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# Investigating the Motivation Factors of Food Choice During the Transition of High School into College Life among College Students Attending Western Kentucky University

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INVESTIGATING THE MOTIVATION FACTORS OF FOOD CHOICE DURING  
THE TRANSITION OF HIGH SCHOOL INTO COLLEGE LIFE AMONG COLLEGE  
STUDENTS ATTENDING WESTERN KENTUCKY UNIVERSITY

A Thesis Proposal  
Presented to  
The Faculty of the Department of Public Health  
Western Kentucky University  
Bowling Green, Kentucky

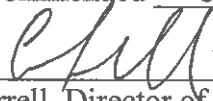
In Partial Fulfillment  
Of the Requirements for the Degree  
Master of Public Health

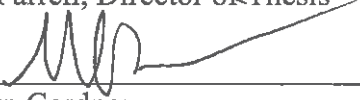
By  
Yu-Hsuan Chen

August 2017

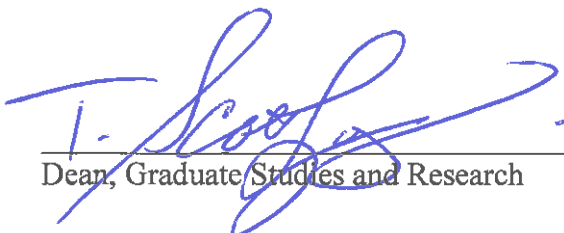
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Date Recommended July 7, 2017

  
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Most individuals with chronic diseases, such as cardiovascular disease, stroke, cancer, and type 2 diabetes, were diagnosed in their late adulthood. The fact that these chronic diseases is a consequence of long-term unhealthy behaviors is often ignored. The unhealthy behaviors are often traced back to the young adulthood (age 18-25). Some young adults may participate in unhealthy behaviors, such as unhealthy diet, under the perception that they are “still young”. However, it is often overlooked that once a habit is established, it is difficult to eliminate or modify it. Furthermore, the awareness that the development of the chronic disease is a gradual progress is deficient. This enhances the perception that doing unhealthy behaviors is benign to the “young body”. Additionally, individuals in this age group start to live independently. Their existing behaviors may change due to the changes in the available resources. Lack of capability to cope with the transition from living at home to living independently has been shown to contribute to an unhealthy diet, especially among college students. Given that unhealthy diet behaviors in young adulthood often remains over the lifetime, there is a need in identifying the factors that motivate the food choices during the transition from high school into college life. The findings of this research suggest that the campus environment is not conducive to a healthy diet. When compared to the students who live on-campus, students who live off-campus (either live with or without family) reported a better dietary quality.

## Chapter I - Background

Given that most of the young adults aged 18 to 24 (96%) report being in a good status of health (Park, Mulye, Adams, Brindis, & Irwin, 2006) and the mortality proportion contributed by behavior-related chronic disease, such as cardiovascular disease, stroke, cancer, and type 2 diabetes, in young population is low (Centers for Disease Control and Prevention [CDC], 2016a), the health awareness of this age group is often overlooked by the young adults themselves and the public. However, the habits established during young adulthood are critical in the development of behavior-related chronic diseases in their later adulthood. Not perceiving themselves at risk of developing chronic disease, young adults are more likely to participate in behavioral risk factors such as unhealthy diet and substance use. Most smokers (99%) tried their first cigarette by age 26 (CDC, 2016b). Furthermore, higher by 6.6% related to high school seniors, 44.6% of the young adults (age 18-24) consume fruit less than 1 time daily, while the rate of the adult aged 25 or more is approximately 40% (CDC, 2015a). On the contrary, lower by 6.2% from the group of adolescents in the 12<sup>th</sup> grade (36.9%), 30.7% of the young adult consume vegetable less than 1 time daily (CDC, 2015a). Shockingly, the vegetable consumption rate of the adult aged 25 or more is approximately 10% less than young adults age 18-25 (CDC, 2015a). Young adults are the least likely to follow dietary recommendations among adults. That said, approaches to motivate and improve the quality of diet in young adults are underdeveloped (Kerr et al., 2012). Despite the fact that the Nutrition Facts (%DV) label has been assumed to improve food choices while purchasing and consumption, existing literature indicates that the nutrition tag has little effectiveness on selecting healthy food (Helfer & Shultz, 2014).



The transition from adolescence to young adulthood corresponds with increasing independent behavioral decision-making and establishing life-long behaviors (Lipsky et al., 2015). While discussing the risk factors of behavior-related chronic diseases, behavioral risk factors (e.g. unhealthy diet, physical inactivity and smoking) are an important component of these chronic diseases development pathway, in part due to the role of risk behaviors in the development of metabolic risk factors (e.g., obesity and hypertension) (Forouzanfar et al., 2015). Though the prevalence proportion of behavior-related chronic disease in young adults are much lower than in the older adults, there is a considerable higher prevalence proportion of health condition with metabolic risk factors during the transition period of adolescence to young adults (CDC, 2015a). For instance, though the young adults (age 18-24) has the lowest overweight prevalence proportion among the adult population, this population have the most degraded difference from the previous age group, the 12<sup>th</sup> grade group (LaCaille, Dauner, Krambeer, & Pedersen, 2011). The most significant downgraded difference in overweight prevalence is between the young adult (age 18-24, 25.8%) and the group of adolescents in the 12<sup>th</sup> grade (16.2%), followed by the undesirable difference between the young adult and the adult aged 25-34 (33.7%) (CDC, 2015a). This trend can be attributed to, in part, unhealthy dietary and physical inactivity (LaCaille et al., 2011).

The 2008 Physical Activity Guidelines for adolescents is 60 minutes or more of moderate-intensity aerobic activity daily (at least 420 minutes weekly), whereas the recommendation for adults is 150 minutes of moderate-intensity aerobic weekly (CDC, 2015b). Despite the lower requirement, the percentage of adults who meet the guidelines (21%) is approximately 10% less than high school students (< 30%) (CDC, 2014). In

addition, Forouzanfar and collaborators (2015) reported in their systematic analysis for the Global Burden of Disease (GBD) from 188 countries that behavioral risk factors are the dominant causes of increasing disability-adjusted life-years (DALYs) in the young adult population. Furthermore, dietary risks have replaced child and maternal malnutrition as the number one cause of attributable DALYs globally since 2013 for both genders (Forouzanfar et al., 2015).

As LaCaille and colleagues (2011) identified, within the two most overweight status rampant groups (18-24 and 25-34), the sub-population of college student accounts more than the non-college student sub-population. Namely, within the age range 18 to 34, individuals who are college students are more likely to be overweight related to those who are not. This indicates that the college environment is a notable factor for the difference. On average the college student consumes more calories and does less physical activity compared to what they did during high school. Regardless of whether the increased calorie intake or the decreased physical activities contributes more in the weight gain, on average, the observation that the dietary quality of the college students declines compared to their adolescence period cannot be ignored (LaCaille et al., 2011). Furthermore, the dietary practices established in the young adulthood are associated with weight gain and impacts health outcomes in later adulthood.

Diet is a crucial factor in developing, as well as preventing, behavior-related chronic disease, such as cardiovascular diseases (CVD) (World Heart Federation, 2016). According to World Heart Federation (2016), when one compares the new major cardiac events in developed and developing countries, developing countries were found to have 73% lower rates, which can be attributed to the style of diet consumed in the developing

countries (low saturated fats with sufficient fresh fruit and vegetables). An unhealthy diet is concomitant with being overweight and obese. The condition of overweight during the early stage of life strongly predicts the condition of obesity in the later stage of life, which increases the risk of behavior-related chronic health conditions in later adulthood (Freedman, 2010). It is important to acknowledge that inappropriate dietary habits are inappropriate for individuals of all ages. Young adults are not granted amnesty for the adverse consequences of an inappropriate diet.

“Freshman 15” is a common health myth in North America, which refers to the phenomenon of a 15-pound weight gain among the college freshmen during the first year away from home (Freedman, 2010). Although a systematic review before 2008 indicated that the actual mean of weight gain for freshmen is less than 5 pounds instead of 15 pounds (Brown, 2008), the term of “Freshman 15” reveals that putting on weight is a common phenomenon to first-year college students. A prospective longitudinal study suggested that freshmen gain weight more rapidly than the average young adults at the same age in the U.S. (Kelly, Mazzeo, & Bean, 2013). A meta-analysis from 2015 found similar results indicating that more than 60% of the freshmen gain an average of 7.5 pounds (Vadeboncoeur, Foster, & Townsend 2016). By following 204 college students from their beginning of freshman year to the end of senior year, Racette et al. (2008) found that the prevalence of overweight/obesity increased by 8%, from 15% to 23% ( $P = .004$ ) (Racette, Deusinger, Strube, Highstein, & Deusinger, 2008). Despite the reality that actual weight gain is not as substantial as the Freshman 15 myth, if the bulking up trend increases persistently through the college years, the small amount of weight put on each year would make for a considerable weight gain by the end of college life

(Freedman, 2010). Common is not a synonym of normal or health. Freshman 15 is a critical health issue that should be addressed.

Summarized by Vadeboncoeur and co-workers (2016), the transition from living at home to living independently is a critical driving force of poor eating habits and lower physical activity, which are the two main factors that contribute Freshman 15. For the majority of the freshmen, it is their first time to be in an environment with multiple dietary options, it is also, likely, their initial exposure to alcohol. It is very likely that freshmen are tempted by the various options and deviate from the healthy behaviors (Vadeboncoeur, Foster, & Townsend, 2016). An effective dietary intervention during the transition from late adolescence to early adulthood might have a sustained impact on lifelong health outcomes (Lipsky et al., 2015), yet the related countermeasures, such as healthy food-friendly campus, that aim to improve and sustain healthy eating behaviors are ineffective and stagnant (Dennis, Potter, Estabrooks, & Davy, 2012).

## **Chapter II - Review of the Literature**

### **The driving force of food choice**

As Poddar and co-workers (2010) concluded, the potential health benefits of the better overall dietary nutrition quality include weight control, lower risk of hypertension, and certain types of cancers. To the young adults, adequate calcium diet is essential for improving bone health since the peak skeletal deposition occurs up to age 30. Despite these health benefits, on average, the overall diet quality declines substantially during the transition from late adolescent to young adulthood (Poddar, Hosig, Anderson, Nickols-Richardson, & Duncan, 2010). There is a need to investigate the driving force of the food choice and how an individual can be motivated to choose healthy food.

Eating behavior is an interaction between motivation, self-regulation, and social environment (LaCaille et al., 2011). The decision of the food choice is a process of compromising factors such as health, mood, convenience, sensory appeal, natural content, price, weight control, familiarity, ethical concern, and social network (Steptoe, Pollard, & Wardle, 1995; Weijzen, de Graaf, & Dijksterhuis, 2009). Knowing the motivating factors of the food choice is critical while designing the healthy food promotion program for the target population. Identifying the most influential factor that drives the target population to consume healthy foods could increase the effectiveness of the promotion program.

### **The impact of transition from high school into college life on dietary**

Undergoing the changes in environment, socialization, and situation, the transition period from adolescence to young adulthood is a period of forced to seek a new diet style (Driskell, Schake, & Detter, 2008). By tracking eating behaviors of 2,785 U.S. 10<sup>th</sup> grade students for four years (from age 16 to 20), Lipsky et al. (2015) found that though the trend of overall food intake frequency decreased between the period of late adolescence and young adulthood, the frequency of fast food stayed stable. Such findings indicate the proportion of fast food increased, and such like the overall diet quality decreased. Lipsky et al. (2015) further reported that the intake frequency of fruit, vegetables, and whole grain was positively associated with family meals and breakfast, and negatively associated with fast food (Lipsky et al., 2015).

Wilson and colleagues (2017) investigated the self-catering ability among 6,638 Canadian college students. Males, on average, perceived lower food skills than females. Students who have lived independently (away from parents) for more than a year

reported a greater perceived self-catering ability than those with less than one year of independence (Wilson, Matthews, Seabrook, & Dworatzek, 2017). These results support the inference that by leaving the family umbrella, the young adults are less likely to lead a healthy diet.

As Blichfeldt and Gram (2013) reported, being the novices of self-catering, the dietary quality of the college students often degrades, followed by gaining weight. In order to successfully transition into the independent life, college students need enough competencies and skills for taking on their independent living. Abilities such as cooking and grocery shopping should be gained prior to leaving the family umbrella (Blichfeldt & Gram, 2013). Kelly and associates (2013) also stated in their systematic review of dietary interventions that college students experienced difficulties in purchasing and preparing their own meals, as well as coming up with a proper eating schedule. Furthermore, owing to spoiling more quickly, students prefer processed snacks rather than fresh produce (Kelly, Mazzeo, & Bean, 2013). Pendergast and co-workers (2016) also found that the most common reason of meal skipping among young adults (aged 18–30 years) is time deficiency rather than cost and weight control (Pendergast, Livingstone, Worsley, & McNaughton, 2016).

As Freedman (2010) concluded, it is the status of leaving home for college that decreases the diet quality rather than the status of starting college. The freshmen living on campus reported a lower intake of healthy food and a higher frequency of meal skipping compared to freshmen living at home (Freedman, 2010). Kremmyda et al. (2008) also found similar results among 135 Greek college students living with family or without family in Greece or in Glasgow. The phenomenon of reduced nutrition intake quality was

only noted in students who lived on their own after starting university (Kremmyda, Papadaki, Hondros, Kapsokefalou, & Scott, 2008). Bagordo and coworkers (2013) reported that among 195 college students in southern Italy, students living away from home not only had a lower nutrition intake but also did less physical activity than those who lived at home (Bagordo, Grassi, Serio, Idolo, & De Donno, 2013).

A three-year cohort study investigating the college females reported that those who gained weight in their freshman year tended to regress to their initial weight by the time they started in their junior year. Such phenomenon was found to be highly associated with living status (as cited in Wengreen & Moncur, 2009). Studies have also indicated that the frequency of eating at all-you-can-eat settings on-campus was closely related to weight gain (Racette, Deusinger, Strube, Highstein, & Deusinger, 2008; Wengreen and Moncur 2009).

Young adulthood is a transition period during which people start making food choices independently (Graham & Laska, 2012). The university-aged population is forming a new dietary behavior based on convenience (time limitation), cost, social and physical environments, health, weight control, and taste (Driskell, Schake, & Detter, 2008). However, this cohort does not receive appropriate dietary support from the university. Many college meals have been recognized to contain more calories and fat, and fewer nutrients, compared to the foods prepared at home (Kolodinsky, Harvey-Berino, Berlin, Johnson, & Reynolds, 2007).

Apart from failing to transition from depending on family to a self-dependent lifestyle, confronting new academic challenges in college, which is associated with stress, is another critical factor that contributes to unhealthy diet behaviors. Stress is often

concomitant with a higher intake of high-fat food (Kelly, Mazzeo, & Bean, 2013). Stress is also a critical driving force to unhealthy activities, such as drinking and smoking (Kelly, Mazzeo, & Bean, 2013). It can be inferred that most young adults are not ready for an independent life. They do not have enough capability to prepare/purchase a healthy meal for themselves or to stay away from the unhealthy behavior when encountering stress, and do not cope well with the force of behavior change during the transition period.

### **The impact of gender on food choice**

From the interactions between perspectives in psychological, physiological and sociological, Simmons and colleagues (2011) identified weight as an evident body image component among college students. Body image not only refers to one's perception of their own body but also found to be closely linked to a sense of identity. Existing studies have indicated body image differs by gender (El Ansari, Dibba, & Stock, 2014; Golan, Hagay, & Tamir, 2014; Keating, Stephens, Thomas, Castle, & Rossell, 2016). Building muscle is more common among males, while females aim to keep slight figure (Simmons, Connell, Ulrich, Skinner, Balasubramanian, & Gropper, 2011; LaCaille et al., 2011). Therefore, most of the research in diet is conducted primarily with females (LaCaille et al., 2011). Amongst the research included both genders, few of them separated the determinants by gender (LaCaille et al., 2011). Such research patterns reveal that gender difference is an aspect often omitted in diet research.

Using qualitative methods, LaCaille and colleagues (2011) found that, among college students, females have more desire to consume a healthy diet than males. Female students are also more likely to be motivated by the relationship network (family and



friends) than male students. Though both male and female students perceive the deficiency of healthy food options on campus as a barrier to having healthy diet, the lack of options on campus affects males and females in different manners. For male students, all-you-can-eat cafeteria decreases their self-control. With the unlimited availability of ‘good-tasting’ foods, males are more likely to choose food by the taste rather than by the nutrition. For the female, on the other hand, lack of a place to prepare their own food on campus hinders them to eat healthily. Females are more likely to make their own meal than males (LaCaille et al., 2011), which may be explained by the finding that males, on average, perceived lower food skills than females (Wilson, Matthews, Seabrook, & Dworatzek, 2017).

During the transition from late adolescence to young adulthood, accessibility of healthy food, taste preference, personal beliefs, support from family, and social network of friends are critical determinants that would affect an individual’s diet style (Poddar, Hosig, Anderson, Nickols-Richardson, & Duncan, 2010). These personal and environmental determinants are the components of the college life that foster healthy food choices of college students. Nevertheless, the effectiveness of the existing nutrition countermeasure, such as nutrition labeling, on nutrition to the college student is limited (Mahdavi, Abdolahi, & Mahdavi, 2012). Indicated by Phan and Chambers (2016), the current programs of healthy food intervention/education use the method of ‘not to have a certain kind of food because it is not healthy’, or ‘to have a certain kind of food because it is healthy’. However, no significant positive effect can be found in this kind of design. Therefore, additional research should focus on understanding the root reasons that drive an individual to consume a certain kind of food (Phan & Chambers, 2016).

## **Theory applications in dietary pattern**

Behavior intervention is not a one-time event, rather, it is a process of forming a new habit, from initiating to sustaining the habit (Glanz, Rimer, & Viswanath, 2008). Health behavior theories are the aggregation from the past empirical evidence. The roles of theory are guiding the planning and evaluation of the intervention program (Glanz, Rimer, & Viswanath, 2008).

As Naughton and colleagues (2015) mentioned, if the food choice is considered inappropriate by the motivation, the individual is less likely to continue the decision. Therefore, by identifying the strong motivating factors to the target population is expected to be an efficient intervention (Naughton, S. McCarthy, & M. McCarthy, 2015). However, even though providing strong motivation factors to an individual, he/she may still be in the conflictual status between the choice of healthy food and unhealthy food due to lack of exposure to the motivating factors (Köster, 2003). In other words, the individual needs a reminder to keep the motivating factors in mind. Individuals who keep exposing in the environment that is healthy dietary friendly is more likely to maintain their eating behavior in a healthy pattern than those who have limited exposure. Namely, in order to be effective, the individual's environment should be manipulated to provide a constant reminder of the motivating factors. Yet the exposure level of the motivation factors is another essential determinant that affecting the effectiveness of the motivation factors. The interaction between arousal and liking, and their association with the likelihood of participating in the actual behavior is an inverted U-form (Köster, 2003). Said differently, as the reminder exposure frequency increases, the actual behavior increases accordingly. However, there is a peak point of reminder exposure frequency.

The effect of the reminder reaches its maximum effect at this peak point. The individual will start to be tired of the reminder from this point. As the exposure of the prompt keeps increasing, the individual will start to build the unwillingness toward the behavior. That is to say, lack of access and lack of cue will both inhibit behavior regardless of the level of the other factor. Behavior is a product of the interaction of person and environment.

As Dennis and colleagues (2012) indicated, high-intensity interventions, such as 5 sessions/week for 16 months or twice weekly for 15 weeks, appear to be more effective than low-intensity interventions (e.g. monthly phone calls) and knowledge-only interventions in young adult population (Dennis, Potter, Estabrooks, & Davy, 2012). Therefore, identifying interventions that can be implemented in a long-term manner is cardinal.

Not only the length of the health behavior intervention but the retention of the health behavior after the intervention ended is a challenge to form a healthy diet that lasts lifelong. Even a health behavior intervention got a high rate of participation, the retention of the health behavior after the intervention ended is not guaranteed. During the intervention period, the participants have recourses to support them behaving healthily, such as health sessions/courses, or reminders via text messages. The health behaviors decline during the transition from high school to college is a good example of this concern. As Dennis and copartners (2012) pointed, healthy diet and physical activities are part of the high school student's routine. These health behaviors decrease during the transition from high school to college (Dennis, Potter, Estabrooks, & Davy, 2012). Prior to the college life, the adolescents had "intervention" from parents and school every day. These adolescents are accustomed to a high-intensity intervention and often do as they

are told even it is not their preference. When it comes to college life, the restrictions from parents and school decline dramatically, potentially resulting in a decrease in quality of health behavior.

### **Research objectives**

The purposes of this study are to 1) assess the impact of the transition into living alone on healthy dietary practices among college students at Western Kentucky University (WKU), and 2) investigate the motivation factors of food choice during this transition period. The research focuses on testing the difference in dietary behavior between different living status groups (with family, on-campus, and off-campus without family) in the WKU student community.

### **Research questions**

1. Does living condition impact on eating behavior among college students at WKU?
2. Does the same motivator impact male and female on eating pattern differently?
3. Does substance use relate to dietary quality?
4. Does the frequency of physical activity have a relationship with dietary habits?

### **Hypotheses**

1. Living condition impacts on eating behavior among college students at WKU.
2. Same motivator impacts male and female on eating pattern differently.
3. Substance use relates to dietary quality.
4. The frequency of physical activity has a relationship with dietary habits.

## Chapter III - Methods

### Participants

Data collection was via a cross-sectional, Qualtrics-based online survey. The survey link was sent to all WKU students via the mass student email system. Two survey invitation emails were sent out in an interval of two weeks. The survey closed four weeks after the first survey invitation email. The survey took approximately 10 to 15 minutes. Upon completion of the survey, participants were provided the opportunity to enter a lottery to win one of four \$25 pre-paid Visa cards. All the procedures were approved by the WKU Institutional Review Board (IRB proved protocol number: 1027215-1).

As the 2016 WKU Fact Book reported, the average age of undergraduates at WKU is 22. However, given that the average age of the first-time first-year (FTFY) student is 18 and 99.1% of them are traditional student (under age 25), the average age of undergraduates is positively skewed by the non-traditional student (age 25+) (Western Kentucky University [WKU], 2016). In addition, U.S. Department of Education (2016) reported that approximately 87% of the full-time undergraduate enrollment are under 25 years. Therefore, the age cut-off set at 25. All the respondents between age 18 to 25 were selected as the participants (n=527).

The demographic characteristics of the participants are shown in the *Table 1*. There were more than three times female students (n=412) involved in this study than the male students (n=110). The ratio of living situation was roughly 3:3:4 (with family : on-campus : off-campus). The majority of the participants were Caucasian (86.37%), followed by African American (5.18%), mixed (3.07%), other race (2.69%), and Asian (2.5%). Approximately 70% of the participants were recognized as Catholic/Christian,

Table 1: Demographic Characteristics, and Their Raw Difference in Weekly Fast Food Consumption and Semester Perceived Healthy Meals

Variable	Frequency (%)	Fast food meals <sup>a</sup> Mean (SD)	Perceived healthy meals <sup>b</sup> Mean (SD)
Gender	522	t = 2.43*	t = 0.26
Male	110 (21.07)	6.259 (4.488)	48.991 (24.592)
Female	412 (78.93)	5.170 (4.033)	48.325 (23.757)
Living status	524	F = 58.62***	F = 4.80**
With Family	151 (28.71)	5.879 (3.895)	46.232 (23.154)
On-campus	144 (27.48)	7.851 (4.248)	45.021 (24.502)
Off-campus	229 (43.70)	3.556 (3.287)	52.083 (23.880)
Academic standing	526		
Freshman	95 (18.06)	8.085 (3.896)***	42.884 (24.535)
Sophomore	109 (20.72)	6.449 (4.372)	48.183 (24.160)
Junior	110 (20.91)	5.028 (4.198)	50.682 (24.625)
Senior	136 (25.86)	3.932 (3.057)	48.441 (22.955)
Graduate	76 (14.45)	3.653 (3.645)	52.908 (23.160)
Enrollment status	526	F = 22.45***	F = 2.20
Full-time student	507 (96.57)	4.389 (4.877)	53.056 (24.131)
Part-time student	18 (3.43)	5.452 (4.114)	48.385 (23.947)
Nationality	522	t = -1.33	t = -1.79
Domestic	509 (97.51)	5.389 (4.119)	48.051 (23.786)
International	13 (2.49)	7.000 (5.274)	60.077 (28.666)
Marital status	524	t = 3.10*** <sup>c</sup>	t = -0.97 <sup>c</sup>
Single/Never married	500 (95.42)	5.536 (4.136)	48.276 (23.755)
Married	22 (4.20)	2.773 (3.191)	53.182 (25.614)
Widowed	2 (0.38)	7.500 (0.707)	17.000 (18.385)
Separated	0 (0)	0 (.)	0 (.)
Divorced	0 (0)	0 (.)	0 (.)
Have kid(s) under 18	526	t = 0.65	t = -2.84**
Yes	5 (0.95)	4.200 (6.099)	78.600 (21.571)
No	521 (99.05)	5.416 (4.129)	48.229 (23.826)
Race	521	F = 3.43*** <sup>d</sup>	F = 1.56 <sup>d</sup>
African American/Black	27 (5.18)	8.259 (5.558)	41.704 (28.530)
Asian	13 (2.50)	5.692 (4.854)	56.615 (20.593)
Caucasian	450 (86.37)	5.281 (3.939)	48.533 (23.414)
American Indian	0 (0)	0 (.)	0 (.)
Pacific Islander	1 (0.19)	0 (.)	65.000 (.)
Mixed	16 (3.07)	5.667 (4.608)	40.188 (19.927)
Other Race	14 (2.69)	5.357 (4.517)	52.357 (31.257)
Religion	488	F = 3.63*** <sup>e</sup>	F = 0.67 <sup>e</sup>
Atheist/agnostic	106 (21.72)	4.779 (3.894)	49.226 (23.438)
Buddhist	2 (0.41)	0.500 (0.707)	77.000 (7.071)
Catholic/Christian	339 (69.47)	5.753 (4.166)	47.652 (23.427)
Hindu	2 (0.41)	5.500 (4.950)	67.000 (4.243)
Jewish	2 (0.41)	1.000 (1.414)	75.000 (0)
Muslim	2 (0.41)	8.000 (8.485)	54.000 (62.225)
Other Religion	35 (7.17)	4.543 (4.533)	48.057 (1.000)

<sup>a</sup>number per week.

<sup>b</sup>percentage during the semester.

<sup>c</sup>Widowed was grouped with single/never married.

<sup>d</sup>American Indian and Pacific Islander were grouped with other race.

<sup>e</sup>Buddhist, Hindu, Jewish and Muslim were grouped with other religion.

Note. \*p < .05. \*\*p < .01. \*\*\*p < .001.

followed by atheist/agnostic (21.72%). Full-time student (96.57%), domestic (97.51%), single/never married (95.42%), and have no kid under 18 (99.05%) were overwhelmingly represented. Based on this raw data, gender, living status, academic standing, enrollment status, marital status, race, and religion had some kinds of influence on weekly fast food consumption. On the other hand, the semester perceived healthy meals was affected by living status, and whether have kid(s) under 18.

### **Instrument**

A 39-item instrument, College Age Health Maintenance (CAHM), was developed utilizing three established scales from the Food Choice Questionnaire (Steptoe, Pollard, & Wardle, 1995), the Eating Motivation Survey (Phan & Chambers, 2016), and the National Health Assessment (American College Health Association, 2011). The CAHM aimed to investigate the impact of the transition from high school into college life on dietary practice in the community of WKU student.

The CAHM included ten aspects of motivation (convenience, natural content, weight control, sensory appeal, price, familiarity, health, mood, ethical concern, and socializing), dietary quality, mental health status, substance use (tobacco and alcohol), physical activity frequency, and demographics (Appendix).

### **Variable description**

*Table 2* illustrates the variable coding in this research. Any participants aged over 25 were excluded from the analysis. Following the questionnaire display logic, anyone who answered “no” to During the semester, do you usually have breakfast/lunch/dinner? was recoded as “0” in During the semester, how many times per week do you eat breakfast/lunch/dinner at fast food settings, such as Chick-fil-A, SUBWAY, Papa John’s,

Table 2: Coding of the Variables

Variable	Coding	Variable	Coding
Fast Food Meals <sup>a</sup>	Continuous	Physical Activity Status	Continuous
Perceived Healthy Meals <sup>b</sup>	Continuous	Age	Continuous
Motivation Factors	Continuous	Gender	Male: 0 Female: 1
Meals Eat with Family <sup>a</sup>	Continuous	Living Status	
Mental Status	Normal range: 0 Minor symptoms: 1 Mild severity: 2 Moderate severity: 3 Severe severity: 4	With Family	Yes: 1; No: 0
		On-campus	Yes: 1; No: 0
		Off-campus	Yes: 1; No: 0
		Race	
Smoking Status	Never smoke: 0 Ever smoke: 1 Current smoker: 2	Caucasian	Yes: 1; No: 0
		African American	Yes: 1; No: 0
		Asian	Yes: 1; No: 0
Alcohol Habits	Never drink: 0 Ever drink: 1 Current drinker: 2	Mixed	Yes: 1; No: 0
		Other Race	Yes: 1; No: 0
		Religion	
Academic Standing		Catholic/Christian	Yes: 1; No: 0
Freshmen	Yes: 1; No: 0	Atheist/Agnostic	Yes: 1; No: 0
Sophomore	Yes: 1; No: 0	Other Religion	Yes: 1; No: 0
Junior	Yes: 1; No: 0		
Senior	Yes: 1; No: 0		
Graduate	Yes: 1; No: 0		

<sup>a</sup>number per week.

<sup>b</sup>percentage during the semester.

etc.?. The number of fast food meals per week was defined as the sum of times per week eat breakfast/lunch/dinner at fast food settings. The motivation assessment consists of 44 questions, which are subdivided into the aforementioned ten motivation factors. Each question was measured using a Likert-like scale. The subscales were summed, and the mean of each category was computed. If an individual had any missing responses in each category, the individual was coded as missing in that category. Cronbach's alpha was utilized to assess the internal reliability of motivation factor items. The majority of the



categories were found to have good acceptable reliability, while, sensory appeal, was found to be questionable (Table 3).

*Table 3: Internal Reliability of Motivation Factors*

<b>Motivation Factor Category</b>	<b>Standardized Cronbach's alpha</b>
Convenience	0.770 <sup>A</sup>
Natural Content	0.877 <sup>G</sup>
Weight Control	0.730 <sup>A</sup>
Sensory Appeal	0.684 <sup>Q</sup>
Price	0.789 <sup>A</sup>
Familiarity	0.792 <sup>A</sup>
Health	0.802 <sup>G</sup>
Mood	0.850 <sup>G</sup>
Ethical Concern	0.755 <sup>A</sup>
Socializing	0.866 <sup>G</sup>

*Note.* <sup>E</sup> = excellent. <sup>G</sup> = good. <sup>A</sup> = acceptable. <sup>Q</sup> = questionable. <sup>P</sup> = poor. <sup>U</sup> = unacceptable.

Mental status was measured using the Patient Health Questionnaire, 9-item depression scale (PHQ-9). Scores between the 0 to 4 and 5 to 9 were grouped in the “normal range” and “minor symptoms”, respectively. Scores between 10 to 14 and 15 to 19 were classified as “mild severity” and “moderate severity”, separately, while scores above 20 were categorized as “severe severity.” Smoking status refers to any use of cigarettes, e-cigarettes, water pipe (hookah), and/or smokeless tobacco. The variable was coded in the order of never smoke, ever smoke, and current smoker. “Ever smoke” means the status that “have used, but not in last 30 days”. Alcohol habits refers to any use of beer, wine, and/or liquor. The variable was coded in the order of never drink, ever drink, and current drinker. “Ever drink” means the status that “have used, but not in last 30 days”. Physical Activity Status refers to the “times of physical activity per week.” Participants were asked to report the average number of days they do the listed 13

physical activities, including the option of “other”, every week. Times of physical activity per week is defined as the sum of the days of each activity.

Due to the setting of the question logic, individuals who answered “yes” to Do you live with your parents/guardian, or parental fugues? were recoded as “no” in Do you live on campus (ex. In dorms)?. Participants who reported “yes” to Do you live with your parents/guardian, or parental fugues? or Do you live on campus (ex. In dorms)? were classified as “no” in live off-campus. Anyone responded “no” to Do you live with your parents/guardian, or parental fugues? and Do you live on campus (ex. In dorms)? was grouped as “yes” in live off-campus. There was no reported of American Indian. The category was deleted. Only one participant recognized as Pacific Islander. The class was combined with “other race.” There were only two observations in Buddhist, Hindu, Jewish, and Muslim. Therefore, these four religions were merged into “other religion.”

### **Data analysis**

Linear regression was applied to analyze the aforementioned hypotheses with SAS 9.4. The analysis was separated into two models (Model 1 and Model 2). Both models were paired with a control model. Model 1 was used to analyze the difference in “number of fast food meals per week” between different living situation groups. A control model without living condition was included to compare the model fit. Model 2, testing the difference in “percentage of perceived healthy meals during the semester” between different living condition populations, was used as the supplemental evidence of Model 1. A control model without living condition was conducted to draw a parallel with Model 2.

Independent t test was applied to analyze the gender difference of motivation factor score with SAS 9.4. Whether living status is independent from other demographics was analyzed utilizing chi-square with SAS 9.4. ANOVA was utilized to evaluate the difference of motivation factor scores based on living status with SAS 9.4. The linkage between motivation factor, weekly fast food meals, and semester healthy meal percentage given living status was assessed utilizing path analysis with IBM® SPSS® Amos 24.

#### **Chapter IV - Results**

As can be seen in *Table 4*, on average, the participants ate at the fast food settings 5.4 times a week. That is to say, assuming 3 meals/day, about every one out of four meals was fast food. Meanwhile, the mean percentage of the reported healthy meal throughout the semester was approximately 50%. The mean scores of the motivation factors ranged from 1.216 (ethical concern) to 3.330 (price). Four out of the ten categories had a mean score greater than 2.5. Three of them were between 2 and 2.5, while the remaining three were below 1.8.

When considering eating healthy foods, price was the most important consideration to both genders. On the 5-point scale, 0 (Not at all important) – 4 (Very important), the average price scores of male and female were 3.270 and 3.354, respectively. Health was another considerable motivation factor while pondering healthy food to both genders. Male and female students scored the significance of healthy eating at 2.824 and 2.757, respectively. On the other side, neither males nor females valued the ethical concern when it comes to healthy eating. Both genders marked the ethical factor lower than 1.4, the lowest scores among all motivation factors. In addition, both sexes paid less attention to social factor when think of eating healthy food. The socializing

Table 4: Descriptive Demographics

Variable	N	Mean (SD)	Frequency(%)
Numbers of fast food meals per week	518	5.40 (4.14)	
Percentage of semester perceived healthy meals	527	48.46 (23.98)	
Motivation factors <sup>a</sup>			
Convenience mean	515	3.10 (0.68)	
Natural content mean	524	2.09 (1.06)	
Weight control mean	526	2.45 (0.93)	
Sensory appeal mean	521	2.62 (0.77)	
Price mean	523	3.33(0.71)	
Familiarity mean	521	1.71 (1.05)	
Health mean	515	2.77 (0.71)	
Mood mean	517	2.42 (0.86)	
Ethical concern mean	521	1.22 (0.97)	
Socializing mean	518	1.56 (0.87)	
Meals per week eat with family	512	3.80 (4.82)	
Mental status	521		
Normal range			190 (36.47)
Minor symptoms			158 (30.33)
Mild severity			96 (18.43)
Moderate severity			49 (9.40)
Severe severity			28 (5.37)
Smoking status <sup>b</sup>	519		
Never smoke			357 (68.79)
Ever smoked/Occasional use <sup>c</sup>			109 (21.00)
Current smoker			53 (10.21)
Alcohol habits	526		
Never drink			125 (23.76)
Ever drank/Occasional drinker <sup>c</sup>			161 (30.61)
Current drinker			240 (45.63)
Times of physical activity per week	527	9.80 (8.86)	

<sup>a</sup>The motivation factors were measured by a 5-point scale, 0 (Not at all important) – 4 (Very important).

<sup>b</sup>Smoking refers to any use of cigarettes, e-cigarettes, water pipe (hookah), and/or smokeless tobacco.

<sup>c</sup>It refers to the status that “have used, but not in last 30 days”.

merely got scores around 1.5 in both genders. Close consideration can be found in the familiarity. Both genders rated it at about 1.8 (Table 5).

Among the ten motivation factors, four of them shown differences based on the gender differentiation. Females were more likely to link weight control and healthy dietary together than males (2.061 vs 2.555). Female students were also more prone to connect convenience with perceived healthy food than the males (2.886 vs 3.159). Male students seemed to pay less attention in sensory appeal (2.468 vs 2.663) and mood (2.273 vs 2.461) than female students (Table 5).

*Table 5: Motivation Factor Score Based Gender (CI: 95%)*

<b>Motivation factor</b>	<b>Male</b>	<b>Female</b>	<b>t</b>
	<b>M (SD)</b>	<b>M (SD)</b>	
Convenience	2.886 (0.790)	3.159 (0.627)	-3.33**
Natural Content	1.955 (1.151)	2.130 (1.022)	-1.56
Weight Control	2.061 (1.022)	2.555 (0.862)	-4.65***
Sensory Appeal	2.468 (0.894)	2.663 (0.733)	-2.11*
Price	3.270 (0.747)	3.354 (0.683)	-1.12
Familiarity	1.721 (1.036)	1.717 (1.055)	0.04
Health	2.824 (0.756)	2.757 (0.699)	0.88
Mood	2.273 (0.896)	2.461 (0.844)	-2.05*
Ethical Concern	1.376 (1.073)	1.174 (0.945)	1.93
Socializing	1.482 (0.932)	1.580 (0.857)	-1.04

*Note.* The motivation factors were measured by a 5-point scale, 0 (Not at all important) – 4 (Very important).

*Note.* \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

The results from the multivariate analyses can be found in *Table 6*. When compared to the individuals who lived with their family, individuals who lived on campus reported 1.726 more fast food meals per week, whereas the number of fast food meals per week was 1.320 less for those who live off campus (but not with family). Meanwhile, the junior and senior groups reported 1.543 and 2.034 less low nutrition meal per week contrasted to the freshman population. It is worth noting that, a considerably higher percentage of the junior (54.63%) and senior (68.89%) students lived off-campus

Table 6: Impact of Living Status on Fast Food Consumption and Percentage of Perceived Healthy Meals (CI: 95%)

Variable	Number of Fast Food Meals Per Week <sup>a</sup> Coefficient	Percentage of Perceived Healthy Meals During the Semester <sup>b</sup> Coefficient
Motivation factor		
Convenience	.558	-4.666*
Natural Content	-.712**	6.288***
Weight Control	.066	-1.739
Sensory Appeal	.652*	-.316
Price	-.167	2.052
Familiarity	-.341	1.627
Health	-.455	4.846*
Mood	.226	-1.425
Ethical Concern	.645**	-4.137**
Socializing	.121	-.532
Mental Status	.159	-1.672
Smoking Status	-.129	-1.828
Alcohol Habits	.161	-.254
Physical Activity	-.045	.422**
Age	-.183	.574
Academic Standing		
Freshmen	Ref.	Ref.
Sophomore	-.539	.553
Junior	-1.543*	1.583
Senior	-2.034*	-2.082
Graduate	-1.363	.913
Gender	-1.148*	1.824
Living Status		
With Family	Ref.	Ref.
On-campus	1.726***	-.723
Off-campus	-1.320**	2.931
Race		
Caucasian	Ref.	Ref.
African American	2.255**	-11.390*
Asian	1.468	.369
Mixed	.487	-13.611*
Other Race	-.116	-5.566
Religion		
Catholic/Christian	Ref.	Ref.
Atheist/Agnostic	-.989*	3.844
Other Religion	-1.153	6.565

<sup>a</sup>Adjusted-R<sup>2</sup> = .3046; changed adjusted-R<sup>2</sup> = .0540; sample size: 423.

<sup>b</sup>Adjusted-R<sup>2</sup> = .1582; changed adjusted-R<sup>2</sup> = -.0007; sample size: 430.

Note. \*p < .05. \*\*p < .01. \*\*\*p < .001.

related to the students in their freshman (2.11%) and sophomore (13.76%) year (Table 7).

Both natural content and ethical concern were found to have significant impact on diet quality but in different directions. A point increase in the consideration about natural content was connected to a 0.712 decrease in weekly times of fast food consumption and a 6.288% increase in perceived healthy meals during the semester. On the contrary, as one point raised in the importance of ethical concern, the perceived healthy eating during the semester reduced by 4.137% and the frequency of fast food consumption increased by 0.645. In addition to ethical concern, every one point increased in the sensory appeal, the number of weekly fast food meals grew by 0.652. Nevertheless, as the consideration of the health benefit increased, the percentage of perceived healthy meal consumption increased by nearly 5%. Similarly, a one point increase in the importance of the convenience dragged down the perceived healthy meal percentage by 4.666%.

*Table 7: Frequency (row percentage) of Demographic Characteristics Based on Living Status*

<b>Variable</b>	<b>With family</b>	<b>On-campus</b>	<b>Off-campus</b>	<b><math>\chi^2</math></b>
Gender				2.4644
Male	38 (34.55)	30 (27.27)	42 (38.18)	
Female	112 (27.38)	113 (27.63)	184 (44.99)	
Academic Standing				200.3491***
Freshman	35 (36.84)	58 (61.05)	2 (2.11)	
Sophomore	45 (41.28)	49 (44.95)	15 (13.76)	
Junior	31 (28.70)	18 (16.67)	59 (54.63)	
Senior	27 (20.00)	15 (11.11)	93 (68.89)	
Graduate	13 (17.11)	4 (5.26)	59 (77.63)	
Race				6.9295
African American/Black	8 (29.63)	10 (37.04)	9 (33.33)	
Asian	2 (15.38)	5 (38.46)	6 (46.15)	
Caucasian	129 (28.79)	119 (26.56)	200 (44.64)	
Mixed	7 (43.75)	3 (18.75)	6 (37.50)	
Other race	4 (28.57)	6 (42.86)	4 (28.57)	

*Note.* \*p < .05. \*\*p < .01. \*\*\*p < .001.

Table 8: Motivation Factor Score Given Living Status (CI: 95%)

Motivation factor	With family	On-campus	Off-campus	F
	M (SD)	M (SD)	M (SD)	
Convenience	3.133 (0.626)	3.028 (0.733)	3.117 (0.677)	1.03
Natural Content	2.049 (1.104)	2.086 (1.011)	2.112 (1.057)	0.16
Weight Control	2.435 (1.013)	2.373 (0.953)	2.499 (0.859)	0.82
Sensory Appeal	2.687 (0.763)	2.536 (0.837)	2.626 (0.734)	1.40
Price	3.358 (0.630)	3.289 (0.779)	3.336 (0.713)	0.36
Familiarity	1.815 (1.069)	1.775 (1.004)	1.603 (1.071)	2.18
Health	2.749 (0.722)	2.741 (0.728)	2.806 (0.698)	0.47
Mood	2.422 (0.821)	2.397 (0.868)	2.437 (0.882)	0.09
Ethical Concern	1.229 (0.983)	1.259 (0.951)	1.173 (0.983)	0.36
Socializing	1.570 (0.923)	1.639 (0.839)	1.485 (0.847)	1.42

Note. None of the motivation factors differs between subgroups of living status.

No difference was found in any category of motivation factor score between different subgroup of living status (Table 8). However, in observing the three subgroups separately, numerous factors were found to impact the number of fast food meals per week (Table 9), and those factors varied across the various living circumstances. A one point increase in sensory appeal was associated with 0.895 and 1.000 time more in low nutrition meals among live with family and live on-campus groups, respectively.

Meanwhile, each point increase in ethical concern was related to a 0.744 and 1.019 time

Table 9: Linkage Between Motivation Factor and Weekly Fast Food Meals Given Living Status

Motivation factor	With family Coefficient	On-campus Coefficient	Off-campus Coefficient
Convenience	.581	-.299	.458
Natural Content	-.310	-1.368***	-.721***
Weight Control	-.004	-.467	.336
Sensory Appeal	.895**	1.000*	.177
Price	-.744	.684	.038
Familiarity	-.287	-.649*	.243
Health	-.281	.177	-.507
Mood	.714	-.238	.195
Ethical Concern	-.351	1.019**	.744***
Socializing	.313	.176	.038

Note. \*p < .05. \*\*p < .01. \*\*\*p < .001.



increase among students who lived on-campus and off-campus, respectively. Contrary, natural content negatively associated with fast food consumption among these same groups. Every single point increase corresponded with 1.368 and 0.721 less fast food meals per week.

Though the concern of natural ingredients remarkably motivated the percentage of perceived healthy meals across all living situation groups (Table 10), the magnitudes of impact were different among the three subgroups. The off-campus group was motivated by the concern of natural content the most. A single point increase could result in 7.48% more perceived healthy meal eating, followed by those who live with their family ( $\beta = 6.852$ ) and those who live on-campus ( $\beta = 5.401$ ). On the contrary, ethical concern had negative influence on the high nutrition meal consumption. The dietary quality decreased about 5.7% when a point of ethical concern added among students who lived on-campus, followed by those who lived with family ( $\beta = -4.225$ ) and who lived off-campus ( $\beta = -3.211$ ). On the other hand, the concern of convenience only had influence to those who

*Table 10: Linkage Between Motivation Factor and Semester Perceived Healthy Meal Percentage Given Living Status*

<b>Motivation factor</b>	<b>With family Coefficient</b>	<b>On-campus Coefficient</b>	<b>Off-campus Coefficient</b>
Convenience	-3.068	-2.346	-6.571**
Natural Content	6.852***	5.401**	7.480***
Weight Control	-1.910	.298	-2.769
Sensory Appeal	2.013	1.576	-1.376
Price	3.615	-4.256	3.103
Familiarity	3.498*	1.687	.300
Health	4.273	6.091*	9.389***
Mood	-3.482	-1.761	-1.852
Ethical Concern	-4.225*	-5.667**	-3.211*
Socializing	-.806	-1.294	-.469

*Note.* \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

lived off-campus ( $\beta = -6.571$ ). This group was also positively affected by the concern of health the most ( $\beta = 9.389$ ), followed by the on-campus group ( $\beta = 6.091$ ). It is noteworthy that familiarity of the food affected only the live at home group. As one point of importance increase, this group tended to consume roughly 3.5% more of healthy meals.

Though not associated with the fast food meal decision, exercise frequency was found to have relationship with the healthy meal consumption. A one time increase of physical activity per week was linked to a 0.422% increase in perceived healthy eating during the semester. Interestingly, gender affected the eating decision in a reversed trend to workout frequency. Female students reported 1.148 times less of weekly fast food meals than male students. There was, however, no considerable difference found in the percentage of perceived healthy meals throughout the semester based on gender. A similar pattern was found in the atheist/agnostic population. This group of students were found to consume fewer fast food meals than Christians ( $\beta = -0.989$ ). Race was also found to have an impact on dietary quality. When compared to Caucasian, African American ate 2.255 times more at the fast food settings per week. Similarly, African American, on average, consumed 11.390% less of perceived healthy meals during the semester compared to Caucasian. The mixed-race student group also reported 13.611% lower of perceived healthy eating throughout the semester than the Caucasian group.

## **Chapter V - Discussion, Conclusions, and Suggestions for Future Research**

### **Discussion**

While comparing within those who lived off-campus, individuals who lived on campus reported a higher number of weekly fast food meals than those who lived off-

campus. Within the living off-campus group, students who lived independently consumed less poor nutrition meals per week contracted to those who lived with family.

Furthermore, the overall low nutrition meal consumption classified by academic standing was parallel with that by living situation. Junior, Senior and Graduate are more likely to live off-campus, who also reported a lower consumption of fast food than Freshman and Sophomore. Roughly 74% of the on-campus residents in this study were freshmen (40.3%) and sophomores (34%). Approximately 92% of the off-campus residents were juniors (25.5%), seniors (40.8%) and graduates (25.9%). This distribution may due to the WKU Required Housing Policy that full-time first-year and second-year students who aged under 21 are mandatory to live on campus (WKU, 2017d).

In addition, under the WKU Required Meal Plan Policy, first-year students are required to enroll in one of the on-campus meal plans (WKU, 2017b). The on-campus meal plan that including the least meals is Weekly 10, which can be interpreted as two meals a day, five days a week (WKU, 2017c). All other full-time undergraduate students, regardless on-campus or off-campus residents, are enrolled in the \$75 Meal Plan Dollar Flex (MPD Flex). The unused MPD Flex balanced will roll from year to year. However, any remaining MPD Flex upon graduation will not be refunded (WKU, 2017b). The notable issue here is that WKU's meal plan includes fast food restaurants, which potentially explains why on-campus residents, on average, reported a higher frequency of fast food consumption (WKU, 2017a). Furthermore, it is not realistic to cook in the dorm, which possibly explain why the sophomores still consume more poor nutrition meals than the juniors, seniors, and graduates even the meal plan restriction loosens since the

second-year of college life. In short, students who live on-campus do not have much freedom in perceived healthy meal options.

On the other hand, the health promotion on campus may also play a role in influencing fast food eating. As the educational status moving forward, students keep receiving health knowledge, thus tend to consume fewer fast food meals. Also, the self-catering ability can increase as time goes by. Students may tend to prepare their meals on their own.

While living situation influenced the amount of fast food consumption, it does not appear to notably influence the reported percentage of perceived healthy meals consumed throughout the semester. The explanation may be that there is a general lack of understanding of what constitutes a healthy meal across all student levels, regardless of living situation. For instance, one may classify a meal as healthy if the food is not from any fast food settings. Female, in general, reported a lower consumption of fast food than male, which is consistent with the literature (LaCaille et al., 2011).

While no motivation factor mean score difference observed base on the housing condition differentiation, the dominated motivation factors are different between different subgroup of living status. Sensory appeal seemed to be the only temptation of fast food to students who lived with family. On the other hand, those who lived off-campus (but not with family) were negatively and positively affected by natural content and ethical concern, respectively, regarding the eating of poor nutrition diet. For the on-campus residents, natural content and familiarity motivated the group to a lower fast food meals consumption, while sensory appeal and ethical concerns positively directed the consumption of poor nutrition food. Such findings indicate that living situation is a

worthy noted factor that influencing dietary pattern. The dominating motivation factors differs based on the living status.

Natural content was a significant positive guide for perceived healthy meal eating regardless the residency. On the contrary, ethical concern tended to drag the positive motivation of the concern of natural ingredient across all students. The concern of convenience was also a barrier in perceived healthy dieting to students who lived independently, whereas this group interested in health benefit the most among the three residency subgroups, followed by the on-campus group. Meanwhile, those who lived with family was the only group that expressed the importance of familiarity when pondering a healthy meal. Such results enhance the inference that students from different living situation groups making food choices distinctively, thus stimulated by different motivation factors. That said, to improve the dietary quality of the on-campus residents, creating an environment that is easy for food preparing may increase the frequency of perceived healthy meal eating. Meanwhile, increasing the options of food with natural ingredients may decrease the eating frequency of fast food meals.

Female valued the motivators of convenience, sensory appeal, and mood more than male while making perceived healthy food choice. Such findings endorse the implication that the understanding of healthy meal is indefinite among the surveyed population. Female also considered more about the purpose of weight control while deciding the quality of diet, which is consistent with the literature (LaCaille et al., 2011). Substance use (tobacco and alcohol) was not associated with food decision. On the other hand, physical activity showed a slight positive relationship with the perceived healthy food percentage throughout the semester.

Smoking status and alcohol habits were analyzed as ordinal variables under the idea that never user, ever user, and current user may have different attitudes towards healthy diet. Nevertheless, one of the characteristics of linear regression is analyzing ordinal variable under the assumption that the relationship between the levels of variable is linear. This assumption is partially violated since the association of attitudes towards healthy eating between never user, ever user, and current user may not be linear. To assess the impact of this potential violation an unreported analysis was performed using smoking and alcohol consumption as dummy variables. Given that all the significant and non-significant variables remained the same, this research kept the ordinal variables.

### **Conclusion**

WKU campus is not a healthy dietary friendly environment. There is no concrete facility for self-catering and the compulsory meal plan participation including lots of fast food restaurants. Moreover, as the research results shown, the on-campus students do have a lower overall dietary quality than the other two subgroups. The consumption difference of fast food between on-campus residents and off-campus residents (but not with family) is more than three meals per week. Said differently, individuals who live on-campus gulp down 14% more poor nutrition meal every week than those who live independently. Such facts and findings suggest that students who live on-campus do not have proper access to healthy food.

Natural content and ethical concern are the only two motivation factors that can either increase the perceived healthy meal consumption or decrease the frequency of fast food meals across all the living situation groups. That said, by providing more food options with natural content in the on-campus food settings, the overall dietary quality of

students attending WKU may increase. Furthermore, findings also indicate that individuals encouraged by different motivation factors when it comes to food decision making given their living status. In other words, apart from generally increase the options of food with natural contents on campus, the intervention strategies should be further broken down by living situation, such as equipping catering facilities in dorms for the on-campus residents.

**Strengths.** The initial responses between age 18 and 25 were 527. The valid response rates of Model 1 and Model 2 were 80.27% (423 out of 527) and 81.59% (430 out of 527), respectively. This indicates that the design of the questionnaire is audience-orientated. Most of the participants were able to follow the instruction of the survey and were willing to answer the asked questions. Nine out of the ten subscales of the new developed motivation factor scale had good/acceptable internal consistency. Such levels of internal reliability suggest that the items in each subscale were measuring the same component, thus the score of the subscale can be trusted.

**Limitations.** The convenience sampling method has led to the selection bias, such as the unreasonable gender ratio at about 1:3.7, while the one of the entire WKU student population is approximately 1:1.3 (WKU, 2016). As such, the findings of this research have a low external validity. Socializing factor was not significant in either of the models, which was not consistent with the literature. Although the internal reliability of socializing factor was in the range of good consistency (Table 3), the original motivation scales were designed for adults. They may not be valid for young adults. Model 1, number of fast food meals per week, is more likely to have significant results. It could be that the definition of “healthy food” varies between individuals. Due to the fact that

meals per week eat with family is extremely skewed, it was excepted from the analysis (Table 1). In addition, owing to the fact that the observed responses underrepresented the subpopulation (less than 5%), four variables were ousted from the analysis in both models. The four variables were enrollment status (18 part-time student vs 507 full-time students), marital status (22 married vs 502 single/never married/widowed), whether has kid(s) under 18 (5 having kid(s) vs 521 having no kid), and whether is an international student (13 international students vs 509 domestic students) (Table 1).

### **Implication of this research**

Under the mandatory living and dining policy, it is the university's responsibility to ensure that students have proper access to healthy food. One potential solution can be increase the proportion of non-fast food restaurants. It can also be loosening the mandatory meal plan policy, such as providing meal plan option that including fewer meals.

For the dorm environment improvement, equipping proper kitchen facilities capacity such as refrigerator, food storage space and stove for the dorm residents is highly recommended. For the on-campus food options reform, adding a "heating area", an area furnished with microwaves, should be introduced. With such facility, students can carry their food in lunch box and reheat the food on-campus. The idea suits across all student levels, regardless their living status.

### **Future research**

Students who live independently (off-campus and not with family) consume less fast food than those who live on campus and those who live with their parents. Such results suggest that the dietary decision making of students living independently is



somehow different than those who live off-campus (but with family) and those who live on-campus. Although the results of academic standing support the finding of living status, there are other conditions that go forth with educational status.

In addition to living status, the health promotion implemented on campus may have influence along with the educational status. As the academic status moving forward, the more health knowledge the students gain, thus the average health awareness increases accordingly. Also, the coping ability to independent life may increase as time passed, thus students with the higher academic standing are more likely to have a better quality in dietary. Future studies can aim to investigate the magnitude of other factors that influence the food decision making.

## References

- American College Health Association. (2011). National Health Assessment. Retrieved from [http://www.acha-ncha.org/docs/ACHA-NCHA\\_IIC\\_Web\\_Survey\\_2011\\_SAMPLE.pdf](http://www.acha-ncha.org/docs/ACHA-NCHA_IIC_Web_Survey_2011_SAMPLE.pdf)
- Bagordo, F., Grassi, T., Serio, F., Idolo, A., & De Donno, A. (2013). Dietary habits and health among university students living at or away from home in southern Italy. *Journal of Food & Nutrition Research*, 52(3).
- Blichfeldt, B. S., & Gram, M. (2013). Lost in transition? Student food consumption. *Higher Education*, 65(3), 277-289.
- Brown, C. (2008). The information trail of the 'Freshman 15'—a systematic review of a health myth within the research and popular literature. *Health Information & Libraries Journal*, 25(1), 1-12.
- Centers for Disease Control and Prevention. (2014). Facts about Physical Activity. Retrieved from <https://www.cdc.gov/physicalactivity/data/facts.htm>
- Centers for Disease Control and Prevention. (2015a). Nutrition, Physical Activity and Obesity Data, Trends and Maps. Retrieved from [https://nccd.cdc.gov/NPAO\\_DTM/LocationSummary.aspx?statecode=94](https://nccd.cdc.gov/NPAO_DTM/LocationSummary.aspx?statecode=94)
- Centers for Disease Control and Prevention. (2015b). Physical Activity Basics. Retrieved from <https://www.cdc.gov/physicalactivity/basics/index.htm>
- Centers for Disease Control and Prevention. (2016a). Deaths: Leading Causes for 2014. Retrieved from [https://www.cdc.gov/nchs/data/nvsr/nvsr65/nvsr65\\_05.pdf](https://www.cdc.gov/nchs/data/nvsr/nvsr65/nvsr65_05.pdf)

- Centers for Disease Control and Prevention. (2016b). Youth and Tobacco Use. Retrieved from [http://www.cdc.gov/tobacco/data\\_statistics/fact\\_sheets/youth\\_data/tobacco\\_use/](http://www.cdc.gov/tobacco/data_statistics/fact_sheets/youth_data/tobacco_use/)
- Driskell, J. A., Schake, M. C., & Detter, H. A. (2008). Using nutrition labeling as a potential tool for changing eating habits of university dining hall patrons. *Journal of the American Dietetic Association*, 108(12), 2071-2076.
- El Ansari, W., Dibba, E., & Stock, C. (2014). Body image concerns: Levels, correlates and gender differences among students in the United Kingdom. *Central European journal of public health*, 22(2), 106.
- Forouzanfar, M. H., Alexander, L., Anderson, H. R., Bachman, V. F., Biryukov, S., Brauer, M., ... & Delwiche, K. (2015). Global, regional, and national comparative risk assessment of 79 behavioural, environmental and occupational, and metabolic risks or clusters of risks in 188 countries, 1990–2013: a systematic analysis for the Global Burden of Disease Study 2013. *The Lancet*, 386(10010), 2287-2323.
- Freedman, M. R. (2010). Gender, residence and ethnicity affect freshman BMI and dietary habits. *American Journal of Health Behavior*, 34(5), 513-524.
- Glanz, K., Rimer, B. K., & Viswanath, K. (Eds.). (2008). *Health behavior and health education: theory, research, and practice*. John Wiley & Sons.
- Golan, M., Hagay, N., & Tamir, S. (2014). Gender related differences in response to “in favor of myself” wellness program to enhance positive self & body image among adolescents. *PloS one*, 9(3), e91778.
- Graham, D. J., & Laska, M. N. (2012). Nutrition label use partially mediates the relationship between attitude toward healthy eating and overall dietary quality

- among college students. *Journal of the Academy of Nutrition and Dietetics*, 112(3), 414-418.
- Helfer, P., & Shultz, T. R. (2014). The effects of nutrition labeling on consumer food choice: a psychological experiment and computational model. *Annals of the New York Academy of Sciences*, 1331(1), 174-185.
- Keating, C., Stephens, J., Thomas, N., Castle, D. J., & Rossell, S. L. (2016). Gender differences in weight- related and non- weight- related appearance concerns in a community sample. *Australian Journal of Psychology*, 68(1), 11-19.
- Kelly, N. R., Mazzeo, S. E., & Bean, M. K. (2013). Systematic review of dietary interventions with college students: directions for future research and practice. *Journal of nutrition education and behavior*, 45(4), 304-313.
- Kerr, D. A., Pollard, C. M., Howat, P., Delp, E. J., Pickering, M., Kerr, K. R., ... & Boushey, C. J. (2012). Connecting Health and Technology (CHAT): protocol of a randomized controlled trial to improve nutrition behaviours using mobile devices and tailored text messaging in young adults. *BMC public health*, 12(1), 477.
- Kolodinsky, J., Harvey-Berino, J. R., Berlin, L., Johnson, R. K., & Reynolds, T. W. (2007). Knowledge of current dietary guidelines and food choice by college students: better eaters have higher knowledge of dietary guidance. *Journal of the American Dietetic Association*, 107(8), 1409-1413.
- ~~Köster, E. P. (2003). The psychology of food choice: some often encountered fallacies. *Food Quality and Preference*, 14(5), 359-373.~~
- Kremmyda, L. S., Papadaki, A., Hondros, G., Kapsokefalou, M., & Scott, J. A. (2008). Differentiating between the effect of rapid dietary acculturation and the effect of

living away from home for the first time, on the diets of Greek students studying in Glasgow. *Appetite*, 50(2), 455-463.

LaCaille, L. J., Dauner, K. N., Krambeer, R. J., & Pedersen, J. (2011). Psychosocial and environmental determinants of eating behaviors, physical activity, and weight change among college students: a qualitative analysis. *Journal of American College Health*, 59(6), 531-538.

Lipsky, L. M., Haynie, D. L., Liu, D., Chaurasia, A., Gee, B., Li, K., ... & Simons-Morton, B. (2015). Trajectories of eating behaviors in a nationally representative cohort of US adolescents during the transition to young adulthood. *International Journal of Behavioral Nutrition and Physical Activity*, 12(1), 1.

Mahdavi, A. M., Abdolahi, P., & Mahdavi, R. (2012). Knowledge, attitude and practice between medical and non-medical sciences students about food labeling. *Health promotion perspectives*, 2(2), 173.

Park, M. J., Mulye, T. P., Adams, S. H., Brindis, C. D., & Irwin, C. E. (2006). The health status of young adults in the United States. *Journal of Adolescent Health*, 39(3), 305-317.

Pendergast, F. J., Livingstone, K. M., Worsley, A., & McNaughton, S. A. (2016). Correlates of meal skipping in young adults: a systematic review. *International Journal of Behavioral Nutrition and Physical Activity*, 13(1), 125.

Phan, U. T., & Chambers, E. (2016). Motivations for choosing various food groups based on individual foods. *Appetite*, 105, 204-211.

- Racette, S. B., Deusinger, S. S., Strube, M. J., Highstein, G. R., & Deusinger, R. H. (2008). Changes in weight and health behaviors from freshman through senior year of college. *Journal of nutrition education and behavior*, 40(1), 39-42.
- Simmons, K., Connell, L. J., Ulrich, P., Skinner, H., Balasubramanian, M., & Gropper, S. (2011). Body Image and Body Satisfaction for College Freshmen: Investigation into the Fabled " Freshman 15". *International Journal of Health, Wellness & Society*, 1(1).
- Steptoe, A., Pollard, T. M., & Wardle, J. (1995). Development of a measure of the motives underlying the selection of food: the food choice questionnaire. *Appetite*, 25(3), 267-284.
- U.S. Department of Education. (2016). Characteristics of postsecondary students. Retrieved from [http://nces.ed.gov/programs/coe/indicator\\_csb.asp](http://nces.ed.gov/programs/coe/indicator_csb.asp)
- Vadeboncoeur, C., Foster, C., & Townsend, N. (2016). Freshman 15 in England: a longitudinal evaluation of first year university student's weight change. *BMC obesity*, 3(1), 45.
- Wengreen, H. J., & Moncur, C. (2009). Change in diet, physical activity, and body weight among young-adults during the transition from high school to college. *Nutrition journal*, 8(1), 32.
- Wilson, C. K., Matthews, J. I., Seabrook, J. A., & Dworatzek, P. D. (2017). Self-reported food skills of university students. *Appetite*, 108, 270-276.
- Western Kentucky University. (2016). Fact book 2016. Retrieved from [https://www.wku.edu/institutes/fact\\_book.php](https://www.wku.edu/institutes/fact_book.php)

- Western Kentucky University. (2017a). General Meal Plan Information. Retrieved from <https://www.wku.edu/wkurg/general.php>
- Western Kentucky University. (2017b). Required Housing Policy. Retrieved from <http://www.wku.edu/housing/apply/requirement-exemptions.php>
- Western Kentucky University. (2017a). Campus Restaurant Map. Retrieved from <http://www.wku.edu/housing/apply/requirement-exemptions.php>
- Western Kentucky University. (2017b). General meal plan information. Retrieved from <https://www.wku.edu/wkurg/general.php>
- Western Kentucky University. (2017c). On campus meal plans. Retrieved from <https://www.wku.edu/wkurg/oncampus.php>
- Western Kentucky University. (2017d). Required housing policy. Retrieved from <http://www.wku.edu/housing/apply/requirement-exemptions.php>
- World Heart Federation. (2016). Diet. Retrieved from <http://www.world-heart-federation.org/cardiovascular-health/cardiovascular-disease-risk-factors/diet/>

Appendix  
CAHM Survey





## INFORMED CONSENT DOCUMENT

**Project Title:** *Identifying the Motivating Factors Related to The Consumption of Healthy Foods Among College Students at Western Kentucky University*

**Investigator:** Yu-Hsuan Chen ([yu-hsuan.chen769@topper.wku.edu](mailto:yu-hsuan.chen769@topper.wku.edu)),  
*WKU Department of Public Health*

You are being asked to participate in a project conducted through Western Kentucky University. The University requires that you give your agreement to participate in this project.

**You must be 18 years old or older to participate in this research study.**

The investigator will explain to you in detail the purpose of the project, the procedures to be used, and the potential benefits and possible risks of participation. You may ask any questions you have to help you understand the project. A basic explanation of the project is written below. Please read this explanation and discuss with the researcher any questions you may have. You should keep a copy of this form for your records.

1. **Nature and Purpose of the Project:** *Existing research indicates that the transition to living independent is one of the major causes of unhealthy eating among college students. This study intends to assess the health behaviors of students at Western Kentucky University, and understand how living situation and motivation influences those health behaviors.*
2. **Explanation of Procedures:** *You will be asked a series of questions which constitute the degree of importance of each listed factor when they consider eating healthy food and general dietary behaviors. Additional questions measure mental status, the use of tobacco and alcohol, physical activity status, and demographic information. The total time required for completion is expected to be approximately 10-15 minutes.*
3. **Discomfort and Risks:** *If you are uncomfortable answering these questions, you have the ability to skip the question and continue to the next portion of the survey.*
4. **Benefits:** *Improved health behaviors developed during college years tend to carry over into life after completion of college. Those healthy behaviors will have a long-term benefit for the student population. After completing the survey, you will be given the opportunity to register to win one of four \$25 pre-paid Visa cards.*
5. **Confidentiality:** *The survey allows for a completely anonymous response. Upon completion of the survey, your responses will be saved on an external hard drive, which will not be connected to the internet.*

*In order to be able to contact the winners of the drawing, we will need to collect your email address. At the end of the survey, you will be directed to a second interface, where you will be asked to provide your first name and email address. This second interface is a completely separate survey, and is in no way linked to the responses in the questionnaire.*

6. **Refusal/Withdrawal:** *Refusal to participate in this study will have no effect on any future services you may be entitled to from the University. Anyone who agrees to participate in this study is free to withdraw from the study at any time with no penalty.*

*You understand also that it is not possible to identify all potential risks in an experimental procedure, and you believe that reasonable safeguards have been taken to minimize both the known and potential but unknown risks.*

***Your continued cooperation with the following research implies your consent.***

THIS PROJECT HAS BEEN REVIEWED AND APPROVED BY  
THE WESTERN KENTUCKY UNIVERSITY INSTITUTIONAL REVIEW BOARD  
Paul Mooney, Human Protections Administrator  
TELEPHONE: (270) 745-2129

Q41 Please read the above Informed Consent document, which was approved by the Western Kentucky University Institutional Review Board.<br><br>By clicking on 'Continue,' you are indicating that you have read the document and are aware of the potential risks associated with participating in the study. By clicking on 'Do Not Continue' you will be exited out of the survey.

- Continue
- Do Not Continue

Condition: Do Not Continue Is Selected. Skip To: End of Survey.

Q1 <div>When considering eating healthy foods, how important are the following?<br></div>

	Not at all important				Very important
Is easy to prepare	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Contains no additives	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is low in calories	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tastes good	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Contains natural ingredients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is not expensive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is low in fat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q2 When considering eating healthy foods, how important are the following?

	Not at all important				Very important
Is how I grew up	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is high in fiber and roughage	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is nutritious	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is easily available in shops and supermarkets	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is good value for money	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cheers me up	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Smells nice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q3 When considering eating healthy foods, how important are the following?

	Not at all important				Very important
Contains a lot of vitamins and minerals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Contains no artificial ingredients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Keeps me awake/alert	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Looks nice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Helps me relax	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is high in protein	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Takes no time to prepare	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q4 When considering eating healthy foods, how important are the following?

	Not at all important				Very important
Can be cooked very simply	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Helps me cope with stress	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Helps me control my weight	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Has a pleasant texture	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is packaged in an environmentally friendly way	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Comes from counties I approve of politically	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is like the food I ate when I was a child	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q5 When considering eating healthy foods, how important are the following?

	Not at all important				Very important
Keeps me healthy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is good for my skin/teeth/hair/nails etc	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Makes me feel good	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Has the country of origin clearly marked	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is what I used to eat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Helps me to cope with life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Can be bought in shops close to where I live or work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is cheap	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q6 When considering eating healthy foods, how important are the following?

	Not at all important				Very important
It allows me to spend time with other people	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It makes social gatherings more comfortable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It would be impolite not to eat it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I don't want to disappoint someone who is trying to make me happy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am supposed to eat it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is trendy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It makes me look good in front of others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Others like it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q7 During the semester, do you usually have **breakfast**?

- Yes
- No

Display This Question:

If During the semester, do you usually have breakfast? Yes Is Selected

Q8 During the semester, how many times per week do you eat breakfast at fast food settings, such as Chick-fil-A, SUBWAY, Papa John's, etc.?

- 0
- 1
- 2
- 3
- 4
- 5
- 6
- 7

Q9 During the semester, do you usually have lunch?

- Yes
- No

Display This Question:

If During the semester, do you usually have lunch? Yes Is Selected

Q10 During the semester, how many times per week do you eat lunch at fast food settings, such as Chick-fil-A, SUBWAY, Papa John's, etc.?

- 0
- 1
- 2
- 3
- 4
- 5
- 6
- 7

Q11 During the semester, do you usually have dinner?

- Yes
- No

Display This Question:

If During the semester, do you usually have dinner? Yes Is Selected

Q12 During the semester, how many times per week do you eat dinner at fast food settings, such as Chick-fil-A, SUBWAY, Papa John's, etc.?

- 0
- 1
- 2
- 3
- 4
- 5
- 6
- 7

Q13 During the semester, how many meals a week do you eat with the one you consider as your family?

- 0
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16
- 17
- 18
- 19
- 20
- 21

Q14 During the semester, how many of the meals would you describe as a healthy meal?

\_\_\_\_\_ Please drag the slider to show the percentage.



Q15 Over the **last 2 weeks**, how often have you been bothered by any of the following problems?

	Not at all	Several days	More than half the days	Nearly every day
Little interest or pleasure in doing things	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Feeling down, depressed, or hopeless	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Trouble falling or staying asleep, or sleeping too much	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Feeling tired or having little energy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Poor appetite or overeating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Feeling bad about yourself — or that you are a failure or have let yourself or your family down	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Trouble concentrating on things, such as reading the newspaper or watching television	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

<p>Moving or speaking so slowly that other people could have noticed? Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual</p> <p>Thoughts that you would be better off dead or of hurting yourself in some way</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q17 The following questions will ask about your use of tobacco and alcohol.

	Current user	Have used, but not in last 30 days	Never
Cigarettes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
E-cigarettes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tobacco from a water pipe (hookah)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Smokeless tobacco	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Alcohol (beer, wine, liquor)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q18 Within the last 30 days, on how many days did you use the following substance(s)?

	Please enter the days.
If Click to write the question text Cigarettes - Current user Is Selected	
Cigarettes	
If Click to write the question text E-cigarettes - Current user Is Selected	
E-cigarettes	
If Click to write the question text Tobacco from a water pipe (hookah) - Current user Is Selected	
Tobacco from a water pipe (hookah)	
If Click to write the question text Smokeless tobacco - Current user Is Selected	
Smokeless tobacco	
If Click to write the question text Alcohol (beer, wine, liquor) - Current user Is Selected	
Alcohol (beer, wine, liquor)	

Display This Question:

If The following questions will ask about your use of tobacco and alcohol. Cigarettes - Current user Is Selected

Q21 During the last 30 days, how many cigarettes did you smoke on a typical day when you smoked cigarettes (1 pack = 20 cigarettes)?

Display This Question:

If The following questions will ask about your use of tobacco and alcohol. Alcohol (beer, wine, liquor) - Current user Is Selected

Q58 One drink is equivalent to a 12-ounce beer, a 5-ounce glass of wine, or a drink with one shot of liquor. During the past 30 days, on the days when you drank, about how many drinks did you consume?  
 NOTE: A 40 ounce beer would count as 3 drinks, or a cocktail drink with 2 shots would count as 2 drinks.

Q30 Please give an answer for the average NUMBER OF DAYS you do the following activities every week.

	0	1	2	3	4	5	6	7
Aerobics e.g. Zumba	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cycling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Exercises with weights	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Floor exercises e.g. stretching, bending, keep fit or yoga	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jogging	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Martial arts, boxing or wrestling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Netball, volleyball or basketball	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Swimming	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Table tennis	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Team sports	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tennis/Badminton/Squash	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Walking for pleasure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q31 Please indicate your age (in years).

Q32 What is your academic standing?

- Freshman
- Sophomore
- Junior
- Senior
- Graduate

Q33 What is your enrollment status?

- Full-time student
- Part-time student

Q34 What's your gender?

- Male
- Female
- Non-binary/ third gender
- Prefer not to say

Q35 Do you identify as trans-gender?

- Yes
- No
- Prefer not to say

Q36 What is your marital status?

- Married
- Widowed
- Separated
- Divorced
- Single/Never married
- Prefer not to say

Q37 Do you have kid(s) under 18?

- Yes
- No
- Prefer not to say

Q38 Do you live with your parents/guardian, or parental figures?

- Yes
- No

Display This Question:

If Do you live with your parents/guardian, or parental figures? No Is Selected

Q39 Do you live on campus (ex. in dorms)?

- Yes
- No

Q40 Are you an international student?

- Yes
- No

Q41 Are you Hispanic?

- Yes
- No

Q42 Which race do you identify as?

- African American/Black
- Asian
- Caucasian
- American Indian
- Pacific Islander
- Mixed
- Other
- Prefer not to say

Q43 What is your religion?

- Atheist/agnostic
- Buddhist
- Catholic/Christian
- Hindu
- Jewish
- Muslim
- Other
- Prefer not to say

Q44 What is your preferred unit to measure your weight?

- lb
- kg

Display This Question:

If What is your preferred unit to measure your weight? lb Is Selected

Q45 Please record your weight (in lbs).

	Pleas enter the value in pounds
Click to write Statement 1	Pounds

Display This Question:

If What is your preferred unit to measure your weight? kg Is Selected

Q46 Please record your weight (in kgs).

	Pleas enter the value in kilograms
Weight	Kilograms

Q47 What is your preferred unit to measure your height?

- ft.
- cm

Display This Question:

If What is your preferred unit to measure your height? ft. Is Selected

Q48 Please record your height

	Please enter the value in feet and inches	
Height	Feet	Inches

Display This Question:

If What is your preferred unit to measure your height? cm Is Selected

Q49 Please record your height (in cm)

	Please enter the value in centimeters
Height	Centimeters

Q44 Thank you for taking the time to complete the survey and assisting in the completion of my thesis!  
If you would like to be entered to win one of four pre-paid Visa cards, please follow the link below. Upon clicking on the link, you will be asked to provide your first name and your email address. This data is being collected as a completely separate survey, and as such your email address will not be associated, in any way, with your responses.  
[https://wku.co1.qualtrics.com/SE/?SID=SV\\_0VyLUMFdQC7v9d3](https://wku.co1.qualtrics.com/SE/?SID=SV_0VyLUMFdQC7v9d3)