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Abstract

Restaurant-based programs hold promise as a strategy to improve the nutrition environment and promote healthy eating in restaurants. This research examined the impact of a restaurant-based program on availability of and access to healthy food options in restaurants; manager/owner perceptions and factors that may contribute to program implementation and adherence; and program impact on and factors related to customer food choice. Cross-sectional and pretest-posttest data were collected in program restaurants using environmental assessments, manager/owner surveys, and customer intercept interviews.

From pre- to post-implementation, the number of and access to healthy options increased in most participating restaurants. Most restaurant managers/owners had positive beliefs towards offering healthy options, positive perceptions of staff knowledge and skills to offer healthy options, high levels of support and self-efficacy to implement the program, and positive perceptions of program impact on their restaurants and customers. Cited barriers to implementation included customer preference and demand, operational challenges, ingredient availability, and insufficient staff knowledge, among others. No significant correlations were found between manager/owner factors and implementation and adherence to program guidelines.

In customer intercept interviews, most respondents familiar with the program thought the program helped them make healthier food choices. Among those who ordered healthy items, the majority stated that the program influenced their food choice. Factors positively associated with choosing healthy items included being African American or Black, having established dietary goals, holding positive beliefs about healthy options in restaurants, and having positive perceptions of the restaurant environment. No significant associations were found between ordering healthy items and customer self-efficacy, attitudes, or social support.
This research contributes to the limited scholarly research and increases understanding of restaurant environments, restaurant-based programs, customer food choices, and manager/owner level factors that may influence program adoption, implementation, adherence, and outcomes. Findings may be used to inform future research and program enhancements.
I. Introduction

Obesity is a major cause of morbidity in the United States (U.S.) [1-3]. As the prevalence rate exceeds 40%, obesity is a significant public health concern [4]. Research indicates that diet plays a key role in the prevention of obesity [5, 6].

Food environments impact diet by enabling or constraining food choices [7]. As about away-from-home foods account for one-third of all calories consumed and are associated with weight gain and obesity, restaurant food environments are a natural setting for intervention [8-14]. Restaurants influence food availability, affordability, and acceptability and can impact the decisions customers make about food [15-17]. Interventions that modify the restaurant environment may have an impact on dietary choices and have an ability to reach individuals in less costly and more enduring ways than individually-oriented interventions [18].

Most restaurant-based interventions focus on six types of strategies: increasing availability of healthy foods, increasing access to healthy foods, reducing prices and/or offering discounts, catering policies, point-of-purchase (POP) information, and promotion and communication [19, 20]. Research in restaurants has found that these strategies may have the ability to improve food choices among customers [16, 20-23]; however, more research is needed to assess the impact of these types of initiatives and factors that contribute to program adoption by restaurants [16].

This research focused on the evaluation of the Eat Fit program, an Ochsner Healthcare System statewide collective impact initiative to address nutrition education, access to healthy foods, and reduction of obesity across Louisiana. One Eat Fit program component works with food service establishments to offer healthy, tasty meals for customers who want to eat healthy, watch their weight, and/or manage certain health issues.
When a restaurant is interested in joining the Eat Fit program, Eat Fit dietitians work closely with the establishment owners, managers, and/or chefs to identify and develop dishes that meet the Eat Fit nutritional guidelines (Appendix A). The guidelines are centered on lean proteins, vegetables, plant-based fats, and whole grains with no white carbohydrates, minimal added sugar, sodium, and animal fats.

The establishment provides recipes to Eat Fit dieticians, and the recipes are analyzed with nutritional software. Eat Fit staff work with restaurant staff to identify dishes that meet the Eat Fit criteria, modify recipes that can meet Eat Fit guidelines without compromising the integrity of dishes, and develop new menu items that meet guidelines. The number of dishes to be offered as Eat Fit items is determined by the restaurant.

As part of the program, restaurants designate each food item that meets Eat Fit guidelines on their menu and/or displays with the Eat Fit seal of approval and appropriate verbiage, making the healthy choice easily identifiable for customers. In addition, partner restaurants are encouraged to place Eat Fit logos in their establishment windows and promote Eat Fit items on their website. The Eat Fit program promotes partner restaurants on the Eat Fit website, social media outlets and through a smart phone application (app). On the app, potential customers can use a map-based search for restaurants and other food outlets offering Eat Fit food items that may meet their dietary needs.

In this research, the impact of the Eat Fit program on healthy food access and availability; restaurant manager/owner perceptions and factors that contribute to program adoption and adherence; and program impact and factors related to customer food choice were examined in the New Orleans restaurant market and Lafayette and Lake Charles (Acadiana), Louisiana restaurant market. Eat Fit has partnered with New Orleans restaurants since 2013. In New Orleans, cross-
sectional data were collected from established partner restaurants using environmental assessments, surveys with managers and owners, and intercept interviews with customers. More recently, the Eat Fit program received funds to expand into the Acadiana area. Pre- and post-program implementation environmental assessments and cross-sectional manager/owner surveys were collected in the Acadiana area as the program expanded and recruited new restaurants.

The results of this research provided information about factors that may impact implementation of and adherence to program guidelines among restaurant managers and owners, as well as provided data for potential improvements for restaurant-based programming. Further, the studies examined program influence on customer food choices and factors that may be associated with food selection.
II. Background and Significance

A. Obesity as a Public Health Problem

As a leading, preventable contributor to morbidity and mortality in the United States, obesity is a major public health concern. Obesity substantially increases the risk of morbidity from hypertension, type 2 diabetes, coronary heart disease, stroke, dyslipidemia, liver and gallbladder diseases, osteoarthritis, sleep apnea, respiratory problems, infertility, various cancers, and mental health issues [1-3]. Excessive weight is estimated to be responsible for about 3.4 million annual deaths and 3.8% of the global burden of disease [24].

Overweight and obesity refer to excessive amounts of body fat and are measured using body mass index (BMI), a measure of weight relative to height. In adults, overweight is defined as a BMI of 25.0 to 29.9 and obesity as a BMI greater than or equal to 30 [1]. While almost all countries have seen an increase in obesity prevalence rates, the U.S. has seen the largest absolute increase since 1980 [25]. In a 2017-2018 survey, the prevalence of obesity was 42.2% among U.S. adults [4]. In Louisiana, the estimated adult obesity prevalence rate was 36.8% [26].

Obesity: Risk Factors

At the biological level, overweight and obesity occur over time when individuals consume more calories than they expend and experience an energy imbalance. Chronic daily energy imbalance can lead to weight gain [27]. Over the past thirty years, the increase in the prevalence of obesity has correlated with an increase in total energy intake and a decrease in levels of physical activity [28]. Lack of physical activity and consumption of energy-dense, high-sugar foods are behavioral factors that contribute to this energy imbalance.

Consuming fruits and vegetables and reducing consumption of foods that are high in calories, sugar, and/or saturated fats are recommended approaches for weight management and
obesity risk reduction at the individual level [5, 6, 29]. In 2015, only 12.2% of adults met fruit intake recommendations and 9.3% met vegetable recommendations [30, 31]. According to the U.S. Department of Health and Human Services (USDHHS) and the U.S. Department of Agriculture (USDA), most Americans exceed the recommendations for total calories, added sugars, saturated fats, and sodium [31].

B. Environmental Risk Factors

In addition to individual behaviors and characteristics related to dietary patterns, food environments are important to consider as factors that contribute to obesity. Individuals can only make healthy choices in a supportive environment that provides access to healthy foods [18]. Unfortunately, changes in the food system and eating environments over the past few decades have created an “obesogenic” environment in the U.S. that promotes high energy food intake and low energy expenditure [18, 32]. The U.S. food system and food environment provides a large supply of cheap, energy-dense foods that are easy to access, convenient to consume, and heavily marketed [33]. These environmental changes influence what, where, and how much individuals eat and are believed to contribute to the obesity epidemic [18].

Food environments can be defined by the types of food sources accessible to individuals and consumer exposure within those environments [34]. Restaurants and food stores are two main components of the community nutrition environment. The availability, accessibility, and marketing of foods impact consumption patterns by enabling or constraining food choices. Access to healthier options is linked to reduced levels of obesity [34, 35].

C. Restaurant Food Environment as a Risk Factor

Over the past few decades, eating patterns in the U.S. have shifted from foods prepared at home to food prepared in restaurants. An estimated one-third of all calories consumed come
from food away from home and almost half of food dollars are spent on eating outside the home [8, 9, 13]. In 2017, both men and women purchased an average of five meals away from home per week, with no significant differences by race [13]. While the trend of eating food away from home has increased across all socioeconomic groups, higher income households (income greater than 300 percent of the Federal poverty guidelines) purchase food away from home more frequently than those households with incomes less than or equal to Federal poverty guidelines, 5.5 times per week compared to 4.2 times per week, respectively [13]. Age may be the strongest predictive factor for frequency of purchasing food away from home with highest purchase and consumption among individuals who are 35-44 years of age [13].

Research suggests that eating more food from restaurants is related to greater intake of calories and fat, weight gain, and obesity [10-12, 14, 36-38]. The increase in the proportion of calories and nutrients obtained from away-from-home foods parallels the increase in obesity [9]. Meals and snacks based on food prepared away from home contain more calories, are higher in total fat and saturated fat, and contain less dietary fiber, calcium, and iron on a per-calorie basis than at-home food [9]. In addition, portion sizes in away-from-home foods have increased over the past few decades, and research has demonstrated that people will increase their consumption in proportion to the quantity they are served [39-41]. As the trend toward eating food away from home increases, it has become more difficult for Americans to improve their diets and reduce intake of calories and fats [8].

D. Restaurant-Based Interventions

Decisions made by restaurants (location of outlets, foods sold, prices charged, promotional strategies, and nutrition-related activities implemented) influence food availability, affordability, and acceptability, which in turn influence the decisions customers make about food
Improving access to and promoting consumption of healthier foods in restaurants may be an effective way to improve diet.

Current restaurant-based interventions and programs tend to focus on six types of strategies: increasing availability of healthy foods, increasing access to healthy foods, reducing prices and/or offering discounts, catering policies, point-of-purchase (POP) information, and promotion and communication [16, 19, 20, 42]. Interventions that increase availability of healthy foods involve increasing the number and types of healthy options offered and/or offering healthier preparations of food items (non-fried; no or light sauce; reduced fat, cholesterol, sodium). Increasing access to healthy foods translates to increasing availability in addition to making the healthy items easier to locate by offering and/or promoting them in multiple locations [19, 22, 43, 44].

Previous research in restaurants has found that increasing access to and availability of healthy items, displaying point-of-purchase (POP) labels for healthy items, and promoting and marketing healthy items within the restaurant and in the community may influence food choices among customers [16, 20-23, 45, 46]. Simple environmental interventions that alter displays, placement, and marketing of healthy foods can cue people to action [47-56]. In a study examining pre-labeling and post-labeling differences in dishes sold in six full-service restaurants, 71% of customer reported noticing healthy labels; 20.4% reported ordering an entrée lower in calories as a result, and 16.5% reported ordering an entrée lower in fat as a result of the labeling [53]. Another study focused on healthy food signage in four restaurants found that 34% of customers reported that the signage impacted their order [54].

Restaurant-based programs that combine the strategies of increased availability of healthy food options and increased access by identifying and promoting menu items that meet a set
nutritional criterion hold promise for improving customer food choices [16, 54-60]. These programs aim to make it easier for customers to make healthy food choices and, in some restaurants, provide customers the option of a healthier food choice where none may have previously existed. In a pilot restaurant-based intervention that applied these strategies in two Midwest communities, seven restaurants were selected in the intervention community and seven in the control community [60]. Restaurants in the intervention community agreed to provide point-of-purchase/labeling for healthy items, increase availability of healthy items, and promote and market the program. Menu items at the restaurants were analyzed, and items meeting set nutritional criteria were labeled as healthy. After the intervention, half of customers had heard of the program and 12.1% reported ordering the program items. The percentage of customers who ordered healthy items was not statistically different from the control restaurants; however, the study was not powered to detect significance, and the trend suggested program impact on purchasing behaviors. The intervention restaurants saw an 80% improvement in nutrition environment scores from pre- to post-intervention whereas the environment remained the same in comparison restaurants [60]. More studies with environmental assessments that measure food environments are needed to understand and evaluate how changes in nutrition environments may have the ability to impact customer food choices and sales of healthier items [20, 61, 62].

While restaurant-based strategies show promise, the evidence for the effectiveness of these strategies is still fairly limited, and much of the available research focuses on feasibility [20]. Research design in restaurants can be difficult as restaurants are places of business and vary widely in characteristics [19]. In general, use of randomization and control groups is limited in restaurant-based research as inherent difficulties exist in applying these designs to community-based health promotion interventions [16, 19, 20, 44]. While using a pre-post controlled design
may be ideal, selecting meaningful intervention and comparison restaurants has been difficult in real world conditions in previous research [60]. Restaurants can rarely be perfectly matched to one another and may be subject to the influence of different external factors. Comparison restaurants may be systematically different, and as a result, differences observed between the groups at outcome may be due to selection rather than to treatment [60, 63]. In cases where no comparison restaurants are available, criterion-referenced pretests based on program objectives are important to capture any changes or gains in intervention settings. In addition, using a posttest that is very similar to the pretest can increase credibility even if the study design includes no comparison group [64].

E. Restaurant Managers/Owners

Support from restaurant managers/owners is key to implementing restaurant-based programs. Studies examining restaurant staff beliefs about offering healthy food options have shown restaurants are willing to offer options as long as there is customer demand and the offerings are profitable [58, 65-68]. Some evidence exists that restaurants want to be seen as providing healthy options [69, 70]. Those involved in the restaurant industry agree that introducing new menu items and promoting them through menus and on-site materials (i.e., table tents, brochures) helps customers make healthier decisions [65]. Lack of staff nutrition knowledge and skills, consumer preferences/low demand and expectations, short shelf life of healthier items, ingredient costs, and increased food preparation time are seen as barriers to introducing healthy items [65, 66, 68, 71, 72]. Motivations for offering healthy food options include attracting new customers and maintaining current customers by satisfying customer demand, improving reputation, and supporting healthy choices [58, 66, 73, 74]. In addition,
some restaurant staff do feel responsible for the nutritional content of foods offered at their restaurants and have a desire to be socially responsible [68, 75, 76].

While restaurant managers/owners have shown interest in offering healthy food items, this interest has not always translated to the action of offering healthy food items or engaging in restaurant-based interventions and programs. Some restaurant-based healthy food initiatives have cited difficulty with restaurant recruitment, program implementation, and adherence to program guidelines [20, 58, 59, 74, 77]. Limited research has focused on restaurant-related factors, specifically at the manager/owner level, that may influence program adoption, implementation, adherence and outcomes [20, 44, 57, 68, 77, 78].

As behavior may be influenced by the interaction of individual factors, environmental factors, and behavior [79], Social Cognitive Theory (SCT) can be useful in examining restaurant manager/owner factors that influence program implementation and adherence. SCT emphasizes that behavior is the product of the interaction between individual, environmental and behavioral factors, a theoretical premise known as reciprocal determinism [79]. Restaurant manager/owner personal attitudes, beliefs, knowledge, and perceived support from staff and customers, as well as other factors, may influence manager/owner decisions to participate in restaurant-based programs and adhere to program guidelines. Self-efficacy, in particular, is an important factor in the decision to adopt programs to promote healthy eating [80]. Environmental factors, such as customer support, staff support, and availability of healthy food ingredients, are aspects of the environment that may support or discourage participation in restaurant-based programs [81, 82].

F. Influences on Dietary Behavior

To examine dietary behaviors, evidence supports the use of SCT [7, 81, 83, 84]. According to SCT, individual factors (for example, personality characteristics, self-efficacy, knowledge,
beliefs, skills, attitudes, goals) and behavioral factors (for example, past behaviors) are related to one's intentions and are factors in predicting behaviors, and more specifically, food consumption patterns [29, 33, 79, 81, 85]. One study of restaurant-based interventions and customer attitudes found that increased positive attitudes towards healthy food items lead to a significant increase in the probability of purchasing healthy food items [57]. Further, research has shown that increasing access to healthy food can have a positive effect on self-efficacy - greater availability of healthy food options may increase individuals' confidence to choose them [86]. Self-efficacy and knowledge to make healthy food choices have been identified potential mediators of the relationship between the food environment and healthy eating [83, 86].

Environmental factors, such as social influences, social support, availability, and access, are aspects of the environment that can support or discourage engagement in certain behaviors, including dietary choices [81, 82]. Physical environments where individuals live, play, learn, and eat can affect access to and availability of certain foods [87, 88]. These environments can include physical space as well as the attitudes and behaviors that characterize the environments [89, 90]. Within social environments, friends, family, and peers can impact dietary behaviors [91]. This influence may arise through family eating patterns, peer pressure, social support, and role expectations. Healthy eating behaviors cannot be expected if the physical and social environments do not support these behaviors.

As a large portion of calories are consumed away from home, restaurant environments may have substantial influence on behavior. Restaurant managers/owners can influence the restaurant environment and have an impact on the promotion of, access to, and availability of healthy food options to their customers.
Understanding the environmental, individual, and behavioral factors that may interact to determine customer food choice in the presence of a restaurant-based program can be important when developing, implementing, and evaluating the impact of the program. Evidence suggests that theory-driven programs are more effective than those lacking a theoretical base [92]. While SCT is commonly used to explain behavior and promote change, few studies have examined SCT constructs in the context of restaurant-based programs and customer decision-making [16].

G. Gaps in the Literature and Opportunities

In general, there has been limited research on restaurant environments and restaurant eating behaviors and the links between the two [7, 21]. More environmental assessments are needed to measure and understand food environments, especially restaurants, and evaluate how changes in nutrition environments may impact dietary intake [20, 61, 62]. In reviews of restaurant-based interventions, the results have shown promise but demonstrated that many studies and programs were very short in duration and had small sample sizes, limiting their reliability and scope [16, 20, 57]. Further, restaurant-based interventions and programs have experienced difficulty in recruitment and program fidelity [20]. Limited research has focused on restaurant-related factors, specifically at the manager/owner level, that may influence program adoption, implementation, adherence and outcomes [20, 44, 57, 68, 77, 78]. In addition, few studies have examined SCT constructs in the context of restaurant-based programs and customer decision-making [16]. Finally, no studies have focused on evaluating restaurant-based programs in Louisiana, which has one of the highest prevalence rates of obesity in the U.S.

The evaluation of the Ochsner Healthcare System Eat Fit restaurant-based program initiative provided an opportunity to fill some of these gaps in the literature. This research aimed to determine the impact of a restaurant-based program and its ability to increase access to and
availability of healthy food options and examined factors that may influence program implementation and customer food choice in Louisiana restaurants.
III. Goal and Research Questions

A. Overall Goal

The overall goal of this research was to evaluate the impact of the Ochsner Healthcare System Eat Fit program in restaurants in New Orleans and Acadiana (Lafayette and Lake Charles), Louisiana, and to make recommendations to potentially improve future Eat Fit programming.

B. Study 1: Availability of and Access to Healthy Foods in Restaurants and Factors Related to Program Implementation and Adherence

Research Question 1:

Does the implementation of the Eat Fit program increase availability of and access to healthy foods in Eat Fit restaurants in the Acadiana (Lafayette and Lake Charles), Louisiana market?

Research Question 2:

What are factors that have the potential to influence restaurant managers/owners’ decision to implement the Eat Fit program in their restaurants in Lafayette and Lake Charles (Acadiana), Louisiana?

C. Study 2: Restaurant Manager and Owner Perceptions and Factors Related to Program Implementation and Adherence

Research Question 1:

Among restaurant managers/owners, what is the perceived impact of the Eat Fit program on restaurants in New Orleans, Louisiana?
Research Question 2:

Among restaurant managers/owners, what factors may be associated with implementation of and adherence to the Eat Fit program in New Orleans, Louisiana?

D. Study 3: Program Impact and Other Factors that Influence Customer Food Choice

Research Question 1:

To what extent does the Eat Fit program influence customer food choices in New Orleans, Louisiana?

Research Question 2:

What are individual, environmental, and behavioral factors among customers that may be associated with Eat Fit food item selection in New Orleans, Louisiana, restaurants?
IV. METHODS COMMON TO ALL STUDIES

A. Theoretical Framework

Social Cognitive Theory (SCT) emphasizes that behavior is the product of the interaction between individual, environmental, and behavioral factors. In these studies, SCT was applied to provide insight into factors that influence increased accessibility of healthy foods in restaurants as well as customer food choice. For restaurant customers, individual factors, such as demographic characteristics, self-efficacy to choose healthy items, beliefs and attitudes towards healthy dining in restaurants, perceptions of the food environment, and awareness of healthy food options may impact food choices in restaurants [29, 33, 79, 81, 85]. Factors in the physical environment, such as access to and availability of healthy options, and factors in social environments, such as social support, may influence choices and perceptions of those choices [81, 82]. Determining the environmental, individual, and behavioral factors that may interact to understand customer food choice in the presence of a restaurant-based healthy eating program can be important for program implementation and sustainability.

In these studies, components of SCT served as a guide for examining individual, environmental, and behavioral factors of restaurant managers/owners that may be associated with implementation of and adherence to restaurant-based programming. Restaurant managers/owners are often in charge of approving changes to menus and business operations, and their support is key to any restaurant-based effort. Individual factors, such as self-efficacy, knowledge, skills, attitudes, and beliefs around offering healthy foods and demographic characteristics, as well as environmental factors, such as social support from staff and customers, may influence their behaviors and their decisions to adopt, implement, and maintain the Eat Fit program.
B. Tulane University Prevention Research Center (PRC) Role

Blue Cross Blue Shield of Louisiana Foundation contracted with the PRC to conduct an evaluation of the functioning and effectiveness of the Eat Fit program in the New Orleans and Acadiana markets. PRC faculty and staff worked in collaboration with Eat Fit to complete the evaluation.

C. Institutional Review Board (IRB) Approval

This study was reviewed and approved by the Tulane University’s Social-Behavioral IRB for Protection of Human Subjects and declared exempt. Oral consent was approved and documented in databases for all parts of the study. No incentives were given to restaurant managers, owners, or customers for participation.

D. Data Management

Hard copies of data were stored in a locked office and locked file cabinet in the Tulane University PRC. Data from paper-based surveys and assessments were double-entered into a password protected database by Tulane student research assistants (RAs). These data were reconciled by RAs.

Interview data were collected on digital tablets using the Research Electronic Data Capture (REDCap) system, a secure, web-based application designed to support data capture for research studies [93]. Access to all data was limited to study personnel.

E. Statistical Analysis

Statistical analyses were performed in IBM SPSS Statistics for Windows (Version 26). Specific statistical procedures for each research question will be presented.
V. Study 1: Availability of and Access to Healthy Foods in Restaurants and Factors Related to Program Implementation and Adherence

A. Research Questions

*Research Question 1:*

Does the implementation of the Eat Fit program increase availability of and access to healthy foods in Eat Fit restaurants in the Lafayette and Lake Charles (Acadiana), Louisiana market?

*Research Question 2:*

What are factors that have the potential to influence restaurant managers/owners’ decision to implement the Eat Fit program in their restaurants in Lafayette and Lake Charles (Acadiana), Louisiana?

B. Design

This study used a mixed methods design, both pretest-posttest and cross-sectional, to examine the ability of the Eat Fit program in the Acadiana restaurant market to increase access to and availability of healthy food options, as well as to examine restaurant manager/owner-level characteristics that have the potential to influence program implementation. For research question one, pre-implementation and post-implementation data were collected via environmental assessments. The primary outcome was a score reflecting access to and availability of healthy food options. Secondary outcomes included presence of environmental elements that may promote healthy food choices. For research question two, cross-sectional data were gathered by surveying restaurant managers/owners prior to program implementation. The variables of interest were restaurant manager/owner beliefs, perceived staff knowledge/skills,
support, self-efficacy, outcome expectancies, and barriers and facilitators to implementation of Eat Fit programming.

C. Staffing and Training

As new restaurants joined the Eat Fit Acadiana program, Eat Fit staff residing in Lafayette, Louisiana collected pre-implementation data during the program on-boarding process. Tulane study staff trained Eat Fit Acadiana staff through an educational session and practice in the field. Tulane study staff traveled to the Acadiana region to conduct on-site restaurant visits and collect post-implementation data. If questions arose in the field, data collectors were trained to make notes, take pictures, and/or collect menus to ensure forms were correctly completed.

D. Recruitment

Following were the inclusion criteria for restaurants to participate in the study:

- located in Lafayette or Lake Charles (Acadiana), Louisiana
- offered a menu
- newly recruited Eat Fit partner

Following were criteria for restaurants to be excluded from this study:

- located in markets outside of the Acadiana region
- a kiosk or vending machines

All restaurants that fit the inclusion criteria were invited to participate in the study by Eat Fit staff during the Eat Fit program orientation process. During a site visit, Eat Fit Acadiana staff explained the study to the restaurant manager or owner and obtained oral consent for participation. Participants were provided with a copy of the consent script, and consent was documented in a database.
E. Measurement Instruments

Two measurement instruments were used in this study: a) manager/owner survey and b) pre- and post-implementation environmental assessments of the restaurant environment. Tulane staff pilot tested all instruments in the field prior to study data collection.

Manager/Owner Survey

This survey was developed using questions from previously published studies, with questions added by researchers at Tulane School of Public Health and Tropical Medicine [66, 71, 73, 75, 94]. The self-report, paper and pencil survey included questions pertaining to restaurant characteristics, manager/owner characteristics, healthy food related attitudes and beliefs, social support, self-efficacy, barriers, and motivators for program implementation (Appendix B).

Environmental Assessments

The environmental assessment was developed based on the Nutrition Environment Measures Survey – Restaurants (NEMS-R) [61]. The assessment focused on the following food indicators: healthy main dish choices, availability of fruits and vegetables, signage and promotions, facilitators and barriers to healthy eating, pricing, accessibility, and Eat Fit guideline adherence (post-implementation). Restaurant characteristics were also included in the assessment (Appendix C; Table 1.1).

F. Measurement Procedures

Baseline measurements, the manager/owner survey and the environmental assessment, were collected at the time of recruitment into the Eat Fit program. The manager or owner at each restaurant was asked to complete the manager/owner survey, and an Eat Fit staff member conducted the environmental assessment of the restaurant. At least six months after implementation, an Eat Fit staff member or Tulane study staff member made an unscheduled site
Table 1.1. Derivation of Eat Fit Acadiana Implementation/Adherence Score Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Question</th>
<th>Response Options/Coding Scheme</th>
<th>Composite Score</th>
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<tr>
<td>Availability of and access to healthy options</td>
<td>a. Pre-implementation: How many dishes have the potential to be Eat Fit dishes AS IS prior to restaurant onboarding?</td>
<td>1 dish = 1, 2-4 dishes = 2, 5+ dishes = 3</td>
<td>0-19</td>
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<td>b. Post-Implementation: How many healthy dishes (Eat Fit) were added at this restaurant?</td>
<td>1 dish = 1, 2-4 dishes = 2, 5+ dishes = 3</td>
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<td>c. Is nutrition information on menu?</td>
<td>Yes = 1, No = 0</td>
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<td>d. Are healthier dishes (not Eat Fit) identified on the menu?</td>
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<td>e. Are Eat Fit dishes identified on the menu?</td>
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<td>f. Are there menu notations that encourage healthy requests?</td>
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<td>g. Do exterior signs/displays highlight healthy menu items?</td>
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<td>h. Do exterior signs/displays encourage healthy eating?</td>
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<td>i. Is nutrition information posted near point-of-purchase or available in a brochure?</td>
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<td>j. Do interior signs/table tents/displays highlight healthy menu items?</td>
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<td>k. Do interior signs/table tents/displays encourage healthy eating?</td>
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<td>l. Are healthy options highlighted using bold, larger, or different fonts?</td>
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<td>m. Are healthy options highlighted using key “healthy” words?</td>
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<td>n. Are healthy options highlighted using health-related pictures, symbols, or logos?</td>
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<tr>
<td></td>
<td>o. Is nutritional information displayed in the outlet (not including menu)?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
A composite score based on the environmental assessment questions was calculated (Table 1.1). The number of healthy dishes added post-implementation was obtained by subtracting the number of healthy dishes available pre-implementation from the number of Eat Fit dishes added post-implementation. Data were also collected on restaurant characteristics. Frequencies and percentages were calculated for each variable. The original study protocol called for pre- and post-implementation data collection in 50 restaurants; however, the COVID-19 pandemic and slow program recruitment created circumstances under which all data collection could not be accomplished.

Research Question 2

What are factors that have the potential to influence restaurant managers/owners’ decision to implement the Eat Fit program in their restaurants in Lafayette and Lake Charles (Acadiana), Louisiana?

Manager/owner surveys collected prior to the implementation of the Eat Fit program were used as the data source. Questions focused on constructs of manager/owner beliefs, perceived staff knowledge/skills, support, self-efficacy, outcome expectancies, barriers, and facilitators. Table 1.2 provides a summary of variables and scoring.
Table 1.2. Derivation of Restaurant Manager/Owner Factor Variables

<table>
<thead>
<tr>
<th>Construct</th>
<th>Question</th>
<th>Response Option/ Value Assigned</th>
<th>Composite Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beliefs about offering healthy options in restaurants</td>
<td>It is my opinion that...&lt;br&gt;a. restaurants have the ability to influence eating behavior of customers.&lt;br&gt;b. restaurants have a responsibility to offer healthy food options to customers.&lt;br&gt;c. it is important that this restaurant offer healthy food options.&lt;br&gt;d. this restaurant can easily modify menu items to offer healthy food options.&lt;br&gt;e. It is worthwhile to reformulate or add menu items to create healthy food options.&lt;br&gt;f. there is a demand in my customer base for healthy food options.</td>
<td>Strongly Disagree=0 Disagree=0 Neutral=0 Agree=1 Strongly Agree=1</td>
<td>0-6</td>
</tr>
<tr>
<td>Perceived Staff Knowledge/Skills</td>
<td>I believe...&lt;br&gt;a. this restaurant’s staff has the knowledge to promote healthy food options.&lt;br&gt;b. this restaurant’s staff has the knowledge to cook healthy food options.&lt;br&gt;c. this restaurant’s staff has the skills to cook healthy food options.&lt;br&gt;d. this restaurant’s staff needs more training on nutrition.*</td>
<td></td>
<td>0-4</td>
</tr>
<tr>
<td>Support</td>
<td>I believe...&lt;br&gt;a. this restaurant’s staff supports promoting Eat Fit dishes.&lt;br&gt;b. this restaurant’s staff supports learning healthier cooking methods.&lt;br&gt;c. this restaurant’s staff will help me to implement the Eat Fit program.&lt;br&gt;d. this restaurant’s customer base will support offering Eat Fit dishes.</td>
<td></td>
<td>0-4</td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>I am confident...&lt;br&gt;a. in my ability to implement Eat Fit in this restaurant.&lt;br&gt;b. I can gain consensus of this restaurant’s staff in offering Eat Fit dishes.&lt;br&gt;c. I can help this restaurant’s staff to promote Eat Fit dishes.&lt;br&gt;d. I can help this restaurant’s staff to learn healthier cooking methods.</td>
<td></td>
<td>0-4</td>
</tr>
<tr>
<td>Outcome Expectancies</td>
<td>I believe...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------------</td>
<td>-------------</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td>a. implementing Eat Fit will be a burden for restaurant staff.*</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. Eat Fit will be successful in this restaurant.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>c. adding Eat Fit dishes will contribute to increased sales.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>d. my customers will choose Eat Fit dishes when offered.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>e. joining Eat Fit will enhance this restaurant’s reputation with customers.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>f. joining Eat Fit will be beneficial for this restaurant’s staff.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Barriers</th>
<th>What barriers are associated with offering healthy food options through Eat Fit?</th>
<th>Yes=1</th>
<th>No=0</th>
<th>0-8</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a. Staff nutrition knowledge</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. Customer preference</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>c. Staff skills/training</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>d. Operational challenges</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>e. Ingredient pricing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>f. Time</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>g. Ingredient availability</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>h. Other</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Facilitators</th>
<th>Why did this restaurant choose to get involved with Eat Fit?</th>
<th>Yes=1</th>
<th>No=0</th>
<th>0-9</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a. Entice customers looking for healthier food options</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. Opportunity to work with a registered dietician</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>c. Opportunity to analyze menu items for nutrition content</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>d. Opportunity to market restaurant through Eat Fit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>e. Inclusion in the Eat Fit mobile application</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>f. Increase sales of healthy food options</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>g. Desire to increase access to healthy food options for customers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>h. Belief that restaurants should offer healthy options</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>i. Other</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*reverse coded

For the constructs of beliefs, perceived staff knowledge/skills, support, self-efficacy, and outcome expectancies, a derived variable was created from a set of items with responses on a 5-point Likert scale ranging from Strongly Agree to Strongly Disagree (Table 1.2). Responses
were dichotomized into Agree (Strongly Agree/Agree = 1) and Neutral/Did Not Agree (Neutral/Disagree/Strongly Disagree = 0). Neutral was paired with disagree as the response choice reflected an absence of agreement. A summary score was created by adding all items. Reverse-coded questions were recoded to reflect the appropriate direction.

For beliefs and outcome expectancies, scores less than or equal to 3 were considered neutral/negative beliefs or expectancies and scores greater than 4 were positive. For perceived staff knowledge/skills, support, and self-efficacy, scores less than or equal to 2 were considered low and scores greater than 2 were considered high as done in previous research [94]. The variables of barriers and facilitators were created by summing the total number of items selected. Frequencies and percentages were calculated. Data were also collected and presented on restaurant characteristics (type of cuisine, management/ownership structure, size, patrons served) and manager/owner characteristics (age, gender, race/ethnicity, role, years in business, education).

H. Results

Environmental Assessments

Forty-two restaurants in the Acadiana market met the study inclusion criteria. Pre-implementation environmental assessments were collected in the 42 restaurants and post-implementation assessments were collected in 17. Only restaurants with both a pre- and post-implementation environmental assessment (n=17) were included in analysis. Restaurant characteristics are presented in Table 1.3.
Table 1.3. Eat Fit Acadiana Restaurant Characteristics from Environmental Assessments

(N=17)

<table>
<thead>
<tr>
<th>Type of Service</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Table Side Service</td>
<td>11 (64.71)</td>
</tr>
<tr>
<td>Fast Casual</td>
<td>3 (17.64)</td>
</tr>
<tr>
<td>Fast Food</td>
<td>1 (5.88)</td>
</tr>
<tr>
<td>Specialty</td>
<td>2 (11.76)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Price Range for Entrees</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Under $10</td>
<td>5 (29.41)</td>
</tr>
<tr>
<td>$11-15</td>
<td>7 (41.18)</td>
</tr>
<tr>
<td>$16-20</td>
<td>4 (23.53)</td>
</tr>
<tr>
<td>$21 and up</td>
<td>1 (5.88)</td>
</tr>
</tbody>
</table>

Of the 17 restaurants with pre- and post-implementation environmental assessment, the majority offered table side service (Table 1.3). Two restaurants were specialty restaurants (fermented food products and a juice bar with nutrition items). Price ranges for entrees varied from under $10 to over $21 with the majority offering entrees under $16 (n=12).

At the time of pre-implementation data collection, the median number of healthy dishes offered that met Eat Fit criteria was 3 [interquartile range (IQR): 0-8.5]. Five restaurants had no dishes that met the nutritional guidelines. Most restaurants (n=13) had dishes that could be modified (i.e., change the sauce, reduce salt) to meet nutritional criteria.

At follow-up, 15 (88.24%) restaurants identified Eat Fit items on their menus. Participation in the program led to a median of 8 (IQR: 4-15) total healthy food offerings, an increase of 5 items. Restaurants offered a median of 7 Eat Fit dishes (IQR: 1.5-12.5) at follow-up.

All restaurants with no healthy dishes that met Eat Fit criteria at pre-implementation had an increase in healthy food offerings. Three restaurants did not have an overall increase in
healthy offerings. Of note, these three restaurants had 14 to 30 dishes that met Eat Fit criteria at baseline. Two of these restaurants did not have any items labeled as Eat Fit items at follow-up.

In addition to changes in availability of healthy food options, changes in restaurant environmental elements that may impact access to, visibility of, or support for healthy food choices were observed. Results are presented in Table 1.4.
Table 1.4. Number of Restaurants with Environmental Elements that May Promote Healthy Food Choices Pre- and Post-Implementation of the Eat Fit Acadiana Program (N=17)

<table>
<thead>
<tr>
<th>Environmental Elements</th>
<th>Number of Restaurants n (%)</th>
<th>Pre-Implementation</th>
<th>Post-Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nutrition information on menu</td>
<td>2 (11.76%)</td>
<td>2 (11.76%)</td>
<td></td>
</tr>
<tr>
<td>Nutritional information displayed in the outlet (not including menu)</td>
<td>2 (11.76%)</td>
<td>3 (17.65%)</td>
<td></td>
</tr>
<tr>
<td>Nutrition information posted near point-of-purchase or available in a brochure</td>
<td>2 (11.76%)</td>
<td>3 (17.65%)</td>
<td></td>
</tr>
<tr>
<td>Healthier dishes (not Eat Fit) identified on menu</td>
<td>8 (47.06%)</td>
<td>5 (29.41%)</td>
<td></td>
</tr>
<tr>
<td>Eat Fit dishes identified on menu</td>
<td>0 (0%)</td>
<td>15 (88.24%)</td>
<td></td>
</tr>
<tr>
<td>Menu notations that encourage healthy requests</td>
<td>9 (52.94%)</td>
<td>8 (47.06%)</td>
<td></td>
</tr>
<tr>
<td>Healthy options highlighted using bold, larger, or different fonts</td>
<td>2 (11.76%)</td>
<td>4 (23.53%)</td>
<td></td>
</tr>
<tr>
<td>Healthy options highlighted using key “healthy” words</td>
<td>5 (29.41%)</td>
<td>6 (35.49%)</td>
<td></td>
</tr>
<tr>
<td>Healthy options highlighted using health-related pictures, symbols, or logos</td>
<td>3 (17.65%)</td>
<td>13 (76.47%)</td>
<td></td>
</tr>
<tr>
<td>Exterior signs/displays highlight healthy menu items</td>
<td>2 (11.76%)</td>
<td>0 (0%)</td>
<td></td>
</tr>
<tr>
<td>Exterior signs/displays encourage healthy eating</td>
<td>3 (17.65%)</td>
<td>0 (0%)</td>
<td></td>
</tr>
<tr>
<td>Interior signs/table tents/displays highlight healthy menu items</td>
<td>5 (29.41%)</td>
<td>5 (29.41%)</td>
<td></td>
</tr>
<tr>
<td>Interior signs/table tents/displays encourage healthy eating</td>
<td>2 (11.76%)</td>
<td>4 (23.53%)</td>
<td></td>
</tr>
</tbody>
</table>

At follow-up, there were increases over baseline in the number of restaurants offering nutritional information on food offerings and restaurants highlighting healthy options with changes in menu fonts, use of “healthy” language, and use of health-related pictures/logos (Table
Fewer restaurants at follow-up had menu notations that encouraged special requests; identified other healthier dishes (not Eat Fit) on their menus; and displayed exterior signs promoting healthy eating or healthy menu items from pre- to post-implementation.

Environmental assessment scores for availability and access to healthy food had a median of 4 (IQR: 2-7) points prior to program implementation and 7 (IQR: 6-8.5) at follow-up. Overall, there was increase of 3 points in median assessment scores from pre- to post-implementation, a 42.86% increase. Fifteen (88.24%) restaurants had higher scores at follow-up. Of the two that did not increase in score, one maintain its score and one decreased its score at baseline; both had not added Eat Fit food items to their menus.

Manager/Owner Survey

In the 42 eligible restaurants, 31 managers/owners agreed to participate in the manager/owner surveys. Manager/owner surveys were not collected in all restaurants due to refusal or nonresponse giving a 73.81% response rate. Manager/owner characteristics are presented in Table 1.5
Table 1.5. Eat Fit Acadiana Restaurant Manager/Owner Characteristics (N=31)

<table>
<thead>
<tr>
<th>Restaurant Position</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restaurant owner</td>
<td>14 (45.16)</td>
</tr>
<tr>
<td>Restaurant manager</td>
<td>16 (51.61)</td>
</tr>
<tr>
<td>Office administrator</td>
<td>1 (3.22)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gender</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>13 (41.94)</td>
</tr>
<tr>
<td>Female</td>
<td>18 (58.06)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>18-29</td>
<td>5 (16.13)</td>
</tr>
<tr>
<td>30-49</td>
<td>21 (67.74)</td>
</tr>
<tr>
<td>50-64</td>
<td>3 (9.68)</td>
</tr>
<tr>
<td>65 and older</td>
<td>2 (6.45)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>25 (80.65)</td>
</tr>
<tr>
<td>Hispanic or Latino</td>
<td>4 (12.90)</td>
</tr>
<tr>
<td>Black or African American</td>
<td>1 (3.22)</td>
</tr>
<tr>
<td>Northern Indian</td>
<td>1 (3.22)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Level of Education</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>HS or GED</td>
<td>4 (12.90)</td>
</tr>
<tr>
<td>Some college, no degree</td>
<td>13 (41.94)</td>
</tr>
<tr>
<td>Bachelor's degree</td>
<td>11 (35.48)</td>
</tr>
<tr>
<td>Postgrad</td>
<td>2 (6.45)</td>
</tr>
</tbody>
</table>

Most respondents were female, and the majority were under the age of 50 (n=26). The majority identified as white, and less than half of respondents stated they had a college degree. Most managers/owners did not have formal culinary training (n=25) but did have training focused on nutrition (n=16). The median of years employed in the restaurant business was 15.5 (IQR: 8.75-20.75).

Manager/Owner Survey - Restaurant Characteristics

The restaurants of participating managers/owners varied in type of service, price, cuisine, number of locations, and operations. Restaurant characteristics are presented in Table 1.6.
Table 1.6. Characteristics of Restaurants Participating in the Eat Fit Acadiana Program

Manager/Owner Survey (N=31)

<table>
<thead>
<tr>
<th>Type of Service</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tableside Service</td>
<td>11 (35.48)</td>
</tr>
<tr>
<td>Fast Casual</td>
<td>11 (35.48)</td>
</tr>
<tr>
<td>Fast Food</td>
<td>7 (22.58)</td>
</tr>
<tr>
<td>Specialty</td>
<td>2 (6.45)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Price Range for Entrees</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Under $10</td>
<td>16 (51.61)</td>
</tr>
<tr>
<td>$11-15</td>
<td>8 (25.81)</td>
</tr>
<tr>
<td>$16-20</td>
<td>6 (19.35)</td>
</tr>
<tr>
<td>$21 and up</td>
<td>1 (3.22)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type of Cuisine*</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>American</td>
<td>15</td>
</tr>
<tr>
<td>Cajun/Creole</td>
<td>15</td>
</tr>
<tr>
<td>Seafood</td>
<td>13</td>
</tr>
<tr>
<td>Deli/café</td>
<td>12</td>
</tr>
<tr>
<td>Breakfast/Brunch</td>
<td>10</td>
</tr>
<tr>
<td>Mexican/Tex Mex</td>
<td>6</td>
</tr>
<tr>
<td>Italian</td>
<td>3</td>
</tr>
<tr>
<td>Pizza</td>
<td>3</td>
</tr>
<tr>
<td>Asian</td>
<td>2</td>
</tr>
<tr>
<td>BBQ</td>
<td>1</td>
</tr>
<tr>
<td>Indian</td>
<td>1</td>
</tr>
<tr>
<td>Fermented food/drink</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Restaurant Ownership</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Family/Individually Owned</td>
<td>26 (83.87)</td>
</tr>
<tr>
<td>Corporate Owned</td>
<td>5 (16.13)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Restaurant Operations</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Family/Individually Managed</td>
<td>19 (61.29)</td>
</tr>
<tr>
<td>Corporate Managed</td>
<td>12 (38.71)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of Locations</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10 (32.36)</td>
</tr>
<tr>
<td>More than 1</td>
<td>21 (67.74)</td>
</tr>
</tbody>
</table>

*multiple types of cuisine could be selected*

Restaurants offered tableside service (n=11), 11 “fast casual” service (n=11), and fast food service (n=7). Two restaurants were specialty restaurants (fermented food products and a juice bar with nutrition items). Half of the restaurants offered entrees under $10. The most
common cuisines served were American (n=15), Cajun/Creole (n=15), seafood (n=13) and deli/cafe (n=12). Twenty-one of the restaurants had multiple locations. Most restaurants were family/individually owned (n=26) and operated (n=19).

Participating restaurants employed a median of 20 employees (IQR: 8-32) and had been in business 9.5 years (IQR: 2-19). Seating capacity was a median of 100 customers and ranged from 4 to 10,000 (IQR: 35-180), and restaurants served a median of 3000 customers per month (IQR: 1387-6726).

Manager/Owner Survey – Manager/Owner Perceptions

Overall, the majority of managers/owners held positive beliefs about offering healthy food items in restaurants (n=26, 83.87%). Most agreed that restaurants have the ability to influence eating behaviors (n=26, 83.87%) and thought restaurants have a responsibility to offer healthy food options (n=22, 70.97%). Managers/owners found it important to offer healthy food items in their own restaurants (n=28, 90.32%) and thought there was a demand in the customer base (n=21, 67.74%). Most believed it would be easy (n=24, 77.42%) and worthwhile (n=26, 83.87%) to modify current offerings or add healthy menu items.

Nineteen (61.29%) managers/owners had overall positive perceptions about their staff members’ knowledge and skills to offer healthy food options. The majority believed that their staff currently had the knowledge to promote (n=21, 67.74%), knowledge to cook (n=23, 74.19%), and skills to cook (n=24, 77.42%) healthy food options; however, more than half of managers/owners agreed that their restaurant’s staff needed more training on nutrition (n=17, 54.84%).

Most managers/owners perceived high levels of support to implement the Eat Fit program (n=25, 80.65%). Managers/owners reported their restaurant staff members supported
implementing the program (n=28, 90.32%), promoting Eat Fit dishes (n=25, 80.65%), and learning healthier cooking methods (n=23, 74.19%). The majority reported their customer base would support offering Eat Fit dishes (n=26, 83.87%).

Managers/owners were confident in their ability to implement the Eat Fit program in their restaurants, indicating high levels of self-efficacy (n=30, 96.77%). The majority were confident that they could gain consensus of their staff in offering Eat Fit dishes (n=26, 83.87%), help their staff promote dishes (n=29, 93.55%), and help their staff learn healthier cooking methods (n=28, 90.32%).

Overall, most managers/owners had positive outcome expectancies for the implementation of the Eat Fit program and its impact (n=20, 65.53%). Twenty-five (80.65%) agreed that Eat Fit would be successful in their restaurant and 26 (83.87%) thought joining the program would enhance the restaurant’s reputation with customers. A slight majority of managers/owners expected their customers to choose Eat Fit dishes when offered (n=16, 51.61%) and agreed that joining Eat Fit would be beneficial for restaurant staff (n=17, 54.84%). Most did not agree that adding Eat Fit dishes would contribute to increased sales (n=18, 58.06%). Only one manager/owner reported that implementing Eat Fit would be a burden for restaurant staff.

Fourteen (45.16%) managers/owners reported the median of one anticipated barrier to offering healthy food options through Eat Fit (IQR: 1-3). Managers/owners selected a median of 5 facilitators or reasons for getting involved with Eat Fit (IQR: 3-6). Anticipated barriers and facilitators are detailed in Table 1.7.
Table 1.7. Restaurant Manager/Owner Anticipated Barriers and Facilitators for Eat Fit Acadiana Program Implementation (N=31)

<table>
<thead>
<tr>
<th>Barriers associated with offering healthy food options through Eat Fit</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer preference</td>
<td>15 (48.39)</td>
</tr>
<tr>
<td>Operational challenges (equipment, storage)</td>
<td>10 (32.36)</td>
</tr>
<tr>
<td>Ingredient availability</td>
<td>10 (32.36)</td>
</tr>
<tr>
<td>Staff nutrition knowledge</td>
<td>8 (25.81)</td>
</tr>
<tr>
<td>Staff skills/training</td>
<td>6 (19.35)</td>
</tr>
<tr>
<td>Time</td>
<td>6 (19.35)</td>
</tr>
<tr>
<td>Ingredient pricing</td>
<td>4 (12.90)</td>
</tr>
</tbody>
</table>

Reasons for involvement with Eat Fit

<table>
<thead>
<tr>
<th>Reasons for involvement with Eat Fit</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opportunity to market restaurant through Eat Fit</td>
<td>23 (74.19)</td>
</tr>
<tr>
<td>Desire to increase access to healthy food options for customers</td>
<td>23 (74.19)</td>
</tr>
<tr>
<td>Believe restaurants should offer healthy options</td>
<td>23 (74.19)</td>
</tr>
<tr>
<td>Entice customers looking for healthier food options</td>
<td>21 (67.74)</td>
</tr>
<tr>
<td>Opportunity to analyze menu items for nutrition content</td>
<td>14 (45.16)</td>
</tr>
<tr>
<td>Inclusion in the Eat Fit mobile application</td>
<td>14 (45.16)</td>
</tr>
<tr>
<td>Increase sales of healthy food options</td>
<td>12 (38.71)</td>
</tr>
<tr>
<td>Opportunity to work with a registered dietician</td>
<td>11 (35.48)</td>
</tr>
</tbody>
</table>

The most cited barriers were customer preference, operational challenges, ingredient availability, and staff knowledge (Table 1.7). The most common facilitators were opportunities to market their restaurant through Eat Fit, desire to increase access to healthy food options, belief that restaurants should offer healthy food options, and entice customers looking for healthier food options.

I. Discussion

Due to slow restaurant recruitment into the Eat Fit program and the subsequent business closures due to the COVID-19 pandemic, follow-up data in many restaurants were not collected as intended. While a larger sample size was needed to determine if differences between pre- and post-program implementation were significant, data suggest a trend towards increased access to and availability of healthy food options in restaurants in Acadiana associated with implementation of the Eat Fit program. In most restaurants, increases both in the actual number
of healthy dishes and the visibility of healthy dishes through menu logos or font changes were observed between pre- and post-implementation. Restaurant-based programs that increase availability of health food options and access by identifying and promoting menu items that meet a set nutritional criterion may hold promise for improving customer food choices and diet [16, 54-60].

All but two restaurants offered Eat Fit healthy menu items and identified Eat Fit dishes on their menus per program guidelines. As the participating restaurants represented a wide range of types (table-side service, fast casual, fast food, and specialty), various price ranges, and many types of cuisines, results indicated this type of programming can be implemented with fidelity and is feasible in diverse restaurant settings.

In the three restaurants that did not see increases in healthy food options, one restaurant had many dishes that met Eat Fit nutrition guidelines prior to program implementation and labeled pre-existing dishes as Eat Fit, netting no increases in healthy options as a result of joining the program. Another restaurant changed ownership between baseline and follow-up, and new management was unaware of the program. The third restaurant had a “fit” healthy menu of their own brand prior to participation in Eat Fit, and the manager commented on a delay from their corporate offices in the menu change approval process. To increase program implementation and fidelity, restaurant-based programs like Eat Fit may consider frequent check-in visits to improve communication; help facilitate approval processes; monitor changes in management or ownership; and address any other implementation issues as they arise.

After program implementation, a few restaurants improved the nutrition environment beyond program requirements by posting nutrition information and highlighting healthy options with bold/larger/different fonts. This finding, along with other research, indicated that participation in
restaurant-based programming may encourage some restaurants to implement additional positive changes and healthy food promotion [95]. A couple of restaurants had fewer menu notations that encouraged special requests, fewer other healthier dishes (not Eat Fit) identified on their menus, and less exterior signage promoting healthy eating from pre- to post-implementation. The addition of Eat Fit items may have replaced and led to removal of other menu notations, healthy dishes, or displays.

As restaurant manager/owner buy-in is key to program recruitment and implementation of menu changes, understanding their beliefs and perceptions related to healthy food offerings and restaurant-based program participation is important [96]. At the time of recruitment, most managers/owners held positive beliefs about the importance of offering healthy food items and their ability to influence customer eating behaviors. Consistent with other research, the majority of managers/owners in this study were motivated to join the Eat Fit program by a desire to increase access to healthy foods, belief they should offer healthy foods, and a desire to entice customers looking for healthy options [58, 66, 73, 74]. Most managers/owners agreed they have a responsibility to offer healthy items, believed it would enhance their reputation, and were motivated by the opportunity to market their restaurant and healthy offerings through the Eat Fit program. Other research findings have also shown that restaurants want to be seen as providing healthy options and desire to be socially responsible [68-70, 75, 76]. Based on these findings, restaurant-based program recruitment efforts and materials may focus on the role restaurants can play in promoting health and preventing obesity, benefits of offering and marketing healthy food items, and the idea of social responsibility and societal value.

While most respondents felt they should offer healthy food options, there was a mix of opinions on how customers would respond to offerings. Most managers/owners reported their
customer base would support offering Eat Fit dishes, but only half expected their customers would choose these dishes, and less than half thought adding Eat Fit dishes would contribute to increased sales. Even as one of the most cited motivators for joining the program was enticing new customers with healthy options, almost half listed customer preference as a barrier to offering healthy food. Other research has found this same juxtaposition with perceived customer reaction serving as both a facilitator and barrier [97]. Despite the barriers and mixed outcome expectancies for customer uptake, restaurant owners/managers in this study were still interested in joining the program, and most followed through on implementation.

Ultimately, program sustainability may be dependent on sales and customer demand [58, 65-68]. Within the Eat Fit program and similar programs, program staff can ensure restaurants follow program guidelines for promotion of healthy food items and that these items are visible and accessible for all customers. Also, there may be opportunities to enhance customer-targeted marketing and educational efforts, such as increased public and in-restaurant education and mobile app marketing, to positively influence healthy food choices and increase demand and sales [73, 97, 98].

In general, self-efficacy to implement the Eat Fit program was high among managers/owners. Respondents were confident in their ability to fully implement the program and felt restaurant staff supported participation. Self-efficacy and social support have been identified as important factors in the decision to adopt programs to promote healthy eating [80].

Similar to findings in past research, most managers/owners believed their restaurant’s staff did need more training on nutrition [65, 66, 68, 71, 72, 97]. One quarter of managers/owners listed staff knowledge as a barrier to implementation. As research has found that food preparation staff can improve or reduce nutritional quality of food offerings, even in settings
with nutritional oversight and guidelines in place, including restaurant staff in training and educational efforts to improve staff knowledge and gaining staff buy-in may be important for program implementation and fidelity [99]. Future programming efforts may consider adding an educational component for restaurant staff.

In line with prior research, managers/owners listed operational challenges, such as food storage, and ingredient availability as barriers to offering healthy food items through the Eat Fit program [65, 66, 68, 71, 72]. Targeted technical assistance with restaurant managers/owners or peer-to-peer mentorship, in which restaurant staff can exchange tips, may reduce barriers to program implementation and sustainability [68]. Eat Fit may consider increasing their technical assistance and outreach and connecting newer partners with more experienced partners to discuss any challenges.

Overall, this research contributed to knowledge about restaurant environments, manager/owner beliefs and perceptions and how programming to improve the nutrition environment can be implemented [20, 61, 62]. In most restaurants, the Eat Fit program helped to increase access to and availability of healthy food items and, in some, gave customers the option of healthier food choices where none may have previously existed. Findings suggested that programs like Eat Fit can recruit for and implement healthy eating programs in diverse restaurant settings. In the future, restaurant recruitment marketing efforts may include messages related to the societal value of offering healthy foods to their customers. To help restaurants adopt and adhere to program guidelines, program staff may consider more check-in visits with restaurants, increased restaurant staff education, and potential peer-to-peer or technical assistance to address barriers. Finally, program sustainability in restaurants may call for enhanced customer-targeted marketing and education to encourage the selection and sale of healthy food options.
Strengths and Limitations

The findings gathered in this study provided insight into factors that may impact program recruitment, implementation, and sustainability and may be able to help guide future decisions for program success. A strength of this research was the diversity of restaurants included. Much prior research has been homogenous in the types of restaurants included in studies so results may not be easily applied to other settings. Further, few studies have examined restaurant manager/owner perceptions of restaurant-based programming.

As previously explained, slow initial recruitment and business closures due to the COVID-19 pandemic disrupted collection of follow-up data as intended and limited the sample size. Social desirability bias and the Hawthorne effect may have influenced results. As restaurants self-selected for participation in the Eat Fit program, differences may have existed between restaurants that chose to participate in the Eat Fit program and the study compared to those that did not, creating a selection bias in findings. Restaurant managers/owners that chose to join Eat Fit may have been more supportive of offering healthy items in restaurants and more likely implement the program with fidelity. Future studies may consider using a pre-post-controlled design and surveying managers/owners who choose not to participate in Eat Fit to reduce biases that were present in this study.
VI. Study 2: Restaurant Manager and Owner Perceptions and Factors Related to Program Implementation and Adherence

A. Research Questions

Research Question 1:
Among restaurant managers/owners, what is the perceived impact of the Eat Fit program on restaurants in New Orleans, Louisiana?

Research Question 2:
Among restaurant managers/owners, what factors may be associated with implementation of and adherence to the Eat Fit program in New Orleans, Louisiana?

Hypothesis:
Positive beliefs towards healthy food options, perceived social support, perceived staff knowledge and skills, higher self-efficacy, more perceived facilitators, and fewer perceived barriers among restaurant managers/owners will be positively associated with greater implementation of and adherence to the Eat Fit program guidelines in New Orleans, Louisiana.

B. Design

This study used a cross-sectional design with Eat Fit restaurants in New Orleans, Louisiana. All restaurants recruited for study participation were Eat Fit program partners. Data were collected via manager/owner surveys and environmental assessments in the Eat Fit restaurants.

For research question one, items from the manager/owner surveys were used to assess and describe perceived restaurant impact. For research question two, the primary outcome variable was the implementation/adherence score based on the environmental assessment. Independent
variables of interest from the manager/owner surveys included manager/owner beliefs, perceived
staff knowledge/skills, self-efficacy, facilitators, and barriers.

C. Staffing and Training

This study involved staff from the Eat Fit program and Tulane University. Eat Fit staff
provided lists of partners and initiated contact with restaurant manager/owners to introduce the
study. Tulane staff and student research assistants (RAs) followed up and collected all data
during restaurant site visits.

RAs were trained by Tulane staff in data collection procedures through classroom and field
training. If questions arose in the field, data collectors were trained to take notes, take pictures,
and/or collect menus to make sure forms were accurate.

D. Recruitment

In the fall of 2018, Eat Fit program staff compiled a list of all restaurants currently
participating in the Eat Fit program. From this list, names of restaurants eligible for this study
were extracted for recruitment. Following were inclusion criteria for restaurants:

- located in New Orleans, Louisiana
- offered a menu and had dedicated eating space
- participated in the Eat Fit program for at least 6 months
- served food as a primary function
- served lunch and/or dinner
- open to the public with no limitations on access (example: no sports arenas,
  airport restaurants)
Following were exclusion criteria for restaurants:

- located outside of the New Orleans area
- a business that did not primarily serve food (example: coffee shop or bar)
- a cafeteria or a food court outlet
- limited public access (example: sport arena, airport restaurant)

If a restaurant had multiple locations, only one randomly selected location was eligible for inclusion in the study.

Eat Fit restaurant managers/owners were initially contacted by Eat Fit staff through email. The email introduced the study and Tulane staff followed-up with an email or phone call to further explain the study, answer questions, and schedule restaurant site visits. No incentives were offered to restaurants personnel for recruitment or participation.

E. Measurement Instruments

Two measurement instruments were used to collect data: 1) manager/owner survey and 2) environmental assessments of the restaurant environment. Tulane study personnel pilot tested both instruments in restaurants prior to data collection.

Manager/Owner Survey

The manager/owner survey was developed using questions from previously published studies, with additional questions provided by researchers at Tulane School of Public Health and Tropical Medicine [66, 71, 73, 75, 94]. This self-report, paper-based survey included questions pertaining to restaurant characteristics, manager/owner characteristics, healthy food related attitudes and beliefs; social support; self-efficacy; barriers and facilitators to program implementation; and perceptions of Eat Fit program impact on the restaurant, staff, and customers (Appendix D).
Environmental Assessment

The environmental assessment was developed based on the Nutrition Environment Measures Survey – Restaurants (NEMS-R) [61]. The assessment focused on the following indicators: healthy dish choices, availability of fruits and vegetables, signage and promotions, facilitators and barriers to healthy eating, pricing, accessibility, and Eat Fit guideline adherence (Appendix C).

F. Measurement Procedures

As a cross-sectional design was used in this study, all measurements were implemented at one time point for each restaurant. During restaurant site visits by Tulane RAs, the manager or owner at each restaurant was asked to complete the manager/owner survey at their convenience after reading a consent script and providing oral consent. If the survey was not completed at the time of consent, Tulane RAs returned to the restaurant to collect it later. Tulane RAs conducted the environmental assessment of the restaurant during the initial site visit. Environmental assessments were manually inspected for accuracy after fieldwork.

G. Statistical Analysis

Statistical analyses were performed in IBM SPSS Statistics for Windows (Version 26). The following section outlines statistical procedures for each research question.

Research Question 1

Among restaurant managers/owners, what is the perceived impact of the Eat Fit program on restaurants in New Orleans, Louisiana?
Manager/owner surveys were the data source. This question was answered using descriptive statistics. Frequencies and percentages were calculated for each variable described below (Table 2.1).

Table 2.1. Derivation of Restaurant Manager/Owner Perceived Impact of the Eat Fit New Orleans Program Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Question</th>
<th>Response Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Impact (restaurant impact)</td>
<td>Eat Fit has had a positive impact on this restaurant.</td>
<td>Strongly Disagree</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Disagree</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Neutral</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Agree</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>Burden (restaurant impact)</td>
<td>Implementing Eat Fit has been a burden for restaurant staff. *</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reputation (restaurant impact)</td>
<td>Joining Eat Fit has enhanced this restaurant’s reputation with customers.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Customers (restaurant impact)</td>
<td>Eat Fit program has drawn new customers to my restaurant.</td>
<td></td>
</tr>
<tr>
<td>Sales (restaurant impact)</td>
<td>Adding Eat Fit food options has contributed to increased sales.</td>
<td></td>
</tr>
<tr>
<td>Nutrition Awareness (restaurant impact)</td>
<td>This restaurant’s staff is more aware of nutrition as a result of participation in Eat Fit.</td>
<td></td>
</tr>
<tr>
<td>Nutrition Awareness (customer impact)</td>
<td>Customers are more aware of nutrition as a result of our participation in Eat Fit.</td>
<td></td>
</tr>
<tr>
<td>Customer reception (customer impact)</td>
<td>Eat Fit has not been well received by customers. *</td>
<td></td>
</tr>
<tr>
<td>Customer health (customer impact)</td>
<td>Eat Fit helps customers make healthier food choices.</td>
<td></td>
</tr>
<tr>
<td>Access (customer impact)</td>
<td>Participation in Eat Fit has increased access to healthy food options for customers.</td>
<td></td>
</tr>
<tr>
<td>Satisfaction (customer impact)</td>
<td>Offering Eat Fit items has led to higher customer satisfaction</td>
<td></td>
</tr>
</tbody>
</table>

*reverse coded

Research Question 2

Among restaurant managers/owners, what factors may be associated with implementation of and adherence to the Eat Fit program in New Orleans, Louisiana?
Both the environmental assessment and the manager/owner survey were used as data sources. The outcome variable for analysis was the implementation/adherence score (continuous) based on the environmental assessment. Independent variables focused on manager/owner beliefs, perceived staff knowledge/skills, self-efficacy, facilitators, and barriers. A derived variable was developed from a summary score of items for each construct (Table 2.2).

**Table 2.2. Derivation of Manager/Owner Constructs and Implementation/Adherence Score Variables**

<table>
<thead>
<tr>
<th>Construct</th>
<th>Question</th>
<th>Response Option/Value Assigned</th>
<th>Total Range of Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implementation/Adherence Score</td>
<td>a. Are Eat Fit dishes identified on the menu?</td>
<td>No = 0</td>
<td>0-8</td>
</tr>
<tr>
<td></td>
<td>b. Are Eat Fit dishes identified with appropriate Eat Fit seals?</td>
<td>Yes = 1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>c. Is proper Eat Fit verbiage visible on menu with call to action to visit website or download Eat Fit app?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>d. Are Eat Fit stickers displayed in the windows?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>e. How many Eat Fit dishes are offered in this restaurant?</td>
<td>1 dish = 1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2-4 dishes = 2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5+ dishes = 3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>f. Are there any other Eat Fit promotion materials present in restaurant (not captured above)?</td>
<td>No = 0</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Additional material = 1</td>
<td></td>
</tr>
<tr>
<td>Beliefs</td>
<td>It is my opinion that...</td>
<td></td>
<td>0-5</td>
</tr>
<tr>
<td></td>
<td>a. restaurants have the ability to influence eating behavior of customers.</td>
<td>Strongly Disagree = 0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. restaurants do not have a responsibility to offer healthy food options.*</td>
<td>Disagree = 0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>c. it is important that this restaurant offer healthy food options</td>
<td>Neutral = 0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>d. there is not a demand among this restaurant’s customers for healthy food options*</td>
<td>Agree = 1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>e. availability of healthy menu options is important to my customers.</td>
<td>Strongly Agree = 1</td>
<td></td>
</tr>
<tr>
<td><strong>Self-Efficacy</strong></td>
<td>How confident are you that you can....</td>
<td>0-4</td>
<td></td>
</tr>
<tr>
<td>------------------</td>
<td>---------------------------------------</td>
<td>-----</td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. Implement the Eat Fit program in this restaurant?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. help this restaurant’s staff to support the Eat Fit program?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>c. help this restaurant’s staff to promote the Eat Fit program?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>d. help this restaurant’s staff to learn about healthier food preparation methods?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Perceived Staff Knowledge/ Skills</strong></th>
<th>It is my opinion that this restaurant’s staff.....</th>
<th>0-5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a. has the knowledge to promote healthy food items.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. does not have the knowledge to prepare healthy food items.*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>c. needs more training on nutrition.*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>d. has the skills to prepare healthy food items.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>e. can easily modify menu items to offer healthy food options</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Barriers</strong></th>
<th>What barriers have been associated with offering healthy food options through Eat Fit?</th>
<th>Every barrier = 1</th>
<th>0-11</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a. Lack of profitability and sales</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. Insufficient staff nutrition knowledge</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>c. Low customer demand</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>d. Lack of staff skills/training</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>e. Difficulty with menu changes</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>f. Food storage challenges</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>g. Inconsistent ingredient availability and quality</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>h. Spoilage or short shelf life of healthier foods</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>i. Cost of ingredients</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>j. Additional food preparation time</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>k. Other</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Facilitators</strong></th>
<th>What has helped you to implement Eat Fit in this restaurant?</th>
<th>Every facilitator = 1</th>
<th>0-8</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a. Staff support</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. Owner support</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>c. Customer support</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>d. Eat Fit staff support</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>e. Eat Fit staff education</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>f. Ease of program implementation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>g. Ease of adding or modifying menu options</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>h. Other</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*reverse coded
The scoring system for the outcome variable of implementation/adherence score was modeled after the NEM-R Scoring System Dimensions [61]. Adherence was defined by the presence of identified Eat Fit items using proper seals, program language, and promotion. Level of implementation was defined by the number of Eat Fit food items available in the restaurant. Values were assigned to each item and summed to create the implementation/adherence score variable (Table 2.2). Implementation/adherence scores ranged from 0-8.

For each construct (beliefs, perceived staff knowledge/skills, and self-efficacy), a composite variable was created from a set of items with responses on a 5-point Likert scale, ranging from Strongly Agree to Strongly Disagree. Responses were dichotomized into positive beliefs or perceptions (Strongly Agree/Agree = 1) versus Neutral/Negative beliefs or perceptions (Neutral/Disagree/Strongly Disagree = 0). Neutral was paired with disagree as the response choice reflected an absence of agreement. Some questions were reverse coded to reflect the appropriate direction. A summary score was created by adding all items. For beliefs and perceived staff knowledge/skills, scores that were less than or equal to 3 were considered neutral/negative beliefs or perceptions and scores greater than 4 were positive. Self-efficacy scores that were less than or equal to 2 were considered low self-efficacy, and scores greater than 2 were considered high self-efficacy. The variables of facilitators and barriers were created by summing the total number of items selected.

Data were also collected on restaurant characteristics (type of restaurant, type of cuisine, management/ownership structure, size, patrons served) and manager/owner characteristics (age, gender, race/ethnicity, role, years in business, education). Frequencies and percentages were calculated for each variable. Managers/owners were also given the opportunity to provide comments. Comments with relevancy to the research question were included in the results.
Correlations between adherence and independent variables were examined in bivariate analyses. Variables with p-value < 0.05 were considered as variables associated with implementation of and adherence to Eat Fit.

H. Results

Eat Fit staff provided a list of 79 partner restaurants that met inclusion criteria for the study (Figure 2.1). Environmental assessments were collected in 45 restaurants. In the 45 restaurants, 36 managers/owners agreed to participate in the manager/owner surveys. Manager/owner surveys were not collected in nine of the partner restaurants due to refusal. The environmental assessment data collected from those nine restaurants were excluded from further analysis.

Figure 2.1. Eat Fit Restaurant Study Participation Chart

- 79 eligible restaurants
- 20 with multiple locations
- 59 restaurants
- 6 no longer Eat Fit partners
- 4 permanently closed
- 4 refused any participation
- 45 restaurants
- Environmental assessments collected
- 9 declined participation in manager/owner surveys
- 36 restaurants
- Manager/owner surveys and environmental assessments collected
Restaurant Characteristics

The restaurants of participating managers/owners varied in number of employees, years in business, size, number of patrons served, type of cuisine, and operations (Table 2.3).

Table 2.3. Characteristics of Eat Fit New Orleans Restaurants (N=36)

<table>
<thead>
<tr>
<th>Type of Service</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table Side Service</td>
<td>16 (44.44)</td>
</tr>
<tr>
<td>Fast Casual</td>
<td>18 (50.00)</td>
</tr>
<tr>
<td>Fast Food</td>
<td>2 (5.67)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Price Range for Entrees</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under $10</td>
<td>13 (36.11)</td>
</tr>
<tr>
<td>$11-15</td>
<td>20 (55.56)</td>
</tr>
<tr>
<td>$16-20</td>
<td>3 (8.33)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type of Cuisine*</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>American</td>
<td>13</td>
</tr>
<tr>
<td>Cajun/Creole</td>
<td>12</td>
</tr>
<tr>
<td>Breakfast/Brunch</td>
<td>11</td>
</tr>
<tr>
<td>Deli/café</td>
<td>11</td>
</tr>
<tr>
<td>BBQ</td>
<td>2</td>
</tr>
<tr>
<td>Seafood</td>
<td>7</td>
</tr>
<tr>
<td>Italian</td>
<td>5</td>
</tr>
<tr>
<td>Mexican/Tex Mex</td>
<td>4</td>
</tr>
<tr>
<td>Asian</td>
<td>6</td>
</tr>
<tr>
<td>Pizza</td>
<td>4</td>
</tr>
<tr>
<td>Mediterranean</td>
<td>4</td>
</tr>
<tr>
<td>French</td>
<td>2</td>
</tr>
<tr>
<td>Jamaican</td>
<td>1</td>
</tr>
<tr>
<td>Latin American</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Restaurant Ownership</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family/Individually Owned</td>
<td>30 (83.33)</td>
</tr>
<tr>
<td>Corporate Owned</td>
<td>5 (13.89)</td>
</tr>
<tr>
<td>Non-Profit</td>
<td>1 (2.78)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Restaurant Operations</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family/Individually Managed</td>
<td>30 (83.33)</td>
</tr>
<tr>
<td>Corporate Managed</td>
<td>6 (16.67)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of Locations</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>22 (61.11)</td>
</tr>
<tr>
<td>2</td>
<td>6 (16.67)</td>
</tr>
<tr>
<td>3 or more</td>
<td>8 (22.22)</td>
</tr>
</tbody>
</table>

*multiple types of cuisine could be selected
Of the 36 restaurants, half were classified as fast casual restaurants, 16 offered table side service, and 2 were fast food restaurants (Table 2.4). The most common types of cuisines offered were American (n=13), Cajun/Creole (n=12), breakfast/brunch (n=11), and deli/café (n=11). Fourteen of the restaurants had multiple locations, ranging from 2 to 9 additional locations. Most restaurants were family/individually owned and operated.

On average, the restaurants employed a median of 18 employees (IQR: 10-35) and had been in business a median of 9 years (IQR: 3-22). Seating capacity median was 75 (IQR: 46-112), and restaurants served a median of 2,000 customers per month (IQR: 1,200-5,000).

**Restaurant Manager/Owner Characteristics**

Of the 36 survey respondents, half were restaurant owners, and half were managers. Table 2.4 provides information on manager/owner characteristics.

**Table 2.4. Eat Fit New Orleans Manager/Owner Demographic Characteristics (N=36)**

<table>
<thead>
<tr>
<th>Age</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-29</td>
<td>6 (16.67)</td>
</tr>
<tr>
<td>30-39</td>
<td>15 (41.67)</td>
</tr>
<tr>
<td>40-49</td>
<td>4 (11.11)</td>
</tr>
<tr>
<td>50-59</td>
<td>9 (25.0)</td>
</tr>
<tr>
<td>60 and older</td>
<td>2 (5.56)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gender</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>21 (58.33)</td>
</tr>
<tr>
<td>Female</td>
<td>15 (41.67)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>24 (66.67)</td>
</tr>
<tr>
<td>Black or African American</td>
<td>5 (13.89)</td>
</tr>
<tr>
<td>Hispanic non-Black</td>
<td>2 (5.56)</td>
</tr>
<tr>
<td>Native American/American Indian</td>
<td>2 (5.56)</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>1 (2.78)</td>
</tr>
<tr>
<td>Prefer not to answer</td>
<td>2 (5.56)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Level of Education</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HS or GED</td>
<td>3 (8.33)</td>
</tr>
<tr>
<td>Some college, no degree</td>
<td>9 (25)</td>
</tr>
<tr>
<td>Bachelor's degree</td>
<td>20 (55.55)</td>
</tr>
<tr>
<td>Postgraduate degree</td>
<td>3 (8.33)</td>
</tr>
</tbody>
</table>
Most managers/owners identified as male and white. Over half of respondents were under the age of 40. The majority of respondents had a bachelor’s degree or higher but did not have formal culinary training (n=23, 63.89%) or formal training focused on nutrition (n=24, 66.67%). Six (16.67%) respondents reported they had training in nutrition. The average years in the restaurant business was 15 years (IQR: 8-24), and average length of time employed in the current restaurant was 5 years (IQR: 3-10).

Restaurant Manager/Owner Perceptions

Restaurant manager/owner perceived impact of the Eat Fit New Orleans Program on their restaurant and their customers was mostly positive as detailed in Table 2.5.
Table 2.5. Restaurant Manager/Owner Perceived Impact of the Eat Fit New Orleans Program on Their Restaurant and Customers (N=36)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Item</th>
<th>Agree or Strongly Agree n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Impact</td>
<td>Eat Fit has had a positive impact on this restaurant.</td>
<td>29 (80.56)</td>
</tr>
<tr>
<td>Reputation</td>
<td>Joining Eat Fit has enhanced this restaurant’s reputation with customers.</td>
<td>24 (66.67)</td>
</tr>
<tr>
<td>Nutrition</td>
<td>This restaurant’s staff is more aware of nutrition as a result of participation in Eat Fit.</td>
<td>19 (52.78)</td>
</tr>
<tr>
<td>Awareness</td>
<td>Implementing Eat Fit has been a burden for restaurant staff.</td>
<td>1 (2.78)</td>
</tr>
<tr>
<td>New Business</td>
<td>Eat Fit program has not drawn new customers to my restaurant.</td>
<td>8 (22.22)</td>
</tr>
<tr>
<td>Sales</td>
<td>Adding Eat Fit food options has contributed to increased sales.</td>
<td>15 (41.67)</td>
</tr>
<tr>
<td>Nutrition</td>
<td>Customers are more aware of nutrition as a result of our participation in Eat Fit.</td>
<td>22 (61.11)</td>
</tr>
<tr>
<td>Awareness</td>
<td>Eat Fit has not been well received by customers.</td>
<td>3 (8.33)</td>
</tr>
<tr>
<td>Customer</td>
<td>Eat Fit helps customers make healthier food choices.</td>
<td>32 (88.89)</td>
</tr>
<tr>
<td>Reception</td>
<td>Participation in Eat Fit has increased access to healthy food options for customers.</td>
<td>29 (80.56)</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>Offering Eat Fit items has led to higher customer satisfaction.</td>
<td>16 (44.44)</td>
</tr>
<tr>
<td>Customer</td>
<td>My customers appreciate having Eat Fit food options.</td>
<td>30 (83.33)</td>
</tr>
<tr>
<td>Appreciation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Most restaurant managers/owners reported that Eat Fit had a positive overall impact on their restaurant (n=29). Most managers/owners agreed or strongly agreed that the Eat Fit program enhanced restaurant reputation with customers (n = 24) and increased restaurant staff awareness of nutrition (n =19). Only one participant thought implementation of Eat Fit was a
burden for restaurant staff. Fifteen of the 36 agreed or strongly agreed that Eat Fit food options contributed to increased sales.

Managers/owners had mixed perceptions on whether the Eat Fit program brought new customers into their restaurants. Eight thought the program did not bring in new customers, 13 thought it did, and 15 were neutral. When asked about perceptions of program impact on the customer, most managers/owners agreed or strongly agreed that customer awareness of nutrition increased as a result of restaurant participation in Eat Fit (n=22) and the program helped customers make healthier food choices (n=32).

The majority of managers/owners held positive beliefs toward offering healthy food items in restaurants (n=27, 75.00%), positive perceptions of staff knowledge/skills to offer healthy food items (n=19, 52.78%), and high self-efficacy for their ability to offer healthy food items in their restaurants (n=34, 94.44%). Managers/owners identified a variety of barriers and facilitators to program implementation (Table 2.6).
Table 2.6. Barriers and Facilitators to Eat Fit New Orleans Program Implementation
(N=36)

<table>
<thead>
<tr>
<th>What barriers have been associated with offering healthy food options through Eat Fit?</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low customer demand</td>
<td>15 (41.67)</td>
</tr>
<tr>
<td>Difficulty with menu changes</td>
<td>9 (25.00)</td>
</tr>
<tr>
<td>Insufficient staff nutrition knowledge</td>
<td>6 (16.67)</td>
</tr>
<tr>
<td>Lack of staff skills/training</td>
<td>5 (13.89)</td>
</tr>
<tr>
<td>Spoilage or short shelf life of healthier foods</td>
<td>5 (13.89)</td>
</tr>
<tr>
<td>Cost ingredients</td>
<td>4 (11.11)</td>
</tr>
<tr>
<td>Lack of profitability and sales</td>
<td>3 (8.33)</td>
</tr>
<tr>
<td>Additional food preparation time</td>
<td>3 (8.33)</td>
</tr>
<tr>
<td>Food storage challenges</td>
<td>2 (5.56)</td>
</tr>
<tr>
<td>Inconsistent ingredient availability and quality</td>
<td>2 (5.56)</td>
</tr>
<tr>
<td>Other</td>
<td>2 (5.56)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>What has helped you to implement Eat Fit in this restaurant?</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eat Fit staff support</td>
<td>26 (72.22)</td>
</tr>
<tr>
<td>Owner support</td>
<td>20 (55.56)</td>
</tr>
<tr>
<td>Ease of program implementation</td>
<td>14 (38.89)</td>
</tr>
<tr>
<td>Staff support</td>
<td>12 (33.33)</td>
</tr>
<tr>
<td>Customer support</td>
<td>11 (30.56)</td>
</tr>
<tr>
<td>Eat Fit staff education</td>
<td>11 (30.56)</td>
</tr>
<tr>
<td>Ease of adding or modifying menu options</td>
<td>11 (30.56)</td>
</tr>
<tr>
<td>Other</td>
<td>2 (5.56)</td>
</tr>
</tbody>
</table>

Ten (27.78%) managers/owners reported no barriers, and 12 (33%) reported one barrier to offering healthy food options through Eat Fit. The median was one with an IQR of 1 to 3.
The most cited barriers were low customer demand (n=15), difficulty with menu changes (n=9), and insufficient staff nutrition knowledge (n=6; Table 2.6). Managers/owners selected a median of 3.00 (IQR: 2-4) facilitators for program implementation with over half reporting Eat Fit staff support (n=26) and owner support (n=20) as facilitators. In the comments section, three managers/owners provided responses that indicated a need or desire for more education from Eat
Fit staff. One commented, “I believe it would be beneficial for Eat Fit to come to the restaurant twice a year to educate staff” while another commented on a need to have “a clearer idea of what to explain to customers [about the program].”

Eat Fit Program Implementation and Adherence

Of the 36 restaurants included in analysis, 33 (91.67%) had Eat Fit dishes identified on the menu; 32 (88.89%) had Eat Fit dishes identified with the appropriate seal; and 26 (72.22%) had the Eat Fit verbiage on the menu. Twenty (55.56%) restaurants displayed the Eat Fit logo sticker in their window, and four (11.11%) had additional Eat Fit promotional material on display or available in their restaurant. The number of Eat Fit dishes in restaurants ranged from 0 to 52 with a median of 5 (IQR: 2-11) dishes offered. The median implementation and adherence score was 6 (IQR: 4.25-7). There were no significant correlations found between independent variables of interest (manager/owner beliefs, perceived staff knowledge/skills, self-efficacy, and number of facilitators/barriers) and implementation and adherence scores.

I. Discussion

Overall, restaurant managers/owners reported that it was their belief that the Eat Fit program had a positive impact on their restaurants and customers. Implementation and adherence scores were relatively high across partner restaurants. Most restaurants followed program guidelines, demonstrating that this type of programming is feasible and can be implemented with fidelity. In this small sample of restaurants, no significant correlations were found between restaurant manager/owner related-factors and implementation and adherence to Eat Fit program guidelines, which may have been related to the variability among restaurants or the general positive response to the program. Nevertheless, there were some important study findings that may contribute to the understanding of restaurant-based programming implementation and impact on restaurants.
The majority of restaurant managers/owners thought the Eat Fit program was well received by customers, helped customers make healthier food choices, increased customer awareness of nutrition, and was appreciated by customers. Most managers/owners agreed the program enhanced restaurant reputation with customers and held positive beliefs towards offering healthy foods in their restaurants. Previous research has shown that motivations for offering healthy food options have included attracting new customers and maintaining current customers, satisfying customer demands, improving reputation, standing out from the competition with healthy options, and supporting healthy food choices [58, 66, 73, 74]. The positive perceived outcomes found in this study may have contributed to the high level of program implementation and adherence observed within participating restaurants.

Despite favorable perceptions on customer impact, the most cited barrier associated with offering healthy food options through Eat Fit was low customer demand, and less than half agreed Eat Fit food options contributed to increased sales. Studies examining restaurant staff beliefs have found that customer demand and profit were important considerations in offering healthy food items [58, 65-68]. Prior research has recommended that a customer education campaign be rolled out alongside menu labelling interventions to increase customer knowledge and demand [97]. Increased customer education and healthy food promotion may be considered in future programming efforts to increase demand.

Managers/owners did not believe Eat Fit program implementation was a burden for restaurant staff, and self-efficacy to implement the Eat Fit program was high among managers/owners. Two of the most cited facilitators were Eat Fit staff support and ease of program implementation. Findings from other research suggested that restaurant-based programs should be as simple as possible and provide technical support to analyze the
composition of dishes [73, 97]. By working with restaurant staff on nutritional analysis and modification of dishes, the Eat Fit program attempts to simplify the process of offering healthy food options and engaging in the restaurant-based programming. As such, this program element and staff support may be important to implementation and guideline adherence.

Half of managers/owners agreed the program increased staff awareness of nutrition and had positive perceptions of staff knowledge and skills to offer healthy food items. Some respondents noted insufficient staff knowledge, lack of staff skills/training, and difficulty with menu changes as barriers to offering healthy food items, consistent with other research findings [65, 66, 68, 71, 72, 97]. To improve on the program, Eat Fit staff may consider adding more educational components to address these barriers and perceptions. As research has shown high staff turnover can also be a barrier, educational efforts with staff may need to be repeated with regularity to maintain a trained workforce [73, 100].

This study provided insight into restaurant manager/owner perceptions of the impact of restaurant-based programming, highlighted barriers and facilitators to program implementation, and described factors that may be considered in future programming efforts. As most restaurants offered and identified Eat Fit dishes in their restaurants, the study demonstrated that programs like Eat Fit can be adopted by restaurants and implemented with fidelity.

Strengths/Limitations

Very few studies have examined the perspectives of restaurant managers/owners related to the implementation of restaurant-based programming focused on healthy food options. Due to the heterogeneity of restaurants included in this study, the findings represented program implementation in a wide range of settings.
As the data were cross-sectional, the results may change over time with menu updates, environment changes, and staff turnover. Selection bias may be present in the findings as some managers/owners refused participation, and the study did not include non-partner restaurants. Future studies may consider including managers/owners from non-partner restaurants and offering incentives to encourage participation from all partner restaurants to provide insight into additional factors that impact program adoption, implementation, and sustainability. In addition, a follow-up study that includes interviews or focus groups with managers/owners may result in a deeper understanding of factors of importance for program success.
VII. Study 3: Program Impact and Other Factors that Influence Customer Food Choice

A. Research Questions and Hypothesis

Research Question 1

To what extent does the Eat Fit program influence customer food choices in New Orleans, Louisiana?

Research Question 2

What are individual, environmental, and behavioral factors, if any, that may be associated with Eat Fit food item selection in New Orleans, Louisiana restaurants?

Hypothesis:

Customers who order Eat Fit food items will have more positive beliefs and attitudes toward healthy foods, established dietary goals, higher social support, and higher self-efficacy for choosing healthy foods in restaurants than customers who do not order Eat Fit food items in New Orleans, Louisiana.

B. Design

This study was cross-sectional research that examined the impact of the Eat Fit program and factors potentially associated with customer food choices in Eat Fit New Orleans restaurants. Cross-sectional data were collected via customer intercept interviews.

For research question one, the primary outcomes of interest included extent of Eat Fit program influence on selection of healthy food choices and Eat Fit items. The primary outcome for research question two was selection of an Eat Fit food item. Factors of interest were customer beliefs, attitudes, perceptions of environment, social support, self-efficacy, dietary goals, and customer characteristics.
C. Staffing and Training

This study involved staff from the Eat Fit program and Tulane University. Eat Fit staff provided lists of partners and initiated contact with restaurant managers/owners to introduce the study. Tulane staff and student research assistants (RAs) collected all data during restaurant site visits.

RAs were trained by Tulane staff in data collection procedures through classroom and field training. RAs received training on interview techniques, participated in role-play interviews, and shadowed experienced interviewers before conducting interviews in the field.

D. Recruitment

In the fall of 2018, Eat Fit program staff compiled a list of all restaurants currently participating in the Eat Fit program. From this list, names of restaurants eligible for this study were compiled for recruitment. Following were inclusion criteria for restaurants:

- located in New Orleans, Louisiana
- offered a menu and had dedicated eating space
- participated in the Eat Fit program for at least 6 months
- served food as a primary function
- served lunch and/or dinner
- open to the public with no limitations

Following were exclusion criteria:

- located outside of the New Orleans area
- did not primarily serve food (example: coffee shop or bar)
- a cafeteria or food court outlet
• limited public access (example: sport arena, airport restaurant)

If a restaurant had multiple locations, only one randomly selected location was eligible for inclusion in the study.

Eat Fit restaurant managers/owners were initially contacted by Eat Fit staff through email. The email introduced the study, and Tulane staff followed up with an email or phone call to further explain the study, answer questions, and schedule restaurant site visits. The owner or manager at each restaurant was asked for permission to conduct intercept interviews with their customers after dining in the restaurant. If a restaurant did not have Eat Fit items identified on the menu, customers were not recruited at that site.

After restaurant eligibility was confirmed and permission was granted by a manager/owner, customers were recruited for intercept interviews. Trained Tulane student research assistants (RAs) approached all customers as they exited the restaurant and invited them to participate in the intercept interview. RAs explained that they were interested in learning about the customer’s eating experience and the impact of a program called Eat Fit. If the customer agreed to participate, eligibility was determined, a consent script was read, and verbal consent was documented within the interview form. Eligibility criteria included being at least 18 years of age and living or working in the Greater New Orleans area.

For restaurants open for lunch or dinner only, the goal was to collect 15 interviews between the lunch hours of 11:30 AM to 2:00 PM or dinner hours of 6:00 PM to 9:00 PM. For those restaurants open for both lunch and dinner hours, the goal was 30 interviews with 15 collected during each dining period (lunch and dinner).
E. Measurement Instruments

The customer intercept interview instrument was developed using questions from previously published studies, with additional questions added by researchers at Tulane School of Public Health and Tropical Medicine [54, 56, 57, 101, 102] (Appendix E). The interview questions addressed healthy eating related beliefs, attitudes, and behaviors; perceptions of the food environment; social support and self-efficacy for healthy eating; awareness of the Eat Fit program and its components; ordering of Eat Fit items; and perceived impact of the Eat Fit program. Data were also collected on customer frequency of eating out, current dietary goals, and basic demographic characteristics. Tulane RAs pilot tested the interview questions for comprehension with restaurant customers.

F. Measurement Procedures

After customer recruitment and consent, questions were read out loud and responses were recorded in a REDCap form on a digital tablet by an RA. For each eligible dining period, RAs visited restaurants up to five times to collect a total 15 interviews.

G. Statistical Analysis

Two research questions guided this study. The following sections outline the statistical procedures for each question.

Research Question 1

To what extent does the Eat Fit program influence customer food choices in New Orleans, Louisiana?
This question was answered using descriptive statistics. Frequencies and percentages were calculated for each variable described in Table 3.1.

Table 3.1. Variables for Customer Awareness and Perceived Influence of the Eat Fit Program

<table>
<thead>
<tr>
<th>Variable</th>
<th>Question</th>
<th>Response Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aware of Eat Fit program</td>
<td>Do you know about Ochsner’s Eat Fit program?</td>
<td>No, Yes, Unsure</td>
</tr>
<tr>
<td>Healthy eating influence</td>
<td>On a scale of 1 to 4 with 1 being not at all to 4 being a lot, to what extent do you believe having Eat Fit menu options in restaurants can help you make healthier food choices? <em>(if customer is aware of Eat Fit)</em></td>
<td>Not at all, Very little, Somewhat, A lot</td>
</tr>
<tr>
<td>Notice labels</td>
<td>Did you notice the Eat Fit labels on the menu at this restaurant identifying healthy food items?</td>
<td>No, Yes, Unsure</td>
</tr>
<tr>
<td>Ordered Eat Fit item</td>
<td>Did you order an Eat Fit food item at this restaurant today?</td>
<td>No, Yes, Unsure</td>
</tr>
<tr>
<td>Eat Fit order influence</td>
<td>On a scale of 1 to 4 with 1 being not at all to 4 being a lot, to what extent did Eat Fit influence what you ordered today? <em>(if customer ordered an Eat Fit item)</em></td>
<td>Not at all, Very little, Somewhat, A lot</td>
</tr>
<tr>
<td>Aware of Eat Fit smartphone app</td>
<td>Are you aware of the Eat Fit mobile app?</td>
<td>No, Yes, Unsure</td>
</tr>
<tr>
<td>Smartphone app influence</td>
<td>On a scale of 1 to 4 with 1 being not at all to 4 being a lot, to what extent did the Eat Fit smartphone app influence your choice of restaurant? <em>(if customer is aware of app)</em></td>
<td>Not at all, Very little, Somewhat, A lot</td>
</tr>
</tbody>
</table>

Research Question 2

What are individual, environmental, and behavioral factors, if any, that may be associated with Eat Fit food item selection in New Orleans, Louisiana restaurants?
The outcome variable for analysis was a binary variable: ordered an Eat Fit menu item (1) or unsure/did not order an Eat Fit menu item (0). Independent variables were the constructs beliefs, attitudes, perceptions of environment, social support, and self-efficacy as well as customer demographic characteristics.

Derivation of constructs are detailed in Table 3.2. A confirmatory factor analysis was conducted to confirm the measures used in the customer intercept interviews and test convergent and discriminant validity of the constructs. Results are detailed in Appendix F.

Table 3.2. Derivation of Customer Factors Related to Eat Fit New Orleans Program and Healthy Food Options

<table>
<thead>
<tr>
<th>Construct</th>
<th>Item</th>
<th>Response Option/ Coding Scheme</th>
<th>Total Range of Scores</th>
<th>Derived Variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beliefs</td>
<td>a. I think it is important for restaurants to offer healthy food items.</td>
<td>Strongly Disagree=0</td>
<td>0-2</td>
<td>Neutral/ Negative Beliefs (Score of 0-1=0)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Disagree=0</td>
<td></td>
<td>Positive Beliefs (Score of 2=1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Neutral=0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Agree=1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Strongly Agree=1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. I think it is important to be able to eat healthfully at restaurants.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attitudes</td>
<td>a. Healthy food items are just as appealing as any other menu items.</td>
<td></td>
<td>0-2</td>
<td>Neutral/ Negative Attitude (Score of 0-1=0)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Positive Attitude (Score of 2=1)</td>
</tr>
<tr>
<td></td>
<td>b. Healthy food items are as good of a value as any other menu item.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceptions of environment</td>
<td>a. In this restaurant, it is easy for me to find healthy food items on the menu</td>
<td></td>
<td>0-3</td>
<td>Neutral/ Negative Perceptions (Score of 0-1=0)</td>
</tr>
<tr>
<td>Construct</td>
<td>Items</td>
<td>Score Range</td>
<td>Description</td>
<td>Code</td>
</tr>
<tr>
<td>---------------</td>
<td>----------------------------------------------------------------------</td>
<td>-------------</td>
<td>---------------------------------------</td>
<td>------------</td>
</tr>
<tr>
<td>Positive Perceptions</td>
<td>b. This restaurant makes it easy for a person to make healthy food choices.</td>
<td>2-3</td>
<td>Higher Social Support (Score of 2-3=1)</td>
<td>0-3 Higher</td>
</tr>
<tr>
<td></td>
<td>c. This restaurant offers healthy food items that are easily identified on the menu.</td>
<td></td>
<td>Lower Social Support (Score of 0-1=0)</td>
<td></td>
</tr>
<tr>
<td>Social Support</td>
<td>a. I have <strong>friends</strong> that encourage me to choose healthy food items when eating out.</td>
<td>0-3</td>
<td>Higher Social Support (2-3=1)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. I encourage <strong>family members</strong> to choose healthy food items when eating out.</td>
<td></td>
<td>Lower Social Support (Score of 0-1=0)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>c. I encourage <strong>friends</strong> to choose healthy food items when eating out.</td>
<td></td>
<td>Higher Social Support (2-3=1)</td>
<td></td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>a. How confident are you in your ability to order broiled or grilled foods rather than fried foods when eating out?</td>
<td>0-3</td>
<td>Lower Self-Efficacy (Score of 0-1=0)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. How confident are you in your ability to avoid heavy sauces when eating out?</td>
<td></td>
<td>Higher Self-Efficacy (2-3=1)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>c. How confident are you in your ability to eat smaller portions of high calorie foods?</td>
<td></td>
<td>Lower Self-Efficacy (Score of 0-1=0)</td>
<td></td>
</tr>
</tbody>
</table>

*reverse coded

A derived variable was developed from a summary score of items for each construct. Some items were reverse coded to reflect the appropriate direction. The sums were dichotomized into two categories as described in Table 3.2. Data were also collected on customer characteristics (age, gender, race/ethnicity, education level, frequency of dining out, current diet goals, and whether they were celebrating a special occasion).

Frequencies and percentages were calculated for each variable. Generalized estimating equations were used to build a regression model to predict ordering an Eat Fit food item with the
restaurant as the clustering variable. Customer interviews were nested within their respective restaurants to account for variability among restaurants. Variables with a $p$ value < 0.25 in bivariate analysis were included in the multivariate analysis [103]. Variables with a $p$ value < 0.05 were considered significant. Independent correlation structure was selected for analyses.

H. Results

Eat Fit staff provided a list of 79 partner restaurants that met inclusion criteria for the study (Figure 3.1). Customer intercept interviews were collected in 34 restaurants.

Figure 3.1. Eat Fit Restaurant Study Participation Chart for Customer Intercept Interviews

A total of 1372 customers were approached, 889 were willing to participate, and 625 met the eligibility criteria and consented to participate, resulting in a 64.8% response rate. Seventeen interviews were excluded because respondents did not answer if they ordered an Eat Fit item.
The final sample included a total of 608 customer interviews. Of these interviews, 386 (63.49%) were collected at lunch and 222 (36.51%) at dinner.

The goal of 15 interviews per dining period was met in 20 of the 34 restaurants. In several restaurants (n=8), data collectors exceeded the number of visits and were unable to recruit 15 customers due to lack of business or many customers not meeting inclusion criteria. In six restaurants, managers/owners asked to stop customer interviews prior to complete data collection.

Customer Characteristics

Restaurant customer characteristics are presented in Table 3.3. The majority of respondents interviewed were female (n=381). Most respondents identified as Caucasian or White (n=443). Respondents ranged from 18 to 86 years old with an average age of 44.42 years. Most respondents had a college degree or higher (n=486).

Table 3.3. Restaurant Customer Characteristics from Customer Intercept Interviews (N=608)

<table>
<thead>
<tr>
<th>Variable</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex</strong></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>223 (36.92)</td>
</tr>
<tr>
<td>Female</td>
<td>381 (63.08)</td>
</tr>
<tr>
<td><strong>Race/Ethnicity</strong></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>443 (74.33)</td>
</tr>
<tr>
<td>AA or Black</td>
<td>81 (13.59)</td>
</tr>
<tr>
<td>Other</td>
<td>72 (12.08)</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
</tr>
<tr>
<td>18-24</td>
<td>66 (10.96)</td>
</tr>
<tr>
<td>25-34</td>
<td>165 (27.41)</td>
</tr>
<tr>
<td>35-44</td>
<td>85 (14.12)</td>
</tr>
<tr>
<td>45-54</td>
<td>92 (15.28)</td>
</tr>
<tr>
<td>55-64</td>
<td>101 (16.78)</td>
</tr>
<tr>
<td>65 and Older</td>
<td>93 (15.45)</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
</tr>
<tr>
<td>High School or Less</td>
<td>118 (19.54)</td>
</tr>
<tr>
<td>College</td>
<td>286 (47.35)</td>
</tr>
<tr>
<td>Postgraduate</td>
<td>200 (33.11)</td>
</tr>
</tbody>
</table>
Dietary goals varied across respondents with over half indicating that they were trying to eat fewer calories, eat less fat, eat less salt, and/or make other dietary changes. Most respondents (n=514) were currently trying to make one or more dietary changes. The majority of respondents (n=547) reported that they ate at a restaurant at least once a week with more than one-fifth eating out five or more times per week. Seventy-three respondents were celebrating a special occasion at the time of the interview.

Customer Knowledge, Behaviors, and Perceptions

Customers were asked about their knowledge of the Eat Fit program, restaurant food choices, and perceived impact of components of the Eat Fit program. Customer responses are detailed in Table 3.4.

Table 3.4. Customer Knowledge, Behaviors, and Perceived Impact of the Eat Fit New Orleans Program

<table>
<thead>
<tr>
<th>Do you know about Ochsner's Eat Fit program? (N=608)</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>307 (50.49)</td>
</tr>
<tr>
<td>No</td>
<td>277 (45.56)</td>
</tr>
<tr>
<td>Not sure</td>
<td>23 (3.78)</td>
</tr>
<tr>
<td>Not answered</td>
<td>1 (0.16)</td>
</tr>
<tr>
<td>To what extent do you believe having Eat Fit menu options in restaurants can help you make healthier food choices? (N=307)</td>
<td></td>
</tr>
<tr>
<td>Not at all</td>
<td>11 (3.58)</td>
</tr>
<tr>
<td>Response</td>
<td>Count (Percentage)</td>
</tr>
<tr>
<td>----------</td>
<td>-------------------</td>
</tr>
<tr>
<td>Very little</td>
<td>16 (5.21)</td>
</tr>
<tr>
<td>Somewhat</td>
<td>69 (22.48)</td>
</tr>
<tr>
<td>A lot</td>
<td>206 (67.10)</td>
</tr>
<tr>
<td>No answer</td>
<td>5 (1.63)</td>
</tr>
</tbody>
</table>

**Did you notice the Eat Fit labels identifying healthy food items on the menu at this restaurant? (N=608)**

<table>
<thead>
<tr>
<th>Response</th>
<th>Count (Percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>259 (42.59)</td>
</tr>
<tr>
<td>No</td>
<td>311 (51.15)</td>
</tr>
<tr>
<td>Not sure</td>
<td>33 (5.43)</td>
</tr>
<tr>
<td>No answer</td>
<td>5 (0.82)</td>
</tr>
</tbody>
</table>

**To what extent did the label influence what you ordered at this restaurant today? (N=259)**

<table>
<thead>
<tr>
<th>Response</th>
<th>Count (Percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all</td>
<td>91 (35.14)</td>
</tr>
<tr>
<td>Very little</td>
<td>35 (13.51)</td>
</tr>
<tr>
<td>Somewhat</td>
<td>74 (28.57)</td>
</tr>
<tr>
<td>A lot</td>
<td>54 (20.85)</td>
</tr>
<tr>
<td>No answer</td>
<td>5 (1.90)</td>
</tr>
</tbody>
</table>

**Are you aware of the Eat Fit mobile app? (N=608)**

<table>
<thead>
<tr>
<th>Response</th>
<th>Count (Percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>83 (13.65)</td>
</tr>
<tr>
<td>No</td>
<td>515 (84.70)</td>
</tr>
<tr>
<td>Not sure</td>
<td>7 (1.15)</td>
</tr>
<tr>
<td>No answer</td>
<td>3 (0.50)</td>
</tr>
</tbody>
</table>

**Have you accessed the Eat Fit mobile app? (N=83)**

<table>
<thead>
<tr>
<th>Response</th>
<th>Count (Percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>30 (36.14)</td>
</tr>
<tr>
<td>No</td>
<td>53 (63.86)</td>
</tr>
</tbody>
</table>

**To what extent did the Eat Fit mobile app influence your choice of restaurant today? (N=83)**

<table>
<thead>
<tr>
<th>Response</th>
<th>Count (Percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all</td>
<td>63 (75.90)</td>
</tr>
<tr>
<td>Very little</td>
<td>4 (4.82)</td>
</tr>
<tr>
<td>Somewhat</td>
<td>2 (2.41)</td>
</tr>
<tr>
<td>A lot</td>
<td>3 (3.61)</td>
</tr>
<tr>
<td>No answer</td>
<td>11 (13.25)</td>
</tr>
</tbody>
</table>

**Did you order an Eat Fit food item at this restaurant today? (n=608)**

<table>
<thead>
<tr>
<th>Response</th>
<th>Count (Percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>105 (17.27)</td>
</tr>
<tr>
<td>No</td>
<td>315 (51.81)</td>
</tr>
<tr>
<td>Not sure</td>
<td>188 (30.92)</td>
</tr>
</tbody>
</table>

**To what extent did Eat Fit influence what you ordered today? (N=105)**

<table>
<thead>
<tr>
<th>Response</th>
<th>Count (Percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all</td>
<td>30 (28.57)</td>
</tr>
</tbody>
</table>
When asked about their knowledge of Ochsner’s Eat Fit program, half (n=307) of the respondents knew about the program (Table 3.4). Of those familiar with the program, the majority (n=275, 89.58%) thought that having Eat Fit menu options in restaurants can help them make healthier food choices “somewhat” to “a lot.” Two hundred fifty-nine (42.59%) respondents noticed Eat Fit labels on the restaurant menu. Of those 259, 128 customers thought the Eat Fit label influenced their food order “somewhat” to “a lot.”

When asked about the Eat Fit mobile app for smartphones, 83 respondents were familiar with the app. Of those respondents that were familiar with the app, 30 had accessed the app, and five said the app influenced their choice of restaurant.

Of 608 respondents, 105 said they ordered an Eat Fit item at the restaurant; another 188 were unsure of whether they ordered an Eat Fit item. Slightly over half (n=315) responded that they did not order an Eat Fit item. Of the 105 that ordered an Eat Fit item, the majority (n=61) said that Eat Fit influenced their order “somewhat” to “a lot.” Characteristics of respondents who ordered and those who did not order Eat Fit items are presented in Table 3.5. Table 3.6 displays the unadjusted and adjusted effects of factors that may be associated with ordering an Eat Fit item.
Table 3.5. Characteristics of Restaurant Customers Who Ordered Eat Fit Items and Customers Who Were Not Sure or Did Not Order Eat Fit Items (N=608)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Not Sure/Did Not Order Eat Fit</th>
<th>Ordered Eat Fit Item</th>
<th>Total N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N (%)</td>
<td>N (%)</td>
<td>N (%)</td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>191 (85.65)</td>
<td>32 (14.35)</td>
<td>223 (36.92)</td>
</tr>
<tr>
<td>Female</td>
<td>309 (81.19)</td>
<td>72 (18.90)</td>
<td>381 (63.08)</td>
</tr>
<tr>
<td><strong>Race/Ethnicity</strong>*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>374 (84.42)</td>
<td>69 (15.58)</td>
<td>443 (74.33)</td>
</tr>
<tr>
<td>African American or Black</td>
<td>57 (70.37)</td>
<td>24 (29.62)</td>
<td>81 (13.59)</td>
</tr>
<tr>
<td>Other</td>
<td>63 (87.50)</td>
<td>9 (12.50)</td>
<td>72 (12.08)</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-24</td>
<td>55 (83.33)</td>
<td>11 (16.67)</td>
<td>66 (10.96)</td>
</tr>
<tr>
<td>25-34</td>
<td>134 (81.21)</td>
<td>31 (18.79)</td>
<td>165 (27.41)</td>
</tr>
<tr>
<td>35-44</td>
<td>69 (81.18)</td>
<td>16 (18.82)</td>
<td>85 (14.12)</td>
</tr>
<tr>
<td>45-54</td>
<td>75 (81.52)</td>
<td>17 (18.48)</td>
<td>92 (15.28)</td>
</tr>
<tr>
<td>55-64</td>
<td>86 (85.15)</td>
<td>15 (14.85)</td>
<td>101 (16.78)</td>
</tr>
<tr>
<td>65 and Older</td>
<td>79 (84.95)</td>
<td>14 (15.05)</td>
<td>93 (15.45)</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High School or Less</td>
<td>96 (81.36)</td>
<td>22 (18.64)</td>
<td>118 (19.54)</td>
</tr>
<tr>
<td>College</td>
<td>235 (82.17)</td>
<td>51 (17.83)</td>
<td>286 (47.35)</td>
</tr>
<tr>
<td>Postgraduate</td>
<td>169 (84.50)</td>
<td>31 (15.50)</td>
<td>200 (33.11)</td>
</tr>
<tr>
<td><strong>Trying to Make Dietary Change</strong>*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>417 (81.13)</td>
<td>97 (18.87)</td>
<td>514 (86.82)</td>
</tr>
<tr>
<td>No</td>
<td>74 (94.87)</td>
<td>4 (5.13)</td>
<td>78 (13.18)</td>
</tr>
<tr>
<td><strong>Frequency of Dining Out</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up to 2 times/Month</td>
<td>52 (88.14)</td>
<td>7 (11.86)</td>
<td>59 (9.74)</td>
</tr>
<tr>
<td>1-4 times/Week</td>
<td>339 (82.28)</td>
<td>73 (17.72)</td>
<td>412 (67.99)</td>
</tr>
<tr>
<td>5 or more times/Week</td>
<td>111 (82.22)</td>
<td>24 (17.78)</td>
<td>135 (22.28)</td>
</tr>
<tr>
<td><strong>Beliefs</strong>*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive</td>
<td>449 (81.19)</td>
<td>104 (18.81)</td>
<td>553 (91.10)</td>
</tr>
<tr>
<td>Neutral/Negative</td>
<td>53 (98.15)</td>
<td>1 (1.85)</td>
<td>54 (8.90)</td>
</tr>
<tr>
<td><strong>Attitudes</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive</td>
<td>229 (80.07)</td>
<td>57 (19.93)</td>
<td>286 (47.12)</td>
</tr>
<tr>
<td>Neutral/Negative</td>
<td>273 (85.05)</td>
<td>48 (14.95)</td>
<td>321 (52.88)</td>
</tr>
<tr>
<td><strong>Perceptions of Environment</strong>*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive Perceptions</td>
<td>375 (79.28)</td>
<td>98 (20.72)</td>
<td>473 (78.70)</td>
</tr>
<tr>
<td>Neutral/ Negative Perceptions</td>
<td>121 (94.53)</td>
<td>7 (5.47)</td>
<td>128 (21.30)</td>
</tr>
<tr>
<td><strong>Social Support</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Higher Social Support</td>
<td>208 (77.61)</td>
<td>60 (22.39)</td>
<td>268 (44.22)</td>
</tr>
<tr>
<td>Lower Social Support</td>
<td>293 (86.69)</td>
<td>45 (13.31)</td>
<td>338 (55.78)</td>
</tr>
<tr>
<td><strong>Self-Efficacy</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Higher Self-Efficacy</td>
<td>343 (80.71)</td>
<td>82 (19.29)</td>
<td>425 (70.02)</td>
</tr>
<tr>
<td>Lower Self-Efficacy</td>
<td>159 (87.36)</td>
<td>23 (12.64)</td>
<td>182 (29.98)</td>
</tr>
</tbody>
</table>

*p < .05
Table 3.6. Unadjusted and Adjusted Effects Associated with Ordering Eat Fit Items in Restaurants

<table>
<thead>
<tr>
<th>Variable</th>
<th>Unadjusted</th>
<th></th>
<th></th>
<th>Adjusted</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Odds Ratio</td>
<td>Confidence Interval</td>
<td>p-value</td>
<td>Odds Ratio</td>
<td>Confidence Interval</td>
<td>p-value</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>Ref</td>
<td></td>
<td></td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>1.39</td>
<td>0.69-2.79</td>
<td>0.358</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Race/Ethnicity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>Ref</td>
<td></td>
<td></td>
<td>Ref</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AA or Black</td>
<td>2.21</td>
<td>1.34-3.64</td>
<td>0.002</td>
<td>2.06</td>
<td>1.14-3.73</td>
<td>0.017</td>
</tr>
<tr>
<td>Other</td>
<td>0.62</td>
<td>0.36-1.08</td>
<td>0.089</td>
<td>0.69</td>
<td>0.31-1.53</td>
<td>0.357</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-24</td>
<td>Ref</td>
<td></td>
<td></td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25-34</td>
<td>1.06</td>
<td>0.54-2.08</td>
<td>0.876</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35-44</td>
<td>0.91</td>
<td>0.46-1.83</td>
<td>0.797</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>45-54</td>
<td>1.10</td>
<td>0.52-2.31</td>
<td>0.812</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>55-64</td>
<td>0.80</td>
<td>0.36-1.77</td>
<td>0.584</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>65 and Older</td>
<td>0.79</td>
<td>0.33-1.92</td>
<td>0.607</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High School or Less</td>
<td>Ref</td>
<td></td>
<td></td>
<td>--</td>
<td></td>
<td></td>
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<tr>
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There were no significant associations found between ordering Eat Fit healthy food items and sex, age, education, and frequency of dining out in bivariate analyses (Tables 3.5 and 3.6). In a multivariate model, respondents who identified as African American or Black were 2.06 times more likely to order an Eat Fit item than those who identified as White (Table 3.6). In addition, those who were trying to make at least one dietary change were 3.96 times more likely to order an Eat Fit item than those who were not attempting a dietary change.

Overall, the majority of respondents had positive beliefs related to restaurants offering healthy food options (n=553) (Table 3.5). In a multivariable model, those with positive beliefs were 8.72 times more likely to order an Eat Fit item than those with neutral/negative beliefs (Table 3.6). Slightly more than half held neutral/negative attitudes towards the appeal, value, and taste of healthy food items in restaurants (n=321). There was no significant association found between ordering Eat Fit items and attitudes (Table 3.6).

Most customers agreed that the restaurant environment supported making healthy food choices (n=473). Respondents who agreed that the restaurant environment supported healthy food choices were 3.43 times more likely to order an Eat Fit item than those who did not agree.

Self-efficacy to choose healthy food offerings was high (n=425), but more than half indicated low social support (n=338). In a multivariable model, there were no significant associations found between ordering Eat Fit items and self-efficacy or social support.

No interactions between main effect variables were retained in the model. Further, customer choices did not differ by dining period.
I. Discussion

Findings indicated that customers believed the Eat Fit program can influence customer food choices in New Orleans, Louisiana. Half of restaurant customers had heard of the Eat Fit program, and of those, almost 90% responded that Eat Fit menu options in restaurants can help customers “somewhat” to “a lot” in making healthier food choices. Of those that noticed the Eat Fit labels in the restaurant, almost half agreed the label influenced their order. More than one-sixth of respondents had ordered an Eat Fit item, and more than half of those customers agreed Eat Fit influenced their order “somewhat” to “a lot.” Prior restaurant-based research also found interventions that display point-of-purchase labels and market healthy items within the restaurant and in the community may have the ability to influence food choices among customers and cue people to action [16, 20-23, 45, 47-50]. The Eat Fit program may be a promising strategy to encourage healthy eating behaviors among customers.

While half of customers knew about the Eat Fit program, few were familiar with the Eat Fit app, had accessed the app, and thought the app influenced their choice of restaurant. Increased marketing and focus on the mobile app may be a potential area for program growth. App-based technologies can be useful platforms to communicate nutrition information to consumers in a visually-appealing and comprehensive way [96, 104].

The only customer demographic characteristic found to be associated with ordering an Eat Fit item was race/ethnicity. Specifically, African Americans or Black customers were significantly more likely to order Eat Fit items than White customers. Interestingly, previous research in restaurants found that White customers were more likely to notice and be influenced by healthy food labels [105]. Further investigation is needed to understand these findings more fully. As obesity prevalence rates are highest among non-Hispanic black individuals, programs
like Eat Fit may have the ability to positively impact restaurant dietary choices among
individuals who may benefit most [34, 35, 106].

The vast majority of respondents held positive beliefs about the importance of having healthy
food options in restaurants, indicating general support. Positive beliefs were associated with
ordering Eat Fit food items suggesting that positive beliefs may be important in making the
decision to order healthy items. Similarly, customers who were trying to make dietary changes
were more likely to order an Eat Fit item. By labeling healthy items on the menu, the Eat Fit
program and similar programs may help customers more easily locate and access healthy food to
support their desire for dietary change [19, 22, 43, 44].

Customers who agreed the restaurant environment supported healthy food choices (i.e. easy
to find healthy items, easy to make healthy choices, and healthy choices are easily identified)
were more likely to order an Eat Fit item. Research has shown a supportive environment that
makes healthy options available and promotes them through labeling and marketing can
encourage healthy decisions [16, 54-60, 81]. Future efforts may build on program elements that
make healthy options more available and accessible to positively influence customer perceptions
of the nutrition environment and potentially increase selection of those options.

In general, customers reported low levels of social support for choosing healthy food items in
restaurants. While not confirmed in this study, previous research has shown social support and
social norms to be important factors for making healthy food choices [107-109]. In addition to
highlighting healthy food options, future programming may consider inclusion of messaging on
social norms to increase social support for and selection of healthier options [110-112].

Self-efficacy to choose healthy food options was high among customers. Increasing access
to healthy food can have a positive effect on self-efficacy, because more availability of healthy
food options may increase individuals' confidence to choose them [86]. The presence of Eat Fit items or other healthy items in restaurants may have impacted customer self-efficacy, but these findings did not show that high self-efficacy resulted in ordering healthy food choices. More research is needed to further explore this relationship.

Overall, this study found that customers agreed the Eat Fit program can help them make healthier choices and can influence what they order. They also believed in the importance of offering healthy food items in restaurants and reported confident in their ability to order healthy items. The Eat Fit program may be a promising strategy to encourage healthy eating behaviors among customers, especially among African American or Black customers and customers interested in dietary change. As perceptions of the environment were found to be associated with selection of Eat Fit options, future programming efforts may focus on increasing the number of options and enhancing marketing and promotion of healthy items to support customers in healthy decision-making.

Strengths and Limitations

Few studies have examined customer behaviors, beliefs, and perceptions as they relate to restaurant-based programming and healthy food options, especially in the Southern U.S. where obesity prevalence is high. Findings from this study can be used to improve restaurant-based programming and support efforts to increase availability of and access to healthy food options in restaurants.

One weakness of the study was the cross-sectional design; data were only captured at one point in time, and customer food choices and perceptions may vary. As confidence intervals were wide for some factors and sample sizes were low for some cells, a larger sample size in future studies may lead to more precise estimates of odds of Eat Fit item selection. Further, the
interviews were self-report and may be subject to selection, social desirability, and interviewer bias. Statements to normalize a range of answers were included in the interviewee instructions to reduce some of these biases.
V. Value of Studies and Lessons Learned

As one-third of all calories consumed in the U.S. are attributed to away-from-home foods, restaurants are promising environments to encourage healthy eating and address the public health concern of obesity. Restaurant-based programs may have the ability to increase access to and availability of healthy food options and improve customer diets. This research contributes to the limited scholarly research and increases understanding of restaurant environments, restaurant-based programs, customer eating behaviors, and manager/owner level factors that may influence program adoption, implementation, adherence, and outcomes. Further, the studies provide the only known data to date on a restaurant-based program in Louisiana, a state with one of the highest prevalence rates of obesity in the U.S.

Findings from this study will be shared with program funders, Eat Fit staff, and other important stakeholders to guide strategies for future program enhancements, expansion, sustainability, and dissemination. The studies will provide key stakeholders with evaluative feedback on the impact of the Eat Fit program, factors that contribute to customer food choice, and restaurant manager/owner factors that may be related to program implementation and adherence to program guidelines.

Lessons Learned

Restaurant-based research and programming can be challenging. Communication was especially difficult at some sites. Restaurant managers/owners were often not very responsive to emails or calls. Some managers and owners said they do not often check email or messages, and visiting the restaurant was the best way to contact them. At a few restaurants, the manager or owner agreed to participation but did not communicate with other management or staff about the research leading to confusion upon the research team’s arrival. If manager/owner surveys were
not completed at the time of recruitment, repeated site visits were often required to collect them. Persistence and follow-up were key to recruitment and data collection.

Initially, the research team planned to collect Eat Fit item sales data but encountered a general resistance from managers/owners in providing those data. In addition, sales data were tracked in many formats ranging from various computer systems to handwritten tickets, and collecting sales of specific dishes in a standardized method was not feasible with the number of restaurants included in the study. In future studies, more formative research around sales data collection may be necessary to determine how these data can be successfully collected.

Over the course of the research, several restaurants closed or changed ownership, experienced staff and management turnover, and/or changed food service systems, which led to communication issues and impacted Eat Fit program implementation. In the future, program and research staff may consider frequent communication touch points with restaurants and training with staff to ensure continuity of programming and to stay knowledgeable about changes in restaurant staffing and operations.

Given the competitive nature of the restaurant business, any programming or research must ensure that it does not negatively impact business success [96]. A few restaurant managers/owners did not permit customer intercept interviews or chose to stop customer interviews as they felt the interviews may negatively impact the customer experience in their restaurant. In several restaurants, research assistants had difficulty in collecting the desired number of customer interviews due to lack of customers or catering to tourists who were not eligible for participation. Working with restaurant management and staff to determine peak business periods and least intrusive methods for collecting customer data may be helpful in optimizing data collection.
COVID-19

Unfortunately, during this research, the COVID-19 pandemic interrupted data collection. Due to stay-at-home and shelter-in-place orders issued in March 2020, most partner restaurants were temporarily closed for business. When restaurants reopened, many shifted business strategies and offered reduced menus and curbside or delivery services only. Some restaurants were unable to financially and/or logistically recover from the business interruption and permanently closed. Due to the unforeseen conditions, the research team made the decision to suspend data collection and analyze the available data.

The Louisiana Restaurant Association estimated that one in four restaurants in Louisiana will fail as a result of COVID-19 [113]. The full impact of COVID-19 on restaurants, dining out, customer dietary choices, and restaurant-based programming remains to be seen and may be a topic for future research.
VI. References


VII. APPENDICES
Appendix A

Eat Fit: By the Numbers

Besides being delicious, Eat Fit items meet the nutrition guidelines of the Ochsner Eat Fit team, and are centered on lean proteins, vegetables, plant-based fats, and whole grains, with no white carbs, minimal added sugar and animal fats.

Appetizer, Soups, Side Salad
- Less than 300 calories
- Less than 400 mg sodium
- Less than 5 grams animal saturated fat
- 0 grams white refined carbs and trans fat
- Less than 5 grams added sugar

Entree or Entree Salad
- Less than 600 calories
- Less than 800 mg sodium
- Less than 8 grams animal saturated fat
- 0 grams white refined carbs and trans fat
- Less than 5 grams added sugar
- Minimum of 20 grams protein + fiber + fat
Breakfast
- Less than 300 calories
- Less than 650 mg sodium
- Less than 5 grams added sugar
- Less than 5 grams animal saturated fat
- 0 white refined carbs and trans fat
- Minimum of 15 grams protein + fiber + fat

Snacks
- Less than 250 calories
- Less than 300 mg sodium
- Less than 5 grams animal saturated fat
- 0 grams white refined carbs and trans fat
- Less than 5 grams added sugar
- Minimum of 15 grams protein + fiber + fat

Juices
- At least 75% vegetable base
- No sugar added

Smoothies
- Less than 300 calories
- Less than 400 mg sodium
- Less than 5 grams added sugar
- Less than 5 grams animal saturated fat
- 0 white refined carbs and trans fats
- Preferably 20 g protein
- Preferably no fruit juices (even 100%)
  - Maximum allowed is 2 ounces

**Cocktails, Desserts, Sides and Coffee**
- Less than 150 calories for cocktails
- Less than 175 calories for desserts, sides and coffee
- Less than 300 mg sodium
- Less than 5 grams animal saturated fat
- 0 grams white refined carbs and trans fats
- Less than 5 grams added sugar for desserts, sides and coffee
- 0 grams added sugar for cocktails
- For cocktails, no more than 2 ounces alcohol

**Eat Fit KIDS**
- Less than 400 calories
- Less than 600 mg sodium
- Less than 5 grams animal saturated fat
- 0 grams white refined carbs and trans fats
- Less than 5 grams added sugar
- Minimum of 20 grams protein + fiber + fat
- Preferably 1 cup vegetable
- Whole grain, whole fruit or non-fat dairy also encouraged

*Although foods like hard-boiled eggs and snack-size cheese exceed 10% calories from animal saturated fat, they are rich in other nutrients and therefore are Eat Fit-approved as a standalone snack.*
Restaurant Management Survey

The purpose of this survey is to gather information about Eat Fit restaurants and opinions of restaurant management to assist in the evaluation of the Eat Fit program. Please answer each question to the best of your ability.

Restaurant name: __________________________________________ Zip code: ______________

Section 1. Restaurant Characteristics
This section of the survey will ask questions about characteristics of this restaurant.

1. Number of employees: ____________________________
   a. Full-time: _______ b. Part-time: _______ c. Number of managers (not including self): _______

2. Years in operation: _______

3. Restaurant seating capacity: _______

4. On average, how many patrons does your restaurant serve monthly? _______

Please circle your response on the following questions.

5. How would you characterize the type of cuisine offered in this restaurant? (Circle all that apply)
   a. BBQ
   b. Deli/Café
   c. Mexican/Tex-Mex
   d. Italian
   e. Asian
   f. Pizza
   g. Breakfast/Brunch
   h. American
   i. Cajun/Creole
   j. Mediterranean
   k. Seafood
   l. Other: __________
Restaurant ID: ______________________

6. Does your restaurant have multiple facilities/locations? Yes No

7. Is your restaurant family-owned? Yes No

8. Is your restaurant family-operated? Yes No

9. How did you hear about Eat Fit? (Circle all that apply)
   a. Eat Fit staff
   b. Social media
   c. Eat Fit mobile application
   d. TV
   e. Radio
   f. Print (newspaper, magazine)
   g. Eat Fit website
   h. Other restaurants
   i. Friends or Colleagues
   j. Other________

Section 2. Beliefs

This portion of the survey is being used to gather information on your opinions about your restaurant’s food options and Eat Fit. We are interested in your honest answer. Please circle the response which best describes your opinions.

I believe...

1. restaurants have the ability to influence eating behavior of customers. Strongly Disagree Disagree Neutral Agree Strongly Agree 1 2 3 4 5

2. restaurants have a responsibility to offer healthy food options to customers. 1 2 3 4 5

3. it is important that this restaurant offers healthy food options. 1 2 3 4 5

4. this restaurant can easily modify menu items to offer healthy food options. 1 2 3 4 5

Version: 3/1/2018
I believe...

5. it is worthwhile to reformulate or add menu items to create healthy food options.  

6. there is a demand in my customer base for healthy food options.  

7. this restaurant’s staff has the knowledge to promote healthy food options.  

8. this restaurant’s staff has the knowledge to cook healthy food options.  

9. this restaurant’s staff has the skills to cook healthy food options.  

10. this restaurant’s staff needs more training on nutrition.  

11. implementing Eat Fit will be a burden for restaurant staff.  

12. Eat Fit will enhance sales in this restaurant.  

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<td>5</td>
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I am confident...

13. in my ability to implement Eat Fit in this restaurant.  

14. I can gain consensus of this restaurant’s staff in offering Eat Fit dishes.  

15. I can help this restaurant’s staff to promote Eat Fit dishes.  

16. I can help this restaurant’s staff to learn healthier cooking methods.  

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<th>Strongly Disagree</th>
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Version: 3/1/2018
I believe…

17. this restaurant’s staff supports promoting Eat Fit dishes. 1 2 3 4 5
18. this restaurant’s staff supports learning healthier cooking methods. 1 2 3 4 5
19. this restaurant’s staff will help me to implement the Eat Fit program. 1 2 3 4 5
20. this restaurant’s customer base will support offering Eat Fit dishes. 1 2 3 4 5
21. Eat Fit will be successful in this restaurant. 1 2 3 4 5
22. adding Eat Fit dishes will contribute to increased sales. 1 2 3 4 5
23. Eat Fit will lead customers to eat more healthfully. 1 2 3 4 5
24. my customers will choose Eat Fit dishes when offered. 1 2 3 4 5
25. joining Eat Fit will enhance this restaurant’s reputation with customers. 1 2 3 4 5
26. joining Eat Fit will be beneficial for this restaurant’s staff. 1 2 3 4 5
Within the next two months, I intend to...

27. add or modify menu items in accordance with Eat Fit guidelines.  
   1 2 3 4 5

28. identify Eat Fit dishes on menus with Eat Fit seals.  
   1 2 3 4 5

29. promote Eat Fit dishes to customers through servers.  
   1 2 3 4 5

30. promote Eat Fit dishes through the restaurant website (if applicable).  
   1 2 3 4 5

31. What barriers are associated with offering healthy food options through Eat Fit? (Circle all that apply)
   a. Staff nutrition knowledge  
   b. Customer preference  
   c. Staff skills/training  
   d. Operational challenges  
   e. Ingredient pricing  
   f. Time  
   g. Ingredient availability  
   h. Other______________________

32. Why did this restaurant choose to get involved with Eat Fit? (Circle all that apply)
   a. Entice customers looking for healthier food options  
   b. Opportunity to work with a registered dietician  
   c. Opportunity to analyze menu items for nutrition content  
   d. Opportunity to market restaurant through Eat Fit  
   e. Inclusion in the Eat Fit mobile application  
   f. Increase sales of healthy food options  
   g. Desire to increase access to healthy food options for customers  
   h. Believe restaurants should offer healthy options  
   i. Other______________________
Section 3. Interviewee characteristics:
This portion of the survey will be used in a summary to characterize data being collected. The information reported will not include individual or restaurant names. Please circle or write in the appropriate response.

1. Years in restaurant industry: __________

2. Current position
   a. Owner
   b. Manager
   c. Executive Chef
   d. Cook
   e. Other __________

3. Age
   a. 18-29 years old
   b. 30-49 years old
   c. 50-64 years old
   d. 65 years or older

4. Gender
   a. Male
   b. Female

5. Ethnicity (Circle all that apply)
   a. White
   b. Hispanic or Latino
   c. Black or African American
   d. Native American or American Indian
   e. Asian / Pacific Islander
   f. Other __________
6. Level of education
   a. Less than a high school diploma
   b. High school degree or equivalent (e.g. GED)
   c. Some college, no degree
   d. Bachelor's degree (e.g. BA, BS)
   e. Postgraduate degree

7. Have you had training focused on nutrition? Yes No

7a. If yes, how much training have you had that focused on nutrition?
   a. Little
   b. Some
   c. Substantial

8. Have you had culinary training? Yes No

Additional Comments or Feedback: ____________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________

Version: 3/1/2018
Appendix C

Outlet ID: ____________________  Date: _______ - _______ - _______

EAT FIT OUTLET ENVIRONMENTAL ASSESSMENT

VISIT – CIRCLE APPROPRIATE NUMBER

INITIAL..............................................01
FOLLOW-UP........................................02
RELIABILITY CHECK............................03

TYPE OF OUTLET

- FAST FOOD...........................................01
- FAST CASUAL........................................02
- SIT DOWN...........................................03
- SPECIALTY...........................................04
- OTHER..................................................05

TYPE:_____________________________________

DATE, TIME, AND ENUMERATORS

DATE ...........................................[____] : [____] : [____]

RECODER NAME ____________________________

TIME IN...........................................[____] : [____] am/pm

TIME OUT...........................................[____] : [____] am/pm

FINAL STATUS – CIRCLE APPROPRIATE NUMBER

- OBSERVATION COMPLETED..........................01
- OUTLET NOT FOUND ..............................02
- OUTLET NOT OPEN TODAY.......................03
- OUT OF BUSINESS ...............................04
- NOT SAFE .........................................05
- NO PERMISSION .................................06
- OTHER ...........................................07

EXPLANATIONS:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

HOURS OF OPERATION – Circle all that apply.

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OPEN 24 Hours

Version: 3/23/18
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<td>C. Are there advertisements on the exterior of the outlet?</td>
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<td></td>
</tr>
<tr>
<td>D. Do exterior signs/displays highlight healthy menu items?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E. Do exterior signs/displays encourage healthy eating?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F. Do exterior signs/displays encourage unhealthy eating?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G. Do exterior signs/displays encourage overeating (all-you-can-eat,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>super-size, jumbo, supreme, king size, feast descriptors)?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H. Are Eat Fit stickers displayed in the windows?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I. Other?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 2. Interior Characteristics

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Does the restaurant have a salad bar?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B. Does the restaurant have a buffet?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C. Is nutrition information posted near point-of-purchase or available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>in a brochure?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D. Do interior signs/table tents/displays highlight healthy menu items</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E. Do interior signs/table tents/displays encourage healthy eating?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### F. Do interior signs/table tents/displays encourage unhealthy eating?  
**Yes** | **No**
--- | ---
| # ____ |

### G. Do interior signs/table tents/displays encourage overeating (all-you-can-eat, super-size, jumbo, supreme, king size, feast descriptors)?  
**Yes** | **No**
--- | ---
| # ____ |

### H. Are healthy options identified by displayed participation in branded recognition programs?  
**Yes** | **No**
--- | ---

### I. Are healthy options highlighted using bold, larger, or different fonts?  
**Yes** | **No**
--- | ---

### J. Are healthy options highlighted using key "healthy" words?  
**Yes** | **No**
--- | ---

### K. Are healthy options highlighted using health-related pictures, symbols, or logos?  
**Yes** | **No**
--- | ---

### L. Is nutritional information displayed in the outlet?  
**Yes** | **No**
--- | ---

### M. Other?  
__________________________  
**Yes** | **No**
--- | ---

### 3. Menu Review

A. Number of menus offered: # ________________

B. Type of menus under review (circle all that apply):

1. Breakfast/Brunch  
2. Lunch  
3. Dinner  
4. Bar  
5. Children’s  
6. Seniors’  
7. Dessert  
8. Appetizer  
9. Other: ____________________________

C. Total number of main dishes/entrees/entrée salads
   a. Number of these that are Eat Fit approved  
   
   | # ____ | # ____ |

D. Total number of apps/starters/sides  
   a. Number of these that are Eat Fit approved  
   
   | # ____ | # ____ |

E. Fruit (without added sugar) available
   a. Number of these that are Eat Fit approved  
   
   | Yes | No |

   | # ____ |

F. Non-fried vegetables available
   a. Number of these that are Eat Fit approved  
   
   | Yes | No |

   | # ____ |

Version: 3/23/18
<table>
<thead>
<tr>
<th>G. Breads available</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. 100% wheat or whole grain breads available</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>H. Other?</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

### 4. Facilitators/Supports for Healthy Eating

<table>
<thead>
<tr>
<th>A. Is nutrition information provided on the menu (e.g., calorie count)?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>B. Are Eat Fit dishes identified on the menu?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>C. Are Eat Fit dishes identified with appropriate Eat Fit seals?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>D. Are other healthier dishes (not Eat Fit dishes) identified on the menu?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>E. Is proper Eat Fit verbiage visible on menu with call to action to visit website or download Eat Fit app?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>F. Are reduced-size portions of regular (non-Eat Fit) dishes offered on the menu?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>G. Are there menu notations that encourage healthy requests?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>H. Other supports for healthy eating?</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

### 5. Barriers to Healthy Eating

<table>
<thead>
<tr>
<th>A. Are large portion sizes encouraged? (e.g., super-size items on menu)</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>B. Are there menu notations that discourage special requests? (e.g., no substitutions, charge for substitutions)</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>C. Are “all you can eat” or “unlimited trips” promoted?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>D. Other barriers to healthy eating?</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>
6. Pricing

<table>
<thead>
<tr>
<th>A. Pricing of main dishes/entrees</th>
<th>$</th>
<th>$$</th>
<th>$$$</th>
<th>$$$$</th>
</tr>
</thead>
<tbody>
<tr>
<td>B. Pricing of Eat Fit dishes compared to regular dishes</td>
<td>More</td>
<td>Less</td>
<td>Same</td>
<td>N/A</td>
</tr>
<tr>
<td>C. Pricing of smaller portions compared to regular portions</td>
<td>More</td>
<td>Less</td>
<td>Same</td>
<td>N/A</td>
</tr>
<tr>
<td>D. Charge for shared dishes</td>
<td>Yes</td>
<td>No</td>
<td>Unknown</td>
<td></td>
</tr>
<tr>
<td>E. Other?</td>
<td>Yes</td>
<td>No</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7. Eat Fit Implementation

| A. PRE IMPLEMENTATION
How many dishes have the potential to be Eat Fit dishes AS IS prior to restaurant onboarding? | # _________ | N/A |
| B. PRE IMPLEMENTATION
How many Eat Fit dishes is the restaurant planning to add? | # _________ | N/A |
| C. PRE IMPLEMENTATION
How many Eat Fit dishes is the restaurant planning to modify? | # _________ | N/A |
| D. PRE IMPLEMENTATION
How many TOTAL dishes is the restaurant planning to brand as Eat Fit? | # _________ | N/A |
| E. POST IMPLEMENTATION
How many Eat Fit dishes are offered in this restaurant? | # _________ | N/A |
| F. POST IMPLEMENTATION
Are there any other Eat Fit promotion materials present in restaurant (not captured above)? | Yes | No | N/A |

If yes, please describe: ___________________________________________________________

_________________________________________
Outlet ID: ___________________________  Date: _______ - _______ - _______

8. Website Review

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Does this restaurant have a website?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B. Are menus available on the website?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C. Is Eat Fit recognized on the website?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D. Is nutrition information (or link to Eat Fit website or mobile application to find nutrition facts) provided on the website?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E. Are specific Eat Fit dishes identified on the restaurant website?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F. Other?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

9. Additional Comments

COMMENTS ABOUT THE OUTLET: __________________________________________
_________________________________________________________________
_________________________________________________________________
_________________________________________________________________
Restaurant Management Survey

The purpose of this survey is to gather information about Eat Fit restaurants and opinions of restaurant management to assist in the evaluation of the Eat Fit program. Please answer each question to the best of your ability. Thank you.

Restaurant name: ___________________________  Zip Code: ________________

Section 1. Restaurant Characteristics
This section of the survey will ask questions about characteristics of this restaurant. Please answer each question to the best of your ability.

1. Number of employees: ___________
   a. Full-time: ________  b. Part-time: ________  c. Number of managers (not including self): ________
2. Years in operation: ________
3. Restaurant seating capacity: ________
4. On average, how many patrons does your restaurant serve monthly? ________

Please circle your response on the following questions.

5. How would you characterize the type of cuisine offered in this restaurant? (Circle all that apply)
   a. BBQ
   b. Deli/Café
   c. Mexican/Tex-Mex
   d. Italian
   e. Asian
   f. Pizza
   g. Breakfast/Brunch
   h. American
   i. French
   j. Cajun/Creole
   k. Mediterranean
   l. Seafood
   m. Other: __________
Restaurant ID: ____________________

6. Does your restaurant have multiple facilities/locations? Yes No
   a. If yes, how many locations? __________

7. This restaurant is (Circle your response):
   a. Family or individually owned   b. Corporate owned
   c. Other ______________________

8. This restaurant is operated by (Circle your response):
   a. Owners (Individual/Family)   b. Corporate Team
   c. Outside management company   d. Other ________________

Section 2. Your Opinion Matters

This portion of the survey is being used to gather information on your opinions about your restaurant’s food options and Eat Fit. Please respond as accurately as possible. Please circle the response which best describes your level of agreement.

It is my opinion that...

1. restaurants have the ability to influence eating behavior of customers.
   1 Strongly Disagree  2 Disagree  3 Neutral  4 Agree  5 Strongly Agree

2. restaurants do not have a responsibility to offer healthy food options to customers.
   1 Strongly Disagree  2 Disagree  3 Neutral  4 Agree  5 Strongly Agree

3. it is important that this restaurant offer healthy food options.
   1 Strongly Disagree  2 Disagree  3 Neutral  4 Agree  5 Strongly Agree

4. there is not a demand among this restaurant’s customers for healthy food options.
   1 Strongly Disagree  2 Disagree  3 Neutral  4 Agree  5 Strongly Agree

5. availability of healthy menu options is important to my customers.
   1 Strongly Disagree  2 Disagree  3 Neutral  4 Agree  5 Strongly Agree

Version: 9/2018
The following set of statements relate to opinions about this restaurant’s staff. Please circle the number which best describes your level of agreement.

It is my opinion that this restaurant’s staff.....

6. can easily modify menu items to offer healthy food options.
6.1 Strongly Disagree 6.2 Disagree 6.3 Neutral 6.4 Agree 6.5 Strongly Agree

7. does not support learning about healthier food preparation methods.
7.1 Strongly Disagree 7.2 Disagree 7.3 Neutral 7.4 Agree 7.5 Strongly Agree

8. has the knowledge to promote healthy food items.
8.1 Strongly Disagree 8.2 Disagree 8.3 Neutral 8.4 Agree 8.5 Strongly Agree

9. does not have the knowledge to prepare healthy food items.
9.1 Strongly Disagree 9.2 Disagree 9.3 Neutral 9.4 Agree 9.5 Strongly Agree

10. has the skills to prepare healthy food items.
10.1 Strongly Disagree 10.2 Disagree 10.3 Neutral 10.4 Agree 10.5 Strongly Agree

11. needs more training on nutrition.
11.1 Strongly Disagree 11.2 Disagree 11.3 Neutral 11.4 Agree 11.5 Strongly Agree
We would like to hear more about your thoughts about and experiences with Ochsner’s Eat Fit program. Please circle the response that best describes your level of agreement

It is my opinion that....

12. adding Eat Fit healthy food options has contributed to increased sales.
   Strongly Disagree     Disagree     Neutral     Agree     Strongly Agree
   1                     2            3            4            5

13. Eat Fit has had a positive impact on this restaurant.
   1                     2            3            4            5

14. participation in Eat Fit has increased access to healthy food options for customers.
   1                     2            3            4            5

15. this restaurant’s staff is more aware of nutrition as a result of participation in Eat Fit.
   1                     2            3            4            5

16. this restaurant’s staff has not supported promoting Eat Fit dishes.
   1                     2            3            4            5

17. this restaurant’s staff has received adequate training to implement Eat Fit.
   1                     2            3            4            5

18. implementing Eat Fit has been a burden for restaurant staff.
   1                     2            3            4            5

19. joining Eat Fit has enhanced this restaurant’s reputation with customers.
   1                     2            3            4            5

20. Eat Fit has not been well received by customers.
   1                     2            3            4            5

21. my customers have chosen Eat Fit dishes when offered.
   1                     2            3            4            5

22. Eat Fit helps customers make healthier food choices.
   1                     2            3            4            5

23. Eat Fit has not drawn new customers to my restaurant.
   1                     2            3            4            5

Version: 9/2018
24. offering Eat Fit items on the menu has led to higher customer satisfaction
25. customers are more aware of nutrition as a result of our participation in Eat Fit.
26. my customers appreciate having Eat Fit food options.

The following questions are related your level of confidence about some items of interest. Please circle the number that best represents your level of confidence in the following items.

How confident are you that you can....

27. implement the Eat Fit program in this restaurant?
28. help this restaurant’s staff to support the Eat Fit program?
29. help this restaurant’s staff to promote the Eat Fit program?
30. help this restaurant’s staff to learn about healthier food preparation methods?

31. What barriers have been associated with offering healthy food options through Eat Fit? (Circle all that apply)
   a. Lack of profitability and sales
   b. Insufficient staff nutrition knowledge
   c. Low customer demand
   d. Lack of staff skills/training
   e. Difficulty with menu changes
   f. Food storage challenges
   g. Inconsistent ingredient availability and quality
   h. Spoilage or short shelf life of healthier foods
   i. Cost of ingredients
   j. Additional food preparation time
   k. Other: ____________________________

Version: 9/2018
Restaurant ID: _______________________

32. What has helped you to implement Eat Fit in this restaurant? (Circle all that apply)
   a. Staff support
   b. Owner support
   c. Customer support
   d. Eat Fit staff support
   e. Eat Fit staff education
   f. Ease of program implementation
   g. Ease of adding or modifying menu options
   h. Other: _______________________

33. What are the reasons that you believe this restaurant became involved with the Eat Fit program? (Circle all that apply)
   a. Attract customers looking for healthier food options/meet current customer demands
   b. Opportunity to work with a registered dietician
   c. Opportunity to analyze menu items for nutritional content
   d. Opportunity to market restaurant through Eat Fit social media
   e. Inclusion in the Eat Fit smart phone app
   f. Increase sales of healthy food options
   g. Desire to increase access to healthy food options for customers
   h. Belief that restaurants should offer healthy options
   i. Enhancement of restaurant reputation
   j. Other: _______________________

34. How did you hear about Eat Fit? (Circle all that apply)
   a. Eat Fit staff, intern, or ambassador
   b. Social media
   c. Eat Fit smart phone app
   d. TV
   e. Radio
   f. Print (newspaper, magazine)
   g. Eat Fit website
   h. Other restaurants
   i. Friends or Colleagues
   j. Other: _______________________

Version: 9/2018
Section 3. Information about You

Please note that completion of this section will be used ONLY to characterize the information being collected from you. All information is confidential and none of the information asked below will be associated with your name in any way. Everything will be stored under a restaurant code. Please fill in or circle your response as appropriate.

1. How many years have you been in the restaurant business? __________

2. How long have you been working in this particular restaurant? ________

3. Your current position:
   a. Owner
   b. Manager
   c. Executive Chef
   d. Cook
   e. Other

4. Your age:
   a. 18-29 years old
   b. 30-39 years old
   c. 40-49 years old
   d. 50-59 years old
   e. 60 years or older
   f. Prefer not to answer

5. Your gender:
Restaurant ID: ____________________

a. Male
b. Female
c. Prefer not to answer

6. Your ethnicity:
   a. White
   b. Hispanic Black
   c. Hispanic non-Black
   d. Black or African American
   e. Native American or American Indian
   f. Asian / Pacific Islander
   g. Other
   h. Prefer not answer

7. Your level of education:
   a. Less than a high school diploma
   b. High school degree or equivalent (e.g. GED)
   c. Some college, no degree
   d. College degree (e.g. BA)
   e. Postgraduate degree
   f. Prefer not to answer

8. Have you had any formal training focused on nutrition?   Yes   No
Restaurant ID: ________________________

7a. If yes, how much formal training have you had that focused on nutrition?
   a. Little       b. Some         c. Substantial

9. Do you believe the process to become an Eat Fit partner was sufficient to implement Eat Fit in your restaurant?
   Yes               No

If no, do you have suggestions the Eat Fit program staff?
________________________________________________________________________

________________________________________________________________________

10. Have you had formal culinary training?       Yes               No

Additional Comments: ________________________
________________________________________________________________________

________________________________________________________________________
Appendix E

"Hello, my name is ___________. If I could take just a few minutes of your time, I would like to ask you some questions about your experience eating in this restaurant. I represent the Tulane University Prevention Research Center, and we are interested in learning more from restaurant customers about the impact of a program called Eat Fit. Are you OK with giving me just a few minutes of your time?

If yes, continue. If no, mark as refusal.

Before I begin, I would like to make sure you are eligible for the interview.

Are you 18 years of age or older?
   Yes [CONTINUE survey]
   No [STOP survey and say "Thank you for your time but I need to talk to someone who is at least 18 years old."]

Do you live or work in the Greater New Orleans area?
   Yes [CONTINUE survey]
   No [STOP survey and say "Thank you for your time but I need to talk to someone who lives or works in the New Orleans area."]

We anticipate that the survey will take about 5 minutes to complete.

First of all, you have the right to refuse providing answers to this survey or any particular question in the survey and you have the right to stop the survey at any time. It is important that you know that any information you provide will be confidential. Your name will not be connected with this information. If you have questions about the purpose or the structure of this study, we will answer them fully.

Are you prepared to take part in this survey?
   Yes [CONTINUE survey – verbal consent granted]
   No [STOP survey – no verbal consent – and say "Thank you for your time!" and record refusal]
I would like to ask a few questions about your opinions. People have varying opinions on the following topics. On a scale of 1 to 5 with 1 being strongly disagree to 5 being strongly agree, to what extent do you agree with the following statements:

1. I think it is important for restaurants to offer healthy food items.
2. I think it is important to be able to eat healthfully at restaurants.
3. I think having to worry about eating healthy food at restaurants makes eating out less pleasurable.
4. When I eat out, if healthy food options are available, I try to choose the healthy food items.
5. When I eat out, the healthfulness of a food item has little impact on my food choices.
6. Healthy food items are just as appealing as any other menu items.
7. Healthy food items are as good of a value as any other menu item.
8. Healthy food items are not usually as tasty as other menu items.
9. In general, it is difficult for me to find healthy food items when eating out.
10. In this restaurant, it is easy for me to find healthy food items.
11. This restaurant makes it easy for a person to make healthy food choices.
12. This restaurant offers healthy food items that are easily identified on the menu.

Now thinking about your family members and friends,
On a scale of 1 to 5 with 1 being strong disagree to 5 being strongly agree, to what extent do you agree with the following statements:

13. I have family members that think I should choose healthy food items when eating out.
14. I have friends that think I should choose healthy food items when eating out.
15. I have family members that encourage me to choose healthy food items when eating out.
16. I have friends that encourage me to choose healthy food items when eating out.
17. I encourage **family members** to choose healthy food items when eating out.

18. I encourage **friends** to choose healthy food items when eating out.

**On a scale of 1 to 5 with 1 being not confident at all and 5 being very confident,**

19. How confident are you in your ability to choose healthy foods items when eating out?

20. How confident are you in your ability tell the difference between healthy and less healthy food items?

21. How confident are you in your ability to order broiled or grilled foods rather than fried foods when eating out?

22. How confident are you in your ability to avoid heavy sauces when eating out?

23. How confident are you in your ability to eat smaller portions of high calorie foods?

**Finally, I have a few questions about your awareness of and experience with the Eat Fit program:**

24. Do you know about Ochsner’s Eat Fit program?
   
   Yes  No

24a. If yes, on a scale of 1 to 5 with 1 being not at all and 5 being a lot, to what extent do you believe having Eat Fit menu options in restaurants can help you make healthier food choices?

24b. Where did you hear about Eat Fit? (Open ended but will have categories for responses on Redcap)

25. Did you notice the Eat Fit labels on the menu at this restaurant identifying healthy food items?
   
   Yes  No  Not sure

25a. If yes, on a scale of 1 to 5 with 1 being not at all and 5 being a lot, to what extent did the label influence what you ordered at this restaurant today?

26. Did you order an Eat Fit food item at this restaurant today?
   
   Yes  No  Not Sure
26a. If yes, on a scale of 1 to 5 with 1 being not at all and 5 being a lot, to what extent did Eat Fit influence what you ordered today?

26b. If no, did you consider ordering an Eat Fit food item and then change your mind?

   Yes   No

27. Are you aware of the Eat Fit mobile app?

   Yes   No

27a. If yes, have you accessed the Eat Fit mobile app?

   Yes   No

27ai. If yes, on a scale of 1 to 5 with 1 being not at all to 5 being a lot, to what extent did the Eat Fit mobile app influence your choice of restaurant?

I want to close with a few final questions about you for statistical purposes just so that we can characterize the information that we get from customers. Your name will not be associated with any of your responses to these questions.

28. How often do you eat out? Let them answer openly and then clarify if necessary to fit in one of these categories.

   a. Less than once per month
   b. 1-2 times per month
   c. 1-2 times per week
   d. 3-4 times per week
   e. 5 or more times per week

29. Are you currently trying to (select all that apply):

   a. Lose weight   Yes or No
   b. eat less fat   Yes or No
   c. eat less salt  Yes or No
   d. make other dietary changes Yes or No

30. What is your age? _____

31. How would you describe your ethnicity?

   a. Caucasian or White
   b. African-American or Black
   c. Hispanic or Latino
   d. Asian
32. What is the highest degree or level of school you have completed?
   a. Less than a high school diploma
   b. High school degree or equivalent (e.g. GED)
   c. Some college, no degree
   d. College degree (e.g. BA)
   e. Postgraduate degree

33. What is your zip code where you live?

34. Were you celebrating a special occasion in this restaurant today? Yes or no

35. Gender(observed)

AFTER ADMINISTERING THE SURVEY

Thank the participant for their time. If the participant has further questions or comments about the research, provide them with contact information for the Prevention Research Center.
Appendix F. Confirmatory Factor Analysis Results – Customer Intercept Interviews

Confirmatory factor analysis was conducted to evaluate convergent and divergent validity using data from 608 customer interviews. Twenty-one self-report items from the Customer Intercept Interviews were included to measure 6 factors: beliefs, attitudes, perceptions of the environment, social support, and self-efficacy (Table 1).

Table 1. Customer Intercept Interview Factors and Items

<table>
<thead>
<tr>
<th>Factor</th>
<th>Item</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beliefs</td>
<td>a. I think it is important for restaurants to offer healthy food items.</td>
<td>Strongly Disagree = 1</td>
</tr>
<tr>
<td></td>
<td>b. I think it is important to be able to eat healthfully at restaurants.</td>
<td>Disagree = 2</td>
</tr>
<tr>
<td></td>
<td>c. I think having to worry about eating healthy food at restaurants makes eating out less pleasurable.*</td>
<td>Neutral = 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Agree = 4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Strongly Agree = 5</td>
</tr>
<tr>
<td>Attitudes</td>
<td>a. Healthy food items are just as appealing as any other menu items.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. Healthy food items are as good of a value as any other menu item.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>c. Healthy food items are not usually as tasty as other menu items.*</td>
<td></td>
</tr>
<tr>
<td>Healthy eating behaviors</td>
<td>a. When I eat out, if healthy food options are available, I try to choose the healthy food items.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. When I eat out, the healthfulness of a food item has little impact on my food choices.*</td>
<td></td>
</tr>
<tr>
<td>Perceptions of environment</td>
<td>a. In general, it is difficult for me to find healthy food items when eating out.*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. In this restaurant, it is easy for me to find healthy food items on the menu</td>
<td></td>
</tr>
<tr>
<td></td>
<td>c. This restaurant makes it easy for a person to make healthy food choices.</td>
<td></td>
</tr>
<tr>
<td>Social Support</td>
<td>a. I have <strong>family members</strong> that encourage me to choose healthy food items when eating out.</td>
<td></td>
</tr>
<tr>
<td>---------------</td>
<td>-------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. I have <strong>friends</strong> that encourage me to choose healthy food items when eating out.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>c. I encourage <strong>family members</strong> to choose healthy food items when eating out.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>d. I encourage <strong>friends</strong> to choose healthy food items when eating out.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Self-efficacy</th>
<th>a. How confident are you in your ability to choose healthy foods items when eating out?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>b. How confident are you in your ability to tell the difference between healthy and less healthy food items?</td>
</tr>
<tr>
<td></td>
<td>c. How confident are you in your ability to order broiled or grilled foods rather than fried foods when eating out?</td>
</tr>
<tr>
<td></td>
<td>d. How confident are you in your ability to avoid heavy sauces when eating out?</td>
</tr>
<tr>
<td></td>
<td>e. How confident are you in your ability to eat smaller portions of high calorie foods?</td>
</tr>
</tbody>
</table>

*reverse-coded

A total of eight items were eliminated, because they failed to meet a minimum criteria of having a factor loading of .4 or above. The items “I think having to worry about eating healthy food at restaurants makes eating out less pleasurable,” “Healthy food items are not usually as tasty as other menu items,” “When I eat out, the healthfulness of a food item has little impact on my food choices,” “In general, it is difficult for me to find healthy food items when eating out,” “I have family members that encourage me to choose healthy food items when eating out,” and
“How confident are you in your ability to tell the difference between healthy and less healthy food items?” were eliminated. To improve model fit, “How confident are you in your ability to choose healthy foods items when eating out?” and the factor of Eating Behaviors were eliminated.

Table 2. Standardized Factor Loadings for Customer Factors Related to Eat Fit New Orleans Program and Healthy Food Options (N=608)

<table>
<thead>
<tr>
<th>Factor</th>
<th>Item</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beliefs</td>
<td>d. I think it is important for restaurants to offer healthy food items.</td>
<td>0.89</td>
</tr>
<tr>
<td></td>
<td>e. I think it is important to be able to eat healthfully at restaurants.</td>
<td>0.87</td>
</tr>
<tr>
<td>Attitudes</td>
<td>d. Healthy food items are just as appealing as any other menu items.</td>
<td>0.87</td>
</tr>
<tr>
<td></td>
<td>e. Healthy food items are as good of a value as any other menu item.</td>
<td>0.56</td>
</tr>
<tr>
<td>Perceptions of environment</td>
<td>c. In this restaurant, it is easy for me to find healthy food items on the menu</td>
<td>0.86</td>
</tr>
<tr>
<td></td>
<td>d. This restaurant makes it easy for a person to make healthy food choices.</td>
<td>0.95</td>
</tr>
<tr>
<td></td>
<td>e. This restaurant offers healthy food items that are easily identified on the menu.</td>
<td>0.74</td>
</tr>
<tr>
<td>Social Support</td>
<td>a. I have friends that encourage me to choose healthy food items when eating out.</td>
<td>0.46</td>
</tr>
<tr>
<td></td>
<td>b. I encourage family members to choose healthy food items when eating out.</td>
<td>0.84</td>
</tr>
<tr>
<td></td>
<td>c. I encourage friends to choose healthy food items when eating out.</td>
<td>0.90</td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>f. How confident are you in your ability to order broiled or grilled foods rather than fried foods when eating out?</td>
<td>0.61</td>
</tr>
<tr>
<td></td>
<td>Question</td>
<td>Score</td>
</tr>
<tr>
<td>---</td>
<td>-------------------------------------------------------------------------</td>
<td>-------</td>
</tr>
<tr>
<td>g</td>
<td>How confident are you in your ability to avoid heavy sauces when eating out?</td>
<td>0.76</td>
</tr>
<tr>
<td>h</td>
<td>How confident are you in your ability to eat smaller portions of high calorie foods?</td>
<td>0.57</td>
</tr>
</tbody>
</table>

A summary of factors and items factor loadings retained in the final model is given in Table 2. Composite scores were created for each of the five remaining constructs as described in Study 3 methodology.

Maximum likelihood was used to estimate model parameters (Chi-square = 72.51, df=55, p=0.06; RMSEA = .023). Correlations between factors ranged from 0.13-0.42.