

A QUALITATIVE APPLICATION OF THE INTEGRATED MODEL OF BEHAVIORAL
PREDICTION TO GRADUATE STUDENT
EATING BEHAVIORS

by

SARAH ELIZABETH PEMBER

STUART L. USDAN, COMMITTEE CHAIR
KELLY W. GUYOTTE
DAVID A. BIRCH
ADAM P. KNOWLDEN
JEN NICKELSON

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ABSTRACT

The clear relationship between diet and disease supports the importance of nutrition-related health promotion efforts across the population. One group at risk for diet-related diseases is the growing population of graduate students in the United States, who represent a diverse array of adults, covering a wide age range and many racial and ethnic designations. Health promotion efforts for graduate students could have far-reaching benefits, but these efforts must be tailored to this population. This study applied phenomenological hermeneutic methodology within the theoretical framework of the Integrated Model of Behavioral Prediction to interpret the eating behaviors of graduate students.

Through a series of thirty-two semi-structured interviews, qualitative data related to dietary intake, food choice, and eating-related behaviors were collected from graduate students at a large, public southeastern university. Thematic analysis was used to evaluate the transcriptions and develop an understanding of the food choice beliefs and intentions of graduate students.

Findings revealed that graduate students feel different from non-graduate student peers, and that perception affects how they make choices regarding their lives and their health. They are not only working within an ambiguous space between undergraduate/graduate student and faculty member but also between young adulthood and adulthood. While negotiating their role as both student and researcher, they simultaneously find themselves negotiating new roles as they move out of young adulthood and into a life stage with transitions such as living on their own for the first time without financial support, finding a partner, getting married or engaged, cohabitation, and having children, although not necessarily in that order, or at all.

Graduate students are well-educated individuals, with a general awareness and knowledge of nutrition and healthy eating practices. However, many graduate students do not consistently perform behaviors that will promote their health and well-being. Making a conscious choice to prioritize their health over other obligations and responsibilities is not perceived as culturally supported during the graduate school experience. The findings of this study help elucidate the strongest beliefs and barriers related to healthy eating practices within this population, which can later be targeted and tested for future health communications and interventions.

DEDICATION

This dissertation is dedicated to all of the students I have had the joy and privilege to work with during my time as coordinator of Tide Together at The University of Alabama. This project is for you, about you, and because of you.

LIST OF ABBREVIATIONS

ACHA	American College Health Association
NCHA	National College Health Assessment
IMBP	Integrated Model for Behavioral Prediction
DGAs	Dietary Guidelines for Americans (2015)
FFQ	Food Frequency Questionnaire
FVC	Fruit & Vegetable Consumption
PBC	Perceived Behavioral Control
SE	Self-Efficacy
TPB	Theory of Planned Behavior
TRA	Theory of Reasoned Action
UA	The University of Alabama
BRFSS	Behavioral Risk Factor Surveillance System

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“And, when you want something, all the universe conspires in helping you to achieve it.”

--Paulo Coelho, *The Alchemist*

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CHAPTER 1
INTRODUCTION

Diet and Disease

Individual health behaviors are major influences on the leading causes of mortality and morbidity in the United States; one of the most important of these behaviors are choices related to one's diet. One of the major concerns in the United States related to morbidity and mortality is the high level of obesity, with the latest data showing an age-adjusted prevalence of 35.0% among men and 40.4% among women in the years 2013-2014 (Flegal, Kruszon-Moran, Carroll, Fryar, & Ogden, 2016). Overall diet is an important factor associated with disease burden, argued by some to be even more important than either physical inactivity or high BMI (Murray, et al., 2013). In recent years, scholars have found less data to support exercise alone to tackle the obesity epidemic and increasing support for the impact of nutrition and dietary intake—alone, or in combination with physical activity--for weight loss (Bouchonville, et al., 2014; Johns, Hartmann-Boyce, Jebb, & Aveyard, 2014; Luke & Cooper, 2013). Although public health messaging implicates lack of exercise for the rise in obesity in the United States population, “you cannot outrun a bad diet” (Malhotra, Oakes, & Phinney, 2015). Fruit and vegetable consumption (FVC) has long been related to innumerable health benefits in the reduction of a myriad of chronic diseases, including hypertension, cardiovascular diseases, obesity, diabetes, and certain types of cancer (Bazzano, 2006). However, FVC is just one part of an individual's larger dietary pattern. Research shows that a health-promoting dietary patterns are predominantly plant-based,

with an emphasis on the consumption of fruits and vegetables, legumes, and whole grains; healthy fats from fish, nuts, and olive oil; and reductions in meat, processed foods, added sugars, and sodium (DGAs, 2015; Sala-Vila, Estruch, & Ros, 2015; Siervo, Lara, Chowdhury, Asho, Oggioni, & Mathers, 2015; USDA, 2014)

Dietary Patterns in the United States

The suboptimal dietary patterns of Americans are causally related to the burden of disease in this country (Ogden, Carroll, Kit, & Flegal, 2014). These dietary patterns, marked by high intakes of saturated fat, sodium, sugar, and empty calories (Grotto & Zied, 2010; see also DGAC, 2015), are shaped by a number of factors. These factors include a cultural food environment that is ‘obesogenic,’ characterized by nutrient-poor, energy-dense, lower-cost convenience foods, or a lack of access to and availability of healthy foods, that make it difficult for individuals to make healthy food choice decisions (DGAC, 2015; Powell, Spears, & Rebori, 2010). The increase of sedentary behaviors in modern society also contributes to poor eating habits; typical behaviors like watching TV, or having a job that involves sitting in an office all day, are especially influential in overeating and eating when not hungry (Chaput, Klingenberg, Astrup, & Sjödin, 2011).

The reported decline in caloric consumption among Americans from 2000-2011 (Ng, Slining, & Popkin, 2014) signified, to the popular media, that the American diet was improving, and public health was perhaps on its way to successfully winning the war against obesity: Americans still might not be meeting recommended guidelines, but they were eating “a little bit less” of everything (Sanger-Katz, 2015). Yet, the caloric intake data came only from packaged goods that could be scanned into the Nielsen Homescan system, meaning there was no indication of the level to which Americans were purchasing loose fruits and vegetables, bulk items such as

nuts or dry grains, or food from places such as a farmers market. The fact that 67-71% of calories came from scannable goods is troubling when considering that the Dietary Guidelines for Americans 2015 Advisory Board describes a healthy dietary pattern as one primarily composed of the very items—such as fruits, vegetables, fresh fish, nuts (Dietary Guidelines Advisory Committee [DGAC], 2015)—not measured in the study.

Statement of the Problem

Based upon the vast amount of epidemiological evidence that healthy diets can reduce the physically, psychologically, and financially devastating burden of many chronic diseases plaguing the U.S., it is absolutely necessary that health educators at all levels increase attention to the promotion of healthier dietary patterns, across all segments of the population.

Graduate Students in the United States

One such segment of the population in need of tailored nutrition-related health promotion is the ever-growing population of graduate students in the United States. A graduate student is any student “who holds a bachelor’s degree, or equivalent, and is taking courses at the post baccalaureate level” (NCES, 2015). Driven by changing societal expectations that place heightened importance on higher education for occupational advancement and financial stability (Kasworm, 2003), a majority of both U.S. and international adult graduate students who return to school do so to further or change their career, although some students may be pushed by more personal goal fulfillment, social opportunities, passion for a particular subject, or simply the desire to learn (Lin & Wang, 2015). According to the Council of Graduate Schools (CGS), 2014 held record-setting numbers for applications, acceptance, and enrollment in graduate school (Allum & Okahana, 2015). The latest reports from the National Center for Education Statistics emphasize the vast number of students currently enrolled in graduate study in this country: total

post baccalaureate enrollment in Fall 2013 was 2,900,954 students, and that number is projected to reach 3,495,000 by the year 2024, a growth of 20% over 11 years (Kena, et al., 2015; NCES, 2014). Graduate students are not only an ever-growing population of adults in the U.S., but also represent a demographically diverse proportion of the population. The majority of full-time graduate students at both public and private non-profit institutions in 2013 were young adults or adults age 25-39 years old; the full-time students at private, for-profit institutions tend to be older, with 34% age 30-39 and 40% age 40 or above (Kena, et al., 2015). White students make up a significant majority of graduate student enrollment at 66.5%, with Black (14.4%), Hispanic (8.7%), and Asian (7.4%) of students trailing far behind.

Graduate Student Health Promotion

Colleges and universities, as well as health educators and researchers, have historically neglected to target this population as a specific group. It is likely that the primary reason for a lack of targeted graduate student health behavior research is the longstanding belief that graduate students are simply an extension of their undergraduate counterparts, (Polson, 2003). However, graduate schools and departments are in the perfect position to promote health and well-being among their students (Hassan El-Ghoroury, Galper, Sawaqdeh, & Bufka, 2012). It is important not to overlook this group, especially as their experiences and the strategies they develop to promote their own well-being may set them up for future transitions into life and career post-graduate school (Stubb, Pyhältö, & Lonka, 2011). To that end, tailored health messaging and interventions must be developed to meet their unique needs, separate from those of undergraduate students.

Theoretical Framework: The Integrated Model of Behavioral Prediction

The Integrated Model for Behavioral Prediction (IMBP) is a valuable theoretical framework to use in determining the content of targeted health communication messages and educational health interventions (Fishbein, 2008; Yzer, 2012). Originally developed to assist in AIDS and HIV prevention programming (Fishbein, 2000), IM has since been used to explain and predict diverse health behaviors in a multitude of diverse populations both nationally and internationally, and in both qualitative and quantitative study designs. IMBP is based on the premise that there are a relatively small number of variables determining a large proportion of the variance in individual health behavior (Fishbein 2000, 2008).

IMBP has been referred to as the “two-component Theory of Planned Behavior” (Elliot & Ainsworth, 2012), because it takes the three main constructs of TPB—attitude, subjective norm, and perceived behavioral control (PBC)—and divides them into two parts. *Attitudes* stem from specific evaluation about the behavior itself, as well as beliefs about the likelihood that performing the behavior will have certain outcomes. *Subjective norm* includes both an injunctive norm, or whether others in one’s social group will approve or disapprove of the behavior, and descriptive norm, or how common the behavior is within one’s social group. Measurement of the subjective norm sometimes includes an element of one’s motivation to comply with the norms of the relevant social networks. *PBC*’s two components are self-efficacy and controllability (Ajzen, 2002). Self-efficacy is not only one’s confidence in being able to perform the behavior, but his perceived capability to perform despite barriers or difficult circumstances. (Yzer, 2012). Controllability relates to the extent the individual is responsible for their behavior (Ajzen, 2002).

IMBP is a model of reasoned action, signifying that people’s actions are driven by developed intentions (Fishbein, 2000, 2008). However, intentions alone cannot ensure behavior

(Gollwitzer, 2009), and there are a number of influences that can increase or decrease the likelihood of an individual performing the desired behavior and acting upon their intentions (Fishbein & Capella, 2006). IMBP includes a socio-ecological perspective, recognizing that even with the strongest intentions, there may be a lack of requisite skills or the existence of environmental constraints that make actual performance more difficult or impossible.

Methodological Framework: Phenomenological Hermeneutics

Because of the attention placed on the unique backgrounds, attitudes, and perceptions of defined target populations, IMBP is a perfect fit with phenomenological hermeneutic methodology. Both theory and methodology are grounded in the belief that true understanding of phenomena—in this case, eating and cooking in graduate school—can only come with an awareness of the individuals' perceptions and experiences of that phenomenon. The purpose of phenomenological research as grounded in the need to make morals (internalized norms, values, and attitudes) visible by focusing on “the understandable meaning” of lived experiences, not approaching these experiences as something factual (Lindseth & Norberg, 2004). The underlying assumption is there is not one truth or reality, but a truth and reality specific to a single person at a single point in time. In phenomenological hermeneutics, awareness and understanding of a phenomenon is the result of analysis and interpretation by the researcher of written texts created from shared stories of human experience. Phenomenological hermeneutics differs from descriptive phenomenology in that the researcher must not completely bracket out previous understandings, but accepts and reflects upon her own pre-understandings, which include theoretical understandings and personal experiences of the phenomena under study.

Purpose of the Study

The purpose of this study was to apply the Integrated Model of Behavioral Prediction (IMBP) to graduate student eating behaviors. This study aimed to determine the strongest held beliefs influencing eating behavior intentions among graduate students, as well as any barriers that prevent or assets that promote the performance of positive eating behaviors.

Addressing the Problem

This study utilized the full and complete Integrated Model of Behavioral Prediction to evaluate the strongest attitudinal, normative, and control beliefs, as well as the influence of both individual skills and environmental factors on intention for healthy eating behaviors in a socio-demographically diverse population of graduate students. The specific behaviors under study were eating a variety of fruits and vegetables; limiting the intake of added sugar and sodium by reducing consumption of processed foods, fast foods, and desserts; cooking meals at home; and meal planning. The determination of the strongest beliefs and most influential variables may serve as potential candidates for future health communication messaging interventions related to promoting healthy eating for this group in the future.

This study included the first two steps outlined by Yzer (2012) for determining effective, targeted health communications: 1) clear definition of the health behavior, and 2) gathering information directly from the population to be targeted with the health promotion effort. This formative elicitation research was grounded in phenomenological hermeneutics, and included a series of semi-structured interviews with a diverse cross-section of graduate students. During these interviews, students shared their beliefs and perceptions about eating behavior intentions, barriers to healthy eating behavior, and facilitators for carrying out the specified behavior's performance.

Significance of the Study

This study applied The Integrated Model of Behavioral Prediction to eating behavior, a health behavior with which the model has not previously been used. Additionally, this study added to the very limited body of research regarding graduate student health, providing information for future nutrition education and health promotion in this growing, diverse, and understudied at-risk population.

Limitations

This study was bound by a number of limitations. Qualitative data collection and analysis are not objective processes; the researcher has the ability to either disregard or attend to observations and information (Suzuki, et al., 2007). A phenomenological hermeneutic approach requires the researcher to address her own pre-understandings and continually return to them throughout the data collection and analysis process; the theoretical and experiential understandings of the researcher may be integral to the interpretation of the data.

This study was oriented epistemologically by the belief that knowledge production is intentional; all researchers are active agents in their word by selectively attending to certain information, raising particular questions, and engaging with specific people (Suzuki, et al., 2007). Although thoughtful, purposive recruitment was used to assemble a diverse group, the inherent limitation of purposive recruitment is the restriction on generalizability based upon participant selection (Patton, 1999). The experiences of the thirty-two participants interviewed may not be completely transferrable to other graduate students on the campus, nor to graduate students at different colleges or universities.

Additionally, data collection was completed during the summer months, a time when most graduate students feel less pressure and obligation in their schedules. This timing benefitted

the study by making it more likely that students were willing to commit to an interview, but also may have affected their responses because many discussions involved reflections upon previous semesters, not life as they were currently living it.

Delimitations

The parameters of this study consisted of graduate students at a large public university in the southeastern United States. Participants were required to be current part or full-time graduate students, at least 18 years old, enrolled during the Spring, Summer, and/or Fall 2016 semester at The University of Alabama. The study employed qualitative research methods, specifically the use of semi-structured interviews.

Assumptions

This study assumed that students did not misrepresent themselves demographically. This study also assumed that all participants answered questions in an honest and open manner.

Operational Definitions

Graduate Student: any student who holds a bachelor's degree, or equivalent, and is taking courses at the post baccalaureate level (NCES, 2015)

Eating or Dietary Pattern: the totality of all foods and beverages consumed (Dietary Guidelines for Americans, 2015)

Healthy Eating or Healthy Dietary Pattern: includes the totality of all foods and beverages consumed to meet nutritional needs without exceeding recommended limits for total calories, added sugars, sodium, and saturated fats; includes a variety of vegetables, fruit, whole grains, fat-free or low-fat dairy (or fortified soy products), a variety of protein foods, and plant-based oils (DGAs, 2015).

Standard American Diet or Western Diet: a diet high in saturated fat, sodium, sugar, and empty calories, dominated by meat, sugary beverages, refined carbohydrates, and other highly processed foods (Grotto & Zied, 2010)

Research Questions

The following research questions were used to guide the study:

RQ1: What are the attitude, norm, and control-relevant beliefs that influence graduate students' eating behavior intentions?

RQ2: What are the environmental factors that affect eating behaviors in the graduate student population?

RQ3: What are the knowledge and skill-based factors that influence eating behaviors in the graduate student population?

RQ4: What are the differences in the attitudinal, self-efficacy, and normative beliefs affecting eating behavior intentions between various graduate student demographic subgroups--based on gender, age, race, and relationship or family status?

Conclusion

The clear relationship between diet and disease supports the importance of nutrition-related health promotion efforts across the population. One significant group at risk for diet-related diseases is the ever-growing population of graduate students in the United States, who represent a diverse array of adults, covering a wide age range and many racial and ethnic designations. Health education and promotion efforts for graduate students would have far-reaching benefits, but these efforts must be tailored to the special needs of this population.

Applying phenomenological hermeneutic methodology within the theoretical framework of the

Integrated Model of Behavioral Prediction (IMBP) to interpret the eating behaviors of graduate students can help elucidate the strongest beliefs and barriers related to healthy eating practices within this population, which can later be targeted and tested for future health communications and interventions.

CHAPTER 2
LITERATURE REVIEW
Eating Behavior in the United States

Diet and Disease

Morbidity and chronic disability account for more than half of the health burden in the United States, and despite spending more money than any other country on health care per capita, the United States has not kept pace with other wealthy nations in advancing population health (Murray et al., 2013). Three of the four leading causes of death and years of life lost in the U.S. – ischemic heart disease, stroke, chronic obstructive pulmonary disease—(Murray et al., 2013) have been directly related to dietary intake (Sala-Vila, Estruch, & Ros, 2015). Lung cancer is the third highest cause of death, and all four cause more than 100,000 deaths more than the trailing diseases. Ischemic heart disease and COPD are also the top two contributors to disability-adjusted life years. High chronic disease rates and heightened population disease risk have lasted in this country for more than two decades, affecting people of all ages, and leading the nation to a reactionary, disease treatment approach rather than a more cost-effective preventative one (DGAC, 2015; Sala-Vila et al., 2015).

Individual health behaviors are major influences on the leading causes of mortality and morbidity in the United States; one of the most important of these behaviors are choices related to one's diet. One of the major concerns in the United States related to morbidity and mortality is the high level of obesity, with the latest data showing an age-adjusted prevalence of 35.0% among men and 40.4% among women in the years 2013-2014 (Flegal, Kruszon-Moran, Carroll,

Fryar, & Ogden, 2016). Overall diet is an important factor associated with disease burden, argued by some to be even more important than either physical inactivity or high BMI (Murray et al., 2013). In recent years, scholars have found less data to support exercise alone to tackle the obesity epidemic and increasing support for the impact of nutrition and dietary intake—alone, or in combination with physical activity—for weight loss (Bouchonville et al., 2014; Johns, Hartmann-Boyce, Jebb, & Aveyard, 2014; Luke & Cooper, 2013). Although public health messaging implicates lack of exercise for the rise in obesity in the United States population, “you cannot outrun a bad diet” (Malhotra, Oakes, & Phinney, 2015).

It has long been known that fruit and vegetable consumption (FVC) is related to innumerable health benefits in the reduction of a myriad of chronic diseases, including hypertension, cardiovascular diseases, obesity, diabetes, and certain types of cancer (Bazzano, 2006). However, FVC is just one part of an overall dietary patterns. While several dietary patterns have been shown to be beneficial nutritional interventions for chronic disease prevention, the Mediterranean Diet, Dietary Approaches to Stop Hypertension (DASH), and diets related to the Dietary Guidelines for Americans (DGAs) are most consistent in showing protective diet-disease relationships, especially for cardiovascular disease risk (Sala-Vila, Estruch, & Ros, 2015; Siervo, Lara, Chowdhury, Asho, Oggioni, & Mathers, 2015; USDA, 2014). These diets are predominantly plant-based, with an emphasis on the consumption of fruits and vegetables, legumes, and whole grains, with healthy fats from fish, nuts, and olive oil, and reductions in meat, processed foods, added sugars, and sodium. Moderate consumption of alcohol is encouraged by proponents of the Mediterranean diet, and allowable under the DGAs (2015).

Dietary Consumption & Trends

Unfortunately the Standard American diet (SAD), often referred to as the Western Diet, is one high in saturated fat, sodium, sugar, and empty calories, dominated by meat, sugary beverages, refined carbohydrates, and other highly processed foods (Grotto & Zied, 2010; see also DGAC, 2015). Additionally, the underconsumption of some essential nutrients, such as Vitamin D, calcium, and fiber, are major public health concerns (DGAC, 2015). The suboptimal dietary patterns of Americans are causally related to the burden of disease in this country. These dietary patterns are shaped by a number of factors, including a cultural food environment that is ‘obesogenic,’ characterized by nutrient-poor, energy-dense, lower-cost convenience foods, or a lack of access to and availability of healthy foods, that make it difficult for individuals to make healthy food choice decisions (DGAC, 2015; Powell, Spears, & Rebori, 2010). The increase of sedentary behaviors in modern society also contribute to poor eating habits and obesity; typical behaviors like watching TV, or having a job that involves working at a computer instead of performing physical tasks, are especially influential in overeating and eating when not hungry (Chaput, Klingenberg, Astrup, & Sjödín, 2011).

The reported decline in caloric consumption among Americans from 2000-2011 (Ng, Slining, & Popkin, 2014) signified, to the popular media, that American diets were improving, and public health was perhaps on its way to successfully winning the war against obesity: Americans still were not meeting recommended guidelines, but they were eating “a little bit less” of everything (Sanger-Katz, 2015). Yet, the study upon which these reports were based showed that the greatest decline was among children, while adults’ intake remained closer to steady, and that the greatest changes came from a reduction in sweetened beverages, not food choices. Even more troubling, the caloric intake data came only from packaged goods that could be scanned

into the Nielsen Homescan system. This means that there was no indication of the level to which Americans were purchasing loose fruits and vegetables, bulk items such as nuts or dry grains, or food from places where there are no bar codes (such as from food service or at a farmers market). Considering the Dietary Guidelines for Americans Advisory Committee (2015) describes a healthy diet as one composed of the very items—such as fruits, vegetables, fresh fish, nuts—not measured in the study, the fact that 67-71% of calories came from scannable goods is troubling.

The study authors readily admit that these are short-term trends, and cannot be considered representative of an overall change in diet quality (Ng, Slining, & Poplin, 2015). In fact, after remaining high, but stable, from 2003-2010 (Ogden, Carroll, Kit, & Flegal, 2014), adult obesity prevalence in this country has risen once again. Additionally, adult Americans continue to consume too much fat and added sugar in their diets (WHO, 2015) while eating a median of only 1.1 servings of fruits and 1.6 servings of vegetables daily (CDC, 2013).

The Healthy Eating Index-2010 is a measure of diet quality that operationalizes the Dietary Guidelines for Americans (DGA) 2010. It measures quality, not quantity (total calorie/energy intake), meaning it cannot take into account individual nutrient or energy intake needs (Guenther, et al., 2013). From 1999-2000 to 2011-2012, the United States improved its HEI-2010 index scores, likely due to increases in fatty acids, seafood and plant proteins, whole grain consumption, and large reductions in empty calorie (solid fats and added sugars) consumption. However, scores on total vegetable intake have stayed relatively stable, increasing only 0.1 point from 3.3 to 3.4 (out of 10), and the nation, as a whole, still falls short of the 2010 DGAs in nearly every component of diet quality. As it stands, the U.S. is not projected to meet all of the Healthy People 2020 Nutrient and Weight Status objectives until 10 years later, in 2030, unless dietary

trends shift dramatically (Wilson, Reedy, & Krebs-Smith, 2015). Even then, it should be noted, dietary intake will still be suboptimal under the DGAs.

Based upon the vast amount of epidemiological evidence that healthy diets can reduce the physically, psychologically, and financially devastating burden of many chronic diseases plaguing the U.S., it is absolutely necessary that health educators at all levels increase attention to the promotion of fruit and vegetable consumption and overall healthier dietary patterns, across all segments of the population.

Graduate Students in the United States

One such at-risk population that should be of great interest to health educators is the ever-growing graduate student population, a diverse group composed of millions of adults, covering a wide array of ages, multiple racial and ethnic classifications, and varied socioeconomic statuses. Effectively reaching this population through health promotion efforts has the potential to create lasting health benefit across a broad range of society.

Definition

A graduate student is any student “who holds a bachelor’s degree, or equivalent, and is taking courses at the post baccalaureate level” (NCES, 2015). Driven by changing societal expectations placing heightened importance on higher education for occupational advancement and financial stability (Kasworm, 2003), a majority of both U.S. and international adult graduate students who return to school do so to further or change their career, although some students may be pushed by more personal goal fulfillment, social opportunities, passion for a particular subject, or simply the desire to learn (Lin & Wang, 2015). By definition of age alone, a vast majority of graduate students can be considered ‘adult learners,’ a term often used to describe any student over the age of 25 in any level of education, generally characterized by multiple

demands and responsibilities outside of school, including family or full-time work obligations (Lin & Wang, 2015; Shepherd & Nelson, 2012). Students over the age of 25 making up 63% of the full-time and 89% of the part-time graduate students enrolled at public institutions; 67% of the full-time and 89% of the part-time graduate students enrolled at private, not-for-profit institutions; and 93% of the full-time and 96% of the part-time graduate students enrolled at private, for-profit institutions (Kena et al., 2015). It may be inferred, therefore, that a majority of graduate students, whether full or part-time and across all types of degree-granting institutions, are balancing multiple roles in addition to their role as students.

Of course, not all graduate students are ‘adult learners.’ Motivations for students who choose to continue directly into graduate school after receiving their bachelor’s degree have not been formally documented. These students may have similar job-related goals or strong interest in a particular subject. Staying in school could also be a product of different changing societal norms, whereby the traditional path of school, work, marriage, and family has been upended, and young adults are spending more time in the “emerging adulthood” stage of life, characterized by identity exploration and self-focus while delaying the transition into adulthood (Arnett, 2000; Henig, 2010).

Demographics

According to the Council of Graduate Schools (CGS), 2014 held record-setting numbers for applications, acceptance, and enrollment in graduate school (Allum & Okahana, 2015). Schools involved in the CGS survey, distributed to 636 institutions in conjunction with the Graduate Record Examination, reported receiving more than 2.1 million applications for entry in Fall 2014, and extending over 850,000 offers of admission. The latest reports from the National Center for Education Statistics only emphasize the vast number of students currently enrolled in

graduate study in this country. Total post baccalaureate enrollment in Fall 2013 was 2,900,954 students, and that number is projected to reach 3,495,000 by the year 2024, a growth of 20% over 11 years (Kena et al., 2015; NCES, 2014). During the 2015–16 school year alone, colleges and universities are expected to award 952,000 associate's degrees; 802,000 master's degrees; and 179,000 doctor's degrees (Kena et al., 2015). Degrees are awarded by both public, private no-for-profit, and private for-profit institutions. In 2014, public institutions awarded 64.5% of the doctoral degrees and 60.2% of the master's degrees, while private, not-for-profit institutions granted 31.5% of the doctoral and 33.6% of the master's degrees (Allum & Okahana, 2015). Only 4.0% of doctoral degrees and 6.2% of master's degrees were awarded by private, for-profit institutions that year.

As evidenced by the data presented above, graduate students are an ever-growing population of adults in this country. They are also a demographically diverse group. The majority of full-time graduate students at both public and private non-profit institutions in 2013 were young adults or adults age 25-39 years old; the full-time students at private, for-profit institutions tend to be older, with 34% age 30-39 and 40% age 40 or above (Kena et al., 2015). White students make up a significant majority of graduate student enrollment at 66.5%, with Black (14.4%), Hispanic (8.7%), and Asian (7.4%) of students trailing far behind. These racial and ethnic distributions are expected to change in the coming years, with the proportion of White graduate student enrollment falling to 56.0%, by the year 2024, Black student enrollment increasing to 16.7%, and Hispanic students experience the greatest projected change, jumping to 17.5% (NCES, 2014). It is also likely that international students will continue to drive the noted increases in first-time student enrollment (Allum & Okahana, 2015). Female enrollment in graduate school has increased at a faster rate than male enrollment since 1990, and women

currently outnumber men in enrollment, with 57.9% at the master's and graduate certificate-level, and 51.0% at the doctoral-level (Allum & Okahana, 2015). This may explain why women are the subject of most target studies on the graduate student experience. No peer-reviewed study can be found in the literature that addresses the male experience of graduate school, but there are a number of studies (Bulmer, Irfan, Barton, Vancour, & Breny, 2010; Haynes, Bulosan, Citty, Grant-Harris, Hudson, & Koro-Ljungberg, 2012; Schmidt & Umans, 2014; Shepherd & Nelson 2012; see also, Marsman, 2014) addressing the specific experiences of women, including Latinas (Espinoza, 2010), and African-Americans (Shavers & Moore, 2014).

Graduate Student Health Research

Despite the size and increasing diversity of the graduate student population, there has been relatively little attention paid to them in terms of targeted health research, health promotion, and intervention. Much of the work previously conducted to examine the graduate school experience and its effects on student well-being has been with a small number of participants: as few as three (Shepherd & Nelson, 2012) or four students (Baptista, 2014; Offstein, Larson, McNeill, & Mwale, 2004). Research with graduate students has often been qualitative in nature, generally comprised of in-depth interviews or focus groups. Even the three studies that statistically analyzed national data from the American College Health Association's National College Health Assessment, while consisting of a comparatively vast set of response data, had graduate students as only 10.8% (Bulmer, Irfan, Barton, Vancour, & Breny, 2010) and 11.1% (Oswalt & Wyatt, 2015; Wyatt & Oswalt, 2013) of their total sample. One of the largest samples (n=223) that did not use secondary data still represented only 3.73% of the total graduate student population at that university (Oswalt & Riddick, 2007).

Graduate Student Well-Being

Much of the health-related and psychological studies of graduate students have focused on their subjective well-being. Subjective well-being may be viewed as a broad measure of an individual's life satisfaction across various domains, including work, family, and health and the moods and emotions associated with these domains (Diener, Suh, Lucas, & Smith, 1999). As it could be an important marker of student success, graduate schools and departments should be concerned not only with the academic achievement of students, but also with their overall well-being (Shavers & Moore, 2014). New students, in particular, have emphasized the connection between their own personal growth in a program, wellness, and struggles in their academic and personal lives; they note that during the times of greatest challenge, they experience the most personal growth, but often at the expense of their overall well-being (Smith & Koltz, 2015). Despite recognizing the connection between personal wellness and the struggles faced while pursuing an advanced degree, there has been relatively little formal study of graduate student well-being (Stubb, Pyhältö, & Lonka, 2011), and the definition of precisely what graduate student well-being is still remains unclear. Some have suggested that doctoral researcher well-being may be defined as the overall well-being of the student, directly affected or influenced by the Ph.D program of study, and which could be improved by efforts or interventions from the university (Juniper, Walsh, Richardson, & Morley (2012). However, studies of graduate student well-being often focus solely on a social science definition, including stress levels, perceived social support, and self-esteem, without attention to well-being from a health lens, which includes physical condition, disease, or illness (Cotton, 2008; Haynes, Bulosan, Citty, Grant-Harris, Hudson, & Koro-Ljungberg, 2012).

Graduate Student Mental Health

Graduate students' mental health issues have been well-documented in the literature (Offstein, Larson, McNeill, & Mwale, 2004; Oswald & Riddick, 2007). Graduate school is an “intensely stressful experience”, and the balancing act it requires leaves students especially vulnerable (Myers, Sweeney, Popick, Wesley, Bordfield, & Fingerhut, 2012). High levels of stress are considered normative in the population (Hassan El-Ghoroury, Galper, Sawaqdeh, & Bufka, 2012); stress and insufficient time management skills are consistently cited as the most burdensome aspects of graduate school. This holds true even among online students (Martinak, 2012). Students in their first years of graduate school may experience more distress, and be more prone to work overload (Rummell, 2015), but each subsequent year brings its own challenges, from adjustment and coursework in the beginning, balancing research and teaching throughout, and the intense focus on dissertation writing while simultaneously searching for a post-graduate position at the end of the process (Schlemper, 2011). The general timeline ambiguity of graduate school adds its own level of uncertainty and stress to the omnipresent academic role confusion between student, researcher, and, in many cases, instructor (Grady, LaTouche, Oslawski-Lopez, Powers, & Simacek, 2014). This distinguishes masters and doctoral students in STEM [Science, Technology, Engineering, Math] or humanities fields from professional students in programs such as medicine or law, where the programs are more structured and students may not have the added responsibilities associated with assistantships (Oswald & Riddick, 2007).

Graduate students experience extreme isolation, not only from the general population of peers who are not in graduate school, but also from their families, and even other students in their programs and in other programs throughout the university. The latter is often blamed on a ‘siloiing’ effect, or lack of integration into the department or university as a whole (Gardner,

2008; Grady, LaTouche, Oslawski-Lopez, Powers, & Simacek, 2014). A majority of graduate students report feeling very lonely at some point in the past 12 months, with 29.7% experiencing loneliness in the past month (ACHA, 2015). Social support most often comes from the families of graduate students (Espinoza, 2010; Schmidt & Umans, 2014). Married students do report less overall stress than those who are not married (Myers, Sweeney, Popick, Wesley, Bordfield, & Fingerhut, 2012).

For graduate students with assistantships or external jobs, it is not just work-life balance, but work-*school*-life balance (Martinez, Ordu, Della Sala, & MacFarlane, 2013). Working outside of the academic program is considered to have a negative impact on one's physical and mental health (Martinez et al., 2013). Stress can come from experiencing major frustrations in both research and in their lives at home (Juniper, Walsh, Richardson, & Morley, 2012), and stress and stress management are significantly related to students' overall health (Oswalt & Wyatt, 2007). Students with families have less flexibility in scheduling, and must balance additional demands (Espinoza, 2010; Shepherd & Nelson, 2012). Interestingly, however, single students with no children appear to have more issues with time management (Martinez, Ordu, Della Sala, & MacFarlane, 2013).

The multiple roles that students fill-- child, employee, friend, parent, sibling, spouse, member of cultural group, student, researcher, assistant, writer (Haynes et al., 2012)-- can cause chronic role strain, defined as ongoing or repetitive difficulties meeting role expectations (Grady LaTouche, Oslawski-Lopez, Powers, & Simacek, 2014). It has been said that "challenges related to managing multiple, often competing, roles, responsibilities, and expectations may be the most universal and defining characteristic of graduate student life" (Benshoff, et al., 2015, p. 84). When students, especially women, cannot meet the demands of the multiple roles they feel,

they experience feelings of frustration and guilt (Schmidt & Umans, 2014). Lack of a partner or children does not eliminate role strain between work and non-work demands (Grady et al., 2014). Different roles will be more salient and different times (Marsman, 2014), meaning school and work are constantly battling for priority status and tradeoffs must be made (Brus, 2006; Martinez, Ordu, Della Sala, & MacFarlane, 2013).

Graduate Student Physical Health

While there has been much attention paid to the psychological effects of role strain and the general graduate school experience, there are no clear assessments or explorations of the repercussions that role strain, or any other aspects of the graduate school experience, may have had on their physical health. Even commentaries and research conclusions that call for improvements in graduate student support services fail to mention direct physical health promotion (Benshoff, Cashwell, & Rowell, 2015; Brus, 2006; Polson, 2003; see also Hassan El-Ghoroury, Galper, Sawaqdeh, & Bufka, 2012; Lin & Wang, 2015). This, despite suggestions in the literature that graduate study may have indeed have negative impacts on not only one's mental health and stress levels, but physical health as well.

Graduate Student Eating Behaviors

Vancour (2009) did suggest overall improvements in the social environment of academia, including access to healthy foods, and the cost-effective strategy of a newsletter with healthy tips for nutrition and exercise, but her study was of mothers holding tenured or tenure-track faculty positions, not of graduate students. While all mothers in academia may experience similar and competing demands related to teaching, research, and family, graduate students are in a transitional status between student and professional (Grady, LaTouche, Oslawski-Lopez, Powers, & Simacek, 2014). This state of transition and role confusion may involve experiences

or barriers related to health behavior that require information or support that is different from that of full-time faculty.

Graduate programs are characterized by intense stress and social isolation, but 62% of graduate students report having legitimate fears about both their mental *and* physical health (Sowell, Allum, & Okahana, 2015). Another study showed that 33.7% of graduate students report their physical health as a primary stressor in their lives (Hassan El-Ghoroury, Galper, Sawaqdeh, & Bufka, 2012). These concerns about physical health likely include eating patterns and behaviors, yet of all the peer-reviewed studies even peripherally related to graduate student health and well-being reviewed for this project, only five include reference to eating behaviors or nutrition at all. Even if it is discussed, either as a survey variable or found in a table of results, nutrition-related behavior among graduate students has never been thoroughly investigated and has never been documented or researched in detail.

In Rummell's (2015) study of the relationships between workload, health, and program satisfaction in a sample of psychology graduate students (n=119), 50% of the students reported an increased appetite, 38.4% reported some change in weight, and every student (100%) reported experiencing some sort of digestive distress during their program. There was a significant relationship between the total number of hours spent engaged in school-related work and increased anxiety and negative effects on physical health.

A study of counselor education students using the 5-Factor Wellness Inventory included data on perceptions of students wellness related to the Physical Self (Perepivzka & Balkin, 2010). This dimension, which included nutrition and exercise as subcategories, was the lowest scoring category overall. Without significant statistical relationship, however, the authors concluded that students may know the importance of nutrition--and exercise--but simply choose

not to integrate healthy habits into their lives. Yet, a larger study of graduate students (Oswalt & Riddick, 2007) revealed that 39% of students would like to receive healthy eating information from their university, and that 30.8% would utilize the information and services if they were provided. The 2015 Spring ACHA-NCHA data, which included 16,884 graduate and professional students at 71 institutions, showed that 57.7% of students would be interested in receiving nutrition information from their university (ACHA, 2015). Both of these reports suggest that Perepivzka and Balkin (2010) may have been too quick to judge the awareness and interests in healthy eating habits among graduate students.

One related study (Herman & Davis, 2004) used the Wellness Evaluation of Lifestyle (WEL) questionnaire, which also has a nutrition variable to compare the overall well-being of traditional-aged undergraduates, 17-23 years old, to nontraditional-aged undergraduates, 24-51 years old. For both groups, nutrition was one of the lowest scoring components, with no significant differences between groups. However, while age may indicate some similarities to graduate students, the academic experience of a graduate student is distinct and different from that of an undergraduate (Benshoff, Cashwell, & Rowell, 2015; Polson, 2003), and the two should be considered separate populations.

A study of the effect that stress may have on the mood and daily habits of psychology graduate students did include sleep, alcohol consumption, smoking, exercise, and eating habits as potential correlates, recognizing the interplay between mental, emotional, and physical health (McKinzie, Altamura, Burgoon, & Bishop, 2006). The survey instrument included changes in eating behavior as a daily habit potentially affected by stress, but what types of changes students experienced were not defined. Unlike sleep and exercise patterns, changes in eating habits were not significantly related to stress levels in this population. It should be noted that this study was

conducted with a small group (n=65) of psychology graduate students, and the study authors concluded that psychology students may more easily be able to adapt the coping strategies they are taught through coursework into their own lives. The authors warned that, as such, their findings are not necessarily generalizable to the graduate student population across disciplines.

Of the numerous studies addressing stress and coping in graduate students, only one (Oswalt & Riddick, 2007) specifically addressed using food as a potential mechanism. The authors found significant associations between stress level, stress management and "overall health," which was undefined. Of the total population, 24.7% of the graduate students reported overeating as a result of stress, with no significant differences between men and women. However, eating comfort foods was reported as the second highest (68.5%) coping strategy overall, with significant differences between males (21.3%) and females (73.8%).

A 2010 study compared undergraduate and graduate female student health behaviors-- including drinking and driving, routine gynecological exams, condom use, physical activity and fruit and vegetable consumption-- based on the 2008 Spring ACHA-NCHA data (Bulmer, Irfan, Barton, Vancour, & Breny, 2010). Before controlling for age, female graduate students were more likely to consume the recommended five or more servings of fruits and vegetables each day, but even among these female graduate students, the proportion meeting recommendations was low (10.2%). More recent data shows that this percentage is actually decreasing. Eating behavior and nutrition is determined by only one question on the American College Health Association's National College Health Assessment, asking how many fruits and vegetables the student typically consumes per day. In 2015, only 9.2% of graduate women reported eating 5 or more servings of fruit and vegetables each day, and graduate men consumed even less, with 5.9% reporting that they met this recommendation (ACHA, 2015). In the total graduate student

population, 8.0% of students reported eating the suggested 5 or more servings each day, while the vast majority consume only 1-2 servings (54.2%) or 3-4 servings (33.3%). There are 4.5% of graduate students who report having no servings of fruits and vegetables at all (ACHA, 2015). Bulmer et al. (2010) found no significant differences in health status or behaviors between undergraduate and graduate women after controlling for demographic variables. Despite the lack of statistical significance, however, they concluded that larger, more diverse groups of graduate student women needed to be surveyed to learn more about their unique needs and circumstances, and supported the idea of intensive qualitative research regarding graduate women's health behaviors.

Health Promotion in Graduate School

There are no published health interventions specifically aimed at graduate students, despite the fact that there has been a call in recent years for the development of specific assessments for graduate students and the expansion of health promotion programs designed specifically for them (Bulmer, Irfan, Barton, Vancour, & Breny, 2010; Oswalt & Riddick, 2007; Wyatt & Oswalt, 2013). The life of a graduate student has been described as one of "the more unique educational phenomenon" (Offstein et al., 2004, p. 407), and is, certainly, worthy of being investigated.

Graduate Students as a Unique Population

Colleges and universities, as well as health educators and researchers, may have neglected the graduate student population as a specific group for a number of reasons, primarily the longstanding belief that graduate students are simply an extension of their undergraduate counterparts, (Polson, 2003). Student services direct most of their attention to the transitional and collegiate experiences of undergraduates, because the high achievement orientation and strong

motivations of graduate students may give them the appearance of self-sufficiency (Benshoff, Cashwell, & Rowell, 2015). The undergraduate and graduate experiences are very different from each other, however, even if students are entering masters or doctoral programs immediately post-baccalaureate graduation (Benshoff, Cashwell, & Rowell, 2015; Kasworm, 2003; Polson, 2006; see also Schlemper, 2011). Graduate students tend to work more hours and experience greater levels of stress than undergraduates (Wyatt & Oswald, 2013) and are likely to be sacrificing income, family time, and social activities to pursue their degrees (Benshoff et al., 2015). Students immediately entering a graduate program may have easier social and lifestyle transitions, but they face more demanding coursework, continued identity development, and the psychological stress associated with delaying other life milestones that their peers outside of school may be experiencing (Benshoff et al., 2015). Adults who go back to school may experience the challenge of dual identity, merging their professional life with their life as a student (Baptista, 2014), or developmental recycling, whereby they must relearn how to be a student again (Benshoff, et al., 2015).

Graduate students tend to view themselves as a group apart from “normal” adults of their age (Haynes, Bulosan, Citty, Grant-Harris, Hudson, & Koro-Ljungberg, 2012), with demands and obligations that others don’t have to deal with; their constant juggling of responsibilities doesn’t allow much time for ‘normal’ activities, like hobbies, spending time with family and friends, or the not-so-simple art of relaxation. Nearly half of graduate students (43.9%) report that in the past two weeks—the shortest time increment offered in the survey-- feeling overwhelmed by how much they had to do; this proportion jumps to 59.9% if including those (16.0%) who felt overwhelmed within the past 30 days (ACHA, 2015). While graduate students

do report better overall sleep hygiene than undergraduates, they also claim to sleep enough to feel rested on only 1 to 2 days of the week (Oswalt & Wyatt, 2015).

A Population at Risk

Students may prioritize their work over their own well-being (Schmidt & Umans, 2014), thanks in part to the culture of academia that demands this prioritization (Grady, LaTouche, Oslawski-Lopez, Powers, & Simacek; 2014; Espinoza, 2010; Vancour, 2009). From the perspective of students, faculty members generally overlook the existence of students' personal lives outside of school, making them feel like a marginalized population, and a culture of overworking at the expense of hobbies, family, friends—and life—appears to be encouraged (Espinoza, 2010; Grady, et al., 2014). It is possible that maintaining physical health is also given less priority within the rigorous academic environment, with students potentially sacrificing attention to their diets, meal planning, and cooking meals at home due to time constraints and work demands. Graduate students have reported an average of 54.26 hours in school-related activities per week, and a significant relationship between how much one works and their overall physical health and anxiety has been suggested (Rummell, 2015). However, the specific effects of this work prioritization on graduate student physical health is unclear, and more research is needed to understand both the salience of health-promoting behaviors among this population and the various influences that affect students' intentions for positive health behavior.

The Need for Tailored Health Promotion

It is important not to overlook the graduate student population, especially as their experiences and the strategies they develop to promote their own well-being may set them up for future transitions into life and career post-graduate school (Stubb, Pyhältö, & Lonka, 2011). Graduate schools and departments are in the perfect position to promote health and well-being

among their students (Hassan El-Ghoroury, Galper, Sawaqdeh, & Bufka, 2012). However, the prospect of targeting such a heterogeneous population as graduate students may also be quite daunting for health educators and student services. Generic undergraduate college health curricula or programming is unlikely to be effective for graduate students, for not only the reasons described above that distinguish graduate students from undergraduate students, but also because research shows that different variables and predictors of behavior may have greater or less importance among different populations (Fishbein & Azjen, 2010). Graduate students are a population difficult to define characteristically, and there may be as vast diversity in age, enrollment status, relationship status, family ties, gender, race, ethnicity, and socioeconomic status, even among graduate students enrolled at one institution. Additionally, scholarly communities differ across institutions and individual disciplines and academic cultures vary in their research practices and social environments (Gardner, 2008; Stubb, Pyhältö, & Lonka, 2011), meaning that even within her graduate program, each student's experience is likely to be unique. Each of these demographic and academic subgroups may eventually require its own needs assessment (Marsman, 2014). Understanding their multiple and competing health needs of such a diverse population requires both qualitative and quantitative research methods (Bulmer, Irfan, Barton, Vancour, & Breny, 2010). Even then, it may be difficult to generalize or understand the health needs and issues of the graduate student population as a whole, and there is likely no one-size-fits-all solution to their problems (Haynes et al. 2012), making tailored health communications and interventions even more crucial in this population.

The Integrated Model of Behavioral Prediction (IMBP)

A Theory of Reasoned Action

The Integrated Model of Behavior Prediction (IMBP) was originally developed to assist in AIDS and HIV prevention programming (Fishbein, 2000), and has since been used to explain and predict diverse health behaviors in a multitude of diverse populations both nationally and internationally, and in both qualitative and quantitative study designs. IMBP was based on the premise that there are a relatively small number of variables determining a large proportion of the variance in individual health behavior (Fishbein 2000, 2008). It is a model of reasoned action, signifying that people's actions are driven by developed intentions, whether those intentions are based upon accurate assumptions and beliefs or not (Fishbein, 2000, 2008). Beliefs may be distorted or unrealistic, meaning that behavior may appear irrational to outside observers with different beliefs (Fishbein, 2007). However, intentions alone cannot ensure behavior (Gollwitzer, 2009), and there are a number of influences that can increase or decrease the likelihood of an individual performing the desired behavior and acting upon their intentions (Fishbein & Capella, 2006).

The Theory of Planned Behavior

IMBP was developed primarily from the Theory of Reasoned Action (Fishbein & Azjen, 1975) and the Theory of Planned Behavior (Azjen, 1991), with elements from the Health Belief Model (Rosenstock, 1966) and Social Cognitive Theory (Bandura, 1977, 1986). The Theory of Planned Behavior (TPB) posits that behavioral intentions are mainly influenced by a person's attitudes towards the behavior, the salient normative influences surrounding the behavior, and their perceived control over the behavior.

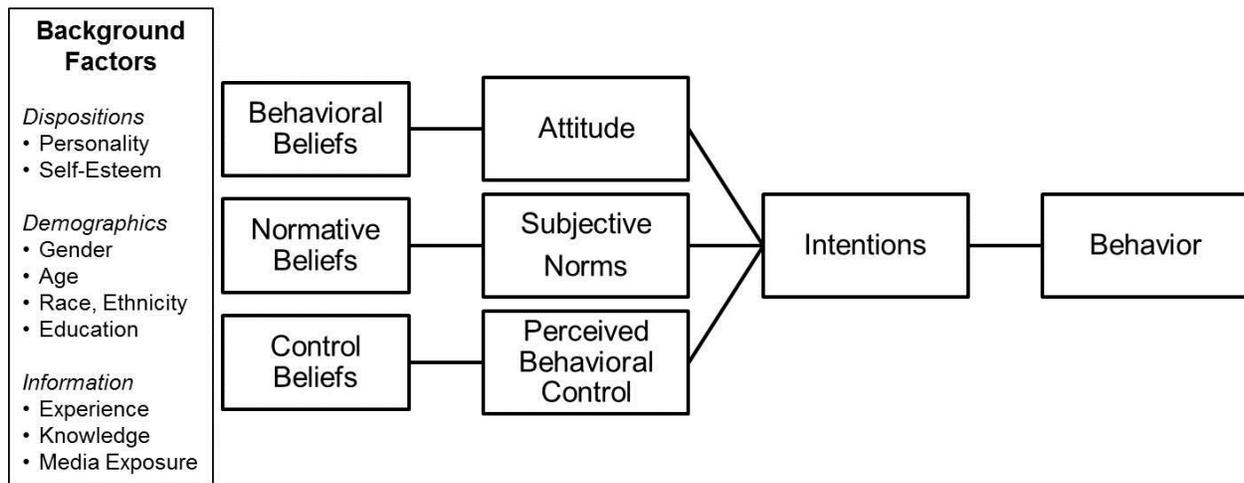


Figure 1. The Theory of Planned Behavior. Adapted from Azjen & Albaraccin (2007)

Attitudes refer to the positive or negative feelings one has toward the behavior. They are derived from one’s expectations about what will or will not happen as a result of the behavior; these expectations are known as behavioral beliefs. *Subjective norms* are derived from one’s normative beliefs surrounding the behavior: to what extent do “important others” approve or disapprove of the behavior. *Perceived behavioral control (PBC)* is based upon one’s perception or beliefs of their ability to perform the behavior, not their actual control (Ajzen, 1991). It is situation and behavior-specific. For example, one person may feel that they have a high level of control in making healthy eating choices at home, but little control over performing that same behavior at a restaurant. Behavioral control is best viewed as a continuum, whereby people have complete control over some behaviors, and less control over others (Ajzen & Madden, 1986).

IMBP versus TPB

Years of behavior change research have shown that even the greatest intentions do not necessarily lead easily and directly to behavior (Gollwitzer, 1999), and one of the defining characteristics of IMBP is its attention to the question of why this is so (Sharma, 2012).

Although the three constructs outlined above do well in informing and predicting individual's intentions for behavior, they are not as successful in explaining why someone will either achieve that behavior or not (Fishbein, Hennessy, Yzer, & Douglas, 2003). IMBP includes a socio-ecological perspective, recognizing that even with the strongest intentions, there may be a lack of requisite skills or the existence of environmental constraints that make actual performance more difficult or impossible. Habit strength is occasionally shown in IMBP models as an additional mediator between intention and behavior, and has been used as the definition for intention itself (Koenker, Loll, Rweyemamu, & Abdullah, 2013). Despite this attention to the mediators of the intention-behavior relationship being a distinguishing feature of the model, setting it apart from other theoretical frameworks, this aspect of IMBP is the least developed and studied (Fishbein et al., 2003).

Additionally, the Integrated Model of Behavioral Prediction places high value on the background factors of both individuals and groups that, while not directly related to intention or behavior, are highly influential in the formation of attitudinal, normative, and efficacy beliefs that ultimately drive the development of intention and achievement of behavior. It is not one size fits all (Fishbein, 2000, 2008), and attention must be paid to demographic variables, culture, personality, previous experience, and other "distal variables" that will indirectly affect intentions (Fishbein et al., 2003; Yzer, Cappella, Fishbein, Hornik, Sayeed, & Ahern, 2004). Studies that have applied IMBP to health behaviors have paid varying degrees of attention to the background

influences on intentions, despite the emphasis placed on them as the lens through which all relationships in the model should be viewed.

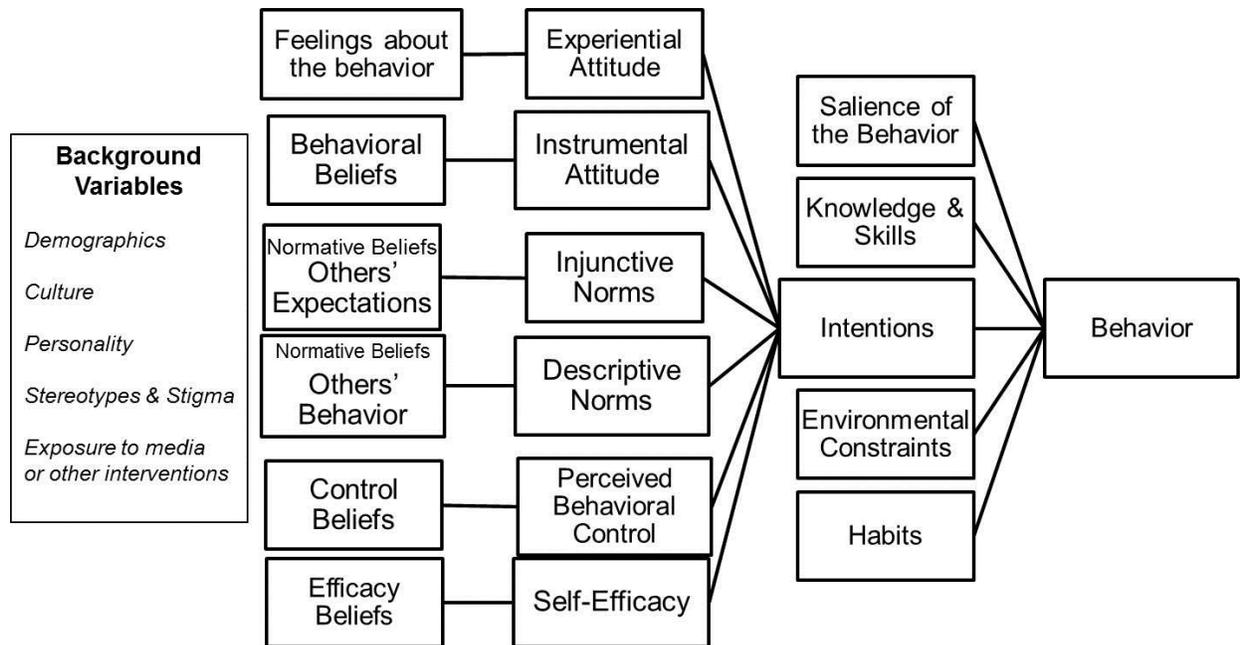


Figure 2. The Integrated Model of Behavioral Prediction. Adapted from Fishbein & Yzer (2003) and Glanz, et al. (2008).

IMBP has been referred to as the “two-component TPB” (Elliot & Ainsworth, 2012), because it takes these three constructs and divides them into two parts. *Attitudes* stem from specific evaluation about the behavior itself, as well as beliefs about the likelihood that performing the behavior will have certain outcomes. *Subjective norm* includes both an injunctive norm, or whether others in one’s social group will approve or disapprove of the behavior, and descriptive norm, or how common the behavior is within one’s social group. Measurement of the subjective norm sometimes includes an element of one’s motivation to comply with the norms of the relevant social networks. It has been argued that subjective norm should only be measured for reference groups salient to the behavior being addressed (Terry & Hogg, 1996) as “important others” may change based upon behavioral context (Louis, Davies, Smith, & Terry. 2007).

Although Azjen (1991) originally equated *perceived behavioral control* with Bandura’s theory of

self-efficacy (Bandura, 1997), the confusion surrounding its measurement led him to distinguish PBC as having two components: self-efficacy and controllability (Ajzen, 2002). Self-efficacy is not only one's confidence in being able to perform the behavior, but his perceived capability to perform despite barriers or difficult circumstances. (Yzer, 2012). Controllability relates to the extent the individual is responsible for their behavior (Ajzen, 2002).

Breaking down these constructs into their influential belief components shows just how complicated the development of intentions for behavior can be. For example, when it comes to the behavior of healthy eating, a person's attitudes may be driven by both a strong belief that healthy eating will reduce their risk of chronic disease, such as diabetes or cardiovascular disease, and negative feelings about the taste of healthy food. His perceived norm may be that his immediate family would approve of eating more healthfully, but no one at work makes such choices, and so his motivation to comply is very low. Additionally, while a person may have strong self-efficacy beliefs about healthy eating, believing it to be very easy to do if she wanted to, there may be other circumstances ultimately causing her to feel a loss of control over doing so. It has been suggested from IMBP research that behavioral control may actually be a potential mediator of attitudes and norms on ultimate intention, not as a parallel construct (Dillard, 2011).

Previous Uses of IMBP to Explain and Predict Behavior

Within its original field of AIDS and HIV prevention, researchers have continued to use IMBP as a framework, analyzing adolescent sexual abstinence (Buhi, Goodso, Neilands, & Blunt, 2011) and condom use intentions with both adolescent (Carmack, Lewis, & Roncancio, 2015) and adults (Rhodes, Stein, Fishbein, Goldstein, & Rotheram-Borus, 2007), as well as voluntary HIV counseling and testing intentions in South African teenagers and adults (Diteweg, van Oostwerd, Tempelman, Vermeer, Appels, van der Schaal, & Maree, 2013) and adult male

circumcision practices in Zimbabwe (Montaño, Kasprzyk, Hamilton, Tshimanga, & Gorn, 2014). IM has also been applied to other sexual health topics, including HPV vaccination (Dillard, 2011) and patient sexual health communication (Hughes & Lewinson, 2014).

Additionally, investigators have used IMBP to explain and predict marijuana and alcohol use in adolescent and college populations (Yzer, et al. 2004; Elliot & Ainsworth, 2012; Braun, Glassman, Sheu, Dake, Jordan, & Yingling, 2014), net use for the prevention of malaria (Koenker et al., 2013), offending drivers' speeding behavior (Elliot & Ainsworth, 2010), and the physical activity and strength training habits of college students (Beville, Umstadd Meyer, Usdan, Turner, Jackson, & Lian, 2014; Patterson, Umstadd Meyer, & Beville, 2015). The model has been consistently effective in predicting intentions and explaining the strength of each variable for influencing intention. Study authors have, however, addressed the need for in-depth qualitative research to support and interpret findings from quantitative survey studies (Robbins & Niederdeppe, 2015). Even outside health-focused fields of inquiry, IMBP has gained support for its ability to predict behavioral intentions. Kreijns, Van Acker, Vermeulen, and van Buuren (2013) applied the model to primary and secondary school teachers use of digital learning materials, with special attention to background variables of the teachers involved. The finding from this study, in particular, showed the importance of past behavior influencing future intentions and behavior, but only if all other variables remained the same (Kreijns, et al., 2013).

Despite many studies in which the authors have claimed to use the Integrated Model of Behavioral Prediction, the full model, as originally designed by Fishbein (2000), has rarely been used. More often than not, construct measurement appears more closely aligned with that of the Theory of Planned Behavior, but with subjective norm divided into injunctive and descriptive norm, and self-efficacy defined instead of TPB's perceived behavioral control. Skills and

environmental constraints are often ignored, or, in the case of IM serving as a framework for interview guides in qualitative inquiry, considered information that the participants may optionally include as divergence from the semi-structured questions (Hughes & Lewinson, 2014). In their study of adolescent sexual abstinence behaviors, Buhi et al. (2011) did measure environmental factors, which they defined as parental monitoring, rules, and social support; skills, however, were not measured, with the authors claiming that “skills can only be assess with adequate reliability through direct observation” (p. 67). Diteweg et al., (2013) also addressed environmental constraints when applying IMBP to voluntary HIV testing; they defined these constraints as the social and psychological barriers of stigma attached to the behavior, which in some models of IMBP would be considered background variables, not environmental constraints.

Most of the above studies utilizing the Integrated Model of Behavioral Prediction focused on explaining or predicting behavior; very little research has assessed its efficacy for designing behavioral interventions (Sharma, 2012). Panchal, Fishman, Camp-Rogers, Starodub, and Merchant (2015) recently applied IMBP to public health promotion of and education for bystander CPR prevention efforts, but their recommendations did not include specific plans for intervention. Rhodes et al. (2007) and their Project RESPECT condom use intervention is the only systematic application of IMBP to community health education currently found in the literature; one of the intervention groups received enhanced counseling based upon IMBP, which did show the efficacy of using IMBP as an intervention framework. However, not all of the intervention activities were successful, emphasizing that, while IMBP serves as an excellent theoretical basis for assessing what beliefs, skills, and environmental factors may need to be

changed to increase a behavior, exactly how health educators and researchers should change those components to promote behavior cannot be determined by the theory alone.

IMBP for Health Communications

That being said, IMBP is perhaps best used as a theoretical framework for use in developing the content of theory-based health communication strategies based upon the beliefs and variables determined to be the most influential in affecting a target populations intentions and ultimate behavior (Fishbein & Capella, 2006; Yzer, 2012). The success of the digital, media, and print “Sugar Pack” campaign against sugar-sweetened beverage consumption, shows that health marketing campaigns even loosely based on IMBP constructs can be influential in changing beliefs, intentions , and behavior (Barragan et al. 2014). Yet, the success of message delivery is ultimately reliant upon choosing the beliefs most likely to be changeable (Hornik & Woolf, 1999) and the application of communication theories to the findings from health behavior research (Fishbein & Capella, 2006; Yzer, 2012). The strength of the Integrated Model for Behavioral Prediction, therefore, is that it can systematically provide information about the existing beliefs and strength of intentions in a target population for a specific behavior, which can later be used to design what will ideally be the most effective tailored health communications, messages, and behavioral or environmental interventions. IMBP was used in this capacity to address marijuana use (Yzer et al., 2004), and, more recently, healthy sleep behaviors in college students (Robbins & Niederdeppe, 2015) and condom use intention among African-American adolescents (Carmack et al., 2015). Consistent with the previously mentioned weaknesses of IMBP applications to health behavior, however, none of these studies addressed environmental constraints or behavioral skills in their formative elicitation or survey measurement.

IMBP for Understanding Eating Behavior

One area where IM has not been utilized is nutrition and eating behaviors, despite the wealth of research conducted using the Theory of Planned Behavior (TPB) to explain healthy eating behavior (Connor, Norman, & Bell, 2002), dietary patterns (McDermott et al., 2015), and nutrition-related behaviors in youth (Riebl et al., 2015). IMBP did provide the framework to guide formative, focus group elicitation research for the creation of Los Angeles County's Sugar Pack campaign against obesity. However, this campaign addressed only sugar-sweetened beverage consumption in the general population and was not a specific, methodological application of the model (Barragan et al. 2014).

The Theory of Planned Behavior has been shown to explain 43% of the variance in adults' intentions for healthy eating cross-sectionally, and 20% of the variance prospectively (after 6 years), with attitudes and PBC the significant correlates for intention (Connor, Norman, & Bell, 2002). However, when predicting actual behavior, intentions are the only significant construct, and TPB explained only 9% of actual behavior (Connor, Norman, & Bell, 2002). Studies with older African-Americans showed that TPB was effective in explaining intentions for consuming, preparing, and self-monitoring of fruit and vegetables (O'Neal, 2012). These findings are consistent with a recent meta-analysis (McDermott et al., 2015) that examined the association between TPB and dietary patterns; based upon analysis of 22 studies, attitudes and PBC were most strongly associated with intentions, followed by subjective norm. Intentions were also the strongest predictor of actual behavior, although PBC was more strongly associated with behavior for adolescents than adults; these findings are consistent with those of O'Neal et

al. (2012) who found that older African-Americans' intentions for eating and preparing fruits and vegetables were not moderated by their feelings of control over the behavior.

McDermott et al. (2015) suggested there may be unknown variables that have a causal impact on both intention and behavior, as many of the correlational studies utilizing TPB suggest relationships that do not necessarily match those suggested by experimental research in strength or size. For example, subjective norms are often found to be less significant than other variables in explaining variance in eating intentions in cross-sectional studies; yet, experimental research has consistently found that individuals are socially influenced to alter or adjust their food choice and consumption, through modeling, normative expectation, social context, and social comparison (Cruwys, Bevelander, & Hermans, 2015; Higgs & Thomas, 2016; Polivy & Pliner, 2015).

Various individual, social, and environmental barriers are consistently cited in qualitative studies--by individuals of all races, ages, and genders--as inhibiting healthy eating intentions and affecting general dietary intake (Gram & Blichfeldt, 2014; Murray, Mahadevan, Gatto, O'Connor, Fissinger, Bailey, & Cassara, 2015). Determining and addressing specific barriers to healthy eating have been suggested as potential points of intervention (Bassett-Gunter et al., 2015; Louis, Chan, & Greenbaum, 2009). These barriers may be related to one's environment, psychological or social impediments, or individual skills, personality traits, and habitual behaviors. Environmental factors related to access and availability at home and in one's neighborhood affect both healthy and unhealthy eating behaviors, suggesting the importance of paying attention to food access and availability in health promotion efforts (Trapp et al., 2015). Stress has been shown to attenuate the impact of subjective norms and PBC on unhealthy eating intentions, having a significant influence on unhealthy food choices but no influence on healthy

ones (Louis, Chan, & Greenbaum, 2009). In contrast, job strain did not predict fruit and vegetable consumption in a study of U.K. employees, although low job demands, job control, and job strain predicted higher intentions to eat sweets and snack foods, “over and above” the TPB variables (Payne, Jones, & Harris, 2005). Confidence in cooking, and liking to cook, have both been associated with healthier eating patterns, suggesting that education related to cooking and food purchasing may be important intervention targets for promoting healthier food choices and consumption (Hartmann, Dohle, & Siegrist, 2013; Murry et al., 2015; Trapp et al., 2015). In fact, many suggestions for improving PBC and self-efficacy, which are often the strongest predictors of healthy eating intention, are related to individual skill development or social and environmental changes, which are believed to consequently increase both perceptions of control and ultimate intention (Bassett-Gunter et al., 2015; Chan, Prendergast, & Ng, 2016; Morin, Demers, Turcotte, & Mongeau, 2013).

Knowing that IMBP has previously been shown to explain more variance in intention and behavior than TPB alone (Elliot & Ainsworth, 2012), it is logical to advance the research of eating behaviors to include IMBP’s additional constructs. The additional empirical evidence for the likely influence on eating intentions and behavior of individual and environmental variables above and beyond the TPB constructs supports the use of IMBP—and its more socioecological perspective—for understanding eating behaviors in a given population. Because so little is known about graduate student health behaviors in general, and eating behaviors specifically, the IMBP framework can provide a thorough exploration of the various influences encountered by this group. This study utilized the full and complete Integrated Model of Behavioral Prediction to evaluate the strongest attitudinal, normative, and control beliefs, as well as the influence of both individual skills and environmental factors on intention for healthy eating behaviors in a socio-

demographically diverse population of graduate students, to determine the beliefs and variables that would serve as the best candidates for future health communication messaging interventions for this group in the future.

Phenomenological Hermeneutics

Because of the attention placed on the unique backgrounds, attitudes, and perceptions of defined target populations, IMBP is a perfect fit with phenomenological hermeneutic methodology. Both are grounded in the belief that true understanding of phenomena—in this case, eating and cooking in graduate school—can only come with an awareness of the individuals' perceptions and experiences of that phenomenon. That awareness comes from an analysis of written texts created from shared stories of human experience, which, in this case, come from recorded and transcribed semi-structured group or individual interviews. Attempting to create an effective health promotion campaign or educational intervention without first establishing the needs and understandings of the target population is, as Fishbein (2008) described, like a scientist throwing together a vaccine in the lab and asserting that it will work without testing it first. Qualitative elicitation research is both immediately useful for intervention design and necessary for the development of quantitative measures for assessing the relative importance of behavioral determinants and the potential impact of future interventions (Middlestadt, Bhattacharyya, Rosenbaum, Fishbein, & Shepherd, 1996). This type of research is especially useful for exploratory studies such as this, when much about the perceptions and experiences of the target population is unknown (Barker, Pistrang, & Elliot, 2002).

Phenomenological research is grounded in the need to make morals--internalized norms, values, and attitudes-- visible by focusing on “the understandable meaning” of lived experiences, not approaching these experiences as something factual (Lindseth & Norberg, 2004). The father

of phenomenology was Edmund Husserl, who believed the goal of phenomenology was to understand things as they appear to reach an essential understanding of human experience (Dowling, 2007). The attitudes described by Husserl were a *natural attitude*, or what is already known or ‘taken for granted’ about a phenomena (i.e. a chair); and *phenomenological attitude*, or its meaning, or essential traits (i.e. what characteristics must remain for a chair to be a chair) (Lindseth & Norberg, 2004). A phenomenological attitude, however, is not enough, because every experience of a phenomenon changes in meaning depending on its positioning (i.e. in some chairs people rest, some they do work); to understand this positioning, *essential meaning* must be analyzed and interpreted. This additional attitude moves phenomenology beyond the mere descriptive into an interpretative tradition.

Martin Heidegger moved beyond the traditional conception of phenomenology proposed by Husserl in emphasizing the importance of understanding beyond mere description, a search for this essential meaning (Dowling, 2007). To find these meanings, he proposed hermeneutics, a methodology that looks for meaning in common life experience and human relationships (Lopez & Willis, 2004) and known as “the tradition of textual interpretation” (Lindseth & Norberg, 2004). Out of Heidegger’s ideas, phenomenological hermeneutics has developed over time. Lindseth & Norberg (2004) supported the notion that phenomenological hermeneutics is “an argumentative discipline,” in that it takes an interpretative stance to affect people in its reading. They also describe this methodology as lying “between art and science,” whereby researchers use their “artistic talents to formulate naïve understanding,” their “scientific talents to perform the structural analysis” and their “critical talents to arrive at a comprehensive understanding” (Lindseth & Norberg, 2004, p. 152). The interpretative approach requires, and benefits from, an analysis of the context of the participants’ lives and experiences, and allows researchers to

provide suggestions to practitioners for how to apply the findings to practical purposes in fields of social science (Lopez & Willis, 2004).

Conclusion

The clear relationship between diet and disease supports the importance of nutrition-related health promotion efforts across the population. One significant group at risk for diet-related diseases is the ever-growing population of graduate students in the United States, who represent a diverse array of adults, covering a wide age range and many racial and ethnic designations. Health education and promotion efforts for graduate students would have far-reaching benefits, but these efforts must be tailored to the special needs of this population. Applying phenomenological hermeneutic methodology within the theoretical framework of the Integrated Model of Behavioral Prediction (IMBP) to interpret the eating behaviors of graduate students can help elucidate the strongest beliefs, barriers, and assets related to healthy eating practices within this population, which can later be targeted and tested for future health communications and interventions.

CHAPTER 3

METHODS

IMBP for Message Development

The Integrated Model for Behavioral Prediction (IMBP) is a valuable theoretical framework to use in determining the content of targeted health communication messages and educational health interventions (Fishbein, 2008; Yzer, 2012). It has been used in this capacity, both nationally and internationally, for diverse populations and a multitude of behaviors. These include condom use intentions of African-American adolescents (Carmack, Lewis, & Roncancio, 2015), net use for malaria prevention in Tanzania (Koenker, Loll, Rweyemamu, & Abdullah, 2013), adult male circumcision in Zimbabwe (Montaño, Kasprzyk, Hamilton, Tshimanga, & Gorn, 2014), and binge drinking (Elliot & Ainsworth, 2012) and sleep hygiene (Robbins & Niederdeppe, 2015) in college students. While IMBP is a tested framework for content development, the actual form of the targeted communications must be evaluated with additional attention to communications theory (Fishbein & Cappella, 2006); the model is suitable for determining content, not message style or structure (Dillard, 2011). Therefore, this study aimed to determine the strongest held beliefs influencing eating behavior intentions among graduate students, as well as any barriers that prevent or assets that promote the performance of positive eating behaviors. These can be used in future studies as potentially effective topics for future health promotion and intervention in the graduate student population.

Yzer (2012) has identified a multi-step process for determining the strongest and most salient attitudinal, normative, and efficacy beliefs that influence a particular population's

intention for performing a specific behavior, as well as the potential environmental or skill-based influences that might affect the outcome of those intentions. A formative elicitation study with members of the target population can result in numerous beliefs and barriers surrounding the behavior. These are then used in the creation of a survey instrument to quantitatively assess the salience of each belief in a larger sample from the population. The strength of the correlations between constructs and the explained variance in intention and behavior by each variable reveal which beliefs are the strongest for influencing eating behavior, and are therefore potentially the most effective for targeted health promotions, campaigns, and interventions related to food choice.

This study included the first two steps outlined by Yzer (2012) for determining effective, targeted health communications: 1) clear definition of the health behavior, and 2) gathering information directly from the population to be targeted with the health promotion effort. This formative elicitation research was grounded in phenomenological hermeneutics, and involved a number of semi-structured interviews with a diverse cross-section of graduate students, during which students shared their beliefs about eating behavior intentions, barriers to these eating behaviors, and facilitators for carrying out the specified behavior's performance.

Research Questions

RQ1: What are the attitude, norm, and control-relevant beliefs that influence graduate students' eating behavior intentions?

RQ2: What are the environmental factors that affect eating behaviors in the graduate student population?

RQ3: What are the knowledge and skill-based factors that influence eating behaviors in the graduate student population?

RQ4: What are the differences in the attitudinal, self-efficacy, and normative beliefs affecting eating behavior intentions between various graduate student demographic subgroups--based on gender, age, race, and relationship or family status?

Defining the Behavior

Common Definition of a Complex Behavior

As recommended by Fishbein (2008) and Yzer (2012), the first step in utilizing IMBP for the determination of appropriate health messaging for specific populations is to clearly define the behavior. The definition of any behavior requires the action, the target, the context, and the time period (Yzer, 2012), but different interventions and studies will use different levels of specificity based on the population, behavior, and purpose of the research (Fishbein, 2008). Because every individual has their own definition of what healthy eating means (Bisogni, Jastran, Seligson, & Thompson, 2012), it was especially important that the definition of healthy eating behavior in this study was clear and consistent throughout both phases. Assuring that study participants understand what constitutes the eating behaviors and intake patterns in question is a fundamental issue in self-report dietary assessments (McDermott et al., 2015). Only half of the studies in a recent systematic review of the application of TPB to dietary patterns reported providing participants with a definition of the behavior (McDermott et al., 2015), putting limitations on both the study's results and the ability to compare the current results to results from other eating behavior and dietary studies.

Action: Discrete Behaviors and Dietary Intake

Nutrition research has shown that positive, or healthy, dietary patterns cannot be adequately represented by a single behavior, or the intake of a single nutrient or food group

(McDermott, et al., 2015a; Sala-Vila, Estruch, & Ros, 2015). More broadly defined constructs, including behaviors such as preparation and self-monitoring of intake, may be more valid measures of individual eating behavior than consumption or intake alone (O’Neal et al., 2012). The transition to a more holistic, or ‘total diet’ approach to eating in the United States from one more focused on specific nutrient intake (Dietary Guidelines for Americans, 2015; Freeland-Graves & Nitzke, 2013) suggests an understanding that discrete food choices—those made at the point of purchase or consumption—may have a strong, if not greater, influence over an individual’s dietary patterns than nutrient-driven choices (McDermott et al., 2015b). Food coping strategies for meal management in the face of time scarcity have been suggested as important points of intervention for improving the overall diet of working parents (Morin, Demers, Turcotte, & Mongeau, 2013).

In their study of healthy eating among Australian adolescents, Dewar, Lubans, Plotnikoff, and Morgan (2012) used national guidelines and recommendations to develop a definition of behavior that not only included specific food intake, but also skills or actions related food preparation and eating, such as choosing healthy portion sizes and eating only until full. Robles, Smith, Ponce, Piron, and Kuo (2014) studied self-efficacy for healthy eating in low-income urban populations, and also included both specific food intake (low fat foods) and skills or behaviors related to food choice, including reading nutrition facts to determine appropriate portion size. When studying the fruit and vegetable intake of older African-Americans, O’Neal et al. (2012) discovered that constructs of preparation, self-monitoring, and consumption together were adequate indicators of the more broadly defined behavior.

Therefore, the current study included variables related to food and nutrient intake, as well as selected discrete food choice behaviors surrounding food choice, purchasing, preparation, and

consumption. The dietary intake behaviors that indicated a healthy eating pattern were guided by the Dietary Guidelines for Americans (DGAs) 2015. Using the dietary recommendations of the country where a study is taking place is a common practice in nutrition and eating behavior research (Connor, Norman, & Bell, 2002; Dewar et al., 2012; Hartmann et al, 2013; Strawson, Bell, Downs, Farmer, Olstad, & Willows, 2013). The most recent Dietary Guidelines for Americans (2015) focused on eating patterns, rather than individual nutrients or foods. A healthy eating pattern is defined as one that includes a variety of vegetables and fruits; grains, at least half of which are whole; a variety of protein foods (lean meats, seafood, and plant-based); low-fat dairy or fortified alternatives; and healthy fats or vegetable-based oils. The DGAs (2015) implore individuals to reduce their intake of added sugars, saturated and trans fats, and sodium.

In order to meet the recommendations for a healthy diet, the DGAs (2015) suggest shifts in behavior that will improve unhealthy diets or maintain healthful practices. This study examined discrete eating behaviors that are correlated with healthy eating patterns and lower rates of obesity and other diet-related chronic disease. The behaviors under study in this investigation were: 1) cooking and consuming meals at home; 2) meal planning; 3) eating a variety of fruits and vegetables; and 4) limiting the intake of added sugar, sodium, and saturated or trans fats.

Target, Time Period, and Context: Graduate Student Eating Behavior

When defining the time period and context for behavior, efficacy beliefs tend to be more salient with proximal behaviors; eating behaviors are easier to comprehend in the here and now (Yzer, 2012). Instead of asking about how graduate students intend to eat in the future, this study focused on their current experience of daily and weekly food choices while a graduate student. Gram & Blichfeldt (2014) called this “student food,” or food typically consumed during the time

when the individual was a student and making independent food choices. For this study, dietary patterns during the period when an individual was studying and working as a full or part-time graduate student, and making independent food choices related to purchasing, preparation, and consumption, were evaluated. Living independently, and making independent food choices meant that the individual was both living off campus and was not supported financially by a parent or guardian, although he or she may have been making decisions in collaboration with a spouse, partner, or roommate. Generally, they were in direct control of their food purchases and consumption on a daily basis (Murry, et al., 2015). This distinction was important, as findings with undergraduate students show differences in intake between students living dependently and independently (Sharma, Harker, Harker, & Reinhard, 2009), as well as off campus and on campus (Small, Bailey-Davis, Morgan, & Maggs, 2013).

Semi-Structured Interviews

After clearly defining the behavior under study, the next step in the process of using IM for the development of health communications is to go directly to the population under study to determine the salient attitudinal, normative, and efficacy beliefs that influence the group's intention for performing a behavior (Fishbein, 2008; Yzer, 2012). With any health behavior, and even within a single population, there is no one size fits all application of the theoretical model, and it is imperative that health educators first understand the behavior from the perspective of the target population before trying to design messages or interventions to reach them (Fishbein, 2000, 2008). Attempting to create an effective health promotion campaign or educational intervention without first establishing the needs and understandings of the target population is, as Fishbein (2008) describes, like someone spontaneously mixing together chemicals from a chemistry kit in his basement and then going out and vaccinating people. Qualitative elicitation

research is both immediately useful for intervention design and necessary for the development of quantitative measures for assessing the relative importance of behavioral determinants and the potential impact of future interventions (Middlestadt, Bhattacharyya, Rosenbaum, Fishbein, & Shepherd, 1996). This type of research is especially useful for exploratory studies such as this, when much about the perceptions and experiences of the target population is unknown (Barker, Pistrang, & Elliot, 2002).

This formative elicitation research was conducted through individual interviews, intended to generate detailed descriptions of individual experiences (Roulston, 2010), from which the investigator was able to uncover both consistent beliefs within the population, and also differences between individuals with defining characteristics based on relationship status, parental status, field of study, race and ethnicity, age, and gender. Phenomenological interviews are intended to help the researcher understand the participants' feelings and perceptions (Roulston, 2010), which also implies their ability to elucidate an individual's beliefs about a behavior.

Group interviews in the field of health education research can account for attitudes, beliefs, pressures, and barriers surrounding particular behaviors and offer elements of dynamic group interaction that can add layers and nuance to individual responses (Kidd & Parshall, 2000), and are sometimes used in the belief elicitation process. However, Fishbein and Azjen (2010, pg. 103) "caution against their use" for the purpose of identifying the salient beliefs that are held with high frequency in a given population, because dominant individuals may direct the discussion and give the appearance that a rarely held belief is a readily accessible one (Fishbein & Azjen, 2010). In this study, group interviews would have also reduced the opportunity for exploring the uniqueness of individual experience by attempting to categorize participants into

one subgroup, rather than appreciate and value the fact that each graduate student is a member of multiple subgroups, which may or may not have common experiences. Individual interviews lacked the opportunities for agreement, disagreement, challenge, or commiseration that benefit group interviews (Kidd & Parshall, 2000), but still offered insight into the population. Focus groups or group interviews have historically been beneficial for the discussion of sensitive topics, where a group of people with similar experiences can provide a “safe space” for revealing personal information. However, the topic under investigation—eating—was unlikely to require such considerations. Additionally, as the study’s goal is understand beliefs related to the particular phenomenon of eating behavior during graduate school, and not a study involving discourse analysis, or how people talk about food and their eating experiences, there was no strong theoretical justification necessitating group interviews or focus groups.

There are no set requirements for the number of participants in this phase of study using IM, although Yzer (2012) recommends about 30 participants based upon previous experience. Studies that have undertaken formative elicitation in this way have had sample sizes as small as 17 people (Boudewyns & Paquin, 2011) and as large as 95 (Koenker, Loll, Rweyemamu, & Abdullah, 2013). Rather than determining an adequate sample through theoretical saturation, which implies any further data will result in similar findings, Marshall & Rossman (2016) suggest using the concept of theoretical sufficiency, in which the data fit with, and sufficiently describe, the theoretical constructs or categories. The researcher continued to interview participants until the point of theoretical sufficiency, when she felt the results would adequately explain the behavior within the theoretical framework.

Participants

Thirty-two graduate students were interviewed for this study. Table 2 (Appendix H) contains all pseudonyms and demographic information for the participants.

Recruitment

One of the basic tenets of IMBP is that every population under study has background or ‘distal’ variables that may not necessarily influence the behavior but should be considered, including demographics, socioeconomic status, perceived risk, personality traits, previous behavior, and previous exposure (Fishbein, 2000; Fishbein & Cappella, 2006; Yzer et al., 2004). Studies where interviews are the primary source of data may involve purposive sampling based on such specific characteristics; purposive sampling is used to acquire a sample from which the most can be learned (Suzuki, Ahluwalia, Arora, & Mattis, 2007). Therefore, purposive recruitment techniques were used to assemble the most diverse group of graduate students possible, with diversity defined for this study as gender, race, ethnicity, relationship and family status, discipline of study, age, and whether students entered graduate school directly from undergraduate or spent time in the workforce in the interim.

Graduate student groups at the university were contacted via e-mail to ask for their support in recruitment (Appendix A). If they agreed to help, an e-mail was sent to students in their respective graduate programs requesting participation in a group or individual interview (Appendix B). Graduate student groups were also e-mailed with a request for advertising through their newsletters and social media (Appendix C). Students known to the investigator through involvement in campus or department activities who fit the criteria for inclusion were also recruited through personal communications from the investigator. All participants were asked to recruit other students whom they know may be interested in participating, a process known as

snowball sampling. Snowball sampling involves having the volunteer participants help to recruit others who fit the inclusion criteria for a study (Maxwell, 2013). It is highly useful in interview studies of particular cohorts, especially within a select geographically bound population—like a university--because friendships among certain participants may make it possible to compare descriptions of specific events, people, and places (Devine & Olson, 1991). Combining active recruitment from targeted groups with snowball sampling recruitment in this way can potentially help neutralize any perceived “key informant” bias (Maxwell, 2013, p.99) that might come from only snowball sampling, while still ensuring a diversity of experiences within similar cohorts.

Data Collection

The purpose of the interview in hermeneutic phenomenology is to first, explore and gather stories of lived experiences, and second, develop conversational relationships with the participants about the meaning of the experience (Ajjawi & Higgs, 2007). Interviews were semi-structured, with open-ended questions used to identify the salient outcome, normative, and self-efficacy beliefs (Yzer, 2012). A semi-structured interview is designed for flexibility: it covers a common set of themes but allows for changes in sequencing and form of questions. This gives the researcher an opportunity to follow-up on answers or adjust questioning as necessary based upon responses (Suzuki et al., 2007). However, studies such as this that may require comparison of interviews should assure that questions are similar in wording and standardized in sequencing if possible (Suzuki et al., 2007). The researcher attempted to maintain a similar format throughout all interviews, but did diverge as needed based on the conversation.

The interview guide was structured around eating behaviors and food choice including targeted questions based on the constructs of the Integrative Model (Dillard, 2011), although respondents were allowed to diverge from IMBP concepts (Hughes & Lewinson, 2015). The

interview guide (Appendix D) was based upon previous work with formative focus group elicitation in public health education and intervention (Kidd & Parshall, 2000; Middlestadt et al., 1996; Ryan, et al., 2014) and specific projects using IMBP constructs for prediction or message development (Boudewyns & Paquin, 2011; Bruijn, 2010; Dillard, 2011; Hughes & Lewinson, 2015; Robbins & Neiderdeppe, 2015).

All interviews occurred in either a closed-door meeting room or office in Russell Hall, chosen based on room availability and scheduling. After reviewing the informed consent form, participants signed the consent form (Appendix F) and completed a brief demographic questionnaire (Appendix E). Participants were offered snacks and water to consume during the interview.

Interviews lasted approximately 55-65 minutes, with the shortest interview lasting 36 minutes and the longest lasting 1 hour and 40 minutes. Two participants had follow-up interviews. One was within the same session, but the recorder was turned back on after the official end of the interview to record a suddenly remembered story. The second follow-up interview was scheduled after the participant sent an e-mail to the researcher, revealing that after more time to think she wanted to add more to her interview. The researcher deemed this to be ethically and logistically appropriate (Suzuki et al., 2007), and included these secondary recordings in the final analysis.

Participants were asked general questions about their eating patterns and food choices in graduate school, as well as any noticeable changes in patterns and behaviors related to meal planning, purchasing, and consumption since beginning graduate school. Participants were asked to explain what healthy eating means to them, and how well they are able to meet their personal definitions. This information provided relevant contextual and population information as well as

insight into the strength and form of both intentional and habitual eating behaviors. Using the predetermined definition of healthy eating for this study, which may or may not have been similar to each individual's own definition, the interviews then focused on specific belief constructs from the theoretical model. To assess behavioral beliefs, participants answered questions about the potential positive and negative outcomes to eating healthfully in general, as well as for each discrete food or eating behavior (Bruijn, 2010; Middlestadt et al., 1996). For example, *"What are the benefits to cooking and eating meals at home?"* and *"What do you dislike about cooking and eating meals at home?"* Normative beliefs were gathered through questioning about which people in the participants lives would be supportive and approving or unsupportive and disapproving of specific behaviors (Middlestadt et al., 1996; Robbins & Neiderdeppe, 2015). For example, *"Who in your life is, or would be, encouraging of eating a healthy diet?"* and *"Who would be affected by your decision to reduce your intake of processed foods?"* Control beliefs were gathered through questions about the situations in which performing those behaviors would be hard to do, and the factors that would make each easier to perform, as well as those that would make it more difficult (Bruin, 2010; Middlestadt et al., 1996; Robbins & Neiderdeppe, 2015). For example, *"What situations arise that make it more difficult to consume a variety of fruits and vegetables?"* Finally, the interviewer asked questions that addressed the IMBP variables of behavioral salience (*"How important is it to you that you are eating a variety of fruits and vegetables ?"*); knowledge and skills (*"Do you know how to choose foods that are lower in added sugar and sodium?"* and *"Do you feel like you have adequate cooking skills to prepare meals from scratch at home?"*), and environmental barriers and enablers (*"What makes it difficult for you to plan meals in advance?"* and *"What makes it easy for you to limit commercially processed snacks?"*).

Although all participants were asked these questions in some form, because of the semi-structure format, they may be in different order or skipped if the information had already been given during another part of the interview. Consistent with phenomenological hermeneutics, the researcher compared new data with previously recorded and transcribed interviews; this process provided the researcher with potential areas of focus or additional questions for subsequent interviews. Qualitative research allows for this type of flexibility in data collection (Barker, Pistrang, & Elliot, 2002); the interview guide is consistent, but the researcher was able to highlight certain topics of concepts that continue to emerge in subsequent interviews.

Throughout the interview process, the researcher wrote in a reflexive journal (Cohen & Crabtree, 2006). After each interview, the researcher took notes about what was learned from each individual, how she believed it fit into the overall picture of graduate student eating behavior, and potential themes she identified. Notes were also made about interpersonal interactions and behavior. The researcher took time to address any personal biases that were influencing her interpretation and analyze how that might affect her understanding. The reflexive journal was maintained throughout the transcription and analysis processes as well.

In qualitative research, member checking is a fairly common practice whereby participants in an interview are given the opportunity to review the results once they are completed as a validity check. Informal member checking of any potentially unclear comments or ideas that were expressed during the interview were revisited by the moderator during or at the close of the session (Kidd & Parshall, 2006). Additionally, the results chapter was sent to each of the participants for review. They were given a week to respond with comments or corrections. Only one student asked for a pseudonym to be removed from association with a specific quote to

add an extra level of anonymity. Most students who responded simply expressed their support for the project and excitement about its completion.

Data Recording and Storage

Interviews were recorded onto both a USB audio recorder and a voice recording application on the investigator's cell phone. These data files were transferred to the investigator's password protected computer for transcription following the interview, and then erased from the phone. The secondary copies of these files were saved on the USB recorder and the university's password protected cloud system until the end of the study.

Transcription

All interviews were transcribed verbatim. Transcription was conducted using the traditional, listen-and-type approach. Voice-recognition software has been found to be less accurate than the listen-and-type transcription approach (Johnson, 2011), and although it may be slow and often feel tedious, "the reward is being close to the data, which can pay off in the thought processes of data analysis" (Marshall & Rossman, 2016, p. 210).

The original transcription documents were stored on the investigator's personal thumb drive. Secondary copies of these transcriptions were stored in the investigator's UA Box cloud storage, which is password protected and digitally secure.

Analysis Plan

Overview

Data collection and analysis are recursive, occurring simultaneously and cycling back on each other. The researcher may be guided by an initial framework or set of concepts that may change as data is collected and analyzed: she must be prepared to examine the data with an

understanding of existing relationships found in literature and theory, while also explore the data to investigate when those expected relationships do not appear (Marshall & Rossman, 2016).

Qualitative analysis methods should be based upon the research questions and overall theoretical assumptions (Braun & Clarke, 2006). The specific method chosen for analysis in this study was thematic analysis, a flexible method of qualitative data coding and analysis useful for finding repeated patterns of meaning across a data set recommended for investigators who have limited expertise in the field of qualitative research (Braun & Clarke, 2006). Thematic analysis aligns with both phenomenological and hermeneutic principles, and is similar to the phenomenological hermeneutic method of analysis, but is more appropriate for working within an existing theoretical framework. Thematic analysis is commonly used, but rarely identified or described in explicit detail in research reports; it shares similar coding and analysis techniques as grounded theory, without ascribing to the implications of true grounded theory, which aims to develop a useful theory of phenomena or behavior (Braun & Clarke, 2006). It is not tied to any specific theoretical framework, and can therefore be utilized with a number of theories for a number of purposes. This type of flexible analysis has been used with previous studies applying both IMBP (Dillard, 2011; Hughes & Lewinson, 2014; Robbins & Neiderdeppe, 2015) and TPB (Boudewyns & Paquin, 2011) constructs to health behaviors.

This qualitative investigation is grounded in phenomenological hermeneutics interested more in individual perceptions and experiences surrounding a particular phenomenon—in this case, the effects of graduate school on eating behaviors. Consequently, the analysis focused on overarching themes as opposed to word choice or other nuances of language, as in a more constructionist perspective (Barker, Pistrang, & Elliot, 2002). Braun and Clarke (2006) advise

that when working with an understudied group or investigating an under-researched area, it is best to focus on the predominant themes across the entire data set.

Data analysis methods were supported by both phenomenological and hermeneutic principles. Phenomenological research aims to create thick descriptions of human actions and experiences that are also simple and straightforward, so that the reader can situate herself in the phenomena and assess her own reality in relation to the one being described (Ajjawi & Higgs, 2007). The hermeneutic approach adds to this sense of thick description the belief that it is necessary for the researcher to add her own interpretation to help shape and understand both apparent and hidden meanings (Smith, 2007). One of the cornerstones of hermeneutics as its own methodology is the concept of the hermeneutic circle. Hermeneutic circle is a metaphor for engagement with textual data, involving an iterative, circular movement from the parts—transcription data-- to the whole- a developing understanding of the phenomena--and back again (Ajjawi & Higgs, 2007). It also speaks to the continuous reflexivity of the researcher, who moves from one side of her own hermeneutic circle. She ‘stands’ with her own pre-experiences and assumptions, moves to the other side of the circle, forming a relationship with participants and engaging with their words, then goes back, where new judgments and assessments are made and new questions and understandings arise (Smith, 2007). The researcher is open to questions that arise from the text, allowing the text to “speak,” and then looks back to the text for answers that help to illuminate and understanding of the phenomenon (Ajjawi & Higgs, 2007). This cycle of interpretation can theoretically never end, and a final interpretation may never be reached. The researcher must decide when to remove herself from the circle and commit to sharing her findings, and that the interpretation is sufficient.

Thematic analysis was an appropriate method to combine with a phenomenological hermeneutic methodology in that it requires continual engagement with the text in an iterative process, allowing flexibility of interpretation within predetermined theoretical frameworks and intentions of the researcher. Thematic theoretical analysis is a type of “top down” qualitative analysis driven by the theoretical framework of interest to the researcher (Braun & Clarke, 2006). According to Roulston (2010), analytic codes derived from the literature may be applied to the data to help with the coding process; therefore, the structure of the IMBP theoretical framework was used as a guide for grouping and coding the data (Yzer, 2012). In general terms, coding analysis of qualitative data involves extracting codes, defined as words or short phrases that symbolize a summative or important portion of the data, and then grouping them into categories and subcategories (Saldaña, 2013). The transcriptions were read thoroughly, coded, and then grouped into categories based upon the IMBP constructs and variables: attitudes, norms, control, environmental barriers and enablers, individual skills and knowledge, and background variables. Categories are considered to be explicit within the data, while themes are more subtle, and often implicit interpretations (Saldaña, 2013). Codes were clustered in tables under headings related to the research questions and then compared and corroborated across cases (Fereday & Muir-Cochrane, 2006). Because the outcome of this analysis was to determine relevant beliefs surrounding eating behavior within the IMBP framework, the results are described as themes, which may include underlying component beliefs; attitudes; perceptions of norms or personal agency; perceived environmental barriers and enablers; salient individual skills and knowledge; or background variables relevant to the behavior. To aid in the understanding of the findings, the researcher created a concept map of the themes in the form of the IMBP model (Figure 3); concept maps are supported for use in all stages of qualitative

research, from framing the study to analyzing the data to presenting findings, because they can help the researcher focus her ideas and understandings (Daley, 2004).

Table 1

Thematic Analysis for IM-Based Elicitation Research

Phase of Analysis	Brief Description
Become familiar with the data	Transcribe interviews; read and re-read, noting initial ideas
Generate initial codes	Code interesting features and information across data set
Categorize codes	Collect codes into categories based upon theoretical constructs, gathering relevant data for each
Review categories	Make sure codes are accurately categorized and relevant data has been gathered across the entire data set
Define and name themes ²	Generate list of themes ² within each category; check for consistency
Select themes ² for questionnaire	Determine which themes ² to use for questionnaire development, according to prevalence and importance

¹Adapted from Using thematic analysis in psychology (Braun & Clarke, 2006) and The Coding Manual for Qualitative Researchers (Saldaña, 2013)

²Themes may be related to any construct or variable within the IM framework: beliefs, direct attitudes or perceptions of norms and personal agency, skills and knowledge; environmental barriers or enablers

Specific Research Questions

RQ1: What are the attitude, norm, and control-relevant beliefs that influence graduate students' eating behavior intentions?

This question was answered through thematic analysis of group interview transcriptions. The process, adapted from methods described by Saldaña (2013) and Braun and Clarke (2006), is outlined in Table 1. After reading and re-reading transcriptions, the researcher identified codes, which she then grouped into categories based upon IMBP constructs and variables. Underlying beliefs and perceptions were derived from these codes, and then identified as themes.

RQ2: What are the environmental factors that affect eating behaviors in the graduate student population?

The researcher employed thematic analysis of the interview transcriptions, which resulted in environmental factors that affect the eating behaviors of graduate students. The thematic analysis process is outlined in Table 1 and described in more detail above.

RQ3: What are the knowledge and skill-based factors that influence eating behaviors in the graduate student population?

Similar to the previous research questions, knowledge and skill-based factors that influence the eating behaviors of graduate students were answered during analysis of interview transcriptions. The process of thematic analysis and coding is outlined in Table 1.

Summary

Through a series of semi-structured interviews, qualitative data related to dietary intake, food choice, and eating-related behaviors were collected from a diverse group of graduate students at a large, public southeastern university. This information was analyzed using thematic analysis to better understand the beliefs of graduate students related to their eating behavior intentions.

CHAPTER 4

RESULTS

Graduate students were determined to be an understudied population likely in need of appropriate interventions and education related to specific eating behaviors found to promote and predict healthy dietary patterns. These behaviors were eating a variety of fruits and vegetables; limiting the intake of added sugar, sodium, and saturated or trans fats; cooking meals at home; and planning for meals. To develop an understanding of the beliefs and factors influencing graduate student food choice and eating behaviors to be used for such intervention or education, a phenomenological hermeneutic study was designed to investigate the phenomena. This study proposed the following research questions, guided by the constructs of the Integrated Model of Behavioral Prediction (Fishbein, 2000, 2008; Fishbein & Capella, 2006):

RQ1: What are the attitude, norm, and control-relevant beliefs that influence graduate students' eating behavior intentions?

RQ2: What are the environmental factors that affect eating behaviors in the graduate student population?

RQ3: What are the knowledge and skill-based factors that influence eating behaviors in the graduate student population?

RQ4: What are the differences in the attitudinal, self-efficacy, and normative beliefs affecting eating behavior intentions between various graduate student demographic subgroups--based on gender, age, race, and relationship or family status?

The results of the thematic analysis are presented and organized by research question. First, a general understanding of the behavior and intentions of this population will be presented. Then, each of the construct-based research questions will be addressed, with attention to how the various beliefs and both barriers and mitigating factors and are not always clearly distinguishable in their overarching influence on these intentions and behavioral performance. Finally, the comparison of relevant background factors related to these behaviors will be addressed.

Figure 3. Concept Map of Thematic Analysis Results Categorized by the IMBP.

Behavior and Intention

The interview question that most explicitly addressed food choice intentions was “*Tell me how you decide what to eat for lunch (breakfast, dinner) every day.*” Although the interview guide contained questions related to the importance of each behavior (i.e., “*How important is*

eating a variety of fruit and vegetables to you?”, *“How important is cooking at home to you?”*) those questions were rarely asked, with importance of, and intentions for, behavior emerging in other dialogues and lines of questioning.

The Integrated Model of Behavior Prediction is a theory of reasoned action, suggesting that all behavior is the result of developed intentions; these intentions may be irrational or based on incorrect knowledge, but they are reasoned nonetheless (Fishbein 2000, 2008). Among the graduate students interviewed for this study, behavior was very clear, but intentions were not. Students recognized very easily whether they were eating fruits and vegetables, cooking meals at home, planning for meals, or limiting their intake of salt, sugar, and saturated fat. In contrast, their intentions did not always rationally align with their understandings of healthy eating and nutrition, nor the instrumental attitude beliefs they held related to the benefits of the behaviors.

Within this group of students there were three main behavior-intention relationships, with some variations among them: 1) students who had set specific goals for their eating, usually based on the immediate health concerns of themselves or their family; 2) students who acted primarily out of habit and routine, and whose rational intentions were no longer at the forefront of their actions; and 3) those who had a general understanding of what they “should” intend to do and the benefits of a healthy eating pattern, but recognized that they fell short, and were either unconcerned, felt no immediate pressure to change, or felt they could not currently change because of their current life situations.

Both students who felt as though their actions were positive, and those who didn’t, described their behavior as very routine, or habitual. Natalie spoke of getting “into this flow of eating fast food” explaining that once she gets started, “it tends to be harder to break the habit.” Jules was an example of a student who was consistent in her routines, which included packing

meals to take with her to school—sometimes every meal for the day—cooking in advance, and maintaining a time-oriented eating schedule. Her system of meal preparation and eating was so well-established that she didn't “even really think” about it anymore. She said she had been “doing this for so long” it was “almost second nature.” This was a sharp contrast to the spontaneous eating and decision-making expressed by many students, like Preston, who were often making food choices that “make sense in the moment.” Those choices could be going to Taco Bell late at night after studying in the library, or eating a bag of chocolate covered coffee beans for breakfast on the way to the interview, as Preston revealed he had done that morning. Stacy spoke of meeting her husband, also a graduate student, at Publix nearly every single night and wandering around the store until they decided on something to eat. Timothy just eats whatever is in front of him: “Whatever's good. Whatever I like. Whatever is there. If I like it I'm gonna eat it.”

The Integrated Model of Behavioral Prediction is unique in its reasoned action approach, because it adds environmental factors and requisite skills and knowledge as potential moderators of the intention-behavior relationship. Some iterations of the IMBP also include salience as a third potential moderator, and, although the study was not designed with this as a variable of interest, it stood out as a strong influence on these students' food choices and eating behavior. There were marked contrasts between students about the current importance of carrying out the positive eating behaviors examined in this study. A few students were simply apathetic, and “just haven't made it a priority” or “taken the initiative” (Timothy) to be concerned, while another subset prioritized nutrition and fitness in their daily routines. However, the majority of the students interviewed did express the importance of health, food, and nutrition in their lives, *but not as important as other obligations at the current stage of their lives.*

Salience, and, consequently, behavior, could change with the onset of graduate school: Joe came into graduate school with strong intentions, claiming “I was like ‘I’m never not gonna be fit’ and [my mentor] was like ‘Yeah wait until you get into the PhD program.’ And it didn’t even take me that long (chuckling) before I fell off the wagon.” As school began to take priority, Joe put his health “on the back burner.” This evolving and increasing prioritization of school over self was something that was a common undercurrent in most students’ interviews. As James described it, added obligations and responsibilities from school continued to be added to “the list” of daily tasks, so that eventually self-care, once a “central thing,” was too far down to even worry much about:

It’s like....getting manuscripts done, I need this mentorship, I need this work experience, do I gotta get some other income, you know those are like there’s at least fifteen or twenty things on the list before you get to OK the central things, like the things that used to be essential like getting fruits and vegetables, getting exercise, getting enough sleep, things like that, like that’s out the window once you start, especially a doctoral program. This changing salience, and the resulting behavior, appeared to be the result of the larger cultural norms of the graduate school experience, which will be discussed more thoroughly below.

It was not always school that seemed more important than food choice or cooking meals at home. Students with multiple roles often found those to take priority. This was especially true for the mothers interviewed in the study; graduate student was a secondary or tertiary identity after their identity as a mom. If there was a competition for time or attention, motherhood took priority, followed by school, and then self-care. As Celia explained:

...other things that seem more important to me...I could either cook or I could take my daughter to the park...I always feel like it’s not enough time to do everything so I have to

choose which, which thing am I going to do, um, so I end up floating kind of the health, healthy cooking or eating and saying let me give them this attention now and then we can, you know, it won't be the greatest thing in the world...

Eating behavior in graduate school does not always align with the awareness of potentially negative health consequences. When talking about what defines a healthy diet, many students made it clear that there was the ideal they were espousing, and then the reality of their own actions. Michael stated this plainly, saying there was healthy eating “in theory, and what I actually do.” Students’ choices were often a conscious divergence from what they knew to be healthy, something Angela described as an experience she shared with her family: “when we eat something bad we know like we kind of state it out, like we know this is bad for us but we’re gonna do it anyway.” While some students are able to maintain positive eating and cooking behavior through the use of strategies and the development of routines, many made eating decisions spontaneously, with food as an afterthought in their academically-oriented lives.

The Integrated Model of Behavioral Prediction posits that the intentions for behavior are primarily developed from an individual’s attitudes about the behavior, their perception of the norms surrounding the behavior, and their feelings of control over performing the behavior in the face of obstacles (Fishbein, 2000, 2008). These attitudes, norms, and perceptions of control are derived from individual beliefs. Based upon this assumption, the following research question was proposed: *RQ1: What are the attitude, norm, and control-relevant beliefs that influence graduate students’ eating behavior intentions?*

Attitudes

Among normative, control, and attitudinal beliefs, attitudes were the most clearly delineated beliefs between the target behaviors of cooking meals at home, meal planning, eating

a variety of fruits and vegetables, and avoiding added sugars, sodium, and saturated trans fats. This was likely due to the question structure that specifically asked about benefits and negative views on each behavior. This last behavior of avoiding sugars, sodium, and saturated or trans fats was often interpreted by the students as avoiding processed foods, specifically fast food, perhaps partially due to the examples given of the behavior during the interview. Attitudes towards this avoidant behavior were often described in terms of the benefits of the opposite behavior, which for most students was cooking meals at home and ‘eating healthy.’ ‘Eating healthy’ involved consumption of whole foods, included fruits and vegetables, which, along with cooking meals at home, was a target behavior for the study. Therefore, it was often difficult to completely separate attitudes towards one target behavior from those of another.

Within the IMBP, attitudes are separated into experiential attitudes, or how one feels about performing the behavior, and instrumental attitudes, or the beliefs about the effects of performing or not performing the behavior. Experiential attitudes were often the emotional benefits or feelings towards specific foods or towards cooking, while instrumental attitudes were often related to the physical benefits, such as health or cost. Positive instrumental attitudes were unlikely to be strong enough to overcome negative experiential attitudes with regards to food choice or cooking behavior: the health benefits of fruit and vegetable consumption (FVC) or cooking meals at home were universally recognized, but would only drive FVC and cooking meals at home if the student also had positive experiential attitudes related to taste of fruits and vegetables, or the enjoyment of cooking and meal preparation.

Eating a Variety of Fruits and Vegetables

With regards to eating fruits and vegetables, the main physical benefit was clear: improved health via increased vitamins and mineral consumption. As Monica said, they are “like

a multivitamin of food,” which, according to Angela, “just makes you feel better.” This idea of feeling better physically was described by Adhit as feeling “light and feel[ing] kind of fresh.” Additionally, many students simply enjoyed eating them, like Tom, who asked in all seriousness, “Is there a way to not like vegetables?” or Joan, who said, “If I don’t have vegetables I feel like there’s something wrong with my day.”

However, some students found cooking vegetables or preparing to take too much time out of their day, and felt that preparation time was a limiting factor to their consumption. Kate wanted something she could just throw in her bag, so she stuck with apples most days. Alice said she didn’t enjoy the types of vegetables that were easy to eat or pack for snacks, like baby carrots. Only certain fruits and vegetables were viewed as simple to eat for a snack, and so for those students who weren’t already cooking, eating a variety of fruits and vegetables was also unlikely to occur with great frequency.

Monica expressed the feeling that she was “limited as far as where my taste buds want me to go” and this was a common attitude about both fruits and vegetables among most of the graduate students. Although not necessarily averse to trying new types of produce, students were not often actively seeking them out, choosing their fruits or vegetables based on what they preferred or were accustomed to eating. As Anthony said, “I don’t like leaving out of my comfort zone.” Timothy agreed, saying “I think that people like to stick with like what they’re used to...I think people just stick to what they like.”

There was often a conflict between recognizing the ultimate health benefits and being able to find enough fruits and vegetables the student enjoyed or could afford. As Jessica, an international student who was used to certain Chinese vegetables before coming to the United States, described:

I feel like I need to eat like a variety of vegetables to help me to get healthy and get all those vitamins, so I think it's important, but at the same time, occasionally I find it difficult because I cannot find everything I like.

FVC was an eating behavior the graduate students knew was important, but may or may not take the time to consciously, and consistently, accomplish. "If I go through a drive through my vegetable is French fries," said Alice.

Both taste and high cost were perceived as limiting factors. Many students had the attitude that fruits and vegetables were expensive, and therefore they chose what was on sale, or cheaper to purchase, regardless of taste. Students were consciously or subconsciously performing internal cost-benefit analyses with their produce choices. Nearly every student said they would be willing to try new fruits and vegetables should they be offered them, but many, like Natalie, also said they would not be willing to spend money on what could be an expensive waste, should they discover they don't know how to cook with it, or they don't like the taste:

...well I think kinda going back to like, knowing um, like now that I, I know how those fruits taste and I know that I like them 'cause I'm familiar with them (*IR: Mmhm*) um, I think I'm more likely to stick with the ones now that I know just because um, like why would I, why would I buy something and then not be sure, and then, you know have to go back to the store and get the other thing that I know that I like?

In general, students believed there was a high likelihood that the produce they did purchase would go to waste. Joe said that there was a "50/50 chance" fruit would get eaten in his house, and spoke of having to recently throw out a half a bag of apples. Laura said that keeping "track of" produce was hard, and that it "breaks [her] heart when it goes bad." Whether or not they preferred a fruit and vegetable, they were often unwilling to spend what they perceived as an

excessive amount of money to have it in their rotation. As Kate described: “it’s like you know two bucks for a bag of apples versus five dollars for this thing of honeydew, you know, it’s like, I love honeydew, but not that much (laughs).”

Cooking and Planning for Health

Attitudes towards meal planning as a specific behavior were hard to separate from those of cooking at home. The majority of students did not feel that the concept of meal prep, or preparing weekly meals during one day of the week, was feasible. However, when given the definition of meal planning used in this study—thinking about what he or she will eat in advance, not making spontaneous food decisions or skipping meals—meal planning as a concept was usually viewed as the inherent forerunner of cooking.

Jules summarized it best when she said “I think people inherently just know that planning your food and cooking at home is better for you.” Most graduate students, whether they were doing so or not, believed that cooking meals at home was a better option for your health, and that, as a practice, it fit with their overarching ideas of what it meant to be following a healthy eating pattern. Following a healthy eating pattern was viewed by most students as resulting in overall better feelings about themselves and their physical and emotional well-being: “When you eat healthier, you feel better, it’s like I’m sleeping better, everything’s better” said Joe, “I feel, just, I am better overall, I feel.” If planning mealtimes is not a priority, erratic eating behavior is the result. “Either I’ll meal prep and I’ll do really well or I won’t meal prep and I’ll either not eat, or I’ll eat really bad. And both are not good,” said Mila.

There were also emotional benefits to choosing to stay in and cook a meal at home, rather than go out to eat. Staying in for meals was often viewed as “family time” (Joan), or a time to catch up with loved ones over a healthy dinner, one that could be, as Mila described, enjoyed

even more because “it’s different than sitting in a restaurant, like, you’re at home you can be chill, you can wear your pajamas” and that she felt it was:

kinda like more intimate, you know ... there’s something to be said about having dinner at your home, sitting down together...you know, just talkin’ about each other’s day...you’re comfortable, you’re in your zone, and so, like...I feel like that also helps [with your relationship].

Natalie was looking forward to this time with her boyfriend, as he was planning to move in with her shortly after the interview: “I guess it just seems like a time to, to kind of reflect on our days and um could just see that as being a nice, a nice way to end the day.”

Cooking meals at home was viewed as the alternative to avoiding processed foods (and therefore, avoiding sodium, added sugar, and saturated and trans fats). The proxy for processed food was often simply fast food, and cooking meals at home and going out to eat—whether for fast food or at a restaurant in general—were often viewed as dichotomous behaviors. As Steve described it, cooking at home meant the food not only tasted better and was so much better for your health:

...now this is a cliché but it’s true, it’s, it’s healthier, honestly because you know, whaddayou wanna go out and get Zaxby’s fried chicken three times a week or something like that? Or do you want to grill a steak? Or do you want to, have , I don’t know, pork tenderloin or something like that, you know, it’s, it’s no comparison in terms of, for me, uh, the taste and how much better it is for you.

Over time, negative physical consequences of eating fast or other processed foods may cause students to change their eating behavior because, as Joe described, “Man, sometimes you just

feel awful and tired and sluggish and you hit that point and you're like, "Man I'm tired all the time," it's about that time to change your diet again."

The intention to lose weight was present for both women and men and could be the catalyst for strongly developed intentions to consume more fruits and vegetables or cook at home more often. Joe, for example, was in the process of changing his diet completely. During the interview he described weight gain and loss as cycles that he consistently went through, and at the time of the interview, he was in a cycle of trying to lose weight. Adhit had, in the past few months, changed his diet after feeling that he wasn't looking as fit as he should. "I'm not gaining weight," he said, "but I think, OK I feel, I'm getting fat, OK, so, especially in belly, OK, so I think I should look fit and I should be fit, so I started [learning about it]." Although Keisha was honest in saying that she "just want[s] to look good basically" and Monica spoke of previous years spent on Weight Watchers, it was a bit surprising that the males interviewed for the study were much more likely to openly discuss weight as it was related to their personal relationship to food, because so often women are the focus of study and interest with regards to body image and weight issues related to food and eating. That being said, the mothers in the study spoke of their daughters' weight and food choices, showing a shifting attitude and concern away from themselves and towards their children. Overall, the students in this study provided evidence of body image and weight concerns as gender neutral attitudes with regards to food choice and nutrition, and an issue that may be translated from parent to child.

Generally, most graduate students perceived a number of physical benefits to cooking meals and meal planning, predominately their improved health. Both of these behaviors also had their own emotional benefits, most related to reduced guilt feelings and positive self-worth, in addition to the emotional connection shared with a partner or family. Again, however, the

emotional benefits of cooking were equally met with opposing viewpoints: where one student found enjoyment in cooking and comfort in meal planning, another found added tasks to an already busy to-do list.

Cooking for Pleasure versus Cooking as a Requirement

Overall, students who were consistently cooking at home appeared to derive pleasure from the habit, as a welcome respite within the demands of graduate student responsibilities. Jessica said it was “the only enjoyment in [her] life at this time” and Tom saw it as a “peaceful...like, a forced break from the day to day you know, a moment’s reprieve, it’s like I have to step away from this, um, or I’m not just sitting in front of the computer.” Alice also found pleasure in the act of cooking for other people, especially her family, saying “I take joy in being able to do things like that.”

Yet, many students who would normally find pleasure in cooking felt they didn’t have the time to make it a relaxing, fun experience while simultaneously trying to be a stay on top of all the responsibilities they had as grad students, including Natalie, who described it this way:

I like to cook, I like to, um, try new things in the kitchen but it’s just the time again you know like if I had all the time in the world I think I would enjoy it even more but having pressure to you know, be certain places and all of that makes it difficult to do what you want in the kitchen.

Many students felt that taking the time to make a meal at home could end up feeling more like an afterthought than a planned, pleasurable experience. Even for Alice, who said she found joy in cooking meals for others, found that many nights she would get her protein, her vegetables, and “would just throw it all in a bowl and eat in my bed and watch something on Netflix.” Mealtime simply lost its importance in the haphazard scheduling of graduate school. As Preston described,

meals are often multitasking opportunities, and there is little time to reap any mental or emotional benefit from them:

There's a lot more like eating something in the car because I overslept and I'm going to be late to something or like eating while I'm reading a paper or something like that, um, so it doesn't have the same sort of set time or the same sort of like significance in my daily schedule as it once did.

For some students, it was not only the lack of time, but also the lack of money as a graduate student that had changed their perception of cooking. As Preston described, before going back to school, he "was doing really exciting things like going to like Whole Foods in Birmingham and getting brisket or like cooking my own challah and like crazy things, um, that you just can't really do when you're working on, like, fifteen hundred a month."

While some students experienced a change in perception of cooking during graduate school, some just didn't enjoy it at all, period. Laura said that sometimes she "hate[s] having to cook every night" for her boyfriend and herself, and that it was just another thing she had to do each day. Joe said he simply "cannot stand taking the time to cook." A common theme among students who were not consistently taking time to cook was the perception that the act of making a meal, or even planning for a meal, required extra effort that many simply didn't have. These behaviors just added more thinking and planning to a life of what could feel like constant thinking and planning. As Kate said, "I feel like I prepare my day and I don't wanna prepare my food, like that's one thing that's gonna be spontaneous in my day, is food." Stacy said she would "rather do anything than plan," simply because it would require giving up relaxation time where she does not have to work. There was a subtle feeling of guilt that came from what students abstractly described as an internal conflict about taking time away from one's schedule in order

to plan ahead. Preston commented that even if he does take that time he's often thinking "I should be doing something else." As Mallory described: "...it's not even like setting aside time to plan, it's just like taking those five minutes and saying it's OK to take five minutes and think about this, um, instead of thinking about my thesis or something like that."

Norms

Scholars have proposed that, although behavioral attitudes appear to be the most consistent predictors of intentions over subjective norms, attitudes may actually be a byproduct of subjective norms, in that norms may be influencing attitudes, which then more explicitly influence intention (Terry & Hogg, 1996). Additionally, attitudes and normative beliefs may not be mutually exclusive, and attitudes may only find behavioral expression within supportive normative environments. Two types of norms are included in the IMBP: descriptive, which refer to perceptions of the behavior of those who are like the individual—in this case, other graduate students—and injunctive, which refer to the perception of approval or disapproval by salient referent groups or individuals. Descriptive norm themes involved descriptions of the 'typical' graduate student, and also stereotypes of international students. Injunctive norms themes included peer pressure (positive and negative), the influence of family, and cultural norms for behavior, which included both international culture and the culture of graduate school itself.

In evaluating and understanding the attitudes of graduate students, students had clear perceptions of an almost stereotypical norm of other graduate students' negative eating behavior and the expectations of a graduate school culture that promoted unhealthy habits. Yet, students differed greatly in their motivation to comply with those norms, and the strength of their group identification. Some students felt that there was little to no association with others, and that they were isolated from peer groups, with family being the strongest social influence over behavior.

Others felt the pressure of conforming to a graduate student norm more strongly. Years of research have established social norms as having strong influence over what and how we eat, affecting everything from food choice to rate and amount of food consumed (Higgs, 2015; Pelletier, Graham, & Laska, 2014; Pliner & Mann, 2004; Robinson, Thomas, Aveyard, & Higgs, 2014;). Because the designation of who is considered a normative reference may change based on the context of the behavior (Louis, Davies, Smith, & Terry, 2007), it is possible that positive attitudes towards healthy eating and cooking behaviors can overcome negative norms if other normative referents—including friends, partners or family members—have stronger influence, or if the student felt little identification with other graduate students or little motivation to comply with the established norms.

‘Typical’ Graduate Students

To better understand descriptive norm perceptions, students were asked during their interviews how important each target behavior was to *other* graduate students. In general, the perception of all those interviewed was that most graduate student could not, and did not, make healthy eating or cooking and planning for meals a priority over other roles and obligations, as James discussed:

IE: Again I don't think that's a major priority for grad students, it's like if I eat I eat, if I don't...

IR: I don't?

IE: Yeah. (chuckles)

However, many participants recognized that other graduate students may fall on a wide spectrum with regards to how much they valued health and their nutrition, not everyone being, as Justin described it, a “ramen noodle graduate student,” with some students packing snacks or

meals, while others ran to the vending machine before class. Mallory said "...so there's definitely a huge, huge divide even between who thinks it's really important and people that are like "meh" mildly, as long as I don't die, I'll be OK." Most students agreed that consciously trying to eat a variety of fruits and vegetables, in particular, was not a very pressing issue amongst their peers. However, like many of the participants interviewed, it was likely something they may recognize they should be doing, but not necessarily achieving. When asked if other graduate students were as unconcerned about eating a variety of fruits and vegetables as he was, Joe said:

Um, motivated to do it? No. But, I'm sure they think about it. I'm sure they know they should, but I don't necessarily, I don't necessarily know that they're so concerned they need to be doing it or want to be doing it.

Mila had taken a lot of time to think about the negative health consequences she had experienced during her first year of graduate school, and reflected on graduate student perspectives towards health and healthy eating, by describing a population who wants quick results, is not willing to work for change, may be scared to even try, and are afraid to ask for help when they need it:

I think grad students want something that's (claps) like that, you know, Oh, I'm gonna wake up today and I'm gonna eat healthy and you can't do that, like, you gotta find that time, you gotta put that time in, it's just not a wake up one morning thing, it's a, 'OK you meal prepped today, that's good, keep going, you gotta keep doing it,' or say you meal prepped and you decided to go to lunch or you had a doughnut or a candy bar, it's not the end of the world, it's a start. And I think a lot of it has, a lot of things, first off, we are an impatient people and we want things done automatically so we wanna see results immediately, but I think also it's a, they're scared to ask people, they're scared to figure

out, how do you do this, or what would be the best way, or they don't wanna admit that they put on that weight or they don't wanna admit that their habits aren't exceptionally healthy even though they know that they're not, it's just one of those types of situations that as a grad student you're expected to know what to do, which makes no sense to me, I'm literally just trying to like make it day by day, just because I have a system down doesn't mean anything (*IR: Mmhm*) like, I fail on a daily basis but you gotta keep up and keep going. You gotta go to the grocery store and you gotta make that executive decision that you're gonna have...this bell pepper instead of these pizza rolls, even though pizza rolls are really good.

Despite some of these descriptions, the students hesitated to make any generalized statements about the behavior of other graduate students, believing that they didn't have a large sample from which to derive evidence. "I live under a rock," said Steve. "I don't get out much," said Stacy. And because graduate students often feel "so confined" to their programs (Jules), they feel like they don't know much about others' behavior: "I don't know, I'm usually in [this department] building" (Angela). Those departments varied in size and demographic composition, as well as feelings of inclusivity. Zac described the Physics Department as being very divided, both physically in terms of buildings and also academically in terms of programs. He also felt it was lacking a "true culture," while the Psychology Department was described by a number of students as being a place where e-mails are sent regularly encouraging participation in fitness events, and students eat regularly together in communal lunch spaces.

Peer Pressure and Isolation

The differences in departmental climate resulted in different perspectives on normative peer pressure. When Steve was asked if there was anything more he would like to share in the

interview about eating as a graduate student, he replied that he “experienced virtually zero peer pressure in this area,” that “you’re allowed to kind of do what you want to do.” While he may be inclined to go out to lunch with others simply for the opportunity to socialize, he said that there was none of the pressure you might feel in either high school or undergrad:

...you know you hear high school is all about peer pressure and even undergraduate is peer pressure, I don’t, I don’t experience any of that. At all. As a graduate student everybody’s going, like for example everybody’s going out to eat lunch today, (rapidly) “You’re comin’ right? You’re comin right? OK” No.

Marisa viewed eating and food choice as an individual responsibility, and tried not to feel pressured one way or the other to eat something:

IE: Well you know sometimes like when you turn things down and other people don’t you can see like how they’re like you know? Feel like, you, they’re being judged or something like that.

IR: So does that make you wish that you had eaten it?

IE: No that makes me wish like “well why aren’t you doin’ it?” (Laughs) Why aren’t you changing your thing, you know? You have a choice. You know what’s good for you or not.

Yet, there were some students who did feel ostracized by their peers if they made healthier food choices. Joan said she “usually get[s] attacked for [her] food choices” and that “it’s really hard to eat with them [her cohort] sometimes.” Jules said quite a few times during her interview that she didn’t want to stand out: “I don’t wanna be the one person that doesn’t wanna eat something.” Justin recognized that there may be some sort of stigma to being health conscious in graduate school:

I feel like that's the norm...is that they'll offer you a cupcake 'cause you're at somebody's birthday party, and they'll say, "why don't you want a cupcake?" and then you feel like you have to explain yourself, but then you feel like if you say "do you know how much sugar's in there?" you feel like they're gonna say "oooh what are you? Some kind of health nut?" so there's a stigma there, maybe.

Not all peer pressure was stigmatizing or negative. Keisha received lots of praise for her cooking via Instagram, and comments on her changing body as a result of her focus on eating healthy and exercising. This positive reinforcement encouraged her to stick to her goals: "I'm starting to look good, people are noticing, I'm eating good, people are like your food look good, people are like, 'You're gonna cook for me?' or 'Can I get a plate?'" Natalie and Marisa were roommates who supported each other in a set meal plan, each taking turns cooking and prepping ingredients or meals, and encouraging each other. It was "easier if we were both doing it," said Natalie. As hard as it was for Mallory stick to her meal plan instead of going out to eat with friends, all it took was another friend to commit to staying home for her to feel more comfortable doing so, an event she described when asked what situations make it difficult to plan ahead for meals:

...we were both kind of in the same positions where, we didn't really wanna go out, it would've been like fun, but we had this food, we wanted to cook it, and so, being able to like, say to friends, no I'm gonna stay in tonight.

Marisa spoke of the effect of having friends who were trying to make healthier choices even while out at restaurants:

...it's interesting because when we go out to eat ...and like, you know and people will order like healthy you're not gonna come here and eat like your nachos when people are eating like, taco salads, you know? That's, feel like I gotta eat healthy, too [...] I mean I'll

still eat it, I mean some people are like “I’m still gonna get my dessert, I don’t care” but like you kind of get reminded that you can eat like that and be OK you don’t have to eat all of that, you know? You can have a bite of dessert. (Chuckles)

Mallory recognized that this “peer model effect” could potentially also exist in the “communal lunch spaces” in the Psychology Department, as she and her cohort ask each other questions about their food and witness each other’s eating behavior, both good and bad. This type of positive pressure, sharing of information, and modeling could only happen, however, in a social department and for students who felt included. Celia said that positive peer pressure might exist in the Health Science Department, but with her multiple roles and responsibilities outside of school, she didn’t feel like she was truly a part of the department; she didn’t have time to participate in that social support even if it did exist.

This sense of singularity was common among most students. Students without families said that there was no one affected by their eating or cooking decisions, and that they didn’t feel influenced by anyone else to eat a particular way. Even students with partners, like Laura and Anthony, didn’t immediately think of their boyfriends or girlfriends as being an influence on their food choices and eating or cooking behavior until prompted with questions regarding who chose what to eat for dinner in the relationship or who did most of the grocery shopping. Kate was coming to the realization, even over the course of the interview, that while she may not have a boyfriend or girlfriend who may be influenced by her behavior, it was possible her new roommate would have an effect on her eating habits:

IE:...maybe it won’t change that much, but, it probably will. (Laughs)

IR: For the worse or better?

IE: Um, I don't like, probably worse, just because like, I think she's OK with just like being really convenient and picking up, like the other day she wanted McDonald's and I was like "I don't eat McDonald's" and I was like "I'll go with you" and I don't know if it's gonna end up that we go to fast food or whatever and I'm like OK and I'll pick up a milkshake or something, which I usually would never do. (*IR: Mmhm*) So I feel like that could happen (*IR: OK*) in the future, but it hasn't yet. (Chuckles).

It seemed that, for the most part, students were more influenced by the people with whom they lived and less by the people with whom they worked.

Cultural Norms

There were two major types of cultural norms that influenced eating behavior intentions. First, international students often attempted to maintain the norms for eating and cooking influenced by their international cultures. Second, there were cultural norms for eating behavior associated with graduate school itself.

International norms for eating. The international students continued to abide by their traditional ways of eating and cooking as best as they could. They may have to adapt recipes for different ingredients, or adjust recipes to meet their traditional taste profiles, "add[ing a] little bit of spices....because that's what we are used to in India, I mean giving it that Indian touch," (Manvik), but overall they tended to cook more often, and to stick to traditional meal compositions. Because of this, the international students were often consuming a greater quantity and variety of vegetables in their diet. Adhit, a Nepalese student, made a new dahl and curry every few days, adding new vegetables or switching them based on availability. Not only did Adhit's traditional curries allow him to easily get a variety of vegetables into his diet, they worked well for leftovers, meaning he generally had home cooked food ready for most meals:

Generally what I do is OK, um, so I cook once OK that, that legumes and special dahl (*IR: Oh*) dahl and curry I cook, I make it once and that will be enough for me for a whole day OK or sometimes for three meals OK (*IR: OK*) three meals, that will be enough, and rice, OK, that always I use to cook, that rice and pasta, separately, I used to make because that should be fresh and that curry and dahl I can use my refrigerator to store that.

When describing the typical meal rotation in his household, Manvik, an Indian father, described what he considered a standard Indian meal, with a changing ‘entrée,’ examples of which were protein sources, such as eggs, fish, or chicken: “so I mean in terms of meal essentially we have dahl, rice, the chapatti, and uh, vegetable (*IR: OK*) or an entrée, and that entrée keeps on changing.” He also spoke of the rotation of vegetables that he and his family consumed, and also of adding as many vegetables to a recipe as he could:

...then I think OK why limit it to only asparagus and Brussels sprouts when we could have many other things? I mean the idea if you have to get more nutrition, right so I [don’t care] about what color it is and what it look like as long as it’s benefitting my body.

Jessica grew up in a part of China where vegetables dominated meals and seafood was prevalent. Although she was a self-proclaimed “picky” eater who loved meat, she had adopted these cultural norms, and tried to maintain similar portions. She viewed her fruit and vegetable consumption as better than that of her American cohort:

In my local area, when I was back in China, it’s different, so, the bigger portion is the vegetable. Meat is more like decoration, when I’m over there, but when I come here it’s like meat, and lots, and lots of vegetables, it’s half and half. So it’s like less healthy when

I compare to my local culture but I think is pretty healthy when you compare to the American standard.

It was clear that by remaining loyal to their standard food preparations and portions, the international students were better able to maintain the recommended healthy eating pattern that the Dietary Guidelines for Americans espouses. The stereotype of the Western diet as being less nutritious and more processed than diets abroad was confirmed in interviews with these graduate students. International students had an especially hard time with the idea of going out to eat regularly. Adhit said he believed that international students are “especially” interested in cooking, and prefer to cook traditional foods at home. Jessica cooked at home simply because she didn’t like a lot of American food: “as you can tell by now, I’m Asian, and I wasn’t born here, so there’s a lot of thing I don’t like about American food, especially I don’t like microwave, like, food, so I always cook.” During his interview, Adhit, who is from Nepal, described a conference trip from which he had recently returned and said that “...for the whole week I went out for eating and, oh my God, it was a terrible experience” because he lacked healthy vegetarian options, and he was tired of heavy food. As Jonah described regarding his Nigerian cultural viewpoints, “We believe that most of the food in America, if you eat them, like the burgers and the rest you add weight, you add unnecessary weight you know?”

Yet, even for students who maintained their traditional diets—as best as they could with regional and local availability of foodstuffs—they often faced cultural barriers outside of their homes. For example, although Jonah is able to continue to eat traditional African food in his home, and even on occasion share his Nigerian foods with Ghanaian friends in their homes, there were certain limitations based on cultural norms for eating placed upon him:

it's not something I can eat outside, if you have to eat the traditional way you use your hand....so that's, you don't want to eat that outside of the office or back home you can, if you have to eat at a restaurant for instance of course you can, but unfortunately we don't have an African restaurant here so, that's it, so I prefer to eat such a meal at home.

Laura is an Indian student who explained that she disassociated herself from other Indian students, whom she described as cooking more time-consuming, involved, traditional foods. Although when Laura lived with Indian roommates, she did tend to eat more traditional Indian foods, now that she lived on her own, she no longer chose to cook those foods. In describing her choice, she appeared to be somewhat contrite about not cooking what she perceived as potentially healthier food in lieu of "easier" American preparations:

...like in my case, I'm an Indian who's, who has been used to eating like Indian food but, I consciously choose to do American food because that's, easier. If I didn't know how to prepare American food, then I would have been eating (giggles) the Indian style.

The international students appeared to place a higher value on the sanctity of meal time. Certainly, there were occasions when schoolwork and obligations would require eating at one's desk or not going home until late in the evening, missing dinner with family, but overall there was more of a routine of cooking and spending time together as a family, or even as roommates, within the international student population. Zac saw as a "very set routine" among the Chinese students in the Physics Department, whereby they cooked dinner every night, brought food to work every day, and had little connection to life outside of school. However, the international students in this study, although not predominantly Chinese, seemed to find connections to each other and their families through food.

The culture of graduate school. Previously, the concept of salience and prioritization of school over self was discussed as a strong influence over students' food choice and behavior. This idea of academic success and overall well-being as an 'either-or' concept was directly tied to the general perception that graduate school lacked a culture of health, despite no one specifically demanding students to prioritize school over their own health:

I don't necessarily think there's pressure to not take care of your health....but I also think that there is sort of a culture among graduate students....and that's not really like a top-down enforced sort of thing, it just feels sort of cultural. (Preston)

Graduate school has its own unwritten rules and norms for behavior, and to cook healthy meals, to exercise, or to simply step away from the books or the office could be seen by some students as going against the graduate student norm. Ascribing to that culture meant putting academics first and oneself last, sometimes based simply on a need to prove one's worth as a graduate student:

I think when I started the doctoral program also, it was all about proving myself as a student...it finally hit me, like, this year, it's like, well, if I wasn't worthy of being in this program than they wouldn't have chosen me so why did I waste the first year, the first two years...putting everything, putting myself on the backburner to please the department chair, to please everyone in the department, like...why? (James)

Many students viewed their declining health habits as just part of the experience, because "it's, it's grad school" (Michael) or "what grad school is supposed to be" (Preston). Other refused to conform to the culture out of concerns for their own well-being and the decision not to comply with those set norms. Justin refused to allow positive eating habits to become less important in the face of school obligations: "If I'm less competitive when I graduate, then what that's telling

me is that I don't want a job where they're gonna expect that either." Keisha was not going let the negative health effects she experienced in her Master's program impact her life this time around, despite what she saw as less success academically:

This time, I don't think I'm doing as well in my PhD program....because I'm not, 'cause in your graduate program they, they want you to die for it right?....when I came back to school I made a conscious decision that I'm not, I'm not letting this program kill me.

Mila spoke of gaining around twenty pounds in one semester and starting a cycle of antidepressants, until one day she decided enough was enough. She felt very strongly that graduate students needed more support to stay healthy, because the norm in graduate school is not to talk about health, not to worry about it, and not to follow through on commitments to healthy behavior change:

Well we hafta, this is kinda like an epiphany for me too because I mean like I'm thinking about conversations that we have, yeah we'll be like "Yeah, I, I needta...meal prep," or "I needta eat healthy," and then we don't. You know we're ordering pizza that night because we're tired and we don't wanna cook you know and to be honest it's almost like it's swept under the rug (*IR: Mm*) a little bit 'cause I mean you hear about it in undergrad like I mean, freshman fifteen is a real thing, and, you hear about how you can combat it and whatever but grad school's like a completely different ball game. You didn't think you have time in undergrad? You really don't have time in grad school. And so you hafta, figure out, how to have that time to cook and no one really talks about it 'cause I don't think, I think a majority of the population of grad students don't know how, 'cause I mean it was different in undergrad. Like. Everything was different, our bodies were different our mindsets were different, you know, and it's like you're starting school all

over again on an up, upped level and no one talks about it, like, no one talks about how they do it, or what they do... I guess it's like this unspoken rule, we don't talk about how unhealthy we actually are type thing.

Mila references another common undercurrent of the graduate student perceptions: that their lives are different than they were as undergraduates, whether they had only just moved beyond their bachelor's degree or were returning to school after years working other jobs. They had different physical, social, and emotional concerns, as well as different life experiences and transitions, than most undergraduate students, and the pressure to perform and the culture to succeed at all costs was much stronger in graduate school than in previous years of higher education.

An absent culture of health in graduate school was perhaps in part due to a lack of modeling from faculty and lack of support at the university level. Even in the Department of Health Science, students felt there were no models for how to balance health behaviors with work load. As one student described: “[this professor is] very good at what they do...I wonder how much, how many personal sacrifices are they making in terms of ...health, and... behaviors.” There were some students who had been lucky to have consistent support for health behaviors from their advisors, including Marisa and Mallory, both in Psychology. Mallory had come from a very small undergraduate institution where faculty ate lunch with students and she had regular conversations about health and diet with her advisor. Now, even in graduate school, she was lucky to have an advisor who “even within the department she's unique in that, that she focuses on, like, in lab meetings, she asks us about our eating habits and our physical exercise within the last week or however long it's been since our last lab meeting” which Mallory viewed as a constant ‘push’ towards awareness and positive health behaviors.

Yet, for the most part, students didn't feel that there was anyone in supervisory or leadership positions, either faculty or administration, who was concerned about their health, or showing them how to balance a life in academia:

I was gonna say, even if at the university level, for, um, I don't know, I think, well I, I don't know, I think one way is almost like we have these close relationships with mentors as faculty but we see them not taking care of themselves either so it's, it's almost like that's what's expected of you, so if you're you know, in this type of a doctoral program and then even when you get the PhD I don't really see healthy behaviors being practiced by, the faculty, so it's almost like that's what's expected that comes along with, um, this profession to work, you know, unending hours, um, and, yeah, really, poor health behaviors, so, perhaps, if uh it was, if it was something that's modeled, and I think if it was modeled then that would have an impact on what their expectations are for the students, um, possibly. And so, then it might be more clear that, OK, if I have to do X Y and Z and take care of myself then they have to do the same thing so many we need to lessen or do something to better fit you know the demands with what they need to do if we also prioritize our health in that way. (Celia)

Overall, it seems, graduate school is viewed as a culture unto itself, with its own norms for behavior. Unfortunately, these norms tend not to promote healthy eating, or overall wellness. Many students appeared to believe that this lack of a culture of health was only compounded by the fact that only those living the graduate student life could really understand how difficult it was:

....you know people don't understand how hard it is to be a grad student, like they don't. They don't get it. They're like "but you're an adult, you should be able to go home every night and cook and whatever" and that's not life, that's not how this works. (Mila)

While graduate students were experiencing a number of similar life transitions as their peers outside of graduate school--such as partnering, marriage, having children—they perceived their experience as unique and separate from their similar-aged peers outside of academia.

Control

The idea of sacrificing health for school, and the relative importance of individual eating habits in the face of graduate school and demands of multiple roles, tie directly into the common themes related to perceived behavioral control and self-efficacy for positive eating and cooking behaviors. Generally speaking, most graduate students do not feel in control of their own lives, nor do they feel like they have time to focus on anything but school. As Keisha described, at one point she "didn't [even] have time to wash [her] hair." With regards to food choice and consumption, the two most prominent obstacles were lack of time and lack of money. In graduate school there is "less time and less money to explore and be adventurous" (Preston) with cooking and food choice. Stress was viewed as causing lack of control over eating, and often developed because of that lack of time and money. Michael summarized these obstacles of stress, schedule, and finances best when asked what makes it difficult to cook meals at home: "Homework. Night class. Not much money." However, while some students essentially gave up in the face of these obstacles, doing whatever they could do to "get by," like Donna, who proclaimed that "graduate school is survival...I mean, the bottom line, it's just survival," there were others, like Monica, who overcame the challenges and molded or adapted their behavior to

new schedules and standards of living and found cooking a meal or planning for a week of meals to be a form of control in itself:

And it feels, for me, it feels good, you know beforehand, but after, when I actually do it and I complete it, it feels like a success, so in grad school we deal with, Oh I have to get that A or meet that deadline or prove to my professor I'm working hard, you know, a lot of it depends on the other people, right? It's subjective. But for us, the small victories, check, you know, like I cleaned my bathroom, check, I can do that, I can do that, and it looks good, so that would make me feel like (Sigh) I did something well (*IR: Yeah*) you know?

Perceptions of control, or lack thereof, were often huge influences on intentions and behavior, perhaps even the strongest of the three major constructs of the IMBP. The strongest positive attitudes were no match to extremely negative beliefs of behavioral control.

Lack of Money (Cost and Finances)

Lack of money was viewed as a given circumstance for the graduate student experience. When asked about how he determines what to eat for lunch every day, Steve responded "Number one, for me, it's cost unfortunately, because I'm a graduate student and that's a thing." Michael said he was "kind of like...a peasant," in the way he would take any free food offered to him at any time. While only Steve responded affirmatively to having a clearly defined food budget, most students at least had a general idea of how much they could, and did, spend in a month. Anthony blamed lack of money on his inability to make well-thought out decisions about his food intake: "being in graduate school you're really on a budget so you just eat what you can." This did not, however, have to translate to fast or free food, but often resulted in buying "whatever happens to be on sale at the grocery store" (Steve), regardless of what they might want to eat

instead. Thinking about how much food costs affected students' ability to stock their pantries, cook the types of food at home they might prefer, eat at restaurants with higher quality ingredients, and purchase a variety of fruits and vegetables: "some of the vegetables are quite expensive...[well] they're not expensive but given that we are graduate students when I buy vegetables I need to think about my budget too" (Jessica).

Multiple students spoke of the difficulties of being paid only once a month, and how they might not shop towards the end of the month, because "towards the end of the month...you scrounge" (Michael). This meant relying on inexpensive foods like peanut butter and jelly: "When I have nothing left, and like it's the end of the month and I'm waiting for my paycheck? Yeah that's what I eat" (Alice). Donna felt that she couldn't plan as well towards the end of the month when "finances are like, you really don't need to go to the grocery store this week, then I won't" which results in relying on whatever might be in the pantry or the freezer. "We'll just back up to something that we already have that may not be as healthy."

For some students, like Alice, this was the first time they are living on their own and having to manage their finances without any support, which is an experience common to most other young adults: "that whole time period of having to pay my rent by myself and having to do all of that stuff was really difficult so that changed a lot of my process as well." Anthony said it was much more difficult to even create a budget if he wanted to because of the unexpected expenses that came along with being in a graduate program. This was yet another way in which graduate school added a perceived layer of difficulty on transitioning into life as an adult after the undergraduate years. In addition to student fees, that may be charged throughout the semester, there were also events like conferences that were a requisite part of being a graduate

student, but did require finding extra money to fund, even if the department is providing some money for travel:

The only thing I can really budget is saying this is how much I'm paying for rent (*IR: Yeah*) That's it. Everything else, it fluctuates. (*IR: Yeah*) If I have to go home that means I have to spend more in gas, or if I have to come to campus every day, or I might have to go on a trip or whatnot... Right now, I have to go to the SREB conference and most of that tends to be paid for but I have to get to Birmingham and pay to get the bags on the plane and to eat throughout that day.

He felt that budgeting was easier in undergrad, where everything was paid for at the beginning of the semester and he could better apportion his money throughout the remaining months.

Tom was the most optimistic about his graduate student stipend, and managing a smaller budget, even after leaving a corporate job to return to school: "even though grad student like isn't you know you're not, rolling in the dough, um, it's enough, you know, to live comfortably and eat good food." Yet, this ability to maximize one's budget required compromise, choice, and negotiation. Sacrifices were made in other areas of life to be able to afford better food, such as taking trips or going out to eat or grabbing drinks at a bar more than once or twice a month. Steve also spoke of having to "sacrifice other things so that we can have nice meals (*Laughs*)." For example, he and his wife "won't go to a movie, we intentionally won't go out to eat," and during the week he "will try to nickel and dime...for lunch, you know," negotiating so that he does not "fall into the combo trap. (*IR Laughs*) I'll, I'll pick this, pick this, and go get water and end up being fifty cents cheaper and I end up getting the same amount of food." Still he felt "restricted" by his financial circumstances, wishing he didn't have to only buy what was on sale, and telling stories of waiting for weeks for certain meats to go on sale so he could buy them.

Having to put cost as the primary food choice motivation was viewed by many as resulting in less than optimal food decisions. Celia believed this to be common among most graduate students:

...because whenever there is an event on campus that is geared towards graduate students, the food that's provided is often you know pizzamostly it seems like students just want the free meal, um, and so I think, I think the price and cost of the meal is more important than eating healthy for...most graduate students.

Students who lived in dual-income households recognized they were able to be less conscious about their budgets. Zac is married, and his wife has a well-paying industry job, so with two incomes also he felt that he had “more money than [he had] time” with regards to the effects on his food choices and preparation. He would love to spend more time cooking, but instead used his higher budget and minimal time to purchase what he perceived as healthier food from healthier establishments, like sushi from The Fresh Market instead of a hamburger from a fast food restaurant. Donna is also married, and with two incomes did feel that she and her family are “very blessed people. We always have a refrigerator full, freezer full, pantry full, I mean we are not lacking in things to eat, so we know that I can put something together” even if it was not always the healthiest meal, in her opinion. It should be noted, however, that not all married or cohabitating students felt as comfortable financially, including Steve, whose compromises and budgeting were just discussed, and Mila, who was “living paycheck to paycheck” and worked with her husband to find ways to save money through planning.

Lack of Time (Inconsistent Schedules)

The inconsistent schedule of graduate school, balanced with multiple roles either on campus (i.e., graduate assistantships) or off campus (i.e., part or full-time job, family or

relationship obligations) often feels overwhelming to most students, as though they are being pulled in many directions at once. Either they are “at the mercy of [their] professors” (Monica) or juggling so many obligations resulting in a lack of time for self-care. As Celia described: “there’re so many other things it’s kinda pulling on me in my free time, quote unquote, free time.” Students repeatedly echoed Natalie’s sentiment that it “goes back to...feeling like I don’t have the time.”

An unstructured schedule could wreak havoc on students’ overall well-being, not just their meal planning or eating habits. James was not exercising regularly, nor was he getting enough sleep because “here in grad school...well with the PhD program, some days you have meeting with your chair at two, sometimes’ it’s eleven, sometimes you have, um, doctoral seminar at twelve, you just never know what your schedule’s going to look like.” Simply put, “everything gets discombobulated” (Joan). The lack of structure can be difficult for students to manage, as the night classes and numerous meetings and other aspects of the graduate school experience, like lab work and homework, do not provide clear meal times or breaks in the day. Alice said her schedule is “not conducive” to planning, as she is often babysitting all day and in class or at her assistantship into the late evening:

I mean I try to eat healthily but it just doesn’t work that way (*IR: Yeah?*) I’m always on the go, always busy, like uh, usually on campus and I have class until like eight or nine PM every night, so it’s really hard tuh fix a meal and be able to eat well and then be doing everything else that I’m supposed to be doing.

Manvik described this as “flexibility of time” in that there was no set hours for graduate students, as there would be in many other jobs. Classes could be at many different times, professors could ask you to come in on the weekends, or the student himself may go in at all hours to get work

done in the lab or the office. This pressure to work, or simply the amount of work that needed to be completed in a given amount of time, might make students feel like “sometimes I just can’t take a break to eat” (Stacy). Mila said that once the semester began she “will literally not have any time at night” which is why developing her meal prep habit was so important to her.

Multitasking responsibilities often included the responsibility of eating a meal, whenever and however they could, while simultaneously accomplishing other tasks. Kate spoke of eating lunch at her computer, and Zac often ate a second meal while up late at night working. Mallory went to every restaurant in town trying to find a place where she could eat alone while also trying to get work done:

So I found a lot of places where I could grab a meal, by myself, and it not feel weird....it was mostly just that I needed to make use of that time so I needed to be able to like bring out my computer and be typing while I’m eating and it not be like “What the hell is going on over there?”

Lack of structure was especially a deterrent for meal planning, because preparing a lunch or planning ahead wasn’t required, the way it might be for a different full time job with a clearly defined schedule. Monica was a teacher before coming back to school, where “being a teacher you’re, you’re on your feet all day, you are scheduled, you have lunch, at a certain time, you come home, at a certain time, you go to bed.” She found that without the set daily structure of her previous career, “this idea of, it’s just kind of loosey goosey, it, it kind of it, it enables me to make excuses....it’s more like ‘Oh I just can’t worry-I can’t think about that, so I’m just gonna survive.’ I don’t even wanna try to mess with [planning].” Zac had worked as a computer technician where he would have to “sit the night before and you make your sandwich and you put in coffee and you put in a protein shake and you put in whatever else you need because that

bag is all you've got" but back in school his "mindset is not one right now that I incorporate sitting and preparing each meal in advance I don't carve out the time to do that."

Many other students have also found ways to manage their schedules with lots of attention to planning and time management. Natalie felt she made much better choices if she ate on a schedule, because if she's "not following that plan I sort of go off the deep end a little bit, so I'll just go by what I'm craving and if I haven't eaten for hours that's usually bad foods." She actually thrived under the pressure of a busy schedule, feeling like she was better planned when she knew she had less overall time:

I find that I know I'm...not gonna have a lot of time, so I really make an effort on the weekend to make as, like, have to devote as minimal time as necessary to the meal prepping portion so it's almost like I'm, I'm more likely to plan ahead when I know I'm gonna be really busy.

Joe learned quickly that if he thought he'd be able to go home for lunch, inevitably something would come up and he would never get there. He now tries not to:

go anywhere without [my packed lunch]...I just make sure now that regardless of what kind of curveballs my day throws—especially as a doctoral student, you never know what's gonna happen--then I have it...I have food ready to go. With me.

For some students, cooking was the only thing they felt they could control. Tom described it as "a forced break from (*IR: Yes*) the day to day, you know, a moment's reprieve." Jessica saw it as a form of autonomy, when so much else about her life in graduate school is being decided by someone else:

It helps me relax a little bit because it is something I can control, and it's something that I decide to do, 'cause in graduate school other things are being pushed by other people, so I

think that it's a form of...autonomy. So I can control what I cook, what I eat, and also I feel good about having a healthy diet.

There were students—generally those with family units—who prioritized setting aside time for dinner, even if they didn't always feel it was the healthiest meal, or that they were succeeding in healthy eating behaviors overall. Monica, for example, berated herself during the interview for gaining weight and “reverting back to [her] first college experience,” but still considered dinner with her husband to be “protected time” and “always set aside time to eat, whether we're eating in front of the TV, in the bed, wherever.” Jonah understood that “being a graduate student I don't have the luxury of being able to cook all the time” but he recognized that there were simple recipes that didn't require much investment, like “given that within twenty minutes you can ... warm up the soup” and so it was important, “even though it's not so easy to create time to cook....you need to create the time to do it.” However, even this created time felt fleeting, as Mila—who ate dinner with her husband every night and was a stickler for planning—described when she said that she will “finish cooking and...turn around and be working on something else.”

Overall, it was apparent that for these graduate students, their eating habits could so easily spiral out of control, no matter what their knowledge or best intentions would otherwise have them do:

If you miss one day it's easier to miss two days and then all of a sudden it's been two weeks and you've done nothing but eat like tuna from a can or fruit cocktail from a can or corn from a can just like on your way to class or on your way home or while you're sitting at your house. (Preston)

Skipping a week of planning, or having one ‘bad’ day of eating, or not making it to the grocery store could lead to more skipped planning and more ‘bad days’ without students even realizing it until it was too late.

Barriers to Behavior

The primary way in which the Integrated Model of Behavioral Prediction distinguishes itself from the Theory of Planned Behavior is the addition of two constructs posited to affect the intention-behavior relationship. First, if the environment is not conducive to the performance of the behavior, it is much less likely that developed intentions will result in that behavior. Second, if the individual lacks the appropriate skills and/or knowledge to carry out the behavior, he or she will be unable to do so. Therefore, the following research questions were proposed:

RQ2: What are the environmental factors that affect eating behaviors in the graduate student population?

RQ3: What are the knowledge and skill-based factors that influence eating behaviors in the graduate student population?

Questions were included in the semi-structured interview guide to specifically address the potential barriers related to skills and knowledge, including “*Do you feel that you have adequate cooking skills and knowledge to cook and prepare meals at home?*” and “*Do you know how to prepare a variety of fruits and vegetables?*” During the interviews, the types of skills required, and the knowledge related to healthy eating practices, could more often be found in students’ own discussions of their attitudes towards cooking or feelings of control over their activities. Similarly, environmental barriers were often relayed through discussion of students’ attitudes towards the behaviors as well. Questions were included that asked about specific situations where it was difficult to undertake the target behaviors (i.e., avoid processed foods, successfully

plan ahead for meals), aimed at understanding environmental barriers. However, the stories and experiences of eating and cooking as a graduate student were perhaps more insightful for providing an overall understanding of the barriers to their eating intentions.

Environment

There were three levels of environment that most strongly affected students' eating and cooking behaviors: 1) their personal environment, including their kitchens and individual offices; 2) the campus environment; and 3) the city environment surrounding the university.

Personal environment. The kitchen was a major factor in students' ability and desire to cook at home. Simply having access to a kitchen was not a guarantee that students would be able to successfully cook. The physical space was important, but so were the required utensils, appliances, cookware, and staple ingredients, such as spices or oil. There were some students, like Donna, who had a very well-stocked pantry, and felt she could always put something together if she needed to. Others, like James, felt there was "always something missing," whether it was milk to pour on cereal or actual food to accompany his large supply of condiments; and, despite having all the standard kitchen tools and appliances, "nothing's getting used like it should." Timothy said that while he had some spices, "for [him] to really make something from scratch like [he] probably could not do that with the things I have." Having a well-stocked kitchen meant that cooking meals was easier, and didn't require extensive preparation or multiple trips to the store. Even without a plan, some sort of meal would come together. For example, a number of students kept items in the freezer that they could always thaw out if they hadn't planned ahead. Yet, not everyone felt they could afford to maintain a well-stocked kitchen even if they wanted to do so:

I would like to have a well-stocked kitchen at some point in my life (*IR:Mmhm*) when I have a house and, money, uh, but since we don't have that right now, that's one thing I kiiiind of miss (*IR: Mmhm*) is just saying what am I, hey what am I tasting right now? (*IR: Yeah*) Let's make that. (*IR: Yeah*) And we have, to say I can't do it is probably wrong, but we can very rarely do that. (*IR: Yeah*) Just because of as I said how budget works out and what happens on sale. (Steve)

Without basic spices or cookware, however, the barriers to a recipe might seem insurmountable because it would first require spending additional funds, and taking additional time, to acquire those needed supplies. Even something as seemingly simple as Tupperware or plastic storage containers could be a barrier for some students, like Michael, who said he never cooked because he didn't have anywhere to put his leftovers.

Living with roommates who did not clean up after themselves was an even bigger deterrent, because cleaning the kitchen first added time to the process that students didn't feel they had, and no one wanted to enter, much less cook in, a kitchen that was not clean. Those who shared space with roommates also had to coordinate cooking schedules, and, like Mallory, would then be prevented from planning ahead because there was little space in the fridge to buy in bulk or to store leftovers:

the challenges...were, definitely space, so, like actual space in the fridge, like, going to the grocery store and like, deciding against buying multiple packages of frozen vegetables or fresh vegetables because I physically couldn't fit in the fridge... instead I would eat out more, um, to compensate for the fact that I didn't have as much food in the fridge.... It also affected leftovers, space especially...when you're a graduate student and you really don't have the time to cook every single night....and....having my leftovers that

I've cooked over the weekend is so much better for me, but it wasn't as much of a possibility over the last year.

Having one's own kitchen transformed the space into their "own little...own little spot" (Michael), and having "access to a kitchen that was my own" (Steve) might be the catalyst for a student learning to cook, or beginning to enjoy the practice and process. Mallory told of being so excited to have a whole refrigerator to herself and was highly motivated to plan ahead for meals now that she had control over the kitchen environment.

Students' personal environments affected their food choices in other ways. Most students, whether they chose to follow the strategy or not, recognized that only if they bought and kept tempting food items around would they be able to eat these tempting food items. Put plainly, "if you don't buy it, you don't eat it." Donna said there were "some things [she] simply won't allow in [her] house," like excess sweets or high fat foods, because she's trying to protect her children's health and watch over her husband and his history of heart problems. Mallory spoke of the regular grocery store battle she had with her own cravings for ice cream:

Yeah, uh, I spend probably five minutes in the ice cream aisle saying no I don't actually need this or if I end up buying something like buying the, the pint-sized ones instead of the full gallon because I will eat that gallon until it's gone and just within like a week it'll be gone and it's just like where did it go? ...So for me it's not having it in the house or apartment. It's definitely conscious.

Controlling one's personal environment resulted in healthier eating behaviors, increased likelihood of, and more positive attitudes towards, cooking meals at home. This need to control their personal environments in order to make healthier choices extended to their personal office environments on campus. Natalie tried to work in the office where there wasn't a candy jar if at

all possible, because otherwise she would find herself mindlessly taking a piece every time she walked by it. Marisa said she felt constantly surrounded by food, working at the medical center where there are often catered events for recruitment or workshops. “There’s always food, like, everywhere,” she said, but did confess that she was not always likely to go with the one healthy option, even if it is there.

Campus environment. On campus, students felt limited by their dining options. “Look at our campus,” said Michael, asserting, “how easy it is to eat bad.” Most students spoke of spending long days on campus, and were often at school in the evening and late night hours in class, the lab, or studying. If they did not plan by packing food to bring with them, they felt they were left without any healthy, affordable options. Steve said that “...here on campus, you know, what do you, what options do you really have?” Students were able to name a number of fast food chains they frequented on campus, and the healthiest options seemed to be peanut butter and jelly from the on-campus convenience store or a deli sandwich, which were perceived as too expensive or overpriced. The campus environment did not seem conducive to varied fruit and vegetable consumption. As Kate described, “you can’t really get fresh fruit or vegetables or anything around here like if you stay on campus so you really have to like prepare and people are already preparing other things besides food.” For students with similar outlooks, packing meals seemed like just one more thing to have to plan or prepare in addition to assignments, and so whatever they could purchase on campus was what they would consume.

Dining halls might be viewed as potential sources of healthier foods, often equipped with fresh fruit and a salad bar, if not healthy entrees as well. However, graduate students do not appear to have incentive to utilize the dining halls for their meals. Mallory was the only student who bought a meal plan as a graduate student, but she said that after trying it twice she decided it

was not worth it for her, because the food did not meet her standards for health or taste, and the locations and hours were not convenient for her schedule. Although Zac mentioned that he would be interested in a meal plan if it were cost effective and the quality of food was to the high level that he knew was present in the athlete's dining hall, Timothy said he never even thought meal plans were an option as graduate students. Dining halls and meal plans did not even come up in conversation with any other students, unless they were describing life as an undergraduate.

Even if students wanted to go home to eat or cook lunch or dinner, many would not do so unless they lived within walking distance. The location of parking lots, and the difficulty of finding parking as a graduate student, prevented students from leaving and returning in the middle of the day. Brittany stated she was “not gonna walk to [her] car” as though that were a given and universal fact of life for graduate students, which it did seem to be. Preston complained that “[his] car is parked out on the edge of forever,” and the location of the parking lots prohibited going home or to a healthier off-campus food source or dining location because of both time and the ability to get there and back:

even if the graduate students wish that they really want to eat some better food I mean they can't or they don't have choice rather, I mean they can obviously go in the town and have it but again it's time, most of the other students they won't have cars to go there.

(Manvik)

Additionally, simply being around so much fast food, on campus and off, was an invitation to partake: “You're seeing it everywhere and then you want it too” (Timothy). Free food is often provided at graduate school events, but, in general, “the free food is not gonna be healthy food” (Jules). Generally the Master's students appeared more inclined to partake of free food whenever and wherever possible, which was possibly due to them being less likely to have

a family at home, but this was not a hard and fast rule. Natalie said she does “eat the pizza when it’s there” despite wishing that there were a healthier option available: “I would prefer for it, if you’re not gonna give us a healthy choice don’t give us anything at all.”

City environment. The campus food environment was viewed as a microcosm of the surrounding city. “Our food environment is just trash,” said Michael. For students who grew up in rural areas, where fast food was a destination and a rarity, these restaurants have become “just what I drive by on the way home” (Preston). Anthony even went so far as to blame the national food system, saying that “it seems like in America they make it harder to eat healthier” and pointing out the higher prices on healthier options, like salads, when compared to burgers and fries.

Despite the monopoly of fast food in the environment, however, most students felt they had access to a variety of fruits and vegetables, and fresh foods if they wanted them. Different stores had different price points, and most students were very conscious of this as they shopped. Mallory spoke of not only considering price comparisons of different food items, but also that she was “mindful of the cost in deciding even where [to] go to shop for the stuff.” Almost every single student praised Aldi for its prices, and while many students utilized Wal-Mart to save money, it was “all the way across town” and often felt very “chaotic.” Tom and his girlfriend had a half-share in a local CSA, but very few students regularly went to the weekly farmer’s markets, either on campus or in town. Joan said it was an “ordeal” to get there without a car, and Jules said she only wanted to make one grocery shopping trip a week if at all possible, and adding that to her schedule would not work. Adhit had tried to go to the farmer’s market but was underwhelmed by what he felt was a lack of variety: “Even in the farmers markets I can only see tomatoes!”

International students, like Adhit, were the most likely to be affected by the city food environment. The university town is not especially large or cosmopolitan, and many students could not find ingredients they were used to using for cooking or vegetables that they preferred. Jonah drives three hours to Atlanta to stock up on African foodstuffs, including meats, vegetables, and seasonings, because “what we use in cooking we don’t have here.” If he cannot travel there, he enlists friends who are headed that way to shop for him. Adhit was happy with the variety of produce and Asian vegetables he found at the local Asian supermarket, but he did not have a car, and it is not an easily walkable destination. Jessica, an international student, already felt limited by the produce options in the grocery store close to campus, which did not carry the vegetables she was used to in China, and then would also have to limit the amount of produce she bought at one time because it was heavy, and she would have to carry it home. Jessica did come up with a good solution to get to Sam’s Club so she could save money by buying meat in bulk: she would cook dinner for any friend who would drive her there. Most of the students who did not have cars were international students, but there were exceptions. Joan did not have a car, and part of the reason she felt that the farmer’s market was an “ordeal” was because she would have to walk there and back in the seemingly oppressive southern summer heat.

One of the unintentional consequences of the lack of international options in the surrounding city environment was the inclination of the international students to cook more at home:

I mean you can see that I still feel like especially here... I mean the only way for to eat Indian food is to go to an Indian restaurant (*IR: Right*) which is you know, maybe other

people like it but for our standards it's not that good, uh, so, uh, so obviously I won't like to go there. (Manvik)

Within all three levels of environment—personal, campus, and community-- students were strongly influenced by their perceived access and availability to both specific food items and space for cooking and meal preparation. Location of healthy eating options, whether grocery stores, restaurants, or student's own kitchens, affected their daily food consumption and purchase choice processes.

Skills and Knowledge

Most students interviewed for this study seemed confident in their ability to at least cook a basic meal. Perceptions of their own abilities did not generally translate to perceptions of their peer group. Many stated that they believed most other graduate students did not know how to cook, nor did they care to learn. Alice saw this among her Masters' student friends as the result of never having to live on their own:

I have a lot of friends who are like oh I wish I could cook the way you seem to be able to, and I'm like I really, it's not difficult, like I could teach you (*IR: Mmhm*) um, but I think they really just have a lack of knowledge of how to do it (*IR: Yeah*) 'cause in undergrad I mean you have everything at your fingertips (*IR: Truth*) you have a meal plan, you get Dining Dollars, you're on campus, there is everything there, if you want it, like it's there (*IR: Mmhm*) and especially living on campus like cooking is not a big priority for a lot of people so I feel like they really just don't learn how to do it especially not on their own outside of their parents' home and all that stuff.

Cooking skills as developmental. For some, being on one's own for the first time and having to learn how to develop adult skills, as described with learning how to budget money and pay bills,

were occurring simultaneously as adapting and adjust to life as a graduate student. Students who had previous jobs or more life experiences were less likely to be intimidated by the kitchen. Regardless, when a student described first learning to cook, there was often a learning curve that needed to be overcome. Jessica had watched her mother cook for the twenty-five years, but it wasn't until she came to the U.S. for school that she "turned [her] philosophy into real practice." Those meals were horrible at first, according to her, but she improved over time. Manvik spoke of being a young student in India, left in the city with his brother for their examinations while his family vacationed:

Now we are grown up enough so now they can just leave us at home (*IR: OK*) and most of the time uh we'll buy the food from outside uh, but yeah, sometimes you try to cook like experiment and those stuff and I really know like you know it's, those was terrible times when you cook food (*IR: Heh*) but that was like more like learning for, for us.

He went on to speak, like Jessica, of the contrast between cooking in concept and cooking in practice: so "I know the procedures but those are theoretical procedures but you know when you start cooking you really know like how many of those things doesn't work."

Keisha was frustrated by her friends who gave up too soon when learning to cook or experimenting in the kitchen. She recognized that it was not always going to be perfect, but that it was a skill that needed time to develop:

I said listen, you're not gonna be able to cook like your grandma, everybody grandma can cook, 'cause they been cooking the same bullshit for thir-- fifty years, you be an expert too if you been cooking, you know what I'm saying? (*IR: Yes*) Like I said, my mom been frying this chicken, three days a week for about, a good decade, of course her fried chicken come out perfect every time she cook it (*IR: Yes*) You know what I'm sayin'.

you would be an expert too and that's what I was telling my friend, you just have to try, and I'm I'm like, and I'm like, don't think they don't have a bad week or a bad month (*IR: Mmhm*) you know? It's times when like Ma, your food ain't be good for a whole month, it happens (*IR: Yeah*) it happens, so I'm like, I cook stuff like, I cook stuff all the time that I don't like, I don't like my frittata today, it came out pretty, it looked good, but it didn't taste that good to me today (*IR: Yeah*) I'm like this one ain't good, I have frittatas that come out ugly and I'm like "oh, this is good" (*IR: Mmhm*) so I'm like it happens, it happens.

Jessica was confused why a graduate student wouldn't have the ability to make a meal at home: "Well, we are PhD students we're supposed to know how to read instructions and do things." Alice, while recognizing that it was difficult for others to cook, could not quite grasp why: "I can follow a recipe like who, it doesn't make sense to me that some people can't (*Laughs*) I'm just, I guess, cookingly, cooking inclined." Some students who weren't 'cooking inclined,' were still trying to improve their skills and abilities, like Michael, for whom learning to cook was an important goal: "I actively want to become a good cook and I actively want to cook well and cook healthy...it's something that, that I find important in my own life." Others weren't working towards cooking more at their current life stage, but recognized that eventually they might need to learn. As Timothy said, "I can't rely on Chipotle forever."

Cooking skills overall—whether learned as children or adults--were viewed as developmental, and evolving over time. Manvik compared learning how to cook to learning how to read:

I guess it's like a basic skill like, you, you start with alphabet and you start with words and then you start with small sentences, and once you have those basic skill I mean then

even if I give you a novel I can still read it, right? You come across some new word or new kind of (*IR: Mmhm*) ss-sentence structure you are still able to understand it (*IR: Yeah*) right, so it's, cooking I guess is the same thing, once you know those base things, you know, how to add, what this cooking means, what does you know, that, this thing means, you can still manage most of the other things.

This ability seemed to be instinctual for some, like Angela, who said that “if [she has] an idea in my head, I can make it how I want it,” while cooking was a learned skill for others. First cooking lessons often came from watching their mothers as children. Joan recalled this advice from her mother: “She always told us that it’s important to know how to cook so you never go hungry.” She also said, “I watched my mother cook my entire life I have recipes in my head and I just wing it.” Adhit and his brother cooked for their family to help out their mother during the week when she was on her menstrual cycle: “...we’re a child and she started teaching us at...at least once a month, that means a week a month, cooking was a nice kind of training that turned into cooking every day now.” He thought it was obvious how people learned to cook, “...everyone’s answer will be like this, right? Mom.” Some of the students interviewed were not as confident, and often gave up in the process, not believing they had the skill to make food they would like to eat. James described the fatalistic view like this:

I was like do I need to cut out all this processed stuff, I was like, well, wait, what do I eat now?...the alternative is to cook but then, I don’t want bland food either so I’ll probably just add salt, or sugar, or something to give it some kind of flavor, so I’ll still mess up and I think that’s where I was I’ll just eat what I want to and just not even worry about what’s going in.

The Internet and social media, especially sites like YouTube and Pinterest, were viewed as sources of both recipes and cooking tutorials. Adhit even used Skype to consult with his mother in Nepal about how to make particular dishes. Jessica used a Chinese cooking app, searchable by ingredients, following the step-by-step instructions as she learned how to cook. Some students still used cookbooks or magazines to find recipes. Others grew up watching and learning from The Food Network; Alice proclaimed herself “a Food Network child.”

The meaning of healthy eating. Every individual has their own definition of what healthy eating means (Bisogni, Jastran, Seligson, & Thompson, 2012), and every interview included the question, “*What does healthy eating mean to you?*” Because of the nature of a semi-structured interview, this question occurred at the beginning of the interview for some students, and at the end for others. However, the placement of the question did not seem to affect the students’ understandings, which, although individualized in some ways, generally aligned with the dietary guidelines that guided this study.

A majority of the students felt like they had at least a basic knowledge of what was healthy and what was not, although there was a broad range of knowledge among students. Michael claimed that he had “a hundred percent confidence in being able to be, like, this is what’s healthy and this is what’s not,” Tom said he was “loosely aware” of his nutritional needs based on an “overarching understanding of nutrition,” while Laura was openly embarrassed and apologetic about her lack of nutritional understanding. Many students, while confident in knowing what they should and shouldn’t eat, admitted there was still more that they could learn. As Natalie stated,

I don't really know what each of the vitamins and minerals correspond to in terms of health benefits and that's something that actually I think would be neat to learn a little bit more about, but um I just know that they can help your body in different ways.

Reading labels was understood to be a genuinely good practice, even if they didn't "know all of the science" (Monica) behind nutritional advice. Almost all of the students mentioned color as a sign of healthfulness, along the lines of Donna's guideline that "you should see more green or color on your plate." Most students appeared to have a basic understanding of what types of foods contained excess sodium, added sugar, or saturated and trans fats. Brittany spoke of Chobani, a popular Greek yogurt brand, as having "some added sugar" but was a "relatively OK choice" in her opinion. Even if they knew there was a lot of sodium in something, like canned soup or microwaveable meals, they would eat it anyway. Justin buys ten cans of soup at a time, but pours off the broth before he eats them, to hopefully reduce some of the sodium he consumes. Zac was hesitant to admit that he regularly ate frozen pizza, but said he tried to choose the best one based on ingredients and nutritional content. Celia said that "The frozen meals, that is like me doing something good (Laughs)" because "I definitely see the frozen meals as something that's somewhat better than (*IR: Yeah*) you know, the fast food places."

Processed foods were viewed as the epitome of unhealthy, containing "spurious ingredients whose names most people can't pronounce" (Zac), and whole foods-- including fruits and vegetables, lean meats, and whole grains--were viewed as the pinnacle of health. Marisa said, "...my go to is like if it, if it's processed it's bad for you" and Manvik agreed: "I don't think there's a definite way of saying that it's uh good or bad or healthy but uh the lesser the processed food the better, that's what my definition of healthy food is." However, Manvik recognized that

healthy was an individual and elastic definition: “I feel uh, anything which is close to nature, uh, is healthy, and that one varies there’s no single definition for that.”

Carbohydrates were avoided, or even feared, by many. Adhit said they did not fit into his current diet: “Right now I’m health conscious and I know potatoes is too much carbohydrates that’s why I don’t eat a lot.” Students were apologetic about their carbohydrate consumption, or spoke of never being able to give them up, as though they would have to in order to be healthy. “I’m like Oprah. I want to eat bread every day,” said Alice, quoting a currently airing commercial for Weight Watchers in which spokesperson Oprah Winfrey claims one of the benefits of the diet as the ability to still eat bread.

Some students seemed aware of mixed messages and contradictory research presented in the media, and were aware of the macro food system, including food policy and food labeling controversies. Some knew to be wary of health halos, or broad health claims that are baseless and lack nutritional foundation. For example, when describing crackers and cookies, Mila pointed out that “just because they’re lower in sugar and lower in fat, they’re not the best.” Angela even recognized that even foods claiming to have great, natural ingredients, were still ‘processed’:

...giving up processed foods completely if I decide to do that, which might be hard, it would be hard...just because they’re so convenient and easy, plus then I would have to reevaluate all my freezer stuff ‘cause I mean technically that’s still a process food, so it’s just because they have like good ingredients, or supposedly have good ingredients in it, doesn’t technically make them not processed, so.

In general, basic nutritional awareness and understanding was high among the graduate students, and, as Joan said, “we *know* we need to eat healthy.” Knowledge and skills were rarely brought up as excuses for not cooking, planning, avoiding processed foods, or eating a variety of fruits

and vegetables. As Celia stated, more often than not, ‘other kinds of things that are beyond’ awareness and ability were getting in the way of students best intentions:

I think that for most graduate students, myself included, that when you become so stressed out with other things that eating just, it’s so routine that we don’t think about it and so we don’t put the intention into it as we should and, I’m speaking for myself and for a lot of other graduate students, that I see, so it’s like we know, some of us know what we’re supposed to be eating but that, so it goes beyond just what you know, it, it really is about the other kind of things that are beyond just knowledge and so, the time issue of course, but also, um, what other stressors are going on because eating just becomes less important whenever you have so many other things.

Knowledge of nutrition, then, and basic cooking skills, did not seem to be prohibitive factors for achieving the target behaviors in the study. What seemed lacking were specific strategies to utilize this knowledge and these skills to achieve those behaviors within the context of their graduate student and young adult lives.

Background Variables

Although Fishbein claimed background variables could not directly influence individual intentions for behavior, he and Azjen both recognized the importance of examining individual behavior within the context and framing of an individual’s unique characteristics, demographics, and experiences (Fishbein, 2007, 2008; Fishbein & Azjen, 1975). Therefore, the following research questions was proposed:

RQ4: Are there differences in the attitudinal, self-efficacy, and normative beliefs affecting eating behavior intentions between various graduate student demographic subgroups--based on gender, age, race, and relationship or family status?

Prior to the interviews, age, race, marital status, and other basic demographic data were collected from the participants with the intent of using this information to ascertain if there were any major differences in beliefs and actions between groups. During the interviews, however, the students' own perceptions of differences based on a number of background variables were made very clear, and became themes in their own right. While students spoke of a number of background influences they believed to guide their current behavior, the most prominent and important to them were age, parental status (having children), and current relationship status. Gender, race, and ethnicity played a role in the development of normative beliefs, as discussed previously, but were not significant markers of overall attitudes, control beliefs, intentions, or behavior.

Age

Age significantly impacted how students viewed healthy eating and eating behaviors, but cooking meals at home was especially tied to growing up. As previously discussed, cooking itself was viewed as a developmental skill, but the perception of the practice of cooking was that it was an adult behavior. The students who were interviewed for this study varied in life stage and age, and those who were still adjusting to their role as young adults viewed cooking and meal planning as practices they were working towards, or would be once they felt more mature. Natalie spoke of moving in with her boyfriend, and her excitement about cooking with him in the evenings because they were "more mature and grown up now." Timothy was about to move into an apartment and live on his own for the first time, which was one step closer for him towards becoming an adult:

Yeah, I feel like, um I don't know, no, it's more like a, it's what adults do. They cook and live alone and they cook their own food, you know...like, I'm moving up. This [*moving out on his own*] is one more step, um, I'm getting there. (Laughs)

Living on one's own as a life transition into adulthood often inspired refocusing on eating habits both culturally and socially, as described above, but also in its promotion of independent decision-making and the subsequent desire to take care of one's self physically. Transitioning to adulthood shifted perceptions a bit from the here and now, towards the future. Jules saw a natural association between independence and self-care:

I think mostly when I started living on my own and I made kind of my own food choices, so I think that really changed what I was eating as I was getting older, um, and just recognized the importance of eating better foods and being more interested in health in general I think, too.

Similarly, Keisha saw her newly developed focus on her health as a direct response to her age, whereby as an adult, she felt she should begin to start taking care of herself holistically:

... and then I'm getting older, I'm twenty-eight I'm getting closer to thirty, right? So it's like, so it's like I need...I'm taking a multivitamin now, it's like I need to start thinking about my diet, you know like the vitamins, I'm getting more sleep, I ain't drinking as much, now I'm just not a kid you know?

Laura portrayed the internal conflict that many of the students were experiencing between perceived self and societal expectations of maturity and responsibility, and their own desire not to 'grow up' just yet. Laura spoke of wanting to 'just chill out' when she came home at night, rather than spend time cooking a meal, even though she berated herself for that, insisting that that made her sound "like a teenager" and that as "a grown person" she should

“take the time to cook.” With regards to meal planning and cooking, Laura simply said, “I think [those are] things mothers do,” before declaring that she, herself still “need[ed] a mother” with her even in graduate school.

In addition to an increase in the awareness of long-term health benefits of healthy eating, the short-term effects of poor food choices seemed to be more noticeable as students got older. The sluggishness, heaviness, and bloating that many felt were the side effects of eating fast or processed foods did not fade as quickly as when they were younger. Monica described this experience:

... ‘cause back even in my early thirties I could do that, even though perhaps it impacted me a little bit (*IR: Mmhm*) I would wake up and think “eh, whatever” and just kind of blow it off and now I wake up and I’m like, that hurts, I’m uncomfortable (*IR: Yeah*) you know? And so I think for let’s say the typical college age student, grad student, it’s not going to really affect them because it really is not as much, it’s not as noticeable.

These short-term side effects changed attitudes towards certain types of foods. On the one hand, there were students like Steve, who laughed about what he viewed as regrettable eating decisions: “I just don’t feel nice after you know you eat this huge, greasy meal inside you, you just feel kinda ugh I ate that? ...And then, and then three hours later it’s like “Oh, I ate that” (Laughs) Just don’t feel good.” Preston saw his age as a significant reason why he was now more conscious of his food choices: “I just, I’m older now and I feel it a lot more when I eat, like, bad things (Laughs)” Then, there were younger students like Timothy, who saw and felt no negative effects of consuming fast food on a daily basis, and therefore saw no reason not to continue to do so: “I feel like it doesn’t translate over for me because all my life I’ve just eaten whatever (*IR: Mmhm*) and it’s just not, ever been a problem for me.”

Age came up repeatedly in Monica's interview. As the oldest student interviewed, at 41, she spoke of being old enough to know better, and old enough to take personal responsibility for her actions, in contrast to what she termed the "typical college age student." When asked directly if she felt age was a distinct distinguishing factor in her views on eating and cooking, she agreed that it was, in part because with age comes more life experience and time to figure out what works and what does not for a person on an individual level:

I think that makes a difference, and I think not only age but also my journey in terms of trying so many things and knowing for, you know, (*IR: Mmhm*) ninety percent of my life, knowing what I need to do and should do, and battling that.

Parental Status

With age came the possibility of having gone through life transitions, including getting married and/or having children. Being a parent was a huge factor in the determination of individual food choice and one's eating and cooking intentions. Donna recognized that the added role of parent distinguished her from other students in her ability to plan, cook, and make healthy food decisions: "I mean I don't wanna use it as an excuse for being ... an older adult graduate student with children, but it definitely throws an extra component into the planning process." Logistically, being a parent requires different considerations for mealtimes. There are more appetites to consider, and more schedules to coordinate, all of which could result in both positive and negative practices. Donna never took part in graduate school events where free, likely unhealthy, food was offered because, as she pointed out, her children still had to eat. However, in trying to manage their schedules, she also would find herself going through a drive-through and eating in the car on the way to this practice or that event just so that her children would have a meal: "You just don't have time, you know, I mean you'll find yourself eating in the car just so

you can get from one place to another and not starve your child.” On the other hand, Holly spoke of how it was often more trouble than it was worth to go out to eat with a toddler, resulting in more cooked meals at home:

...it’s just so much easier to eat at home than take her to a restaurant because she’s not used to sitting and waiting for food to come and if she’s tired it can be an explosive nightmare...it’s just so much easier to eat at home and not having to worry about her screaming at the people in the booth next to us or pouring food on the floor.

Speaking with Joan emphasized the disparity between students who had children to consider in their meal planning and those who did not. Joan’s children were living with her husband in another state while she was in school, and she discussed in the interview how much easier it was for her to cook and plan and move along with her other obligations without having to be concerned about feeding her family and negotiating all of their preferences. She still monitored their meals from afar in some sense, but she relied on her parents and her husband to manage those day-to-day practices and decisions.

Holly seemed to thrive under the pressure of not only her schedule, but those of her husband and daughter. As the primary gatekeeper for food purchasing and preparation in her household, she managed her time, planned ahead, and kept everyone well fed:

Because when, when she and my husband get home at around 5:30 or 5:45, she is hungry. (*IR: Yeah*) She ate lunch at school, eats lunch a school at eleven AM and then has a snack at, like, two. So it’s 5:30, she’s ready to eat. (*IR: Yeah*) He’s ready to eat. So if I’m not working from home that day and can stop and start putting stuff in the oven at, like, four thirty, um, it makes it, you know, ‘til its 7:30 before I can get something cooked (*IR: Mmhm*) and that’s not gonna work, so I have to think, um, about how to plan ahead of

time. So I'll use the Crock Pot (*IR: OK*) a lot for the days when I'm gone, like today there's stuff in the Crock Pot at home so it will be ready when I get there. And then the days I know I'm gonna be gone I often will make double recipes so that we eat leftovers.

Becoming a parent for the first (or second) time stood out as a distinguish point of transition in students eating habits. Parents were often more motivated to make healthier choices because they wanted their children to be healthy and felt responsibility towards their health and well-being. Joan said that she and her husband drastically changed their diets after she became pregnant with their first child, and the choices she makes for herself and her family are completely motivated by a desire to do right by her children:

as a parent you want to give your kids the best of everything and the best opportunities in life, life is hard enough. If there is something that you did wrong and your kid suffers for it for the rest of your life, as a parent, for me, I would feel guilty about that...just because I let them eat whatever they want and I didn't control it, or I didn't encourage a healthy lifestyle and they end up dying at twenty years old because of it. I would, as a parent, I would never forgive myself.

Holly, who was pregnant with her second child at the time of the interview, also felt that being a parent made her more aware of the food choices she was making, especially once her daughter started eating solid foods: "having a little person in the house, thinking about, um, I'm a lot more thoughtful in how I plan out meals because I wanna make sure she gets what she needs." Donna reiterated this idea of an increased awareness after having children when she said "I'm even more aware with my kids than I am with myself." Even students who were not yet parents recognized that their behavior might, and maybe even should, change once they have kids. Laura seemed to look forward to it almost, saying "I'm just not making the effort right now, but I know

down the road I won't be that way, when I have children I wouldn't be that way, I hope not.”

Brittany saw growing older and having kids as natural periods of adjustment in eating habits, saying, “I'm doing pretty good, you know....and I'll just continue to adjust as I get older and then adjust once I have kids, too, 'cause I don't wanna feed them a bunch of bad stuff.”

With the added responsibility of being a parent came the joy of exposing them to new foods and traditions. Jonah was about to become a father at the time of the interview, and he was eager and excited to give his daughter opportunities to eat his traditional African cuisine, but also to the different types of food available in America. Being a parent was about teaching “your children how to you know take care of the home, how to cook” which in his culture was especially important for a daughter. Manvik, the only current father interviewed, felt the responsibility of raising his children to make wise eating decisions, and saw family meals as an important part of that:

I guess having food together in a group with the family members uh, I guess that has more benefits than actual nutrients in the food because you sit together you enjoy, you talk to each other and especially for kids you know they watch you eating, they learn better to eat, or rather than you know you forcing “oh, this is good, you eat it, you eat it” instead of that they see you eating that and they follow you, copy you, I mean, that is good for them.

This idea of being a role model was an added pressure for the mothers that were interviewed, mostly tied to ideas of raising their daughter to have healthy body esteem and positive relationship with food. Joan worried about the example she was setting, “because you never know who's watching, and you never know who's gonna pick up your habits from you.” She worried about her daughter, especially, because “people are already calling her fat and things

like that, and it breaks my heart.” Holly spoke of trying to set her daughter up for a healthy perspective on eating: “I want her to indulge in the things that she loves without feeling bad and shaming herself and all of that, but just know that that’s not an everyday thing.” Donna also wanted to give her children treats because she was “still a mom and just like every mom these days I hope, um, we like to spoil our children and we like to give them treats” while recognizing that her daughter is “not a *skinny* child. She has room to lose weight if we really wanted to force it on her” and believing that that was the result of “lazy choices that [she] allow[s] her to make.” However, it is a “double-edged sword,” wanting to treat your children while also setting themselves up for a healthy life. These are difficult, unique challenges faced by parents.

Marital or Relationship Status

Parents were especially aware of the effect their eating may have on their children. However, the choices made for those children often came as the result of negotiation with a spouse. Joan and her husband made a conscious decision, together, to change their diets once Joan became pregnant. Holly expressed a similar evolution with her husband. Both women felt their husbands were incredibly supportive and promoted healthy eating habits within their family unit. Donna did not have the same experience. Her husband was not supportive and did not encourage their children to eat any healthy food she may have prepared, so while Donna feels guilt about how she often feeds her children, she just wants to “move on” if her kids refuse to eat something, and gives up without his help.

Whether or not kids were involved, eating with a partner in mind also involved compromise and negotiation. It seemed inevitable that living with someone, or even seriously dating someone, would result in altered eating habits. As Monica described:

I mean I think if, you know, anyone who really is in a relationship if you live with a person (*IR: Mmhm*) and you cook you know, and you try to make that a priority by, by nature of that relationship you tend to eat meals together, you plan together, you talk about it so when I'm making good choices, he ultimately is also making good choices (*IR: Mmhm*) even though, perhaps, I'm making them for us both, (*IR: Yeah*) Right?

The negotiation of food choice and eating habits could be very complicated, with varying levels of acceptance and approval. These normative influences were more salient than those of peers or acquaintances. Jules ate much differently on her own than when she was visiting her fiancé during the weekends. She compromised more often on her food choice, while trying to encourage him to eat more vegetables. Luckily, she did not feel judged or shamed for wanting to eat healthy, and her fiancé was generally willing to go along with her. Even when he made comments about not being able to eat at a certain restaurant, "he's not being, like, negative, or trying to put me down, but he's just saying, like, we prolly can't [eat there]." Natalie, on the other hand, said that with her boyfriend, "...it's a mixture of like feeling guilty and feeling supported...because when I am honest with him about when I eat crappy food and he'll be like "oh no, why'd you do that? Maaan" and he'll like, kind of be down about it." She rationalized it a bit by saying, "...he's like 'well I don't wanna make you feel guilty I just, you know, I want you to eat healthy 'cause I want us both to live long' so like he'll say sweet things like that um, but the way I take it is like man, you just, you don't eat bad but I don't make you feel bad when you do eat bad, right?"

Some students actually wished for a family so that they might feel more guilt-induced responsibility to take charge of their own eating habits. Laura said she needed someone to make her feel guilty about her food choices, and that her boyfriend is "just as bad." Alice said that it

was much easier to make poor decisions when she was alone, but with a family, “.... then people are always watching you, right? No one watches me....Like no one sees how many times I go to Taco Bell (laughing)...Except for Wells Fargo” (laughing).

Not being coupled had just as much influence on students’ behavior and attitudes as being in a relationship. Students who were single generally felt it was a waste of time to cook meals just for themselves, because, as Alice stated quite clearly, “Cooking for one sucks.” When asked to elaborate, she said she didn’t want to go through the motions of cooking without having anyone to share it with, explaining that “like the process, like thought of sitting down and eating by yourself after you just put all this work into making this great meal, like that’s also really sad.” Monica agreed, saying that while she was married, most of her graduate school friends were single, and they “say ‘Oh, it’s just easier. It’s just easier for me to just pick something up. And, since it’s just me, why would I even wanna spend all that time, two hours cooking, for just, myself?’” This was especially hard for students who had grown accustomed to sharing meals with their families, and were now living independently for the first time. Jessica spoke of missing the shared meals with her family that were customary before moving to the U.S. for school:

I definitely want a partner to help me cook...and also somebody to enjoy food with me...I have to say, I’m 27 now, so for 25 years I had somebody to eat with me at the same time, and then we’d talk and socialized. We enjoy it, we share, we talk about everything but right now given I live alone, um, I don’t have that kind of enjoyment.

Eating alone was seen by those who did not cohabitate as making eating less enjoyable overall. Interestingly, while many people felt that eating dinner together as a couple or a family was an overall emotional benefit to cooking at home, they also recognized it was easier to cook for just themselves. Anthony lived apart from his fiancé, and he said it was much easier when he was on

his own “because I don’t have to get someone else’s opinion on what we should eat for that particular night.”

Gender, Race, Ethnicity

Gender, race, and ethnicity were most influential in the development of norms surrounding behavior. Although Michael did make the comment that “like for certain things girls are just, guys are just kinda sad about certain things” when discussing his lack of Tupperware for meal planning or preparation purposes—which he called a “weird guy thing”—there were very few instances of students describing their behavior as an obvious result of their gender. Attitudes and control beliefs, environmental constraints, and skills and knowledge were not noticeably different between genders in the study population. And, as addressed previously, while international students had slightly more perceived environmental constraints based on availability of preferred foods and lack of transportation, race or ethnicity did not appear to play a huge part in the development of attitudes, control beliefs, or skill and knowledge acquisition, unless students grew up in a culture with gendered norms related to cooking. However, all of the male students who did grow up in such a culture were still able to acquire nutritional knowledge and awareness and good cooking skills, although they may not practice those skills as often.

Jonah deferred to his wife after she joined him in the U.S. from Nigeria:

I can actually cook on my own very well but because I believe, you know, she’s the lady, and then, we are eating together, you know if I make any mistake in the cooking

(Giggles) I have to ask her, “OK, how do you want me to do this?”

And if the male students were not married, or their wives were not with them, this cultural norm did not matter. Manvik and his roommate cooked together before his wife was able to join him in the U.S. from India. Adhit discussed how if he had grown up with a sister, he may not have

learned how to cook, or not had the opportunity to practice so often, and that even now he rarely sees his married male friends cooking; for him, however, that is not an option:

...usually...girls they used to cook and boys they don't and mostly, OK, some of the, some of my friends they used to cook when they can because they wanna give rest to wife OK, and yeah, those who are single, we have to cook ourself.

With regards to race, Celia did comment that the pressures she faced within her family and community, as far as being the most educated and therefore the go-to person for everyone's questions and needs, were "unique for women of color" this did not impact her food choice so much as her sense of lacking control over her own time. Keisha was working to change her life by focusing on holistic wellness, cooking meals at home, exercising, meditating, and trying to get more sleep. When it came to food, however, she met with some pushback because of her race:

Even like my cousin now, (snarky voice) "Black people don't eat that" "You can't eat that" It's it--honestly it's difficult to find a black man that will eat the diet I eat and I don't feel like, I'm not even vegan or vegetarian, you know, so I'm like (sighs) that's what I'm saying...it's difficult, yeah, 'cause racially just Black folks they don't typically eat healthy, that's why we have diabetes, heart disease, that's why we die, we killin' ourselves, you know the food is killin' us, you know and it's funny 'cause I seem so radical.

However, she did feel supported by many of them, who made positive comments about the food photos she sent them or posted on Instagram. Yet, the idea that she felt like she was "so radical" spoke not only to her going against the norms for behavior she had grown up with, but also cultural norms typically associated with her Black cultural identity.

In general, then, while gender, race, and ethnicity did impact the development of normative beliefs, they were not perceived to have as much of an impact as other variables on current attitudes, skills, intentions, or behavior in the students own descriptions of their beliefs, attitudes, and experiences.

Conclusion

Graduate students, like the rest of the adult population, have a complicated relationship with food. Positive instrumental attitudes towards cooking, meal planning, and the benefits of a healthy eating are fairly universal, but so are negative control beliefs. These control beliefs are often more influential in the daily, spontaneous, decision-making processes of the students. They are well-educated individuals, with a general awareness and knowledge of nutrition and healthy eating practices. They also recognize ways in which they can control or adapt to their food environment. Most appear to be confident in this knowledge and in their ability to cook meals at home, make healthy food choices, and plan for meals, should they choose to do so. This last phrase is key, however, as many of these graduate students do not consistently perform behaviors that will promote their health and well-being. Healthy eating is a choice and it is a compromise, and graduate students feel this strongly. Making a conscious choice to prioritize their health over other obligations and responsibilities is not something that is culturally supported in the graduate school experience. Without other, stronger, influences of family, self-identity, personal health, habit, or tradition, it is likely that those other obligations will take precedence, resulting in the choice of school over self.

CHAPTER 5

DISCUSSION

This study aimed to investigate how the graduate school experience may influence students' food choices and eating behaviors within the theoretical framework of the Integrated Model of Behavioral Prediction [IMBP] (Fishbein, 2000), a health behavior theory useful for understanding a target population's intentions for behavior, and also the possible barriers to its performance. Emphasizing the need to avoid "one size fits all" descriptions and emphasizing close examination of specific groups' needs, attitudes, and experiences, the theory aligned well with phenomenological hermeneutics, an interpretative methodology that involves the recording and analysis of the participants' lived experiences and perceptions. The results of this study offer health educators, public health practitioners, and higher education professionals and administrators a deeper understanding of graduate students' beliefs and perceptions of food choice, eating, and cooking within the context of graduate school, and provide strong justification for graduate students as a distinct population for targeted health communication, education, and promotion. Not only are on-campus graduate students faced with a number of similar issues as undergraduates when making food choices in an academic, campus environment, they are challenged additionally by changing food choice values and processes as a result of their simultaneous life course transitions and events.

Research questions were designed within the framework of the IMBP, and the discussion that follows will address each of the relevant constructs of the model. First, the findings related to attitudinal, control, and normative beliefs--and their relationship to each other--will be

addressed, with special emphasis on the negative impact of graduate school culture on health. Then, the discussion will move through the potential effects of environmental and knowledge-based constraints on food choice, access, and availability, and potential areas of improvement for universities or focus for health promotion and education. The need for tailored communications to specific subgroups of students will be then be addressed. Finally, this discussion will close by addressing the importance of considering life course and stage of development in the context of graduate school and health behaviors.

Food Choice Attitudes

Within the IMBP, attitudes are broken down into experiential and instrumental beliefs; experiential beliefs relate to an individual's feelings about the behaviors, and instrumental beliefs develop from outcome expectations. In this study, graduate students' experiential attitudes towards food choice were driven primarily by taste. Although some students claimed to enjoy every fruit and vegetable, most had specific taste preferences that they tried to accommodate within the boundaries of their budget and regional or seasonal availability. The concept of a "comfort fruit," which Joan used to describe her son's love of Clementine oranges, is a perfect expression of the tendency to return to the fruits and vegetables that are known and liked, regardless of age. In general, all students recognized that added sugars, saturated and trans fats, and sodium made food taste good, but there was developing awareness—usually with age and experience---that the physical experience of eating these types of foods was unpleasant, even sickening. The contrasting feeling of consuming fruits, vegetables, and whole, unprocessed foods was viewed as a benefit for eating a healthy diet, but did not seem to be the strongest motivation for intention. Emphasizing the immediate physical repercussions of consuming fast food or highly processed snacks may be an effective form of health communication messaging with this

population, but no research in the potential effectiveness of this approach could be found at the time of the current study.

Instrumental attitudes were common across all students, regardless of intentions or behavior. All students recognized the negative health impacts of highly processed foods, added sugar, sodium, saturated and trans fats, as well as the nutritional benefits of fruits and vegetables, whether or not they chose to eat them. It is possible that these attitudes can be accepted as common knowledge within this population, and, therefore, are no longer important targets for health communication and education. This suggestion is supported by studies of community adults in Seattle and a study of fruit consumption among undergraduates in the Netherlands. The former study found that 95% of the adults surveyed either strongly (61%) or somewhat (34%) agreed with the statement that it was important the foods they ate were healthy (Aggarwal, Monsivais, Cook, & Drenowski, 2014). In the latter study, De Bruijn (2010) found there to be no significant difference in attitudes towards fruit consumption among undergraduate students, indicating that regardless of intention, habit strength, or behavior, the positive outcomes of meeting recommendations for fruit consumption are generally known in the population. The author argued that health practitioners should focus more on controllability of behavior, rather than attitude beliefs, with regards to fruit consumption, as beliefs related to stressful situations and monetary costs were more discriminating than attitudes between consumers who met requirements and those who did not.

The graduate students in this study also emphasized the impact of control beliefs on their intentions and behavior towards food choice and consumption, although these beliefs were tied together with instrumental attitudes related to cost of healthy food. There was division among the students about whether healthy foods, like fruits and vegetables, cost more than unhealthy

options. Attitudes towards cost would interact with the student's belief in her ability to manage and control the perceived lack of income to ultimately influence intentions and behavior towards fruit and vegetable or fast food purchase. Students who felt somewhat in control of their finances, even if they wished they had more money, did feel able to budget and buy healthy foods, while the opposite was true for students who viewed healthy food as cost prohibitive. To overcome these beliefs, graduate students should be given factual information about the comparison cost of foods--a method of health education suggested by a few of the students themselves. The general assumption that healthy foods are always more expensive has been found to be common in community populations of U.S. adults (Haws, Reczek, & Sample, 2016), and should be a focus of health communications for graduate student adults as well. Aggarwal et al. (2014) found that adults with positive eating attitudes were able to achieve higher diet quality index scores regardless of SES or the supermarket cost level where they shopped, suggesting that the development of positive attitudes and economically feasible access to healthy foods are equally important for improving diet. Because the attitudes are already strong in the graduate student population, perhaps the focus of nutrition education should be prioritizing the importance of healthy eating, and educating on how to achieve that goal in a cost-efficient manner. Encouraging students to explore new types of fruits and vegetables to increase variety or seek out healthier food choices in general will only be successful if these options are actually available in stores, and at a low cost.

Cooking and Meal Planning Attitudes

Nearly all students shared similar instrumental attitudes towards cooking meals at home. They believed that cooking was a way to save money, allowed them to control the ingredients and taste of their food, and was healthier than eating take out, or going out to eat. These attitudes

did not always influence the intentions or behavior of students. Students with family units or partners were more likely to enjoy cooking meals at home because of the opportunity to connect with those significant others over the resulting meal, but this was not true across all students. Some of these students might recognize the benefit of sharing the final meal, but still feel that cooking was a chore. Students without partners or family units did not view the resulting meal as a benefit, but instead saw it as a pointless use of time and energy, unless their attitudes towards the health benefits were strong enough to overcome this belief. Attaching high importance to health and appearance has been shown to increase the likelihood of eating more healthfully overall, although younger adults tend to be more motivated by appearance than health when compared to older adults (Traill, Chambers, & Butler, 2012).

From a health promotion perspective, then, it may be more effective to address the experiential barriers towards cooking than emphasize the health, monetary, or social benefits. The experiential attitudes related to cooking, whether the student viewed it as just another task or actually enjoyed the process, were more impactful than instrumental attitudes. Research shows that cooking classes for adults can have a positive effect on overall attitudes, with increased confidence and enjoyment of cooking, and a resulting increase in cooking behavior (Herbert, et al., 2014; Reicks, Trofholz, Stang, 2014). Students who enjoyed cooking but felt that they lacked time to do so could be encouraged to cook simple, time saving recipes. Students who did not enjoy cooking would also benefit from simple, inexpensive recipes, but may need more basic preparation instructions. All students in this study viewed cooking as a learned skill, one that develops over time; with this in mind, students who are frustrated with their abilities may need to be reminded that cooking does not need to be perfect, or look like the picture in a cookbook or a magazine, and that there are many failed experiments along the way to mastery. The Millennial

generation, adults currently in their twenties and thirties, may be more food obsessed than any previous generation, and use their social media photos and food experiences as a form of social currency (Turow, 2015). The rise of food fetishism and celebrity chefs and cooking channels may have inadvertently turned people away from home cooking (Bittman, 2014), because basic recipes and cooking fundamentals lack the same value as experimental techniques, beautiful plating, and unique or exotic ingredients not valued in society.

Meal planning was often associated with the contemporary concept of ‘meal prep,’ which involves batch cooking or cooking all of one’s meals for a week in one day. Many students believed this method of meal planning as complicated and time-consuming. Some also thought that sitting down and planning was just another mentally draining task they would rather not undertake during their free time. Others saw currently available recipes or resources as misaligned to their situation as graduate students, either in cost or serving size. It may serve students well to break down this notion of meal planning as overly complicated or taxing, showing them that planning is simply conscious thought about budget, availability, time, and nutritional composition of meals, not necessarily an overwhelming process. Offering nutritionist-designed meal plans for students may be helpful, but these meal plans and recipes should take into account the budgetary constraints of graduate students and the fact that many students may only be cooking for one or two people, not entire families.

The concept of convenience came up often in discussions of meal planning. Some students viewed meal planning as convenient, if they believed that putting in initial effort for the reward of having food decisions already made in advance was comforting and worth the time and energy. Others saw meal planning—and cooking—as inconvenient if they believed that meal planning was an overly complicated process with little reward, and found fast food or quick

snacks as a much more time-saving and convenient option. In much food choice research, convenience is positively associated with negative food habits, shown to predict fast food consumption and act as a barrier to FVC (Byrant & Dundes, 2008; Glanz, Basil, Maibach, Goldberg, & Snyder, 1998; Hanks, Just, Smith, & Wansink, 2012; Sisson, 2002). However, the current study suggests that convenience should be carefully considered as a theme for health promotion in this population, as different students may interpret it very differently. Attitudes towards the health benefits of cooking and meal planning often seemed to drive this perspective of convenience. A few studies have investigated the complicated relationship between perceptions of convenience, taste preferences, cultural implications, and ultimate food choice (Ana, Schoolmeester, Dekker, & Jongen, 2007; Jaeger & Meiselman, 2004), and also addressed the fact that choosing convenience foods is not always simply the result of not knowing how to cook, or lacking the desire to do so, but may be the result of personal, social, or economic factors (Engler-Stringer, 2010). More work should be done to understand how to address these complicated issues and perceptions of convenience in health promotion across the population.

(Lack of) Control Beliefs

Cost of food was influential in the development of instrumental attitudes towards food choice and preparation, but it also diminished students' beliefs in their ability to control their eating behavior. In general, there was a feeling of lacking control over finances and schedule that affected students' beliefs in their ability to eat or cook healthfully. Perceptions of control were arguably the strongest influence of the three major constructs on eating and cooking intentions and behavior for the graduate students in this study. Within the IMBP, control is broken down into perceived behavioral control and self-efficacy (Fishbein, 2007, 2008; Fishbein & Azjen, 1975). Both of these constructs impacted students' beliefs about their own behavioral control for

making healthier food choices, cooking meals at home, and planning ahead for meals. Previous research has supported the teaching of budgeting techniques alongside cooking instruction (Reicks, et al., 2014), as cost management may be barrier to healthy food consumption among adults.

Course scheduling is less flexible as a graduate student than as an undergraduate, as required classes may not be offered in the department at more than one time, or only at night, causing students to feel restricted in their ability to plan meals or grocery shop for healthy food. After coursework is complete, the complete lack of imposed structure can swing students in the opposite direction to where they feel untethered, with no set meal times or importance placed on food. While some students were able to self-impose structure and order into their schedules, allotting specific time for meal planning, cooking meals, or eating consistently during the day, many did not express beliefs in their own efficacy to adjust to the scheduling constraints of graduate school and work. Although it would be beneficial to avoid having graduate classes during meal times, many students require the evening classes because of the scheduling demands of their other employment, current research or teaching requirements, and/or family responsibilities. A small administrative change might be to encourage instructors to allow breaks for dinner in night classes. From a health communication and education perspective, strategies for cuing meal time and preparing meals in advance that adhere to food safety concerns and meet nutritional needs to take to class or the office might be beneficial for students who are willing to take the time to follow those strategies.

Social Norms

These students valued the opinion of their family over that of friends, especially as they get older. Unless they were partnered or parents, students rarely believed their actions had any

influence over others, nor did they feel impacted by the need for approval or disapproval of others. During interviews, even those who were partnered or married did recognize the influence their partners might have in their food decisions until further questioning revealed either support for healthy cooking and nutritious food choices at home, or conflict in those decisions and practices.

Even if they are not parents or partners, graduate students are more likely to feel that they are filling multiple roles on campus, as teachers, researchers, mentors, students, and colleagues (Haynes et al., 2012) than they might have as an undergraduate. However, despite these multiple roles, social norms may be less easily established in graduate school than they might be during the undergraduate years. Students are often siloed in their departments, or even within their departments (Gardner, 2008; Grady, LaTouche, Oslawski-Lopez, Powers, & Simacek, 2014), so they see fewer peers on a daily basis, making it difficult to establish or recognize any true descriptive norm. Stereotyping of the ‘typical graduate student’ creates a descriptive norm that is detrimental to establishing healthy normative influence. Most students ascribe extremely negative eating habits to other graduate students, and therefore are able to believe they are no different, if not even better, than the standard set by other students. Some students even felt that they were expected to live up to the graduate student stereotype, or had been warned about declining health behaviors as a graduate student even before they entered their programs. Yet, the students in this study found themselves at different points on a wide spectrum of behavior, and most were inconsistent, but making an effort to be healthy. Perhaps an initial step in improving graduate students’ intentions for behavior is to falsify the stereotype and educate students about the reality of behavior among other students.

Graduate School Culture

The stereotype of graduate students' poor eating behaviors is one part of a larger graduate school culture that, according to these students, creates normative expectations for achievement and success that lead to declines in both mental and physical health, a finding supported by previous research into the health impacts of the graduate school experience (Sowell, Allum, & Okahana, 2015). There was an overwhelmingly negative view of graduate school as detrimental to one's health, with many students using language related to death and suffering when describing their stage of life. Students felt very distinctly the pressure to prioritize their research and duties as a graduate student over any other personal obligation, need, or desire, an internal battle that has been recognized in previous studies of graduate students (Brus, 2006; Martinez, Ordu, Della Sala, & MacFarlane, 2013). Even students who claimed to reject that mindset sincerely believed that their status as graduate students and future success would suffer because they took the time to step away from their desks and exercise, eat well, spend time with family, or sleep. Only one department in this study-Psychology-was described as being conducive to supporting healthy lifestyles, yet even those students recognized the need to make either/or decisions about their health and role as a student. Only one faculty member, also in the Psychology department, was mentioned as promoting and encouraging a culture of health among her students, while many others were mentioned, either specifically or in generalizations, as being poor models of balance and setting high expectations without regard to the student's personal lives.

There is a strong need for role models among graduate students, administrators, advisors, and senior faculty members who support and encourage self-care and wellness while encouraging academic achievement. Graduate schools must specifically address all aspects of

health and wellness with their students, not just eating behavior, and also with faculty who interact with graduate students. The students in this study are working to make changes or maintain positive health habits, but without the social support from the institution, they may be unable to succeed.

A Product of the Environment

IMBP is a theory of reasoned action, signifying that people's actions are driven by developed intentions (Fishbein, 2007, 2008), but includes a socio-ecological perspective, recognizing that even with the strongest intentions, there may be environmental constraints that make actual performance more difficult or impossible. The psychological environment of graduate school, as previously mentioned, has a huge impact on intentions and behavior, but there are strong barriers in the physical environment as well. Graduate students have similar concerns to undergraduates about the environmental influences on their food choices. Like undergraduate students, they may feel limited by the campus and community food environment. Graduate students are unlikely to purchase a meal plan and use the dining halls, where more variety and healthy options may be available. To better support graduate students' food environment concerns, administrators and health practitioners should perhaps pay more attention to other dining locations on campus, including convenience stores and fast food locations, as well as the dining and grocery options in the immediately surrounding neighborhoods.

Personal cooking environments also had an effect on students' desire and ability to cook and meal plan. Barriers such as shared kitchen space or roommates who do not clean up after themselves may be difficult to overcome from a health education and promotion perspective, but an initiative to provide basic spices, cooking utensils, or even Tupperware to promote cooking and planning may be effective for some students.

Understanding of Healthy Eating

The IMBP includes skills and knowledge as a potential barrier between intentions and behavior. With regards to nutritional knowledge, most students recognized the basic tenets of healthy eating: fruit and vegetable consumption; selecting whole foods over processed or packaged items; well-balanced meals; avoiding fast food whenever possible, etc. There were still some confused understandings related to such concepts as the healthfulness of organic foods over conventional foods—some students spoke of organic as being more nutritious, which science has found to be a false assumption (Dangour et al., 2009)—or the overwhelming negative association with consumption of carbohydrates. Yet, it did not appear that general nutritional knowledge was a factor in these individuals' food choices; eating and cooking behavior; or meal planning intentions.

All students felt at least competent in the kitchen, if not confident. Many still relied on advice from their parents or videos on YouTube to help them learn the basic skills, but fear or lack of knowledge did not seem to be an impediment to the students' desire or willingness to cook meals at home. This finding supported research in a recent community sample of UK adults, of whom 90% reported confidence in basic cooking techniques, including roasting or baking, grilling, or boiling, and confidence in cooking specific foods, including vegetables and chicken (Adams et al., 2015). Additionally, over 90% of participants in that study reported confidence in their ability to cook a main meal from basic ingredients, which was the question asked of each of the participants in the current study as well. Lacking confidence in technique or method was not a barrier to performance, and basic cooking skills may be common across the population, not just among graduate students.

While basic cooking skills and nutrition knowledge were evident, there is a need for specific strategies among some graduate students about how to deal with balancing their multiple roles in the context of school time constraints and demands. Researchers in the field have made a distinction between cooking skills and food skills (McGowan et al., 2015), whereby a person may have high confidence for cooking but lack food skills such as managing a budget or planning meals in advance. The students who were able to maintain healthy eating, cooking, and meal planning behaviors had developed specific strategies to save time, money, and effort, making it easier to follow through on their intentions. Interventions with this population may benefit from focusing on specific strategies for food selection and consumption (see Poelman, de Vet, Velema, Seidell, & Steenhuis, 2014). Students may also need actionable methods to help them feel more in control of their schedules and finances in the context of food preparation and meal planning, based on the general lack of perceived behavioral control found within this population. It is important not only to attend to cooking skills and attitudes, but make efforts to address removing the multiple barriers to cooking so that benefits from skill attainment can be sustained beyond any intervention (McGowan, et al., 2015; Reicks, et al., 2014).

Background Factors and Tailored Communications

The IMBP places value on the background factors of both individuals and groups in understanding the development of intention and performance of behavior. These background or “distal variables,” which include demographics, culture, and previous experiences, are described as indirect influences that are potentially influential in forming attitudinal, normative, and efficacy beliefs, but do not directly impact behavior (Fishbein et al., 2003; Yzer et al., 2004). The findings of this study seemingly contradict this theoretical perspective, however, as some of these background variables did appear to directly influence beliefs, intentions, and behavior.

There were clear subgroups of students within the study with distinct values, beliefs, and barriers to healthy eating, food choice, and cooking meals at home. These groups were international students, students who were partnered in romantic relationships, and students who were parents. While a student may fall into one of these groups, or into all three, the specific experiences described by these types of students were unique. These “background factors” were actually highly influential, and could prove to be effective for segmenting the graduate student population for tailored health communications that more specifically address each group’s needs.

International Students

International students are simultaneously assimilating to the culture of the United States and the culture of graduate school, faced with new food environments, new schedules, and new value systems surrounding food. The findings of this study confirm aspects of previous qualitative work examining the changes in dietary habits of undergraduate and graduate international students upon moving to the United States (Alakaam, Castellanos, Bodzio, & Harrison, 2015; Saccone & Obeng, 2015). However, the international graduate students interviewed here did not, for the most part, allow the difficulty of finding traditional food items nor unstructured eating patterns lead to increased overall food consumption and consumption of more highly processed, typically ‘American’ food. None of the international students interviewed for this study maintained complete fidelity to their traditional foods or food culture, but many were able to adapt. Some students did this by adjusting recipes to available ingredients, or, at times, traveling long distances for specific food items. The result of continuing to cook and eat traditional foods at home of was higher intake of vegetables, more attention to meal planning, and less fast food consumption when compared to some of the other students. In this study and others, eating at home and cooking traditional meals was viewed as a way to eat healthier and

save money, and to avoid eating what they viewed as poor imitations of their traditional, ethnic foods (Alakaam, Castellanos, Bodzio, & Harrison, 2015; Saccone & Obeng, 2015). Alakaam et al. (2015) called for universities to be more highly attuned to the needs of international students, possibly offering more ethnic foods in the dining halls, but also creating farmers markets and opportunities for local ethnic food stores to bring traditional foodstuffs to campus, where they will be more easily accessible and available. This is a strategy that could be implemented to great effect on this university campus, as the few international food markets are not easily accessible to students, especially for those who do not have access to private transportation, a common barrier for many international students.

International students who brought a spouse with them were more protected from changes to their traditional eating habits and routines, an observation that is supported in previous qualitative work (Alakaam et al., 2015) and reflects perhaps more on the effects of marriage and cohabitation than international status.

Students as Partners

Regardless of race or ethnicity, students who were married or cohabitating developed different attitudes and norms for behavior. Having a spouse or live-in partner appeared to result in more attention placed on dinner – or breakfast in one case of a husband working the night shift—as an important time of togetherness, whether or not there were also children living in the house. If their partner was willing to help in the food purchasing and preparation, they may also feel enhanced self-efficacy for cooking at home and meal planning as well. It is important to note that not every meal was decided based on nutritional quality, an issue that may or may not lead to conflict between partners. Studies support the fact that women with partners have to negotiate food choice with them, and may feel that they are making personal sacrifices for their partner

(Welch, et al., 2009), although in the present study, men and women were equally likely to have the more maladaptive eating behaviors in a relationship.

Regardless of meal composition, students in domestic partnerships seemed to place higher value on at least one meal a day, usually dinner but sometimes lunch or breakfast, as the time when they could eat with their partner or entire family. More of an effort was made in cooking this meal, if not in planning for it as well. Nutrition interventions for students who are married, cohabitating, or sharing a primary meal with a partner, may need to attend to the negotiations that occur between partners about what to eat and how preparation and purchasing duties will be shared or assigned in the relationship. Health educators must also recognize that an ideal may not be able to be met if one of the partners has stronger attitudes or beliefs about what should be on his or her plate, and a focus on compromise with regards to nutrition may be more effective than all-or-nothing attitudes.

Students as Parents

Compromise was also involved in meal negotiations with children, although of the graduate student parents interviewed in this study, most still had young children and could still maintain control over the foods available and offered to them. The mothers interviewed for this study spoke of having children as the distinguishing life event that changed their eating habits. Concern for feeding a child began in pregnancy, and did not end even after the children were in grade school. Once children were older, and issues of overweight or body image were becoming more apparent, mothers were especially concerned with the food choices they made for their families as well as how they spoke to their children about food. Fears of being overly restrictive - which they believed would result in overeating, disordered eating, or negative body esteem and self-image—coupled with fears of not being proactive in monitoring the nutritional intake and

weight of their children. While only one father, and one father-to-be, were interviewed, they seemed to have similar perspectives on the importance of raising children in a healthy eating environment, and imparting skills for cooking and the importance of family meal time to their children.

Health promotion for graduate student parents should address these concerns of how to talk about food as a family, how to monitor children's diets, and how to manage time and multiple schedules without relying too often on fast food or take out for meals. A study of working parents found that their self-efficacy for meal planning was the lowest of three meal management strategies (Morin, Demers, Turcotte, & Mongeau, 2013). These strategies also included cooking for their families and choosing healthy and nutritious foods at the grocery store. The authors suggested that working parents required targeted meal management interventions to increase self-efficacy for meal planning tasks. Even more recent investigations into the barriers and facilitators for preparing meals at home among families with toddlers and school-aged children found that time management, dealing with picky children, and perceptions of lower cost to dine outside of the home were issues faced by parents (Robson, Crosby, & Clark, 2016). The authors suggested that interventions for families should address child behavior and family factors, such as emphasizing quality time and promoting time management skills. Graduate student parents would likely benefit from similar interventions or programming, with skills for managing specific school-related stressors included in a tailored curriculum and targeted communications.

Mothers were unique in that they had an additional role generally considered more important than any other, even their status as graduate students. Any free time they had was generally focused on their children, and for some this was in lieu of cooking or planning for a

meal. The graduate student mothers were more concerned and attentive to their children's needs than their own, which is an observation supported by qualitative work with low-income mothers, who tended to focus on their children's own needs first and neglected self-care (Chang, Nitzke, Guilford, Adair, & Hazard, 2008). Women with children have been shown to be less likely to view physical activity as feasible, but eating healthy as more feasible, which Ball et al. (2003) suggest may be because mothers feel an increased sense of responsibility towards making sure their children have healthy foods to eat, a finding supported in the current study of graduate students. The young mothers in that study, most of whom were in their mid to late-twenties, expressed feelings of burn-out, reduced social interaction, and stressful daily lives with busy schedules that led to skipped meals, unhealthy late night eating, or consistent snacking. These descriptions of motherhood align with descriptions of being a graduate student, so it would follow that graduate student mothers may feel double the pressure, isolation, and stress as those students without children.

Research supports the need to attend to the individual circumstances surrounding parental status or domestic situations when designing strategies for health promotion (Ball et al., 2003; Andajani-Sutjahjo et al., 2004). Graduate student mothers may need even more specific tailoring in their nutrition education to address self-care and not allowing their own health to become the lowest priority. Additionally, studies show that some mothers may feel the pressure and influence of their own mother's attitudes towards food, cooking, and eating, and either reject the way they were raised, or struggle to live up to their perceptions of perfection (Welch et al., 2009).

Some of the graduate student women in this study, regardless of whether they were currently mothers themselves, spoke of following diets because of their moms or speaking

reverently of their mothers' health or body type. The lasting impact of a mother's influence was felt in the male graduate students as well, but may need to be addressed more specifically with graduate student women, especially if it involves body image or dieting issues. The cultural preference for thinness continues to affect young women into their thirties, and promotes an, at times, distorted relationship with food, including signs of emotional eating, chronic dieting, overeating, and poor food choice decisions (Soliah, Walter, & Antosh, 2007). Yet, it should be noted that the men in this study were very open about their weight and shape concerns and goals, and were also just as likely to express signs of emotional eating or discuss restrictive diets or diet cycling. The pressure for thinness or muscularity appeared to influence their eating and food choices as well. Attitudes and norms related to eating behavior intentions may be more gender neutral than is often assumed.

Eating Attitudes are Gender Neutral

Overall, the male and female students interviewed in this study did not differ greatly in their attitudes towards eating. In general, age and domestic circumstances, such as marital status, appeared to affect their eating and cooking behavior and intentions to a much greater extent than gender within this population. Men and women were equally interested, or disinterested, in cooking, nutrition, and meal planning, and all found common benefits and barriers to healthy eating behaviors. Graduate student men and women both reported high levels of confidence in cooking meals and an overall awareness of nutrition, and gender was not seemingly related to intentions for behavior or behavior performance.

As supported by qualitative research with undergraduate students (Bennett, Greene, & Schwartz-Barcott, 2013), men and women were equally likely to report emotional eating from stress, as a distraction, or for the immediate pleasure reward, and to choose unhealthy foods in

emotional eating situations, and women were more likely to express feelings of guilt about their poor food choices. Interestingly, the graduate student men in this study were slightly more likely to openly discuss weight and appearance as motivations for changing their diet than women. This was surprising due to the overwhelming amount of research conducted on female body image and its relationship to weight management, and recent findings that show women have higher body shame and guilt than men (Pila, Brunet, Crocker, Kowalski, & Sabiston, 2016). Men who were partnered spoke of negotiating food and cooking decisions with their wife or girlfriend, although the male international students expressed having less autonomy and control over those decisions than the male students from the United States. This acceptance of having a wife or girlfriend take control of the eating decisions, prioritizing her happiness over his preference, has also been found among African-American adult men (Allen, Griffith, & Gaines, 2013), although in this study, international status was more likely to define perception of roles in the home than race or ethnicity.

Overall, there is a dearth of literature on the topic of young men's perceptions of eating and cooking, and it was difficult to find much support for the thematic discoveries in the current research. Disordered eating among males and effects of body image on men are burgeoning areas of research, but very little work has been published that addresses non-clinical young adult and adult male perceptions of food choice and healthy eating attitudes and beliefs. More work should be conducted to specifically address the life course transitions of men and the effect that these changing roles have on their eating behavior.

The Importance of Age

Age is considered a background factor in the Integrated Model of Behavioral Prediction, however it was an incredibly significant theme throughout all of the interviews. Students viewed

meal planning, cooking, and eating healthy as signs of adulthood and markers of maturity. With age comes partnering, cohabitating, marriage, and parenthood. It is these life transitions that appeared to have even more actual or anticipated effect on students eating intentions and behavior. Having children and starting families was a distinguishing factor for many students in their attention to changing towards, or maintaining, a healthy diet; even students who had yet to had families believed that they would care more about their diets and take more time to cook and meal plan when they had a family to which they felt responsible. Those who were not partnered felt that food and mealtimes were less important and many did not see the value in cooking for just themselves. Previous research supports specifically targeting women's life stage and domestic circumstances to bring about behavior change (Ball, Crawford, & Warren, 2003; Andajani-Sutjahjo, Ball, Warren, Inglis, & Crawford, 2004). Perceived barriers to behavior will change based upon life transitions and roles, and health practitioners should recognize these differing perceptions when designing and implementing health promotion and communication interventions.

Life Course Theory and Food Choice Values

The common perceptions across all students related to age and life transitions suggest that the issue of eating and cooking behavior in the context of graduate school and among graduate students may benefit from an additional theoretical perspective. A life course perspective offers a framework for understanding food choice as dynamic, influenced by individual development in social and historical context and past experiences (Hutchinson, 2010). As Devine (2005) writes, "to understand current food choices, it is also important to understand how the meanings and norms associated with food choices and with such social locations as class, race or ethnicity, or gender have changed over a person's life span" (p. 123). A life course

perspective pays both particular attention to transitions, changes in roles and statuses, and life events, events, such as marriage, parenthood, beginning of additional formal schooling, major change in working conditions, major change in finances (Hutchinson, 2010). Because of this, Life Course Theory may be especially useful in studying graduate students, who are potentially experiencing major transitions and life experiences within a very concentrated time. The findings from this research support the notion that life course transitions and events may have a strong impact on eating and cooking behaviors, and should be included in future evaluations of graduate student health behaviors.

Life Course Theory is also the theoretical foundation for the Food Choice Process Model (Connors, Bisogni, Sobal, & Devine, 2001; Furst, Connors, Bisogni, Sobal, & Falk, 1996), which posits that influences through the life course affect personal food systems, and it is in these personal food systems where the value negotiations occur that ultimately lead to strategies and heuristics used to simplify food choices in various situational and environmental contexts. Personal food systems appear to be “relatively stable, but subject to modification” (Connors et al., 2001) as people adapt rules and routines to new or revised values, which develop during transitions and turning points in their lives. Inclusion of life course into food choice value systems is particularly important, as the ideas and information one acquires in the past, as well as the characteristics of a given age cohort will affect people’s relationships to food (Furst et al., 1996). Using the lens of the Food Choice Process Model may also benefit the study of graduate student eating behaviors, because their values and needs are changing throughout their time in school.

Emerging Adulthood and Quarter-Life

Two of the defining themes of Life Course Theory are the interplay between human life and historical time, and the ‘timing of lives,’ or age structuring. These are related to the concept of cohorts, or groups of people born in the same time period who experience the same historical events at the same time in their lives. Generationally, current graduate students are experiencing similar life events, although not, perhaps, at the age in which the traditional age structure would have considered normal. Students may delay marriage or parenthood because of graduate school, or perhaps they are returning to school at an older age than would be traditionally expected.

The now well-accepted concept of “emerging adulthood”—the time period of identity exploration, instability, and transition lasting from about 18-24 years of age--as a separate life stage of critical development (Arnett, 2004) is giving way to the identification of yet another, extended period, which some psychologists and counselors have begun to call the “quarter-life” (Atwood & Scholtz, 2008). This quarter-life period might be viewed as an extended adolescence, a new time of choice and transition where “there is little that is normative” as these ‘twentysomethings’ are faced with less job security than ever before, increased perceptions of pressure to succeed, constant access to images of the lives of others who might seem to be doing better than they are through social media and technology, and emotional crises of inadequacy, isolation, and self-doubt (Atwood & Schultz, 2008; Jay, 2012). Emerging adulthood has been recognized as a time of transition whereby identify formation and changing environmental and interpersonal influences pose a need for deeper attention to and understanding of the changing health behavior patterns in this age group (Nelson, Story, Larson, Neumark-Sztainer, & Lytle, 2008), and it is possible that the post-graduation years between 25 and 30 also define a unique

life stage that sets foundations for long-term health behaviors. Graduate students in this study, and in previous research (Haynes et al., 2012) have discussed feeling as though they are unique and separate even from other peers who are not in graduate school, and that their experience is one that can only be understood by others who are also living it. Graduate students are experiencing both the pressures of graduate school success and the pressures of their age, which makes for a unique set of values, perceptions, and beliefs potentially guiding their behavior.

Rigor of the Study

There is no gold standard formula for high-quality analysis in qualitative work. Qualitative analysis requires subjective evaluation and the researcher's continual return to, and reflection upon, the data to assure that the phenomenon under study is being adequately and accurately represented by the chosen themes (Patton, 1999). As Patton (1999) described the process, a qualitative analyst does the best she can to make sense of the data by returning to it over and over, assuring that the explanations and interpretations truly reflect the nature of the phenomena under study. Lincoln and Guba (1985) have defined four elements to show rigor in qualitative studies: credibility, dependability, confirmability, transferability.

Credibility is the confidence in the truth of the findings (Cohen & Crabtree, 2006). There are a number of ways in which credibility can be achieved in qualitative work. According to Patton (1999), the credibility of qualitative research depends on three distinct elements: rigorous techniques and methods for data collection and analysis, with attention to validity, reliability, and triangulation; credibility of the researcher in preparation and presentation; and the philosophical beliefs of the evaluators of the research related to paradigm preferences. This last element of credibility comes from Patton's (1999) assertion that issues of credibility in this form of research often result from differences in paradigms towards knowledge creation and understanding of

phenomena; he calls for recognition that “Qualitative methods are not weaker or softer than quantitative approaches; qualitative methods are *different*” (Patton, 1999, p. 1207). Qualitative analysis is subjective, and the phenomenological hermeneutics approach asserts that there is no absolute end point to data collection or interpretation, only the juncture at which the researcher believes she has reached a thorough understanding for now, at that point in time (Smith, 2007). There are no statistics to upon which to rely for answers to research questions, only the researcher’s own understanding of the findings across participants within the given theoretical framework.

To begin, triangulation of multiple viewpoints from a diverse group of student found through purposive sampling helped assure the truth of the experiences and perceptions; additionally, reporting negative cases and inconsistencies showed alternative perspectives to that truth and a deeper understanding of the phenomenon (Mays & Pope, 2000; Patton, 1999). Member checking during the interviews and after the results section has been written assured that student participants had both informal and formal opportunities to amend or correct any statements they had made during the process. This study required the use of purposive sampling to obtain multiple viewpoints and find negative cases, if possible. Rigor was maintained with thoughtful participant selection and clear explanations of the selection process, as well as the reasons for sampling the chosen individuals.

Next, credibility of the researcher comes from both training and experience; because the researcher is the instrument in qualitative study, information about the researcher must be included in the report (Patton, 1999). This information might include previous training or personal connection to both topic and participants. As a novice investigator, the researcher’s training came mostly from coursework and self-study, qualitative analysis skills are best learned

through experience (Fade, 2004), and she was guided by experts in the field throughout the process. The investigator had a highly personal connection to, and understanding of, both the topic and participants, as she was a graduate student herself, and had worked with a majority of the student participants in some context before. There was a level of familiarity that already existed at the start of most of the interviews that helped establish rapport and trust. Insider perspective can provide considerable insight into the lived experiences of a population under study, however, insider/outsider status does not have to be defined as either/or; the researcher may be both an insider and outsider simultaneously, based on their multiple roles and identities (Suzuki et al. 2007). In this study, the researcher was both an insider, as a fellow graduate student, and an outsider, a perceived expert in the field of study for which she was conducting her research. These multiple roles helped ensure credibility with participants.

In addition to credibility, dependability shows that the findings are consistent and the procedure could be repeated. A clear audit trail of procedures and external monitoring by a neutral advisor to the project assured the dependability of results. Writing reflexive memos after each interview, maintaining a clear audit trail of all documents and procedures, and the triangulation of different viewpoints support the confirmability and validity of this study (Mays & Pope, 2000). Using these methods helped the researcher maintain neutrality by recognizing her own bias and allowing the experiences of the participants to shape the findings of the study, not the perspectives of the investigator (Cohen & Crabtree, 2006).

Finally, achieving transferability involves thick description, sufficiently detailed descriptions of the phenomena under study so as to evaluate the extent to which findings can be applied to other times, people, and contexts (Cohen & Crabtree, 2006). This results of this study have been presented with a high level of detail and specificity to meet this requirement.

However, it should be noted that thick description should be regarded as more than just intensely detailed description of phenomenon, or string of disconnected facts (Freeman, 2014). Thick description involves interpretation not just of what is seen and understood, but also how one sees and understands within a number of contexts, including social, historical, moral, physical, and affective contexts. Rather than use context to frame meaning, the researcher should recognize that what is seen and what is understood occurs within contexts (Freeman, 2014). Interpretation involves imagining what these experiences, observations, behaviors, and relationships mean in the lives of the participants. The results were presented in this way, connecting the perceptions of the individuals under study to their life stage and within the context of their graduate student experience.

Limitations

Qualitative findings are limited in their generalizability by the selection of participants. This is an inherent limitation of purposive sampling, which was required, however, to provide sufficient multiple perspectives to support the credibility of the study (Patton, 1999). Knowledge production is intentional; all researchers are active agents in their word by selectively attending to certain information, raising particular questions, and engaging with specific people (Suzuki et al., 2007). While the sample was intended to be diverse and offer multiple viewpoints, the experiences of the thirty-two participants interviewed may not be completely transferrable to other graduate students on the campus, nor to graduate students at different colleges or universities.

The demographic breakdown of the students shows that the sample in the study was approximately 40% male and 60% female, which is comparable to national statistics of enrollment at public research institutions nationwide (Okahana, Feaster, & Allum, 2016). Five of

the students were international students, which is 16% of the sample, also comparable to the national average of 18.9%. This study did, however, only include one part-time student, and part-time students make up 40% of graduate students nationwide.

The findings of this study are limited by the time in which the interviews took place. Interviews were conducted during the summer, when, as the students themselves admitted, schedules were slightly more relaxed and they felt that they had more time to cook, purchase food, or eat. Although they attempted to honestly reflect on their experience during more stressful times of the year, it is possible that situations and perspectives may have appeared more extreme had they been interviewed during those times.

With interview studies, there is always the possibility for power dynamics between the researcher and the participant to affect the conversation. Many of the students knew the researcher from organizations or classes, but because the researcher was also a graduate student, and acted and dressed in a casual manner during the interviews, rapport and comfort was easily established. Most students did not appear to feel intimidated, insecure, or affected by false notions of the power or expert knowledge of the researcher.

As with all qualitative research, the analysis and conclusions are based on the subjective interpretation and understandings of the researcher as instrument. Qualitative data collection is not an objective process: the researcher has the ability to either disregard or attend to observations and information (Suzuki, et al., 2007). There are certainly other perspectives, other students, and other experiences that might change or negate certain interpretations presented here, however the methods used and steps taken to maintain rigor in this form of study help to assure that the findings are credible.

Future Research

In keeping with the model for using the IMBP for health communications (Fishbein, 2008; Yzer, 2012), the information from this qualitative investigation can be used to design a measurement tool to quantitatively assess the attitudinal, normative, and control beliefs of graduate students related to their eating and cooking behavioral intentions. Those results can then be used to design and test potential health communication messages or health education interventions in the population.

As mentioned previously, the results of this study have provided substantial understanding of the important referents, understandings, and barriers to performance of on-campus graduate students at this large, southern university, but these understandings and experiences may be very different for graduate students at different universities, in different regions of the country. Students who complete their graduate work entirely online, or in hybrid courses, may also differ in their perceptions. Conducting similar work with students at other academic institutions, as well as students who are not on-campus students, will offer comparison and improved understanding of the more generalized graduate student population.

Because of the importance of age and life course to the eating and cooking behaviors of graduate students, it would be valuable for researches to compare these phenomena to the perceptions, experiences, and understandings of similar aged peers who are not graduate students. This work can help health educators better understand this age group more generally, and perhaps provide insight into how to reach and offer health promotion to this generational cohort with a broader public health approach.

Conclusions

Graduate students' understanding of healthy eating in relation to their behavior reveals the complex and multidimensional way in which adults contextualize and comprehend their food choice and food choice values. The gap between the known ideal and the reality of behavior related to healthy eating is not uncommon across the adult population (Bisogni, Jastran, Seligson, & Thompson, 2012). Similar to adult participants in many other qualitative studies (Bisogni et al., 2012), these students are particularly affected by their life stage and experiences, such as getting married or having a child, and they recognize availability, lack of time or money, social situation, and conflicting priorities as barriers or influences on their eating behavior. Graduate students are no different, in many ways, than the average adult population with many competing social, environmental, and psychological influences simultaneously affecting food choice values and decisions based upon time and context. However, as this study found, these social, environmental, and psychological influences are unique to this population in that they combine the stressors of life transitions like marriage, parenthood, and work-life coordination, with the environmental constraints and psychological pressures of being a graduate student in a university environment. Graduate students may not be any different than other adults their age—future research will have to determine if this is the case—but they *feel* different, and that perception affects how they make choices regarding their lives and their health.

Graduate students truly are "betwixt and between" (Grady et al., 2014). However, they are not only working within an ambiguous space between undergraduate/graduate student and faculty member but also between young adulthood and adulthood. While negotiating their role as both student and researcher, they simultaneously find themselves negotiating new roles as they move out of young adulthood and into a life stage with transitions such as living on their own for

the first time without financial support from parents, finding a partner, getting married or engaged, cohabitation, and having children, although not necessarily in that order, or at all. The IMBP framework serves as an adequate model for understanding graduate student eating and cooking intentions and behavior, however the unique nature of the graduate student population suggests that health practitioners should consider life course perspectives when evaluating behavior and designing interventions and communications.

One of the most important findings in this study regards the extremely negative perception of graduate school both from the inside and the outside. Students enter with the belief that they will be embarking on a strenuous academic experience, but also one that will take a toll on their physical health. Not only does this seem to be a self-fulfilling prophecy, the experience has ramifications on students' mental and emotional health and interpersonal relationships as well. Conversations related to this project during the time of data collection, transcription, analysis, and the sharing of initial findings often included assumptions that this experience is just the way it is, that all graduate students are unhealthy, they struggle, and it is a difficult, physically and emotionally taxing experience. With an ingrained culture that promotes this perception, positive changes for graduate students will be difficult to change, but that does not mean they are not necessary. The assumption may be that graduate students are unhealthy, but the question that remains is: do they have to be?

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APPENDIX A

Request for Research Support E-mail

Dear [Instructor/President of Organization],

My name is Sarah Pember, and I am a doctoral student in the Department of Health Science. This year, I have begun my dissertation study under the supervision of Dr. Stuart Usdan entitled, "Application of the Integrated Model for Behavioral Prediction to Graduate Student Eating Behaviors." I aim to explore the influences on graduate students' eating intentions, behaviors, and food choice.

As part of this study, I would like to collect data about the attitudinal, normative, and efficacy beliefs that drive your eating behavior and intentions as a graduate student, and also the habits, environmental conditions, and skills that either support or inhibit certain behaviors related to healthy eating. Taking part in this study involves participating in an interview of about 60-90 minutes in duration.

I am writing to you to request your assistance in distributing information about the online survey study to [your students/the members of your organization] via a social media posting, advertisement in a newsletter, or direct e-mail to [class/members], whichever you prefer. The information about graduate student eating behaviors will make a valuable contribution to the future study of health communication and promotion for this understudied population. I appreciate your time and consideration, and look forward to receiving an offer of support.

Thank you,
Sarah Pember

APPENDIX B

Recruitment E-mail for Students (Phase One)

Subject: Research Invitation: Graduate Student Eating Behaviors

Body:

Hello! My name is Sarah Pember and I am a doctoral student in the Department of Health Science, currently conducting a study for my dissertation called “An Application of the Integrated Model for Behavioral Prediction to Graduate Student Eating Behaviors.” I am aiming to explore the beliefs and influences that drive graduate students’ intentions for a variety of eating behaviors, including cooking meals at home and meal planning, as well as the barriers they encounter to performing those tasks.

The study will involve participating in an interview, scheduled at your convenience. You will only be asked to participate in one interview, lasting between 60 and 90 minutes. Snacks will be provided. If you are interested in participating, you will be asked questions about your eating behaviors in graduate school: how you decide what to eat, how they may have changed from your time as an undergraduate or a member of the workforce, and what barriers get in the way of healthy eating intentions.

You must be enrolled as a master’s or doctoral student at The University of Alabama and at least 18 years old to participate.

Please know that your participation is completely voluntary and you may choose not to participate. If you do participate, you can withdraw from the study at any time without any penalty to you.

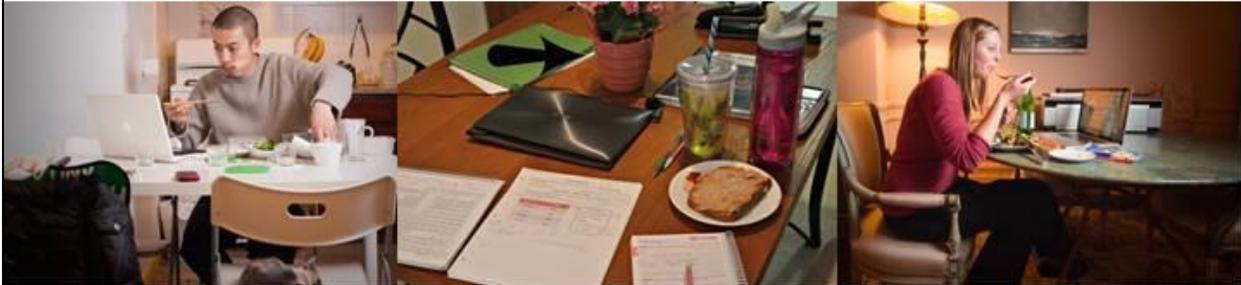
There will be no direct benefit to you, but the findings will be useful for guiding future health promotion for graduate students at this university and at other universities across the country. If you are interested in participating, please e-mail me, Sarah Pember, at sepember@crimson.ua.edu.

Thank you for your time.

APPENDIX C

Social Media Recruitment Flyer

**There are more than 3 million graduate students in the U.S.
*We know nothing about what or how they eat.***



**If you are a graduate student at UA, I want to talk to you!
Group interviews are being scheduled to discuss
how graduate school affects student eating behaviors.**

Have your eating habits changed since you entered school?

Do you ever have time to cook?

Is eating an afterthought?

Do you eat whatever is free?

Is life more about fruits and vegetables....or coffee and donuts?



**Please email Sarah Pember at sepember@crimson.ua.edu
if you are willing to participate in an interview.**

There will be snacks.

FREE FOOD

APPENDIX D

Interview Guide

**An Application of the Integrated Model of Behavioral Prediction to
Graduate Student Eating Behaviors
Semi-Structured Interview Guide**

☞ **WELCOME**

Hello! Thank you for coming today and agreeing to participate in today's interview. My name is Sarah Pember and I am a doctoral student studying Health Education and Health Promotion in the Department of Health Science. I will be facilitating the interview today.

Today we are going to be talking about your eating behaviors as a graduate student. Over the next hour to hour and a half, I will ask you some questions about your food choices, food-related concerns, and general cooking and eating habits as a graduate student. If you feel uncomfortable answering a question, you are welcome to pass on the question. If you need a break, please let me know. I am using an audio recorder and my telephone to record this interview. After the interview, I will transcribe our conversation verbatim. To protect your privacy, I will use pseudonyms in the transcription.

The interview is designed to work as a discussion. I'll ask some questions to get the discussion started but it is really important that you participate and share your thoughts and experiences. There are no wrong answers to any of the questions. Since we are going to keep the discussion private, it is really important that you are open and honest in your answers. You don't have to answer every question, but the more you share, the more that can be learned.

The information you share will be used to create a survey that will be distributed to graduate students throughout the university in the fall.

Please be sure to turn your cell phones off before we start.

Do you have any questions?

If there are no questions, let's get started!

Start recording device.

☞ **INTRODUCTION**

We are going to start by finding out a little bit more about each other

Please tell me your first name, degree program and department, your favorite childhood meal, and why it was your favorite.

☞ **INTERVIEW QUESTIONS**

[Not all questions need to be asked, and prompts or follow-up questions are just suggestions. This is a semi-structured interview, so conversation can flow naturally.]

- Tell me about how you decide what to eat for lunch every day.
 - Are these decisions different from how you choose food for other meals or snacks?
- How do you feel about the foods you eat?
 - Why do you feel this way?

- Do you think your eating habits have changed or stayed the same since you've started graduate school? *Prompt participants with cooking, meal planning, actual dietary intake for "eating habits" if necessary.*
 - How have they changed (or stayed the same)?
 - Why do you think this is?
- What does "healthy eating" mean to you?
- How important is healthy eating to you?
 - Why do you feel that way?
- How well do you think you are able to meet your definition of healthy eating in your day-to-day life?

According to nutrition research and the Dietary Guidelines of Americans, issued this January, a **healthy eating pattern** can be described as one that includes a variety of vegetables and fruits; grains, at least half of which are whole; a variety of protein foods (lean meats, seafood, and plant-based); low-fat dairy or fortified alternatives; and healthy fats or vegetable-based oils. A healthy eating pattern is also low in added sugars, saturated and trans fats, and sodium.

- Do you find eating this way easy or difficult? Why?

For the purpose of this study, I want to focus on eating a variety of fruits and vegetables, and reducing your intake of added sugars, saturated and trans fats, and sodium (or salt), by limiting candy, grain-based sweets, such as cakes and brownies, and processed snacks, such as packaged chips. Let's start with fruits and vegetables. When I say **variety**, I mean not only eating apples and Romaine lettuce, but eating a number of different types of fruits and vegetables throughout the average week.

- What are the benefits to eating a variety of fruits and vegetables?
- What do you dislike about eating a variety of fruits and vegetables?
- How important is it to you that you consume a variety of fruits and vegetables?
 - Why?
- How important is eating a variety of fruits and vegetables to other graduate students?
 - Why?

- Who, in your life, encourages you to eat fruits and vegetables?
- Who would be affected by a decision to eat a variety of fruits and vegetables?
- What situations make it difficult to eat a variety of fruits and vegetables?
 - What factors make it easier?
 - What factors make it more difficult?
- Do you know how to prepare fruits and vegetables in a variety of ways?
- Are you willing to try new fruits and vegetables?
- What prevents you from trying to eat a variety of fruits and vegetables?

Now, let's talk about reducing your intake of added sugars, saturated and trans fats, and sodium (or salt), by limiting candy, grain-based sweets, such as cakes and brownies, and processed foods, such as packaged chips or microwave meals, like Lean Cuisine.

- Do you know how to choose foods that are low in added sugars, saturated and trans fats, and sodium?
- What are the benefits to limiting these types of foods?
- What do you dislike about trying to avoid candy, desserts, and processed snacks or meals?
- How important is it to you that you limit your intake of added sugar, sodium, and trans fat?
 - Why?
- How important is this practice to other graduate students?
 - Why do you think so?
- Who, in your life, encourages you to reduce your intake of candy, sweets or desserts, and processed snacks or meals?

- Who would be affected by a decision to limit eating candy, desserts, and processed snacks or meals?
- What situations make it difficult to avoid eating candy, sweets, and processed snacks or meals?
 - What factors make it easier?
 - What factors make it more difficult?
- What prevents you from limiting your intake of added sugar, saturated and trans fat, and sodium (salt)?

Now I'd like to focus on two specific behaviors related to eating: cooking meals at home and meal planning. First, let's talk about cooking meals at home. When I say **cooking meals at home**, I mean preparing food from basic or raw ingredients, not just heating up a frozen meal or reheating leftovers from your restaurant dinner the night before. This can also include packing a lunch for the day, or bringing food you've prepared at home with you to school or work.

- Do you feel like you have adequate cooking skills and knowledge to cook and prepare meals at home?
- What are the benefits to cooking or preparing meals at home?
- What do you dislike about cooking or preparing meals at home?
- How important is it to you that you cook or prepare meals at home?
 - Why?
- How important is cooking or preparing meals at home to other graduate students?
 - Why do you think so?
- Who, in your life, encourages you to cook or prepare meals at home?
- Who would be affected by a decision to cook or prepare meals at home, or NOT to do so?
- What situations make it difficult to cook meals at home?
 - What factors make it easier?
 - What factors make it more difficult?
- If you are unable to regularly cook meals at home, what is preventing you?

Now, I'd like to talk about meal planning. When I say **meal planning**, this means thinking about what you are going to have for lunch or dinner in advance, not simply relying on whatever is free or available, and not skipping meals or going for more an extended period of time without eating. When you spend all day in the lab or office without eating, or you make spontaneous decisions about what to eat in the moment, such as going to whatever fast food location is closest and open, that is a lack of meal planning.

- Do you feel like you have the ability to plan meals?
- If you are unable to regularly plan for meals or snacks, what is preventing you from doing so?
- What are the benefits to planning for meals and snacks?
- What are the downsides to meal planning?
- How important is it to you that plan for meals and snacks?
 - Why?
- How important is meal planning to other graduate students?
 - Why do you think so?
- Who, in your life, encourages you to plan meals and/or snacks?
- Who would be affected by your meal planning, or lack thereof?
- What situations make it difficult to plan for meals and/or snacks?
 - What factors make it easier?
 - What factors make it more difficult?

☞ CONCLUSION

- Is there anything I haven't asked that is relevant to this topic that you would like to share?
- Would you like to clarify or elaborate on anything that we discussed today?

Thank you so much for coming today. I appreciate your willingness to share this information with me.

APPENDIX E

Demographic Questionnaire for Interviews

**An Application of the Integrated Model of Behavioral Prediction
To Graduate Student Eating Behaviors**

Interview Participant Questionnaire

1. How old are you? _____

2. What is your gender? (Circle One)

Female

Male

Transgender

3. How do you usually describe yourself? (Circle One)

White

American Indian or Alaskan

Black or African American

Biracial or Multiracial

Hispanic or Latino/a

Other: _____

Asian or Pacific Islander

4. What is your year in school? (i.e. first year master's student)

5. What is your program?

6. In which department are you enrolled?

7. What is your enrollment status? (Circle One)

Full-time

Part-time

8. Did you hold a full or part-time job between your undergraduate and current degree program?

- **If so, how many years did you work?**
- **What job did you hold?**

9. What is your relationship status? (*Circle One*)

Not in a relationship

In a relationship, not living together

In a relationship, living together

10. What is your marital status? (*Circle One*)

Single

Married/Partnered

Separated

Divorced

Other: _____

How many children under the age of 18 live in your household? _____

APPENDIX F

Informed Consent Form

AAHRPP DOCUMENT #193
Informed Consent/Assent for a Non-Medical Study
UNIVERSITY OF ALABAMA
HUMAN RESEARCH PROTECTION PROGRAM

Study Title: “Application of the Integrated Model for Behavioral Prediction to Graduate Student Eating Behaviors”

Researchers: Sarah E. Pember, Doctoral Student (Principal Investigator); Dr. Stuart Usdan, Professor of Health Science

What is this study about? What will I be asked to do in this study?

The purpose of the present study is to understand the influences on graduate students’ eating intentions, behaviors, and food choice intentions. This study aims to determine the strongest held beliefs about and barriers to eating behavior intentions among graduate students. These can be used in future studies as potentially effective topics for future health promotions and intervention in the graduate student population.

If you decide to participate in this study, you will take part in an individual interview or a group interview with 1-3 other graduate students, led by the principal investigator of this study. The interviews will be audio-recorded and then transcribed verbatim for later review. You will be asked to discuss your eating behaviors as they relate to your graduate school experience. You also will complete a brief survey that will ask about your age, gender, race, discipline, and marital status. The interview will last about 60 to 90 minutes.

Why is this study important or useful?

The investigator hopes to understand the attitudinal, normative, and efficacy beliefs that drive graduate students’ intentions for healthy eating, and also the habits, environmental conditions, and skills that either support or inhibit the performance of the behavior. By understanding the strength of these beliefs and the most prohibitive barriers to healthy eating, more efficient health communication messages can be designed for the graduate student population.

Why have I been asked to be in this study?

You have been asked to be in this study because you are at least 18 years old and a graduate student enrolled at The University of Alabama.

How many people will be in this study?

About 30 graduate students will participate in this study.

How much time will I spend being in this study?

Your participation will only be required once, during the scheduled interview. The entire process should take approximately 60-90 minutes.

Will being in this study cost me anything?

The only cost to you for participation in this study is the time it will take to participate in the interview.

Will I be compensated for being in this study?

For your participation in this study, you will be provided with refreshments during the interview.

Can the investigators take me out of this study?

If you become visibly upset during the study, the investigator can remove you from the study. Additionally, you can choose to stop participating in the study at any time.

What are the risks (dangers or harms) to me if I am in this study?

Minimal or no risk is foreseen by your participation in this study. If you are not comfortable answering a question during the interview, you do not have to answer the question. If you become so uncomfortable that you feel that you cannot continue, you may stop participating in the interview or written demographic survey at any time. If further help is needed with these problems, you can contact the **Counseling Center at (205) 348-3863** or the **Women's Resource Center at (205) 348-5040**.

What are the benefits (good things) that may happen if I am in this study?

There are no direct benefits from participating in this study.

What are the benefits to science or society?

Graduate students are an understudied population in the field of health education and promotion research. These findings will lead to future efforts related to creating effective potential healthy eating messages to be delivered to graduate student populations.

How will my privacy be protected?

If you choose to participate, you will be asked to participate in an interview either alone, or with other graduate students. Please be advised that although the researchers will take every precaution to maintain confidentiality of the information that is shared, the researchers cannot guarantee confidentiality in the group interviews because of their nature. All group interview members are asked to respect the privacy of other group members. You may tell others that you were in a group interview and the general topic of the discussion, but actual names and stories of other participants should not be repeated.

How will my confidentiality be protected?

The information collected in this study will remain confidential. This means that your identity as a participant will not be told to people other than the investigators listed above. Any information that would reveal your identity will be removed or disguised before the writing of the research reports and publications. All research materials will be kept in a locked office at the University of Alabama. All audio recordings will be erased at the end of the study.

What are the alternatives to being in this study? Do I have other choices?

Participation in this study is voluntary. There are no alternatives to this study but you do have the choice not to participate in this study.

What are my rights as a participant in this study?

Taking part in this study is voluntary. It is your free choice to participate. You can refuse to be in the study. Furthermore, if you start the study, you do not have to answer any questions you feel uncomfortable answering and you may stop participating at any time during the duration of the interview. You will not be punished if you decide not to participate. The University of Alabama Institutional Review Board (“the IRB”) is the committee that protects the rights of people in research studies. The IRB may review study records from time to time to be sure that those involved in research studies are being treated fairly and that the study is being conducted as planned.

Who do I call if I have questions or problems?

If you have questions about the study right now, please ask them. If you have questions, concerns, or complaints about the study later on, please contact **Sarah Pember** at **205-348-8286** or **Dr. Stuart Usdan** at **205-348-1948**. If you have questions, concerns, or complaints about your rights as a person in this research study, call Ms. Tanta Myles, the Research Compliance Officer of the University, at 205-348- 8461 or toll-free at 1-877-820-3066. You may also ask questions, make suggestions, or file complaints and concerns through the IRB Outreach website at http://osp.ua.edu/site/PRCO_Welcome.html or email us at participantoutreach@bama.ua.edu.

After you participate in this study, you are encouraged to complete the survey for research participants that is online at the outreach website or you may ask the investigator for a copy of it and mail it to:

The UA Office for Research Compliance, Box 870127, 358 Rose Administration Building, Tuscaloosa, AL 35487-0127.

How do I agree to participate?

Your signature below shows that you understand the above information and you agree to participate in this interview

Please Print your Name: _____

Please Sign your Name: _____

Date: _____

Investigator’s Name: _____

Investigator’s Signature: _____

Date: _____

APPENDIX G

IRB Approval Letter

APPENDIX H

Table of Participant Demographics

Table 2*Participant Demographics*

Pseudonym	Gender	Age	Race	Degree	Department	Marital Status	Relationship	Kids at Home
Timothy	M	23	Black	Masters to PhD	Psychology	Single	None	0
Polly	F	22	White	Masters to PhD	Computer Science	Single	None	0
Mallory	F	23	White	Masters to PhD	Psychology	Single	None	0
Celia	F	36	Black	PhD	Health Science	Married	Living Together	2
Tom	M	30	Hispanic	PhD	Physics & Astronomy	Single	Living Together	0
James	M	28	Black	PhD	Health Science	Single	None	0
Steve	M	25	White	PhD	Physics & Astronomy	Married	Living Together	0
Laura	F	25	Asian	Masters to PhD	Engineering	Single	Not Living Together	0
Zac	M	26	White	PhD	Physics & Astronomy	Married	Living Together	0
Jules	F	26	White	PhD	Health Science	Single (Engaged)	Not Living Together	0
Donna	F	38	White	PhD	Education	Married	Living Together	2
Joe	M	28	White	PhD	Health Science	Married	Not Living Together	0
Brittany	F	24	White	Masters to PhD	Psychology	Married	Living Together	0
Joan	F	32	Asian	PhD	Health Science	Married	Living Together	2
Justin	M	31	White	PhD	Health Science	Single	None	0
Michael	M	22	White	Masters	Health Science	Single	Living Together	0

Holly	F	31	White	PhD	Nutrition/Health Science	Married	Living Together	1
Mila	F	24	White	Masters to PhD	Chemistry	Married	Living Together	0
Jessica	F	27	Asian	Masters to PhD	Psychology	Single	None	0
Anthony	M	23	Black	Masters to PhD	Engineering	Single (Engaged)	Not Living Together	0
Marisa	F	27	Hispanic	PhD	Psychology	Single	None	0
Natalie	F	27	Hispanic	PhD	Psychology	Single	Not Living Together	0
Monica	F	41	Asian	PhD	Education	Married	Living Together	0
Jonah	M	30	Black	PhD	Engineering	Married	Living Together	0
Adhit	M	28	Asian	PhD	Physics & Astronomy	Single	None	0
Kate	F	25	White	Masters to PhD	Psychology	Single	None	0
Alice	F	23	White	Masters	Education	Single	None	0
Manvik	M	41	Asian	PhD	Engineering	Married	Living Together	2
Preston	M	24	White	Masters	Education	Single	None	0
Keisha	F	28	Black	PhD	Engineering	Single	None	0
Stacy	F	24	White	PhD	Chemistry	Married	Living Together	0
Angela	F	24	White	PhD	Health Science	Single	Not Living Together	0