of food acquisition out of the analysis. The food choice mindfulness scale can help to develop more research and lead to further understanding of how mindful eating can help consumers' food acquisition processes.

This scale reveals two important dimensions: emotional control and rational response. Although other scales exist, they do not focus on one of these dimensions, which is important in the food choice process. Emotional control includes questions about how consumers react to feeling an emotion that is so strong it makes them want to do something—in this case, choose something to eat. Questions involve emotions such as sadness, stress, frustration, and happiness. More negative emotions were included due to the relation of mindfulness and the decrease of these emotions. On the other hand, rational response included questions regarding if consumers are

preoccupied with their food and how it affects their health. It was added as a new dimension not previously studied, as it is an important part of the eating process.

As mindful eating has only focused on the experience of eating the chosen food. We wanted to focus on the previous step, choosing what and how much to eat. One of the dimensions found in this paper is Rational. This dimension is important as it has never been taken into consideration for mindful eating. For instance, Framson et al. (2009) proposes five dimensions and none of them mention a rational part of choosing food. Similar, Hulbert-Williams et al. (2013) propose six dimensions that focus only the feelings and other tasks that people are experiencing while eating. None of these scales on the eating context, add on the rational part of deciding what to eat. On the other hand, mindfulness scales that mention other daily activities, never include the process of food choice. Therefore, we add on the literature of mindfulness as we develop a scale that is specific for the food choice process and suggest two dimensions measure this construct.

Furthermore, these findings can help researchers to look at the obesity problem from other perspectives. As previously mentioned, it is important to give consumers options that will lead them to take better decisions regarding their well-being (Willmott and Parkinson, 2017). With the food choice mindfulness scale, we are obtaining insights into how consumers pay attention to their food choices. As the factors of emotions and rationality are present in food choices, we can assume that people have at least two ways of thinking when making a decision. Mindful eating will consist of more rational responding, but, as we can further explore, consumers may be more inclined to think of eating when feeling emotions, they may not be aware of. Knowing if consumers are mindful while choosing what to eat can help researchers and practitioners to persuade consumers to make better decisions for their health with the usage of either emotional or rational communications.

CHAPTER IV: MINDFUL CLAIMS: THE RELATIONSHIP BETWEEN NUTRITIONAL CLAIMS AND CONSUMER'S MINDFULNESS STATE

4.1 INTRODUCTION

The world is currently experiencing an obesity epidemic (WHO, 2000). Helping people to make better food choices has become important. Some experts have attributed the obesity problem to lifestyle factors, such as the amount of food consumed and the level of sedentary behavior (George & Tanner, 2014). It is important to study how consumers and food cues interact to help in the fight against obesity and overweight.

Some variables can be studied to understand their effect on the eating process. For instance, it is known that state of mind affects an individual's decisions (Bahl et al., 2016), including choice of food. The process in which individuals pay attention to everything involved in the food environment is called mindful eating (Framson et al., 2009). This research is intended to contribute to the literature on mindfulness and mindful eating by showing the effect that mindfulness has on the food choice of consumers.

When food marketing was described as an important cause of obesity, various investigations reviewed how marketing is affecting consumers. For instance, Chandon and Wansink (2012) focused on how the presentation of nutrient composition causes confusion or misunderstanding, allowing us to see how this type of information can lead consumers to choose to eat more when they should choose to eat less.

Although mindful eating has been mentioned in the marketing literature, the effect it has on nutrition claims has not been explored. Thus, in this chapter, the interaction between a mindful state and the presence of nutrition claims is studied. This contributes to the extant literature on mindfulness, mindful eating, and nutrition claims by using an experimental design. We identify mindful eating as a moderator of the effect that nutrition claims have on food choice. Our results

also contribute to an understanding of the effect that a short mindful eating intervention has on consumers.

4.2 LITERATURE REVIEW

4.2.1 Nutrition Claims

Nutrition claims are a way of presenting to consumers "relevant information on food content" (van Trijp & van der Lans, 2007) that is not salient to other parts of the product. These claims are also described as a form of marketing to sell products as healthier items (Soldavini, Crawford, & Ritchie, 2012). The principal purpose of these claims is to "help consumers to make informed choices" (van Buul & Brouns, 2013) for their health benefit, but such claims can also serve as misleading communications that will encourage consumers to make unfavorable food choices (Leathwood, Richardson, Sträter, Todd, & van Trijp, 2007). Some common examples are "low-fat" and "low-sugar" claims. It is interesting to know how consumers react to the nutrition claims in an aim to help improve their health.

Previous literature has examined this question and found different important insights. Garretson and Burton (2000) used different types of nutrient communications and found the claims "had no effect on nutrition or brand attitudes or purchase intentions," suggesting claims are not important to consumers. On the other hand, Wansink and Chandon (2006) experimented with the nutrition claim that an item is "low-fat." They found that when it is present, consumers tend to eat more calories and to increase the portion size of the product compared with when a "regular" label is on the package. In sum, different conclusions have been presented in the literature.

Because the subject has been broadly investigated and the findings are mixed, it is important to deeply examine the relationship between nutritional claims and food choice. Although some

literature has shown there is no positive effect of nutrition claims, other variables can help to make the effect less negative. An important variable is an intrinsic characteristic of the consumer: state of mind.

4.2.2 Mindfulness and Mindful Eating

Literature about mindfulness and mindful eating has claimed that the inclusion of this state can be beneficial to research to gain new insights into consumers' decision making (Brunel and Dong, 2006). This concept refers to the awareness and presence of mind that come when paying attention to the performance of any activity (Bahl et al., 2016). It has been suggested that mindfulness may "help consumers make better decisions and achieve improved wellbeing" (Brunel and Dong, 2006). As mindfulness can have a positive effect on healthier eating (Jordan, et al., 2014), the relationship between this variable and food has been studied several times. This relationship can be conceptualized as mindful eating, which has been defined as "a nonjudgmental awareness of physical and emotional sensations while eating or in a food-related environment" (Framson et al., 2009).

In most research, mindful eating has been investigated at the stage of consuming food. A relevant part of the food selection process occurs when consumers have the different options in front of them and have to make the choice of what and how much to eat. Warren, Smith, and Ashwell (2017) defined mindful eating as making conscious food choices; therefore, we propose that more research should focus on the initial stage of making a food decision, when presented with the food in a supermarket, store, or food display. At these locations, products contain nutrition information in different forms meant to help consumers identify what they will be eating.

4.3 HYPOTHESES

Consumers are expected to eat more of something that has a nutrition claim (Chandon & Wansink, 2012; Wansink & Chandon, 2006), meaning they may buy healthier products but consume a portion size that makes it unhealthy. To replicate the past results in the literature, it is hypothesized that

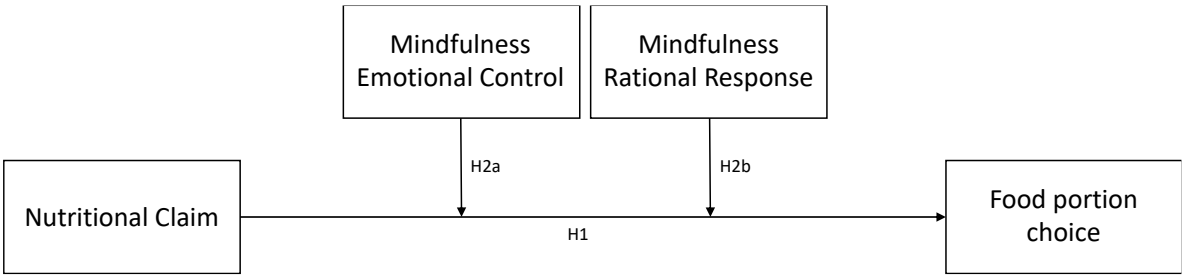
H1. A "low sugar" nutritional claim will increase the food quantity chosen by consumers.

Some variables can change this relationship, making it a healthier decision on the whole. For instance, a mindful eating state with the purpose of avoiding overeating (Fung, Long, Hung, & Cheung, 2016) can act as a moderator of this relationship. Therefore,

H2a. The relationship between nutritional claims and food quantity is negatively moderated by mindfulness emotional control.

H2b. The relationship between nutritional claims and food quantity is negatively moderated by mindfulness rational response.

Figure 4.1 Model 1 including H1, H2a and H2b



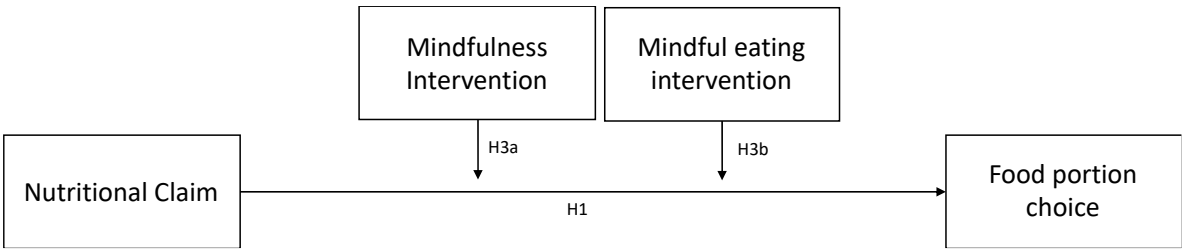
A specific goal of this research is to have an impact on how consumers can benefit from a mindfulness state. For instance, Beshara, Hutchinson, and Wilson (2013) suggest that "enhancing

individuals' mindful eating skills may have a positive impact on their ability to moderate serving size." This suggests the following hypotheses:

H3a. Consumers will choose less food when a mindfulness intervention is presented (vs. no stimulus received).

H3b. Consumers will choose less food when a mindful eating intervention is presented (vs. no stimulus received).

Figure 4.2 Model 2 including H1, H3a and H3b



To test these hypotheses, two studies were implemented with different samples and using different examples as the food choice.

4.4 METHODOLOGY

4.4.1 Study 1

A total of 110 university and postgraduate students participated in an exchange of course credits. They received a questionnaire in which a new product (cookies) was randomly presented in regular and low-sugar versions, along with choice questions (Figure 4.1). Participants answered the following question: If you were to consume this product, how many cookies would you eat as a portion? The Food Choice Mindfulness Scale was then applied.

Figure 4.3 Product Stimuli used in Study 1

4.4.1.1 Data analysis

The data obtained from the questionnaires was arranged in a panel data set for analysis. Random effects regression analysis in STATA 12 was used. The variables of emotional control and rational response were analyzed because these are the dimensions present on the FCMS. An interaction variable was calculated to test the moderation of mindfulness.

4.4.1.2 Results

The difference between the coefficients when the nutritional claim is included suggests that when "low sugar" is included in the product packaging, participants consumed 0.5 cookies more than they consumed when the claim was absent (Table 4.1, Model 1). Therefore, our H1 is supported.

Because H2a and H2b imply that a mindful state will act as a moderator and have an impact when deciding how much to eat, we measure the interaction between the inclusion of a low-sugar claim and each dimension of mindfulness in the food choice process. In Model 3, from five variables, only the interactions between the presence of a low-sugar claim and the mindfulness dimensions are significant, implying moderation exists (Table 4.1). Thus, when choosing cookies, participants not only decided based on the nutritional claim but also mindful eating took place. The

coefficients of these moderations suggest participants high in emotional response chose 0.19 cookies less when the nutritional claim was present. In contrast, participants high in rational response chose 0.22 cookies more when the nutritional claim was present.

The difference between emotional control and rational response consumption is shown in Figure 4.2, which implies that when augmenting the emotional control dimension, the number of cookies chosen diminishes, but when augmenting the rational response dimension, the number of cookies increases. Therefore, H2a is supported, and H2b is not supported.

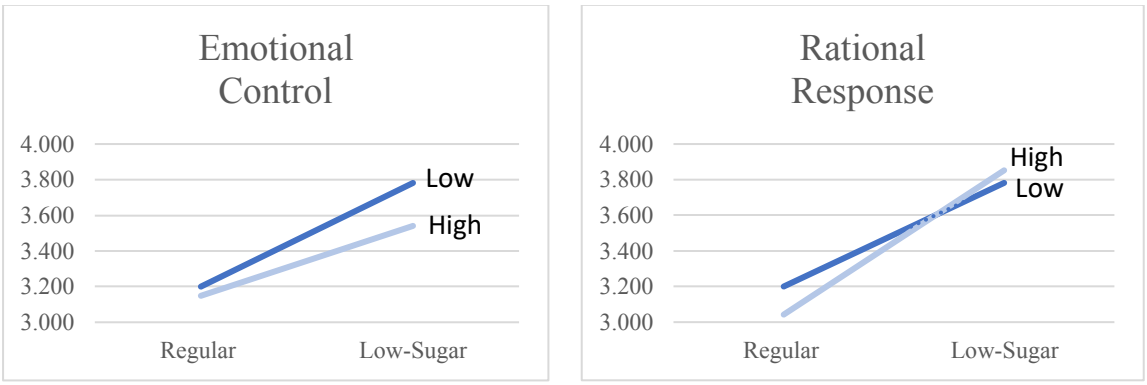
Table 4.1 Summary of Random Effects Regression Analyses for Variables Predicting Cookies Portion Choice (N=110)

	Model 1	Model 2	Model 3
Low sugar claim	0.581 *	0.596	0.577
	(0.134)	(0.570)	(0.541)
Emotional control			-0.051
			(0.122)
Rational response			-0.158
			(0.132)
Mindful eating		-0.200	
		(0.186)	
Claim*Emotional			-0.190 **
			(0.081)
Claim*Rational			0.224 **
			(0.088)
Claim*Minful Eating		-0.003	
		(0.129)	
Constant		4.058	4.060
		(0.818)	(0.815)
R^2	0.0202	0.0308	0.0465
Wald chi^2	18.72 *	19.90 *	35.27 *

*p<0.01, **p < 0.05

Notes: SE in parenthesis

Figure 4.4 Moderation effect of Mindfulness dimensions "Emotional Control" and "Rational Response"



4.4.2 Study 2

An additional 110 university students participated in this study. The participants received a self-administered questionnaire designed in Qualtrics. The questionnaire indicated that two independent studies would be administered. The present study included level of hunger as a control variable, some demographics, and a randomly selected option of an audio presentation focusing on breathing, an audio presentation focusing on eating a grape, or no audio at all (UCLA, 2017). Afterward, participants who received the two options that did not include a grape received the indication to eat a grape that was placed on their table (Figure 4.3). In the second study, participants tasted two chocolates, one claiming to be regular and the other with a claim to be sugar free (Figure 4.4). No difference between the chocolates existed. Participants then responded to demographic questions and were instructed to take "all the chocolates that they want" (food choice variable).

Figure 4.5 Experiment setup used in Study 2

Figure 4.6 Options of chocolates presented to participants in Study 2

4.4.2.1 Data analysis

We used random effects regression analysis in STATA 12, adding the variables that were needed. We used food choice as the dependent variable, and the independent variables were a dummy variable indicating the mindfulness and mindful eating group, a dummy variable indicating

the inclusion of the claim, the interactions between the mindfulness audio group and the claim, and the interactions between the mindful eating audio and the claim. As control variables, hunger, gender, and the day on which the experiment was conducted were added.

4.4.2.2 Results

A manipulation check was carried out to test the veracity of the treatments. The results suggested that both audio segments generated a mindful state in participants. For H3a and H3b, two models were studied, with and without control variables. In Table 4.2, we can see that H3a is not supported: The presence of the mindfulness audio is not significant. However, H3b is supported when the presence of the mindful eating audio interacts with the presence of the nutrition claim. This result implies that participants chose 1.2 fewer chocolates when a mindful eating activity was carried out and a nutrition claim was present.

4.5 DISCUSSION

The results indicated a significant effect in H1 of more 0.5 of a cookie, indicating a confirmation of the low-fat effect (Wansink and Chandon, 2006) in a different type of food and other type of nutritional claim. In addition, the H2a and H2b results indicate an interaction between mindful eating and the presence of the low-sugar claim, suggesting that when a packaging claim is present, the mindful characteristic of the consumer affects the choice of what to eat. This effect may exist because when consumers act rationally, they are paying close attention to all characteristics of the food and become very motivated by the idea of the nutrition claim; they then believe that they are eating "healthy." On the other hand, when controlling emotions, consumers pay more attention to suppressing bad emotions than to the signal of a nutrition claim. In this same

path, however, it was discovered that a relationship exists between the presence of a mindful eating audio prompt and a reduced amount of food being chosen by participants (H3a and H3b).

Table 4.2 Summary of Random Effects Regression Analyses for Variables Predicting Chocolates Portion Choice (N=110)

	Model 1		Model 2	
Mindfulness intervention	0.7741206		0.8825023	
	(0.4868407)		(0.4703493)	
Mindful eating intervention	0.70361		0.6072648	
	(0.4834265)		(0.467042)	
Nutrition Claim	1.052632	*	1.052632	**
	(0.4250113)		(0.4240389)	
Mindfulness *Claim	-0.7941491		-0.8235423	
	(0.6147146)		(0.6131454)	
Mindful eating *Claim	-1.274854	*	-1.274854	*
	(0.6093475)		(0.6079534)	
Hunger			0.1722807	*
			(0.0847798)	
Female			-0.8629425	**
			(0.2904384)	
Day 1			1.576427	
			(0.6846229)	
				**
Constant	2.647049	***	2.323239	*
	(0.3371446)		(0.4925737)	
R^2	0.0295		0.1147	
Wald chi^2	7.85		24.85	**

* p < 0.05, **p < 0.01, ***p < 0.001

Notes: SE in parenthesis

In conclusion, this paper presents a new line of research suggesting that mindful eating can moderate the negative effect that nutrition claims have on consumers' food portion choice and even change consumers' perception of a certain food. This outcome is very important in the current

social context of obesity and overweight, which have been linked to the amount of food consumed (George & Tanner, 2014).

CHAPTER V: THE EFFECTS OF A SHORT MINDFULNESS INTERVENTION ON NUTRITIONAL INFORMATION ATTENTION: AN EYE-TRACKING STUDY

5.1 INTRODUCTION

It has become mandatory to include nutritional information on pre-packaged foods in some countries (FDA, 1994; NOM-051-SCFI/SSA1, 2010; Viola, et al., 2016). The most well-known format of summarizing nutritional information is a nutrition label. Nutrition labels have been described as "useful in orienting consumers to products that contribute to a healthier diet" (WHO, 2014). This particular feature on food packages is mainly incorporated to give nutritional information to consumers at the point of purchase so they can make healthy food decisions (Mohr, Lichtenstein, and Janiszewski, 2012). The World Health Organization (2014) has included nutrition labelling along with nutrition education as part of its recommendations for interventions to reduce the prevalence of obesity, which has become a worldwide problem. In the last decades, the rate of obesity has been raising uncontrollably. The prevalence of obesity among adults tripled between 1975 and 2016 (WHO, 2018). Right now, among OECD countries, one in every two adults is obese (OECD, 2017).

Some authors have attributed the obesity problem to the amount of food consumers ingest (George & Tanner, 2014), and obesity rates are expected to increase in the future (OECD, 2017), even though consumers are interested in buying healthier food (Nielsen, 2017). But food packages include nutrition labels that provide useful features that can help consumers control their diet (Viola, et al., 2016). Food labels are helpful for consumers, but obesity prevalence is higher among consumers who are unaware of nutrition labels (Kim, 2018). The ineffectual impact of nutrition labels may be due to consumers not being educated about the importance of using this type of information when making a decision at the point of purchase.

It is important for marketing researchers to understand how consumers pay attention to all marketing resources that are present on food packages. In this way, we can help the food industry

and government to redesign packages and consumers' food environment, elements that significantly effect food choices and dietary patterns (Machín, et al., 2017). Because consumers have the nutrition label at hand but do not use it (Grunert and Wills, 2007), it would be interesting to study some ways to orient consumers to look at nutrition labels and make beneficial decisions based on this knowledge.

A very well-known technique to increase consumer attention is called mindfulness. Mindfulness is basically the act of being aware of the present moment. It has been well studied in the academic field (Williams & Kabat-Zinn, 2011) and has been connected to food and eating through the concept of mindful eating. This concept can help in getting consumers into a state that will make them more aware of food packages at the point of purchase and therefore to pay more attention to nutrition labels. However, in the marketing field, the connection between mindfulness and nutrition labels has not been thoroughly explored. Thus, the aim of this research is to explore this relationship by measuring the effect of a short mindfulness intervention on attention to nutrition labels and purchase intention.

Although nutritional information has been studied in marketing research, the relationship it has with mindfulness and purchase intention has not been specified. Thus, in this article, we use a quantitative and neuro research methodology to measure the attention that consumers give to nutritional information. This paper contributes to the extant literature of mindfulness and nutritional information. We classify mindfulness as an important variable that explains purchase intention of food, alongside with the healthiness of the product. But also, as it increases the attention to nutritional information. Our results also contribute to the nutrition label literature as we identify consumers look more into color nutrition labels.

5.2 LITERATURE REVIEW

5.2.1 Mindfulness

Mindfulness can be defined as the awareness of one's feelings and surroundings by paying attention while doing any activity (Brown & Ryan, 2003; Ndubisi, 2014; Bahl et al., 2016). It has been studied broadly and is greatly accepted in the academic field (Williams & Kabat-Zinn, 2011). On the marketing side, mindfulness has been studied to develop more knowledge about consumer behavior and decision making. For instance, Ndubisi (2014) discussed mindfulness and the implications that it has for marketing. He argues that highly mindful consumers may have greater satisfaction with a service and have greater loyalty to a brand.

Mindfulness has been connected to better health and better decision-making regarding food. Literature about the benefits of mindfulness claims that increased mindfulness "help[s] consumers make better decisions and achieve improved wellbeing" (Brunel and Dong, 2006). In a food context, mindfulness can encourage consumers to choose healthier food. Authors have suggested that mindfulness improves eating behavior, so consumers actually eat fewer calories (Jordan, et al., 2014; Ali, et al., 2017; Allirot, et al., 2018; Mantzios, et al., 2018). One explanation for these findings is that mindfulness allows consumers to suppress impulses and have a more deliberate process when choosing food (Miller, 2017).

As the previously mentioned definition suggests, mindfulness indicates being more aware and being in the present; therefore, consumers who are mindful are more attentive. Kumari and colleagues (2017) studied the effect of cultivated mindfulness on attention, finding that contrary to dispositional mindfulness, cultivated mindfulness has a relationship with improved attention. Furthermore, in a sample of young consumers, mindfulness-based interventions were found to have

the power to enhance attentional self-regulation (Felver, et al., 2014). These findings suggest that consumers can be induced by a mindfulness intervention to increase attention to their surroundings.

5.2.2 Nutrition Labels

Nutrition labels are intended to provide information to help consumers make healthy food choices in their daily diet (Burton, Garretson, and Velliquette, 1999). To make labels more uniform across products, the US Nutrition Labeling and Education Act (NLEA) in 1990 declared that most of the foods regulated by the FDA require nutrition labeling (FDA, 1994). Other countries imitated this and, following the NLEA guidelines, created their own laws to obligate the food industry to include nutritional information; for example, Mexico created the NOM-051-SCFI/SSA1 (2010) and European countries have Regulation (EU) No1169/2011 (Viola, et al., 2016).

As mentioned, the mandatory inclusion of nutrition labels is presented to consumers as a practical and easily accessible tool to make more informed choices (Viola, et al., 2016) and increase healthy consumption of nutrients. However, as also mentioned, consumers do not pay attention to nutrition labels or find them confusing and difficult to use (Machín, et al., 2017). Therefore, consumers pay little or no attention to information that was meant to ease purchase decisions.

Some investigations have been conducted on the difficulties in the nutrition label design. For instance, there is no consensus on the optimal design of nutrition labels that will be most helpful in making good food choices (Siegrist, Leins-Hess and Keller, 2015). A discussion on the need to simplify nutrition labels to a table that is easily read by non-expert consumers has been brought up in the literature (Viola, et al., 2016). Authors have found that how nutrition information is offered can affect visual attention and the inclination toward healthy food (Stasi, et al., 2018). For instance, different types of information formats can be included in food packages, such as GDAs, nutrition

claims, or symbols (Garretson and Burton, 2000). Other well-known design aspects are the use of colors to show which nutrients in a product are fair to eat and which are not.

Color-coded nutrition labels are also known as traffic-light labels. This design in particular has been identified as "the best scheme in terms of understanding and attentional capture" (Machín, et al., 2017). Some authors have used this label design to study the effect on decision making. Siegrist, Leins-Hess, and Keller (2015) argued that a traffic-light label helps consumers process information as quickly as with nutrition tables, compared with GDAs. Other authors explored the time spent viewing different label formats and found that consumers look longer at products that include color-coded GDAs than at products that include regular GDAs or other logos as claims (Bialkova, et al., 2014). Cecchini and Warin (2016) concluded that traffic-light schemes are more effective when trying to increase the selection of healthier options. Therefore, our hypotheses are separated by three types of attention: attention to monochrome nutrition labels, color nutrition labels, and nutritional claims.

5.3 HYPOTHESES

Continuing with mindfulness, the concept can serve as a way to encourage greater attention to food packages. Authors have found that food choice can benefit from the inclusion of nutrition labels (Machín, et al., 2017). However, to work, labels have to be seen and read, which is not done extensively at the point of purchase (Machín, et al., 2017). Therefore, we argue that mindfulness can serve as a way to increase the attention given to nutrition labels, stating that

H1a. A short mindfulness intervention (vs. control) will increase (vs. decrease) attention to monochrome nutrition labels.

H1b. A short mindfulness intervention (vs. control) will increase (vs. decrease) attention to color nutrition labels.

H1c. A short mindfulness intervention (vs. control) will increase (vs. decrease) attention to nutritional claims.

The literature shows the importance of nutrition label inclusion on food packaging: It has an effect on consumers' decisions. For instance, it is known that consumers like to have more than just a claim on the front of the package; they look for the nutrition label on the back to make a product evaluation (Keller, et al., 1997). Furthermore, Machín, et al. (2017) argued that the inclusion of a nutrition label on food packages has an effect on consumer awareness about the unhealthy nutrients specifically in ultra-processed foods that will lead to reduced purchases of these products. Ran, Yue, and Rihn (2016) explored the effect of the inclusion of nutrition labels on willingness to pay, finding that nutrition information has an effect on consumers' purchasing decisions. Bialkova, et al. (2014) found that the variable of attention mediates the effect that nutrition labels have on choice. Mhurchu and colleagues (2018) also found a significant association between nutrition label use and the healthiness of products purchased, meaning nutrition labels use may induce healthier food purchases. Other authors have also noted that when a product receives more visual attention in general, the probability of that product being chosen is higher (Fenko, Nicolaas, and Galetzka, 2018; Stasi, et al., 2018). Based on these findings, we suggest the following hypotheses:

H2a. The attention to monochrome nutrition labels has a positive effect on purchase intention.

H2b. The attention to color nutrition labels has a positive effect on purchase intention.

H2c. The attention to nutritional claims has a positive effect on purchase intention.

H3. A short mindfulness intervention (vs. control) will increase (vs. decrease) purchase intention.

Because nutrition labels are important on food packages, it is also important to determine whether there is a difference in the healthiness of products. In the supermarket, one can find various products that include healthier versions of others that are not healthy. Machín, et al., (2017) studied nutrition labels on ultra-processed foods and found that nutrition labels had a significant effect on purchase intention only for sweets and desserts. Furthermore, Graham and Jeffery (2012) argued that consumers paid more attention to nutrition labels on certain products, such pizza or yogurt, than on vegetables or snacks. However, as it has been stated that a relationship exists between nutrition label use and healthier diets (Campos, Doxey and Hammond, 2011), we propose that

H4a. The type of product (healthy vs. not healthy) will moderate (increase vs. decrease) the effect that a mindfulness intervention has on attention to monochrome nutrition labels.

H4b. The type of product (healthy vs. not healthy) will moderate (increase vs. decrease) the effect that a mindfulness intervention has on attention to color nutrition labels.

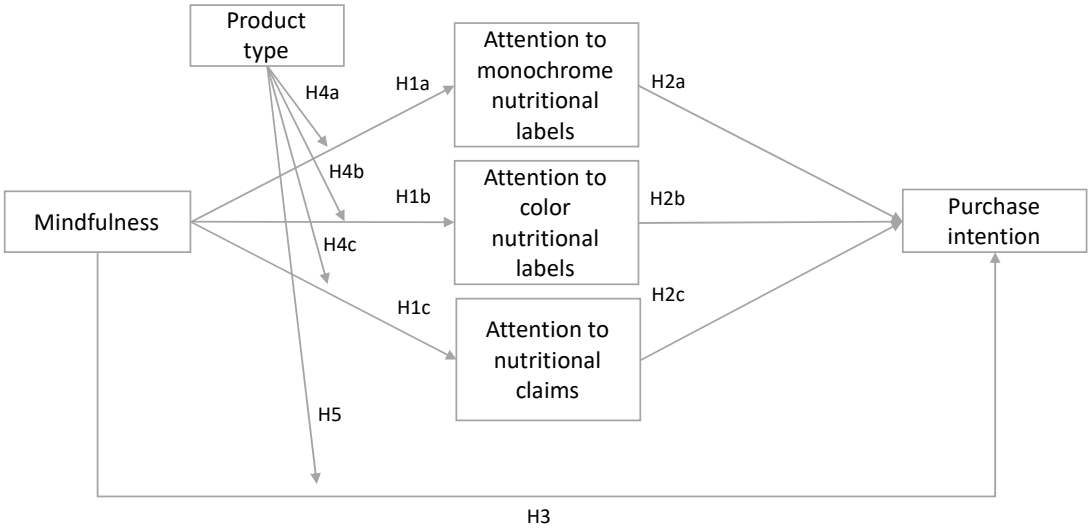
H4c. The type of product (healthy vs. not healthy) will moderate (increase vs. decrease) the effect that a mindfulness intervention has on attention to nutritional claims.

H5. The type of product (healthy vs. not healthy) will moderate the effect that a mindfulness intervention has on purchase intention.

The aim of this paper is to study the relationship between mindfulness, attention to nutrition labels, and purchase intention, with the inclusion of two types of nutrition labels (monochrome vs. traffic-light), nutritional claims, and two types of products (healthy vs. non-healthy). Figure 5.1 depicts the model proposed in this paper. Our study differs from other studies in the inclusion of a

mindfulness intervention to increase attention to nutrition labels, therefore affecting purchase intention. Although the same label design and product type have been studied similarly, the presence of a mindfulness variable adds to the literature.

Figure 5.1 Model including all the hypotheses



5.4 METHODOLOGY

To test our hypotheses, we designed a quantitative neuro research study, which has been noted as a good way to develop theory and empirical testing (Yoon, et al., 2012). Participants' eye movements were recorded with an eye-tracker. In general, eye-tracking methodology has been used in marketing for decades (Stasi, et al., 2018) to understand how consumers perceive promotional activities (Hendrickson and Ailawadi, 2014; Huddleston, et al., 2015) and package design attention (Fenko, Nicolaas and Galetzka, 2018; Stasi, et al., 2018).

Eye-tracking was chosen for this study because it "complements more tra¬ditional research techniques in marketing and consumer behavior" (Plassmann, et al., 2015). Technically, eye-

tracking measures and analyses eye movements to quantify attention (Fenko, Nicolaas, and Galetzka, 2018; Stasi, et al., 2018), which otherwise would be difficult to measure. Because we will measure attention to nutrition labels on food packages, eye-tracking methodology is appropriate because it provides objective information about attention (Stasi, et al., 2018). Furthermore, it allows us to handle multiple visual attributes of a food package and a nutrition label (Fenko, Nicolaas, and Galetzka, 2018). Similar work with nutrition labels and eye-trackers include studies by Visschers, Hess, and Siegrist (2010), who found that consumers who are motivated by a healthy lifestyle focused more on nutrition labels than those who had a taste motivation. Ballco, de-Magistris, and Caputo (2019) worked on attention to nutritional claims and found that such claims do affect the final decision to purchase yogurt. Therefore, we propose that eye-tracking methodology is relevant and will help to keep this study's findings as objective as possible.

5.4.1 Stimulus material

Three categories of products were included in the study: cereal, yoghurt, and chips. These categories were chosen after a pretest with 28 participants (Female = 57%, M_{age} = 34.2, SD = 6.28) and 10 main product categories that Mexican consumers buy in supermarkets (INEGI, 2016). To differentiate healthiness within two products of the same category, two packages of each product (healthy and non-healthy) were developed, and two images of each type were included, one with a monochrome nutrition label and the other with a traffic-light nutrition label (Figure 5.2). Nutrition tables are mandated in Mexican supermarkets. Therefore, we designed these labels based on typical designs for the back-of-package nutrition tables used on products in Mexican supermarkets. In total, we used 16 different images.

5.4.2 Sample

A total of 29 students (female = 48.3%, M_{age} = 22, SD = 2.89) participated in the experiment in exchange for bonus points on their marketing courses. A similar sample size has been used in the literature that uses eye-tracking (Dziśko, Jankowski, and Watróbski, 2017; Ungureanu, et al., 2017; Motoki, et al., 2018). Each participant agreed to the use of an eye-tracker and declared they could see without any problem. On average, participants spent 30 minutes on the experiment.

Figure 5.2 Example of the stimulus of the healthy and non-healthy chips

5.4.3 Procedure

Each participant was invited to join an experiment about product package design and invited at a different time and date. They received an explanation of the recording of their eye movements

and were told the experiment would last about 30 minutes. They were seated in front of a monitor with the eye-tracker below (Figure 5.3) and signed a disclosure agreement. They then started the questionnaire about hunger level and were randomly assigned to the control condition, in which they listened to an audio recording of the university information, or to the mindfulness condition, in which a short breathing instruction audio recording was included. The manipulation check (ANOVA, F (1, 172) = 37.091, p = .000) showed that the two recordings were different in regard to mindfulness, which means that our manipulation was correctly applied (Figure 5.4). After participants finished the exercise, they were asked to call the researcher to calibrate the eye-tracker.

Figure 5.3 Experiment Setup (a)Participant setup while answering the questionnaire (b)Participant setup while doing the eye-tracking task (c)Researcher setup

a) 

b) 

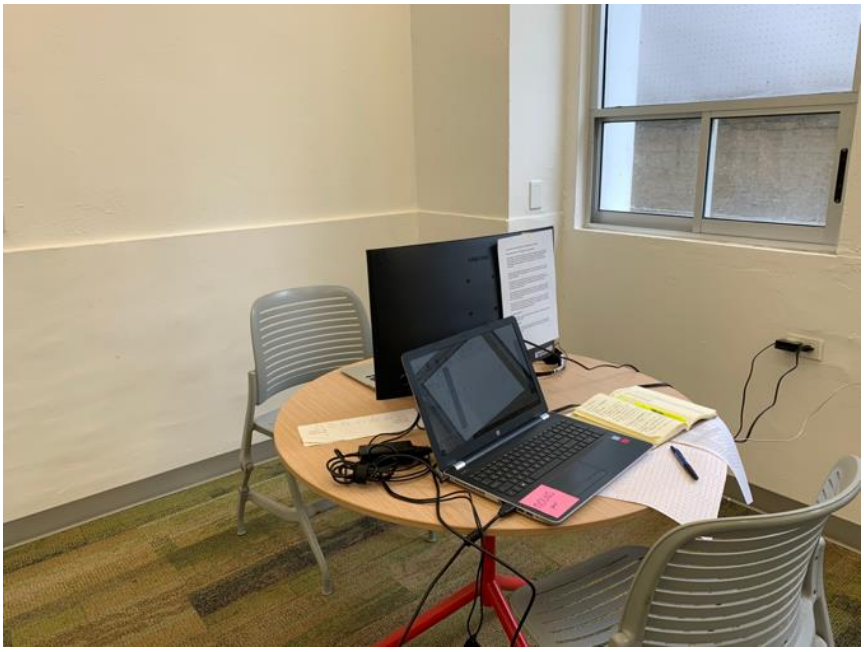
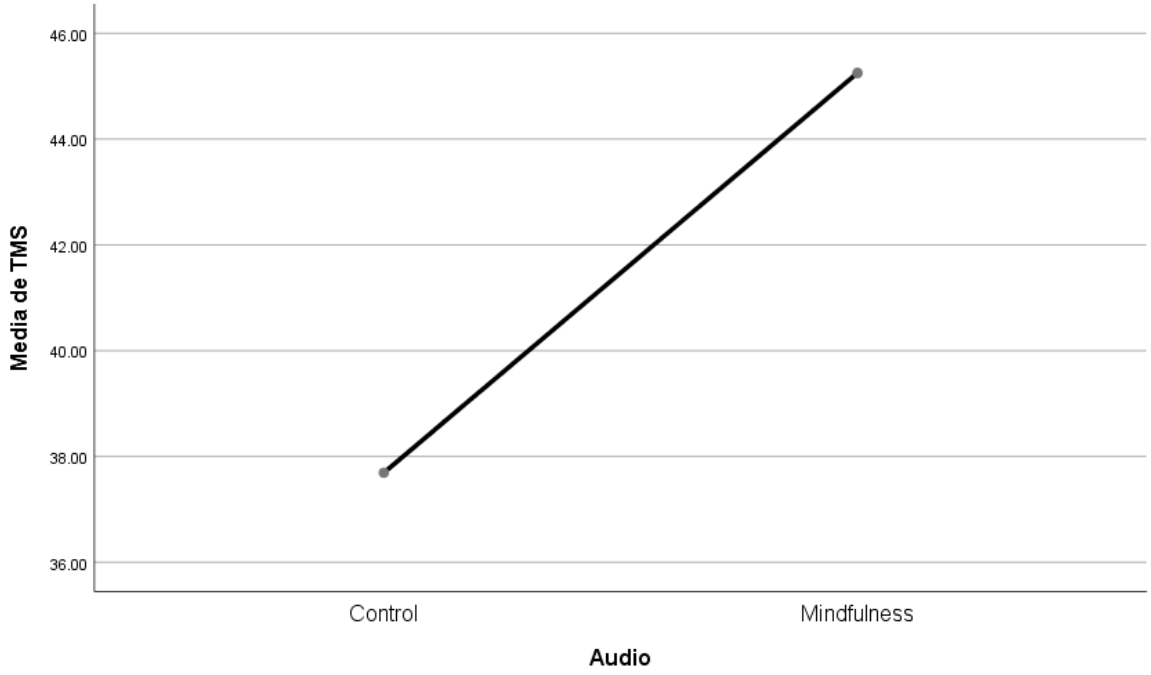
c) 

Figure 5.4 Difference in the Toronto Mindfulness Scale (TMS) mean between the mindfulness and control group



The eye-tracking calibration took place with the Gazepoint software; participants followed a big white point on the monitor. The participant then started the stimuli presentation. They were presented with the 12 product images (each image alone) for 10 seconds (Orquin and Scholderer, 2011) in a randomized order and answered a seven-point Likert question about purchase intention of each product. After completing the assignment, they answered the Nutrition Labels Attitudes, Use and Comprehension Scale (Flores, Ayala, and Quintanilla, 2018) and some demographic questions.

5.4.4 Measures

To check the manipulation veracity, we applied the Toronto Mindfulness Scale (TMS), which is used to measure mindfulness after a treatment (Lau, et al., 2006)—in this case, the audio. An audio variable was included to distinguish between the control and the manipulation group.

Attention to labels and claims was measured by the number of seconds the participants spent viewing each AOI (monochrome nutrition label, color nutrition label, and nutritional claims). These data were obtained using the Gazepoint eye-tracker and software, which detected eye movements at 60Hz. Aside from the seconds spent on each AOI, the software registered the path the participant followed in the 10 seconds the image was shown (Figure 5.5), showing the seconds spent on each area. Each attention variable then was converted into a dichotomous variable of seen and not seen according to the median of each variable.

Figure 5.5 Example of path outputs from Gazepoint software

The question "Would you buy this product?" measured the variable of purchase intention on a seven-point scale. The product type variable was measured as a dichotomous variable: either

healthy or non-healthy. The category of the product was measured with three dummies, including if the product was cereal, chips, or yogurt. The Nutrition Labels Attitudes, Use and Comprehension Scale (Flores, Ayala and Quintanilla, 2018) was used to control these variables. Other variables such as the BMI of participants were measured by asking participants about their height and weight.

5.4.5 Data Analysis

The database used to analyze our experiment had a panel distribution that gave data from 174 observations. To test our hypotheses, SPSS 24 was used. Because attention was measured as a dichotomous variable, logistic regressions were analyzed to test the relationship between mindfulness and attention. Three logistic regressions were conducted, one for each type of attention we included. To determine the marginal effects of each logistic regression, we used STATA12. In addition, linear regressions were conducted to test our hypotheses regarding purchase intention. We added one variable for the interaction between use of the mindfulness audio and the product type.

5.5 RESULTS

The logistic regression conducted for each attention variable, to test the effect of mindfulness on attention to nutrition labels and nutritional claims, registered different outputs for each variable (Table 5.1). The marginal effects reported for dichotomous independent variables (in this case, attention to nutrition labels and nutritional claims) explain how predicted probabilities change as the dichotomous independent variable changes from 0 to 1 (not seen to seen). These marginal effects suggest that the predicted probability of looking at the monochrome nutrition label is 32% greater for yogurt than for other products, when the other variables are at their mean.

However, we can see that when a mindfulness intervention is present, consumers tend to pay less attention to the monochrome nutrition labels of healthy yogurts. Therefore, we can say that H1a is partially supported because mindfulness only has an effect for healthy yogurts.

Table 5.1 Summary of Logistic Regression Analyses for Variables Predicting Attention to Nutritional Information (N=174)

	Attention to monochrome nutrition labels			Attention to color nutrition labels			Attention to nutritional claims		
	Marginal effects		Delta method Std. Err.	Marginal effects		Delta method Std. Err.	Marginal effects		Delta method Std. Err.
Mindfulness	-0.0651		0.1618	0.2417		0.1524	-0.2026		0.1861
Healthy	-0.0254		0.1060	0.2118	**	0.0965	-0.0336		0.1022
Healthy*Mindfulness	0.2556		0.1910	-0.4671	*	0.1868	0.2844		0.2084
Chips	0.0000		0.1262	0.1116		0.1242	-0.0420		0.1143
Yogurt	0.3257	*	0.1235	0.2158	***	0.1213	-0.1633		0.1370
Uso	-0.0064		0.0122	0.0006		0.0118	0.0013		0.0107
Attitude	0.0039		0.0092	0.0037		0.0090	-0.0012		0.0081
Comprehension	0.0004		0.0230	-0.0206		0.0224	-0.0198		0.0204
Chips*Mindfulness	0.0000		0.2107	-0.1663		0.1946	0.4652	**	0.2036
Yogurt*Mindfulness	0.1734		0.2265	-0.2704		0.1921	0.5063	**	0.2196
Healthy*Yogurt*Mindfulness	-0.4991	**	0.2325	0.6712	*	0.2229			
Healthy*Chips*Mindfulness	-0.1113		0.2303	0.5940	*	0.2192	-0.3310		0.2116
PseudoR2	0.0872			0.1255			0.1128		
LR Chi2	21.03	**		30.14	*		19.13	***	

*p<0.01, **p<0.05, ***p<0.1

At the same time, the predicted probability of looking at a color nutrition label is 21% greater for a healthy product than for a non-healthy product and 25% greater for yogurt than for other products when the other variables are at their mean. In this case, attention to color nutrition labels decreases for healthy products when a mindfulness intervention exists. Furthermore, the

results suggest that participants paid more attention to color nutrition labels when a mindfulness intervention was present and the products were yogurt and chips. In this case, H1b is partially supported because mindfulness only has an effect for healthy yogurt and healthy chips.

The significance of the marginal effects for attention to nutritional claims suggests that the predicted probability of looking at the claims is 46% greater for participants receiving a mindfulness stimulus when choosing chips and 51% greater for participants receiving a mindfulness stimulus when choosing yogurt, when the other variables are at their mean. As we can see, presence of the mindfulness stimulus is significant only for chips and yogurts; thus, H1c is partially supported.

For the purchase intention hypotheses, we conducted a linear regression using purchase intention as the dependent variable and a variety of independent variables, such as attention to nutrition labels and nutritional claims, inclusion of a mindfulness audio stimulus, and the product type. In Table 5.2 we show the results for two models. Model 1 includes the interaction between the inclusion of a mindfulness audio and the product type. Model 2 does not include this interaction but otherwise has the same variables. From these two models, we can conclude that H2a is partially supported: Attention to a monochrome nutrition label is significant but has a negative coefficient, suggesting there is a negative effect. The other two attentions are not significant, indicating that H2b and H2c are not supported. In addition, as we can see in Model 2, the inclusion of a mindfulness audio is statistically significant; therefore, we can say that mindfulness affects purchase intention, supporting H3.

Finally, the interactions regarding product type (healthy or not healthy) that are statistically significant in the logistic regressions (see Table 5.1) explained attention to monochrome and color nutrition labels. Therefore, we can conclude that H4a and H4b are supported, but H4c is not. The

interaction between the product type and mindfulness also was not significant on the linear regression (see Table 5.2, Table 5.3), leading us to conclude that H5 is not supported.

Table 5.2 Summary of Linear Regression Analyses for Variables Predicting Purchase Intention of the Products (N=174)

	Model 1		Model 2	
Constant	4.204	*	4.151	*
	(0.856)		(0.842)	
Mindfulness	0.602		0.700	**
	(0.389)		(0.290)	
Healthy	0.688	***	0.795	*
	(0.385)		(0.262)	
Healthy*Mindfulness	0.195			
	(0.512)			
Chips	0.443		0.444	
	(0.317)		(0.317)	
Yogurt	0.657	**	0.656	**
	(0.329)		(0.328)	
BMICategory	0.304	***	0.304	***
	(0.181)		(0.181)	
AttMono	-0.652	**	-0.649	**
	(0.269)		(0.268)	
AttColor	0.350		0.349	
	(0.278)		(0.277)	
AttClaims	-0.357		-0.362	
	(0.337)		(0.335)	
Use	-0.121	*	-0.121	*
	(0.046)		(0.046)	
Attitude	0.059	***	0.059	***
	(0.034)		(0.034)	
Comprehension	-0.034		-0.034	
	(0.082)		(0.082)	
R^2	0.240		0.240	
F	4.246	*	4.644	*

*p<0.01, **p<0.05, ***p<0.1

Notes: SE in parenthesis

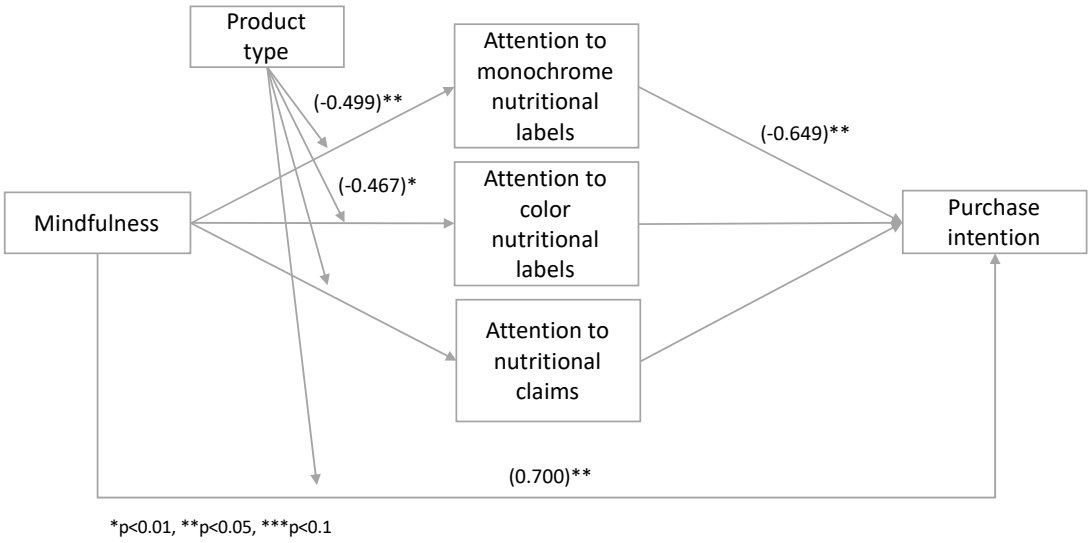
Table 5.3 Purchase intention descriptives

	Mean	Std. Dev.
Mindfulness group	4.5625	1.90187
Control group	4.3205	1.79822
Healthy products	4.8966	1.70522
Non-healthy products	4.0115	1.90162

5.6 DISCUSSION

Our work is the first to include both mindfulness and a neuro-research methodology such as eye-tracking in the same study to measure attention to nutrition labels and nutritional claims. Figure 5.6 presents the model with the relations that were supported. From the results of our analyses, several conclusions can be made.

Figure 5.6 Final Model.



First, it has been suggested that the inclusion of a short mindfulness intervention does affect the attention given to nutritional information, but only in interaction with other variables. For instance, regarding attention to monochrome nutrition labels, it is suggested that mindfulness has a negative effect for healthy yogurts; specifically, we can say that attention to monochrome nutrition labels decreases for healthy yogurts when a mindfulness intervention takes place. This effect may exist because consumers tend to trust their knowledge of products. Because yogurt in general has a healthy connotation, healthy yogurt makes it more obvious that it is not necessary to look into labels. Therefore, mindfulness in this situation acts to encourage trust in previously acquired knowledge.

On the other hand, for color nutrition labels, results suggest that mindfulness has a negative effect for healthy products. When separating this effect by product categories, however, the effect becomes positive. There are indications that attention to color nutrition labels increases for healthy chips and healthy yogurts when a mindfulness intervention is present. This finding confirms that mindful consumers pay more attention to colorful label designs when assessing healthy chips and yogurts, contrary to other papers that reported that visual processing of labels was not greatly affected by the type of product or label design (Oliveira, et al., 2016). In addition, mindfulness has a positive effect for nutritional claims when interacting with the product categories of chips and yogurt. This means that a small mindfulness intervention makes consumers pay more attention to nutritional claims of chips and yogurts, regardless of whether they are considered healthy.

Second, a short mindfulness intervention was also important in explaining purchase intention. This finding is a very important one for researchers and practitioners because it suggests that a consumer's state of mind has an effect on whether or not they buy a product. We found no moderation effect between product type and this relationship, but we found that it also plays an important role in explaining purchase intention. Therefore, when trying to improve the purchase

intention of a product, it is important to elevate the consumer's mindfulness and the healthiness of the product.

Third, we found that only attention to monochrome nutrition labels has an effect on purchase intention. This finding is important, as other authors have suggested that consumers prefer labels to be graphic and colored (Drichoutis, Lazaridis and Nayga, Jr., 2006) or that nutritional claims have an effect on the final decision to buy a product (Ballco, et al., 2019); however, we found only monochrome nutrition labels have an effect. This finding is interesting because it has a negative effect on purchase intention. This outcome leads us to conclude that the less time a consumer spends reading the nutrition label, the greater the purchase intention. This finding is similar to a conclusion that Drichoutis, et al. (2006) made about nutrition label use affecting purchasing behavior mainly because consumers want to avoid the negative nutrients in food products. Furthermore, this effect can be explained by De la Cruz-Góngora, et al. (2012), who found the lack of knowledge of language used in nutrition labels prevents consumers from using and interpreting this information when making purchase choices. We suggest that consumers who do not look at the nutrition label tend to grade their purchase intention more highly because they may focus on more attractive package cues (e.g., logo, picture, colors).

Finally, we found other interesting outcomes with the control variables. For instance, nutrition label use and attitude play an important role in explaining purchase intention. Use has an effect similar to the attention variable we discussed in last paragraph, meaning the behavioral and the self-reported variables performed equally. On the other hand, attitude toward nutrition labels also explains purchase intention as it suggests that the greater the attitude, the greater the purchase intention. It is also interesting that the BMI of consumers affects purchase intention; a person with greater BMI tends to grade purchase intention higher. We did not find any effect of gender,

although some authors have suggested that men and women focus their attention on different types of food stimuli (Hummel, et al., 2017).

CHAPTER VI: FINAL REMARKS

5.1 CONCLUSIONS

Obesity and overweight are serious health problems that have been increasing in recent years, attributed to the type of food and the quantity that consumers are eating. In an effort to add relevant knowledge to the marketing field about how to help consumers make better food choices, this doctoral dissertation aims to reflect on internal and external cues that have not been studied together.

One of the contributions of this thesis is the development of a framework that encompasses motivations of female consumers to begin and continue with a nutritional plan offered by a physician and a nutritionist, along with acupuncture. In Chapter 2, using an exploratory approach, we propose that consumers have two types of motivations: intrinsic and extrinsic. Intrinsic motivations include the outcomes of the program that consumers can see and their independence. On the other hand, extrinsic motivations refer to support from family and friends, personal context, and their perceptions of the problem of overweight. We also found that some barriers can be described, such as internal cravings and external events such as social gatherings and work. As this paper used a very specific program, the motivations proposed here serve as an introduction to the benefits of using this type of nutritional program and how to implement such programs, as they can be one of the main actions to fight obesity and overweight.

We found one of the main motivations for healthy alimentation depends on the self; thus, we propose that there should be something to help aid willpower and the desire to eat healthier. One of the main variables in the literature that is reported to affect the decisions we make is an aware mental state. For instance, mindfulness is a term that has been introduced in the marketing literature to help consumers make mindful decisions when shopping (Sheth, Sethia, and Srinivas, 2011). This term can be useful when deciding what and how much to eat. Diving into the literature,

we found that mindfulness is only measured as a state in general and as a personal trait; mindful eating, a concept to describe the awareness when ingesting food, is measured only at the stage of enjoying the food, but it never focuses on the important decision of choosing what and how much to eat. Therefore, our second contribution is the development and validation of the Food Choice Mindfulness Scale, which focuses specifically on the process of food choice. In Chapter 3, this scale indicates that at this stage of food choice, two dimensions are important: emotional control and rational response. We propose that this scale can be used to measure the state of mind that a consumer has when choosing food, therefore indicating whether they act on emotions (less mindful) or on rationality (more mindful).

Our third contribution focuses on an external cue that can act as a barrier to healthy food consumption. In Chapter 4, we introduce nutritional claims as a barrier that has been studied in the literature as a misleading method of communication. We study nutritional claims because their presence has been noted to increase the amount of food that consumers eat compared to when the claim is not present, specifically the low-fat claim (Wansink and Chandon, 2006). After developing the mindfulness scale, we added a mindfulness and mindful eating audio prompt and then looked for differences between the control group (no audio) and the experimental group (audio). We found that even a nutritional claim of "low sugar" acts as a misleading communication causing consumers to choose more than half a cookie more than when the nutritional claim is not present. An interesting finding suggests that when measuring emotional control and rational response, consumers actually eat more when the rational dimension is high, but they do not eat more when the emotional dimension is high. This may imply that mindfulness can help to reduce food intake, suggesting that future research should look into developing programs to educate consumers to know the right amount of food to eat and to avoid being misled by the nutritional claim. An important point, though, is that a rational response does not always help consumers choose less

quantity. Mindfulness should be applied with caution because being aware of surroundings sometimes can mean that consumers choose more. This does not necessarily mean that mindfulness is a bad option for consumers; we suggest that more research should be conducted to determine whether this can help with other types of food (e.g., when choosing vegetables, rational-response consumers may choose more).

In addition, we found that in a food context, a mindful eating audio recording has more effect than a mindfulness audio recording, indicating that a mindful eating course can help consumers make better food choices. This can suggest that when the aim is to choose less food, being aware of what one is eating and everything that surrounds it is more important than just being aware of one's thoughts and breathing. Specifically, a short mindful eating intervention can affect consumers' food choices when they look into a nutritional claim that is present on their food. Therefore, our third contribution relies on showing the importance of mindfulness in food choice and how a small mindful eating intervention can reduce the negative effect that nutritional claims have on food choice.

As we see, mindfulness can help consumers choose healthier food options. We also studied the effect of this variable on nutrition labels and purchase intention. In this chapter, we presented a neuro-research experiment using an eye-tracker to measure attention to monochrome nutrition labels, color nutrition labels, or nutritional claims. Using these objective data, we analyzed the relationship between mindfulness and attention, finding that when participants received a mindfulness intervention, depending on the product characteristics, they would look more or less thoroughly at the nutritional information. For monochrome nutrition labels on healthy yogurts, mindfulness makes consumers trust their previous knowledge; for color nutrition labels on healthy yogurt and chips, mindfulness increased the attention to these labels when assessing the product. Furthermore, when incorporating a purchase intention variable, we found that mindfulness and

healthiness of the product also have a positive effect. Remarkably, attention to the monochrome nutrition label had a negative effect on purchase intention, suggesting that consumers tend to have a greater purchase intention when they do not see the monochrome nutrition label. Therefore, another contribution from this thesis lies in the importance of nutrition label design and education about nutrition labels so consumers are more motivated to pay attention to this nutritional information when making their food choices.

5.2 MANAGERIAL IMPLICATIONS

This work has many managerial implications, mainly for health authorities and the food industry. These managerial implications are presented for each contribution. First, nutritional programs can benefit from the insight into motivation offered in the first section, as they can note to consumers that they are responsible for their own decisions; if someone else succeed, so can they. For practitioners, communication processes can emanate from these motivations—for example, a balance between discussing the support of a woman's family and friends and the woman's own willpower on nutritional programs' posters, advertising, and other communication strategies. For policymakers, the inclusion of more physician–dietician counseling programs that have the characteristics described here may be needed to help overweight consumers reduce their weight and increase their healthy life years. This is in line with the literature on health services that states that "health service providers and customers are jointly responsible for the successful creation of value" so everybody can meet their goals (Zainuddin et al., 2013, p. 1504).

For our second section, specifying whether a person is engaging in mindful eating has important managerial implications. For instance, health professionals are dedicated to paying attention to the obesity problem, and mindful eating can help to educate people as to what to eat to

end obesity. Nutrition programs also can benefit because they are involved with the process of eating. An understanding of how mindful eating works from the initial eating stage can help these programs in planning to help patients accomplish their goals. As consumers tend to rely on different factors in their food selection, nutritionists can measure a person's tendency to be mindful while choosing food. For instance, a person who applies mindful eating tends to use more rational factors; therefore, answering positive to that dimension and negative to the emotional dimension can help nutritionists measure the tendency to apply mindful eating for each of their patients.

Food brands can also benefit from an understanding of mindful eating. Current policies force the food industry to add nutritional information that empowers the consumer, which will ultimately address obesity problems. If consumers use mindful eating, this information can affect the way they consume food and consequently affect food brand selection. Each dimension can serve to measure the factors consumers take into consideration when buying food. For instance, emotional control eaters tend to choose different types of food from rational response eaters, which can be a cause of greater rates of obesity. In addition, other implications in schools, psychology, and medicine could be described, but more robust research in other contexts should take place to consider these associations.

Regarding our third and fourth sections, this work suggests the meaning of mindfulness in consumers' decisions. We propose that it becomes important to offer mindfulness courses starting in school and including them as part of social programs. This will help consumers to be in a state of mind that will lead them to make healthier decisions, such as reading the nutritional information about what the food product contains and reading nutritional claims. For nutritionists, it is essential to note how consumers are not paying attention to these tables when making a food decision. This tendency to ignore such information may be a reason why obesity and overweight is an important problem in the world right now. Work must be done to change attitudes toward nutrition labels to

give consumers a better perception of products. Education about nutrition labels and nutritional claims should be a priority. Authors have suggested that "there is no magic bullet that will solve the problem of obesity, but numerous policies with modest beneficial effects, if enacted jointly, could result in meaningful change" (Cawley, 2016). Therefore, we encourage health authorities and politicians to take these suggestions into consideration. Regarding nutrition labels, we show indications that color tables are attractive for consumers in certain products; therefore, governments should focus on regulating how food brands present this information on their packages.

Similarly, in the food industry, companies now know that claims are not beneficial for consumers; even though they are increasing sales numbers in an ethical way, it is not correct to mislead consumers. This thesis develops an explanation of the importance of paying attention to these package cues. Other ways of communicating nutritional value have to be shown, and even though front-of-package display was not studied here, it has been found these displays do not work either (Graham, et al., 2016); thus, better communications should be designed. For example, it is important that nutritional claims be more specific and truer; in other words, companies should be more careful when choosing a nutritional claim to sell their product as it can have repercussions on consumers' health.

One of the last points shown in the last chapter is the effect that mindfulness has on purchase intention. It is important for us to remark that we are not suggesting mindfulness can be used to benefit companies and mislead consumers. As consumers are paying more attention to their nutrition (Nielsen, 2017), it is important that companies develop products that do not harm consumers and their health. We propose that food companies should use consumer mindfulness as a way to develop better products, not as a way to sell consumers more of what already exists.

5.3 LIMITATIONS AND FUTURE RESEARCH

Limitations and future research are presented in a way similar to the last section. To start, an interesting point of the first section is the use of a particular type of nutritional program. Even though the OECD has recommended this type of program, these findings may not be generalizable to any of the other programs, as some of the motivations are related to intrinsic characteristics of the specific program under study. This nutritional program consists of a group consult, where patients listen to their weekly nutritional plan and ask questions if they have doubts, but they also share their weight and success with others. However, because there is a diverse range of weight-loss programs, this research may serve as a basis for the examination of those other kinds of programs. In addition, 10 interviews were conducted as an exploratory approach; we encourage other authors to look further into this topic and use a quantitative approach for future research.

Furthermore, these women are not the only ones suffering from weight problems, so it would be interesting to know whether this model applies to other family members in this scenario. At the same time, it would be interesting to dive into family dynamics, such as how the family changes when a family member is immersed in a healthy eating program. As different types of barriers are recognized, it would be beneficial to know about the type of consumer who tends to overcome each type of barrier. Future research can focus on this topic by identifying these differences so communication messages can be improved.

In the marketing field, this study raises questions about how these programs can be advertised to motivate and retain patients (e.g., through the internet or word of mouth, as other authors have suggested for similar programs; Vignali and Henderson, 2008). The influence of these programs on the market also should be carefully studied because the existence of a specific

nutritional program has been shown to have an effect on the products offered by food brands (Maresco, 2005).

Moving on to the second section, more information could have been obtained with questions about yoga and meditation attendance. It would be interesting to compare populations of those who meditate and do yoga and those who do not. Further validation of the Food Choice Mindfulness Scale (FCMS) also is recommended to test the robust usefulness of the scale. Other variables also can be measured with this scale; for example, it would be interesting to apply this scale to find differences and similarities between the two types of eaters. Here as well, generalizations should be made with caution, as these findings may be different in other cultures or backgrounds, even though the sample was taken from a platform that offers diversity within participants (Buhrmester, Kwang, & Gosling, 2011).

For future research, it would be interesting to gain insights from this scale used in relation to other variables related to the obesity problem. One variable can be advertising types in the food industry. It would be interesting to understand how different advertisements work, depending on which is higher factor for each consumer, emotional control or rational response. Other variables can affect food choices and may interfere with mindful eating, such as portion bias, the type of product packaging, the way products are arranged on shelves, and the information that is presented on the product (to mention some). We encourage researchers to build upon this scale in future studies and to keep developing more knowledge on how to help consumers make better choices that will have an impact on their health and, therefore, on the obesity problem worldwide.

For the third section on the effect of mindfulness on food choice, using nutritional claims can be complemented by studying other types of food apart from hedonic snacks, such as high-caloric food or fruit, and how consumers react to mindful eating stimuli.

Regarding the fourth section, even though it included an interesting methodology that made use of eye-tracking, this methodology can also act as a limitation. The hardware used in this study was the Gazepoint 60Hz which is not the most powerful tool to measure eye movements. We suggest this study be replicated using a more powerful eye-tracker, such as the Gazepoint 150Hz or the Tobii Pro Glasses.

Other variables should be studied regarding nutrition labels and purchase intention. As we propose that consumers may be focusing on more attractive package cues such as the logo, picture, or colors, we suggest that future research include mindfulness while measuring other package cues to determine what a consumer in a mindful state is looking at that diminishes attention to nutrition labels.

The sample used 29 participants, which becomes important when converting the data into a panel data base, but we suggest that this can act as a limitation. Therefore, future research using a bigger sample should take place while taking into consideration other characteristics that can differ from our work, such as the cultural background. Other categories of products should be similarly studied to add to this work.

The majority of these studies were carried out in Mexico, a country with a specific culture that it is very influenced by the US, its northern neighbor, while being a Latino country that is very proud of its customs. Other populations should be studied to replicate these findings or to look into differences between culture segments. This would be beneficial for international researchers as they can elaborate on the cultural health differences in nutrition.

We encourage marketing researchers to keep adding to this topic as it can help in designing more helpful cues so consumers can make healthier food choices.

REFERENCES

Albers, S. (2010) Using Mindful Eating to Treat Food Restriction: A Case Study, *Eating Disorders*, 19:1, 97-107.

Ali, Z., Wong, K., Egan, H., Cook, A., & Mantzios, M. (2017). All you can eat Buffets, obesity, mindfulness, and mindful eating: An exploratory investigation. *Journal of Psychology and Psychiatry*, *1*(1), 1-5.

Allirot, X., Miragall, M., Perdices, I., Baños, R. M., Urdaneta, E., & Cebolla, A. (2018). Effects of a brief mindful eating induction on food choices and energy intake: external eating and mindfulness state as moderators. *Mindfulness*, *9*(3), 750-760.

Anderson, James C. and Gerbing, David W. (1988), "Structural Equation Modeling in Practice: A Review and Recommended Two-Step Approach," *Psychological Bulletin*, 103 (3), 411–423.

Baer, R. A., Smith G. T., & Allen, K. B. (2004). Assessment of mindfulness by self-report: The Kentucky Inventory of Mindfulness Skills. *Assessment*, 11, 191-206.

Baer, R. A., Smith, G. T., Hopkins, J., Krietemeyer, J., & Toney, L. (2006). Using self-report assessment methods to explore facets of mindfulness. *Assessment*, 13, 27- 45.

Bahl, S., Milne, G. R., Ross, S. M., & Chan, K. (2013). Mindfulness: A Long-Term Solution for Mindless Eating by College Students. *Journal of Public Policy & Marketing*, 32(2), 173–184. doi:10.1509/jppm.11.008

Bahl, S., Milne, G. R., Ross, S. M., Mick, D. G., Grier, S. A., Chugani, S. K., … Mariani, S. B. (2016). Mindfulness: The Transformative Potential for Consumer, Societal, and Environmental Well-Being. *Journal of Public Policy & Marketing*, (October).

Ballco, P., de-Magistris, T., & Caputo, V. (2019). Consumer preferences for nutritional claims: An exploration of attention and choice based on an eye-tracking choice experiment. *Food Research International*, *116*, 37-48.

Bargh, J. A., Gollwitzer, P. M., Lee-Chai, A., Barndollar, K., and Trötschel, R. (2001). "The automated will: nonconscious activation and pursuit of behavioral goals". *Journal of personality and social psychology,* 81(6), 1014.

Barquera, S., Campos-Nonato, I., Hernández-Barrera, L., Pedroza, A. and Rivera-Dommarco, J. A. (2013). "Prevalencia de obesidad en adultos mexicanos 2000-2012", *Salud Pública de México,* 55(2), 151-160.

Basch, C. H., Roberts, K. J., Samayoa-Kozlowsky, S., and Glaser, D. B. (2015). "Promoting weight loss methods in parenting magazines: implications for women". *Women & health*, 56(1), 119-128.

Bertz, F., Winkvist, A., and Brekke, H. K. (2015). "Sustainable weight loss among overweight and obese lactating women is achieved with an energy-reduced diet in line with dietary recommendations: results from the LEVA randomized controlled trial". *Journal of the Academy of Nutrition and Dietetics*, 115(1), 78-86.

Beshara, M., Hutchinson, A. D., & Wilson, C. (2013). Does mindfulness matter? Everyday mindfulness, mindful eating and self-reported serving size of energy dense foods among a sample of South Australian adults. *Appetite*, 67, 25-29.

Bialkova, S., Grunert, K. G., Juhl, H. J., Wasowicz-Kirylo, G., Stysko-Kunkowska, M., & van Trijp, H. C. (2014). Attention mediates the effect of nutrition label information on consumers' choice. Evidence from a choice experiment involving eye-tracking. *Appetite*, *76*, 66-75.

Briz Hidalgo, F. J., Cos Blanco, A. I., & Amate Garrido, A. M. (2007). Prevalencia de obesidad infantil en Ceuta: Estudio PONCE 2005. *Nutrición hospitalaria*, *22*(4), 471-477.

Brown, K.W. & Ryan, R.M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology*, 84, 822-848.

Brown, K., Ryan, R., & Creswell, J. (2007). Mindfulness: Theoretical foundations and evidence for its salutary effects. *Psychological Inquiry*, 18(4), 211–237.

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In: K. A. Bollen & J. S. Long (Eds.), Testing structural equation models (pp. 136-162). Beverly Hills, CA: Sage.

Brunel, F., & Dong, W. (2006). The Role of Mindfulness in Consumer Behavior. *ACR North American Advances.*

Buhrmester, M., Kwang, T., & Gosling, S. D. (2011). Amazon's Mechanical Turk: A New Source of Inexpensive, Yet High-Quality, Data? *Perspectives on Psychological Science*, 6(1) 3–5.

Burton, S., Garretson, J. A., & Velliquette, A. M. (1999). Implications of accurate usage of nutrition facts panel information for food product evaluations and purchase intentions. *Journal of the Academy of Marketing Science*, *27*(4), 470-480.

Byrne, Barbara M. (2001), Structural Equation Modeling With AMOS: Basic Concepts, Applications And Programming, Mahwah, NJ: Erlbaum.

Campos, S., Doxey, J., & Hammond, D. (2011). Nutrition labels on pre-packaged foods: a systematic review. *Public Health Nutrition*, *14*(8), 1496-1506.

Cardaciotto L, Herbert JD, Forman EM, Moitra E, & Farrow V (2008). The assessment of present-moment awareness and acceptance: The Philadelphia Mindfulness Scale. *Assessment*, 15, 204-223.

Carrete, L., and Arroyo, P. (2014). "Social marketing to improve healthy dietary decisions: insights from a qualitative study in Mexico". *Qualitative Market Research: An International Journal*, *17*(3), 239-263.

Carrigan, M. and and Szmigin, I. (2006), "Mothers of invention: Maternal empowerment and convenience consumption", *European Journal of Marketing,* 40(9/10), 1122-1142.

Casler, K., Bickel, L., & Hackett, E. (2013) Separate but equal? A comparison of participants and data gathered via Amazon's MTurk, social media, and face-to-face behavioral testing. *Computers in Human Behavior,* 29, 2156-2160.

Cawley, J. (2016). Does anything work to reduce obesity?(Yes, modestly). *Journal of Health Politics, Policy and Law*, *41*(3), 463-472.

Cecchini, M., & Warin, L. (2016). Impact of food labelling systems on food choices and eating behaviours: a systematic review and meta-analysis of randomized studies. *Obesity Reviews*, *17*(3), 201-210.

Chan, K., Siu, J. Y., and Fung, T. K. F. (2016) Perception of acupuncture among users and nonusers: A qualitative study, *Health Marketing Quarterly*, 33(1), 78-93

Chandon, P., & Wansink, B. (2012). Does food marketing need to make us fat? A review and solutions. *Nutrition Reviews*, *70*(10), 571–593.

Cox, T.L., Zunker, C., Wingo, B.C., Jefferson, W.K. and Ard, J.D. (2011), "Stressful life events and behavior change: A qualitative examination of African American women's participation in a weight loss program", *The Qualitative Report,* 16(3), 622-634.

Crandall, C.S. (1994). "Prejudice against fat people: Ideology and self-interest", *Journal of Personality and Social Psychology,* 66(5), 882-894.

Cronin, J.M., McCarthy, M. and Delaney, M. (2015), "Deconstructing consumer discipline: How self-management is experienced in the marketplace", *European Journal of Marketing,* 49(11/12), 1902-1922.

De la Cruz-Góngora, V., Villalpando, S., Rodríguez-Oliveros, G., Castillo-García, M., Mundo-Rosas, V., & Meneses-Navarro, S. (2012). Use and understanding of the nutrition information panel of pre-packaged foods in a sample of Mexican consumers. *Salud Pública de México*, *54*, 158-166.

de la Peña, A. and Quintanilla, C. (2015), "Share, like and achieve: The power of Facebook to reach health-related goals", *International Journal of Consumer Studies,* 39(5), 495-505.

Deci, E.L. and Ryan, R.M. (1985), "The general causality orientations scale: Self-determination in personality", *Journal of Research in Personality,* 19(2), 109-134.

Deci, E. L. and Ryan, R.M. (2000), "The " What " and " Why " of Goal Pursuits: Human Needs and the Self-Determination of Behavior", *Psychological Inquiry,* 11(4), 227-268.

DeVellis, R. F. (2012). Scale Development (3rd ed.). SAGE Publications

Drichoutis, A. C., Lazaridis, P., & Nayga Jr, R. M. (2006). Consumers' use of nutritional labels: a review of research studies and issues. *Academy of Marketing Science Review*, *2006*, 1.

Drury, A., and Louis, M. (2002). "Exploring the association between body weight, stigma of obesity, and health care avoidance". *Journal of the American Association of Nurse Practitioners*, *14*(12), 554-561.

Dziśko, M., Jankowski, J., & Wątróbski, J. (2017). Measuring the Impact of Intrusive Online Marketing Content on Consumer Choice with the Eye Tracking. *Neuroeconomic and Behavioral Aspects of Decision Making*, 353-363

Egan, H., & Mantzios, M. (2016). Mindfulness and mindful eating: reflections on how individuals with cystic fibrosis may benefit. *Eating and Weight Disorders: EWD*.

ENSANUT (2012), "Encuesta Nacional de Salud y Nutrición 2012. Estado de nutrición, anemia, seguridad alimentaria en la población Mexicana", available at http://ensanut.insp.mx/doctos/ENSANUT2012_Nutricion.pdf

Feldman, G., Hayes, A., Kumar, S., Greeson, J., & Laurenceau, J. P. (2007). Mindfulness and emotion regulation: The development and initial validation of the Cognitive and Affective Mindfulness Scale- Revised (CAMS-R). *Journal of Psychopathology and Behavioral Assessment*, 29(3), 177-190.

Felver, J. C., Tipsord, J. M., Morris, M. J., Racer, K. H., & Dishion, T. J. (2014). The effects of mindfulness-based intervention on children's attention regulation. *Journal of Attention Disorders*, *21*(10), 872-881.

Fenko, A., Nicolaas, I., & Galetzka, M. (2018). Does attention to health labels predict a healthy food choice? An eye-tracking study. *Food quality and preference*, 69, 57-65.

Fielding-Singh, P. (2017). "Dining with dad: Fathers' influences on family food practices", *Appetite,* 117, 98-108.

Finkelstein, E.A., Khavjou, O.A., Thompson, H., Trogdon, J.G., Pan, L., Sherry, B. and Dietz, W. (2012), "Obesity and Severe Obesity Forecasts Through 2030", *American Journal of Preventive Medicine,* 42(6), 563-570.

Fisher, H., Erasmus, A. C., & Viljoen, A. T. (2016). Young adults' consideration of their food choices a propos consequences for their future health. *International Journal of Consumer Studies*, 40, 475-483.

Flores, D., Ayala, E. A., & Quintanilla, C. M. (2018). Development of a scale of use, comprehension and attitudes in relation to nutrition labels in Spanish. *Salud Pública de México*, *61*(1, ene-feb), 63-71.

Fornell, C., and Larcker, D.F., 1981. Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research,* 18 (1), 39-50.

Fortier, M. S., Duda, J.L., Guerin, E. and Teixeira, P.J. (2012), "Promoting physical activity: development and testing of self-determination theory-based interventions", *The International Journal of Behavioral Nutrition and Physical Activity,* 9(1), 20.

Framson, C., Kristal, A. R., Schenk, J. M., Littman, A. J., Zeliadt, S., & Benitez, D. (2009). Development and validation of the mindful eating questionnaire. *Journal of the American Dietetic Association*, 109(8), 1439–1444.

Fung, T. T., Long, M. W., Hung, P., & Cheung, L. W. Y. (2016). An Expanded Model for Mindful Eating for Health Promotion and Sustainability: Issues and Challenges for Dietetics Practice. *Journal of the Academy of Nutrition and Dietetics*, *116*(7), 1081–1086.

Gagné, M. and Deci, E.L. (2005), "Self-determination theory and work motivation", *Journal of Organizational Behavior,* 26(4), 331-362.

Garretson, J. a., & Burton, S. (2000). Effects of Nutrition Facts Panel Values, Nutrition Claims, and Health Claims on Consumer Attitudes, Perceptions of Disease-Related Risks, and Trust. *Journal of Public Policy & Marketing*, *19*(2), 213–227.

George, M. & Tanner, J.F. (2014), "Promotion to change lifestyle: Securing participation and success", *Health Marketing Quarterly,* 31(November), 293-311.

Girelli, L., Manganelli, S., Alivernini, F., and Luccidi, F. (2016). "A Self-determination theory based intervention to promote healthy eating and physical activity in school-aged children". *Cuadernos de Psicología del Deporte,* 16(3), 13-20.

Goh, J.M. and Agarwal, R. (2008), "Taking Charge of Your Health: The Drivers of Enrollment and Continued Participation in Online Health Intervention Programs". In *41st Hawaii International Conference on System Sciences*, 1-10.

Gonzalez, A. and Wolters, C.A. (2006). "The relation between perceived parenting practices and achievement motivation in Mathematics", *Journal of Research in Childhood Education,* 21(2), 203-217.

Gould, S. J. (1989) "The Use of Health Care Services: Is Illness the only motivator?", *Journal of Hospital Marketing*, 3(2), 81-103

Graham, D. J., & Jeffery, R. W. (2012). Predictors of nutrition label viewing during food purchase decision making: An eye tracking investigation. *Public Health Nutrition*, 15, 189–197.

Graham, D. J., Lucas-Thompson, R. G., Mueller, M. P., Jaeb, M., & Harnack, L. (2016). Impact of explained v. unexplained front-of-package nutrition labels on parent and child food choices: a randomized trial. *Public Health Nutrition*, *20*(5), 774-785.

Grunert, K. G., & Wills, J. M. (2007). A review of European research on consumer response to nutrition information on food labels. *Journal of Public Health*, *15*(5), 385-399.

Hendrickson, K., & Ailawadi, K. L. (2014). Six lessons for in-store marketing from six years of mobile eye-tracking research. In *Shopper Marketing and the Role of In-Store Marketing* (pp. 57-74). Emerald Group Publishing Limited.

Huddleston, P., Behe, B. K., Minahan, S., & Fernandez, R. T. (2015). Seeking attention: an eye tracking study of in-store merchandise displays. *International Journal of Retail & Distribution Management*, *43*(6), 561-574.

Hummel, G., Zerweck, I., Ehret, J., Winter, S. S., & Stroebele-Benschop, N. (2017). The influence of the arrangement of different food images on participants' attention: An experimental eye-tracking study. *Food Quality and Preference*, *62*, 111-119.

Hulbert-Williams, L., Nicholls, W., Joy, J., & Hulbert-Williams, N. (2013). Initial Validation of the Mindful Eating Scale. *Mindfulness*, 5(6), 719–729.

Instituto Nacional de Estadística y Geografía (INEGI) (2015) "Información por entidad: Nuevo León". available at http://cuentame.inegi.org.mx/monografias/informacion/nl/poblacion/default.aspx?tema=me&e=19

Instituto Nacional de Estadística y Geografía (INEGI) (2016) Encuesta Nacional de Ingresos y Gastos de los Hogares. available at http://www.beta.inegi.org.mx/contenidos/proyectos/enchogares/regulares/enigh/nc/2016/doc/presentacion_resultados_enigh2016.pdf

Jordan, C. H., Wang, W., Donatoni, L., & Meier, B. P. (2014). Mindful eating: Trait and state mindfulness predict healthier eating behavior. *Personality and Individual Differences*, 68, 107-111.

Kaplan, D. (2000), Structural Equation Modeling: Foundations and Extensions, Thousand Oaks, CA: Sage.

Keller, S. B., Landry, M., Olson, J., Velliquette, M., Burton, S., & Andrews, J. C. (1997). The Effects of Nutrition Package Claims, Nutrition Facts Panels, and Motivation to Process Nutrition Information on Consumer Product Evaluations. *Journal of Public Policy & Marketing*, *16*(2), 256–269.

Kim, S.D. (2018) Relationship between awareness and use of nutrition labels and obesity. *Biomedical Research, 29*(11), 2238-2242.

Kumari, V., Antonova, E., Wright, B., Hamid, A., Hernandez, E. M., Schmechtig, A., & Ettinger, U. (2017). The mindful eye: Smooth pursuit and saccadic eye movements in meditators and non-meditators. *Consciousness and cognition*, *48*, 66-75.

Langer, E. J. (1989). Mindfulness. Cambridge, Mass.: Perseus Books.

Latham, G. P., Brcic, J., and Steinhauer, A. (2017). "Toward an Integration of Goal Setting Theory and the Automaticity Model". *Applied Psychology*, 66(1), 25-48.

Lau MA, Bishop SR, Segal ZV, Buis T, Anderson ND, Carlson L, Shapiro S, Carmody J, Abbey S, & Devins G (2006). The Toronto Mindfulness Scale: Development and validation. *Journal of Clinical Psychology*, 62, 1445-1467.

Leathwood, P. D., Richardson, D. P., Sträter, P., Todd, P. M., & van Trijp, H. C. M. (2007). Consumer understanding of nutrition and health claims: sources of evidence. *The British Journal of Nutrition*, *98*(3), 474–484.

Lee, F.K., Sheldon, K.M. and Turban, D.B. (2003), "Personality and the goal-striving process: the influence of achievement goal patterns, goal level, and mental focus on performance and enjoyment". *The Journal of Applied Psychology,* 88(2), 256-265.

Lindzey, G. (1961). *Projective techniques and cross-cultural research*. Ardent Media.

Locke, E.A. (1996), "Motivation through conscious goal setting", *Applied and Preventive Psychology,* 5(2), 117-124.

Locke, E.A. and Latham, G.P. (2006), "New directions in goal-setting theory", *Current Directions in Psychological Science,* 15(5), 265-268.

Lopez, E. (2017). Free Guided Meditations. *UCLA Mindful Awareness Research Center*. Available at http://marc.ucla.edu/mindful-meditations

Ma,Y., Ailawadi, K. L., & Grewal, D. (2013). Soda Versus Cereal and Sugar Versus Fat: Drivers of Healthful Food Intake and the Impact of Diabetes Diagnosis. *Journal of Marketing*, 77(3), 101–120.

Machín, L., Arrúa, A., Giménez, A., Curutchet, M. R., Martínez, J., & Ares, G. (2017). Can nutritional information modify purchase of ultra-processed products? Results from a simulated online shopping experiment. *Public Health Nutrition*, *21*(1), 49-57.

Maresco, P. A. (2005), "The Atkins Diet Phenomenon: How the Low Carbohydrate Lifestyle Has Revolutionized the Consumer Behavior of American Dieters", *Journal of Food Products Marketing*, 11(2), 21-36

Mantzios, M., Egan, H., Hussain, M., Keyte, R., & Bahia, H. (2018). Mindfulness, self-compassion, and mindful eating in relation to fat and sugar consumption: an exploratory investigation. *Eating and Weight Disorders-Studies on Anorexia, Bulimia and Obesity*, 1-8.

Marsh, H.W. & Hocevar, D. (1985). Application of confirmatory factor analysis to the study of self-concept: First- and higher-order factor models and their invariance across groups. *Psychological Bulletin*, 97, 562–582.

Mc Keown, A., & Nelson, R. (2018) Independent decision making of Adolescents regarding food choice. *International Journal of Consumer Studies*.

Mhurchu, C. N., Eyles, H., Jiang, Y., & Blakely, T. (2018). Do nutrition labels influence healthier food choices? Analysis of label viewing behaviour and subsequent food purchases in a labelling intervention trial. *Appetite*, *121*, 360-365.

Miller, C. K. (2017). Mindful eating with diabetes. *Diabetes Spectrum*, *30*(2), 89-94.

Mohr, G. S., Lichtenstein, D. R., & Janiszewski, C. (2012). The effect of marketer-suggested serving size on consumer responses: the unintended consequences of consumer attention to calorie information. *Journal of Marketing*, *76*(1), 59-75.

Moorman, C. and Matulich, E. (1993), "A model of consumers' preventive health behaviors: The role of health motivation and health ability", *Journal of Consumer Research,* 20(2), 208.

Motoki, K., Saito, T., Nouchi, R., Kawashima, R., & Sugiura, M. (2018). Tastiness but not healthfulness captures automatic visual attention: Preliminary evidence from an eye-tracking study. *Food Quality and Preference*, 64, 148-153.

Ndubisi, N. O. (2014). Consumer Mindfulness and Marketing Implications. *Psychology & Marketing*, 31(4), 237–250.

Nicholas, L., Pond, D. and Roberts, D.C.K. (2005), "The effectiveness of nutrition counseling by Australian General Practitioners", *European Journal of Clinical Nutrition,* 59(1), 140-146.

Nielsen (2017) La salud es una prioridad para el consumidor, ¿Qué están haciendo los fabricantes? Available at https://www.nielsen.com/cl/es/insights/news/2017/La-salud-es-una-prioridad-para-el-consumidor-que-estan-haciendo-los-fabricantes.print.html

NOM-051-SCFI/SSA1 (2010) Especificaciones generales de etiquetado para alimentos y bebidas no alcohólicas preenvasados-Información comercial y sanitaria. *México, D.F*

OECD (2014), "Obesity and the Economics of Prevention: Fit not Fat Key Facts - Mexico", available at https://www.oecd.org/mexico/Obesity-Update-2014-MEXICO_EN.pdf

OECD (2017). Obesity Update. Retrieved from https://www.oecd.org/els/health-systems/Obesity-Update-2017.pdf

Oliveira, D., Machín, L., Deliza, R., Rosenthal, A., Walter, E. H., Giménez, A., & Ares, G. (2016). Consumers' attention to functional food labels: insights from eye-tracking and change detection in a case study with probiotic milk. *LWT-Food Science and Technology*, *68*, 160-167.

Orquin, J., & Scholderer, J. (2011). Attention to health cues on product packages. *Journal of Eyetracking, Visual Cognition and Emotion, 1*(1), 59-63.

Pancer, E. and Handelman, J. (2012), "The evolution of consumer well-being", *Journal of Historical Research in Marketing,* 4(1), 177-189.

Peterson, R. A. (2000). Constructing effective questionnaires. Thousand Oaks: Sage Publications.

Philipson, T. (2001) "The World-Wide Growth in Obesity: An Economic Research Agenda", *Health Economics,* 10, 1-7.

Plassmann, H., Venkatraman, V., Huettel, S., & Yoon, C. (2015). Consumer neuroscience: Applications, challenges, and possible solutions. *Journal of Marketing Research*, *52*(4), 427-435.

Puhl, R. M., and Heuer, C. A. (2010). "Obesity stigma: important considerations for public health". *American journal of public health*, 100(6), 1019-1028.

Ran, T., Yue, C., & Rihn, A. (2016). Does nutrition information contribute to grocery shoppers' willingness to pay?. *Journal of Food Products Marketing*, *23*(5), 591-608.

Robles-Zepeda, R. E., Valenzuela-Antelo, O., Garibay-Escobar, A., Velázquez-Contreras, C., Navarro-Navarro, M., Contreras, L. R., ... and Lozano-Taylor, J. (2011). "Use of complementary and alternative medicine in a region of northwest Mexico". *The Journal of Alternative and Complementary Medicine,* 17(9), 787-788.

Rtveladze, K., Marsh, T., Barquera, S., Romero, L. M. S., Levy, D., Melendez, G., ... & Brown, M. (2013). Obesity prevalence in Mexico: impact on health and economic burden. *Public health nutrition*, *17*(1), 233-239.

Ryan, R. and Deci, E. (2000), "Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being", *The American Psychologist,* 55(1), 68-78.

Sheth, J. N., Sethia, N. K., & Srinivas, S. (2011). Mindful consumption: A customer-centric approach to sustainability. *Journal of the Academy of Marketing Science*, 39(1), 21–39.

Siegrist, M., Leins-Hess, R., & Keller, C. (2015). Which front-of-pack nutrition label is the most efficient one? The results of an eye-tracker study. *Food Quality and Preference, 39*, 183-190.

Silva, M. N., Vieira, P. N., Coutinho, S. R., Minderico, C. S., Matos, M. G., Sardinha, L. B., and Teixeira, P. J. (2010). "Using self-determination theory to promote physical activity and weight control: a randomized controlled trial in women". *Journal of behavioral medicine*, 33(2), 110-122.

Soldavini, J., Crawford, P., & Ritchie, L. D. (2012). Nutrition Claims Influence Health Perceptions and Taste Preferences in Fourth- and Fifth-Grade Children. *Journal of Nutrition Education and Behavior*, *44*(6), 624–627.

Spiggle, S. (1994), "Analysis data in and interpretation of qualitative consumer research", *Journal of Consumer Research,* 21(3), 491-503.

Stasi, A., Songa, G., Mauri, M., Ciceri, A., Diotallevi, F., Nardone, G., & Russo, V. (2018). Neuromarketing empirical approaches and food choice: A systematic review. *Food Research International*, *108*, 650-664.

Sutton, B. (2011). "Playful cards, serious talk: a qualitative research technique to elicit women's embodied experiences". *Qualitative research*, 11(2), 177-196.

Swinburn, B. A., Sacks, G., Hall, K. D., McPherson, K., Finegood, D. T., Moodie, M. L., & Gortmaker, S. L. (2011). The global obesity pandemic: shaped by global drivers and local environments. *The Lancet*, *378*(9793), 804-814.

Teixeira, P.J., Carraça, E.V, Markland, D., Silva, M.N. and Ryan, R.M. (2012a), "Exercise, physical activity, and self-determination theory: A systematic review", *The International Journal of Behavioral Nutrition and Physical Activity,* 9(1)

Teixeira, P.J., Silva, M.N., Mata, J., Palmeira, A.L. and Markland, D. (2012b), "Motivation, self-determination, and long-term weight control", *International Journal of Behavioral Nutrition and Physical Activity,* 9(1), 22.

The Nielsen Company (2015), "We Are What We Eat: Healthy Eating Trends Around The World", available at https://www.nielsen.com/content/dam/nielsenglobal/eu/nielseninsights/pdfs/Nielsen%20Global%20Health%20and%20Wellness%20Report%20-%20January%202015.pdf

Tseng, E., Zhang, A., Shogbesan, O., Gudzune, K. A., Wilson, R. F., Kharrazi, H., ... & Bennett, W. L. (2018). Effectiveness of policies and programs to combat adult obesity: a systematic review. *Journal of General Internal Medicine*, 1-12.

Ungureanu, F., Lupu, R. G., Cadar, A., & Prodan, A. (2017). Neuromarketing and visual attention study using eye tracking techniques. In *2017 21st International Conference on System Theory, Control and Computing (ICSTCC)*, 553-557

US Food and Drug Administration (FDA) (1994). Guide to nutrition labeling and education act (NLEA) requirements. *Silver Spring, MD: FDA, Division of Field Investigations, Office of Regional Operations, Office of Regulatory Affairs*.

Van Buul, V. J., & Brouns, F. J. P. H. (2013). Nutrition and Health Claims as Marketing Tools. *Critical Reviews in Food Science and Nutrition*, *8398*(December), 37–41.

Van De Veer, E., Van Herpen, E., & Van Trijp, H. C. M. (2016). Body and Mind: Mindfulness Helps Consumers to Compensate for Prior Food Intake by Enhancing the Responsiveness to Physiological Cues. *Journal of Consumer Research*, 42(5), 783–803.

Van Trijp, H. C. M., & van der Lans, I. A. (2007). Consumer perceptions of nutrition and health claims. *Appetite*, *48*(3), 305–324.

Vansteenkiste, M., Lens, W., De Witte, H. and Feather, N.T. (2005), "Understanding unemployed people's job search behaviour, unemployment experience and well-being: A comparison of expectancy-value theory and self-determination theory", *The British Journal of Social Psychology,* 44, 269-287.

Vignali, C., and Henderson, S. (2008). "Weight watchers: Social event centered marketing". *Journal of Food Products Marketing*, 14(2), 99-113.

Viola, G. C. V., Bianchi, F., Croce, E., & Ceretti, E. (2016). Are food labels effective as a means of health prevention?. *Journal of Public Health Research*, *5*(3).

Visschers, V. H. M., Hess, R., & Siegrist, M. (2010). Health motivation and product design determine consumers' visual attention to nutrition information on food products. *Public Health Nutrition, 13*, 1099–1106.

Wansink, B., & Chandon, P. (2006). Can "Low-Fat" Nutrition Labels Lead to Obesity? *Journal of Marketing Research*, *43*(4), 605–617.

Warren, J. M., Smith, N., & Ashwell, M. (2017). A structured literature review on the role of mindfulness, mindful eating and intuitive eating in changing eating behaviours: effectiveness and associated potential mechanisms. *Nutrition research reviews*, 30(2), 272-283.

Webber, K.H., Tate, D.F., Ward, D.S. and Bowling, J.M. (2010), "Motivation and its relationship to adherence to self-monitorin and weight loss in a 16-week internet behavioral weight loss intervention", *Journal of Nutrition Education and Behavior,* 42(3), 161-167.

WeightWatchers (2018). "What happens at a meeting?" Retrieved from https://foundations.weightwatchers.com/help/article/5a5e54d80f859b005a4f0328-en_US/what-happens-at-a-meeting

Williams, J. M. G., & Kabat-Zinn, J. (2011). Mindfulness: diverse perspectives on its meaning, origins, and multiple applications at the intersection of science and dharma. *Contemporary Buddhism*, 12(1), 1–18.

Willmott, T. & Parkinson, J. (2017) Motivation, opportunity, and ability: Understanding new habits and changes adopted for weight management. *International Journal of Consumer Studies,* 41, 291-298.

World Health Organization (WHO) (2000). Obesity: Preventing and managing the global epidemic (No. 894). Geneva: World

World Health Organization (WHO) (2014) Global status report on noncommunicable diseases. Geneva: WHO.

World Health Organization (WHO) (2018) Fact Sheets: Obesity and overweight. Available at http://www.who.int/en/news-room/fact-sheets/detail/obesity-and-overweight

Yoon, C., Gonzalez, R., Bechara, A., Berns, G. S., Dagher, A. A., Dubé, L., ... & Smidts, A. (2012). Decision neuroscience and consumer decision making. *Marketing Letters*, *23*(2), 473-485.

Zainuddin, N., Russell-Bennett, R., and Previte, J. (2013). "The value of health and wellbeing: an empirical model of value creation in social marketing", *European Journal of Marketing*, *47*(9), 1504–1524.