

# THE INTERSECTION OF FOOD ACCESS AND QUALITY OF LIFE AMONG COLLEGE OF AGRICULTURE STUDENTS: "I EAT LESS BECAUSE I DO NOT HAVE CONSISTENT ACCESS TO FOOD, AND THIS DECREASES MY QUALITY OF LIFE"



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## Abstract

Food access is a multidimensional issue that involves various factors such as accessibility, availability, affordability, and awareness. Inadequate access to food can significantly impact one's Quality of Life (QoL), especially for college students who face unique challenges. This qualitative study aimed to explore the influence of food access factors on the QoL of college students, with a specific focus on individuals in the College of Agriculture at Virginia Tech. The study revealed that some students were unaware of the available resources and programs. Furthermore, physical health, psychological health, social relationships, and environmental factors impacted food access and perceived QoL. The findings of this study provide valuable insights that can help inform initiatives to support college students experiencing food access problems and promote a more equitable food access system within higher education.

**Keywords:** Food Access, First-Generation Student, International Student, Rural, Urban, Quality of Life, Maslow Hierarchy of Need

Food access involves having adequate resources to obtain nutritious food, with definitions emphasizing access through income, transportation, and community resources (USAID, 1992; Agriculture and Economic Development Analysis Division, 2006; U.S. Department of Agriculture, Economic Research Service, n.d.). Food access has been defined as being a multidimensional concept (Rose et al., 2010) requiring a comprehensive understanding of terms such as accessibility, availability, affordability, and awareness (Cason & Boege, 2020; Ortiz et al., 2020; Wong et al., 2024). This study investigates these four dimensions from the perspective of college students, who face unique barriers that exacerbate their ability to obtain nutritious food.

## Accessibility

Accessibility refers to how easily individuals can obtain nutritious foods. Several barriers, including poverty, transportation challenges, high food prices, and structural issues, hinder accessibility (Baugus, 2020; Thrive: NRV Food Access Network, 2019). College students often contend with irregular schedules and limited transportation options, complicating their ability to access food resources

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(Sogari et al., 2018). In addition, systematic inequalities such as race, ethnicity, and institutional distrust further limit students' access to necessary food resources (Ilieva et al., 2019; Drexel University, 2018).

### Availability

Food availability pertains to sufficient quantities of nutritious food within a given environment. It can vary based on geographical and environmental factors (Mockshell & Villarino, 2019). Traditional frameworks, such as food deserts, describe areas with limited access to healthy food due to the scarcity of grocery stores. However, this definition often overlooks systemic issues such as social injustice, poverty, and cultural relevance (CDC, n.d.; Cooksey-Stowers et al., 2017; USDA & ERS, 2009). Additionally, food deserts—oversaturated with fast food and convenience stores—exacerbate the lack of healthy options (Cooksey-Stowers et al., 2017). To address these challenges, on-campus food pantries and mobile food banks have become increasingly common, providing essential resources to students facing food insecurity (Feeding America, n.d.).

### Affordability

Affordability refers to the relationship between food prices and an individual's financial resources (Cafer et al., 2018). College students frequently struggle with limited budgets and rising living costs, such as tuition, rent, and childcare expenses, which reduce their ability to purchase adequate food (Fernandez et al., 2019). Although meal plans and food scholarships can alleviate food insecurity, the high costs of these solutions often present additional financial burdens (Mathewson, 2017; Brnton et al., 2020). Consequently, as students increasingly take out loans or work multiple jobs to meet their basic needs, affordable food access remains a pressing concern.

### Awareness

Awareness of available food resources plays a role in addressing food insecurity among college students. Many students are unaware of existing programs, such as food pantries, emergency grants, and nutritional education services, which limit their ability to seek the support they need (Hagedorn-Hatfield et al., 2022). Effective communication about these resources, through orientations, syllabi, handbooks, and flyers, can enhance awareness and encourage students to utilize available services (Brnton et al., 2020). Furthermore, proper staff training and culturally competent leadership are essential to ensure that students receive accurate information and feel supported when accessing resources (Feeding America, 2021).

Understanding food access among college students requires a multifaceted approach considering the interconnected dimensions of accessibility, availability, affordability, and awareness. By addressing students' unique barriers, educational institutions can foster a supportive environment that promotes access to food and wellbeing. Figure 1 emphasizes each of these concepts

from the perspective of a college student. College students experience unique barriers, such as irregular schedules, limited transportation, and financial constraints, exacerbating their ability to obtain food.

Figure 1

*Multidimensional Outlook on Food Access*



## Theoretical Framework

In their recent study, Hagedorn-Hatfield et al. (2022) highlight the critical importance of a secure and stable food source for overall wellbeing. Access to sufficient and nutritious food is a fundamental physiological need, as recognized by Maslow's Hierarchy of Needs (MHoN). According to Maslow, individuals prioritize basic physiological needs such as food, safety, love, and esteem. When these needs are unmet, individuals tend to focus primarily on satisfying their hunger. By understanding the impact of food access on the Quality of Life (QoL) of college students, the MHoN provides a valuable framework for assessing the broader implications of food access

## Methodology

### Design

The research design of this study was qualitative. A total of 3356 students were surveyed to determine the impacts of food access on QoL. Eight open-ended questions were created and incorporated into a survey administered through QuestionPro. The questions included inquiries about student knowledge and perceptions of how accessibility, awareness, availability, and affordability of food affect students' QoL. The target population of students was in the College of Agriculture and Life Sciences (CALs) at Virginia Tech.

### Participants

The research participants consisted of full-time and part-time undergraduate and graduate students at Virginia Tech in CALs, with a sampling population of 3356. We chose the sampling population based on interest in studying food access and the impact on QoL of CALs students. The target age of the population was students above the age of 18 years. Students who were younger than 18 were omitted from the survey. The participants range from

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different levels of degree attainment in CALS, which are listed as certificates, associate's, bachelor's, master's, and doctorates (Virginia Tech. (n.d.).

### Data Collection

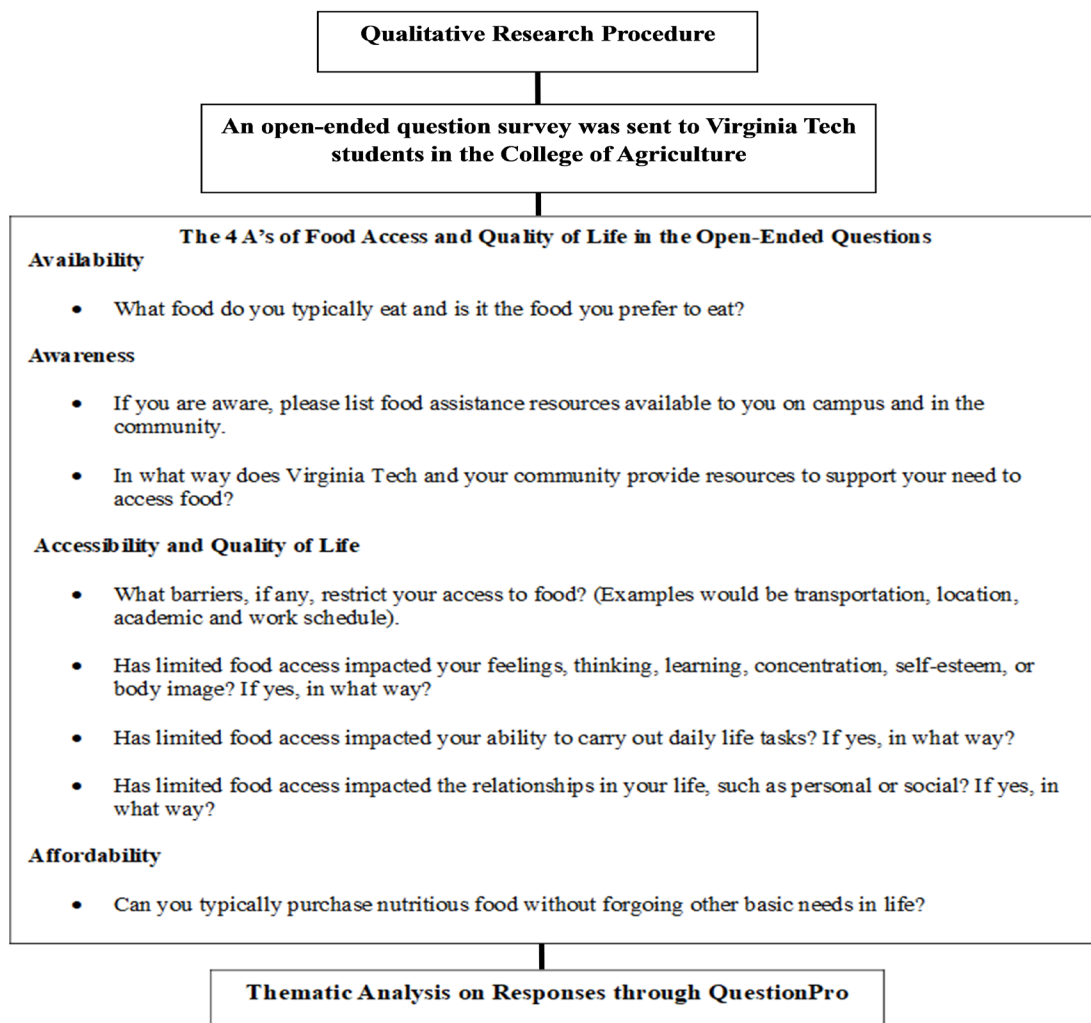
Data collection began during Fall 2022. The CALS student participants were sent information on completing the survey via QuestionPro to their Virginia Tech student emails. The survey took an estimated 15-20 minutes for the student to complete. The students were given three weeks to complete the survey. Each week, students were sent a reminder email instructing them on how to complete the survey through QuestionPro. In order to recruit participants for the survey, classes were visited in CALS to elicit student participation in the survey. The survey had text entry options for the open-ended questions relating to food access and its effects on QoL, as seen in Figure 2. We designed a flyer containing a QR code to provide access to the survey, and we distributed copies of the flyer featuring the same QR code. QuestionPro stored all completed surveys from students until the end of the data collection period.

### Data Analysis

Thematic analysis was used to understand better individuals' experiences, thoughts, and behaviors (Kiger & Varpio, 2020). QuestionPro filtered responses from the eight open-ended questions into themes. All interview questions and themes can be found in Appendices A through H. This process was completed using the text analysis feature to tag open-ended questions. The researcher applied Clark & Braun's (2017) six-step process consisting of familiarizing themselves with the data, generating initial codes, searching for themes, reviewing themes, defining, and naming themes, and producing the report when conducting thematic analysis. Once the open-ended questions were tagged and placed into themes, the researcher used Excel to create graphs and tables from the results.

Figure 2

Qualitative Procedure Diagram



### Results

Individuals invited to participate in the survey, 81.14% completed it, indicating a high level of engagement and commitment from the respondents. The survey reached a 24% response rate from the targeted population. The following sections offer a breakdown of the results categorized according to facets of food access (accessibility, awareness, availability, and affordability) and QoL.

#### Availability

In response to question #24 (*What food do you typically eat and is it the food you prefer to eat?*), 782 responses were collected. Students listed “easy meals, rice, and pasta” as the top three responses for what students typically eat or can access. The top factors that contributed to the lack of food or access to food were “limited options,” “cost,” and “no time,” reported as factors that inhibited the ability to eat preferred foods. In addition, students reported missing meals because of a lack of access to food.

Students' responses about their eating habits revealed a preference for quick, inexpensive, and convenient meals. One student highlighted this by saying “I typically eat one meal a day and it varies between ramen noodles, frozen meals, or quick meals that I can prepare.” Another student explained their compromises in graduate school, stating,

I've been eating more processed, convenient meals because cooking, cleaning, and shopping takes up so much time. Even with grab-and-go meals, getting quality items within my budget has been difficult, and I'm forced to compromise in some way. I prefer seasonal and locally produced foods.

In addition, common foods students mentioned included rice, pasta, ramen, and fast food. One student emphasized the reliance on affordable, filling foods: “Mostly starch (rice). It is what I can afford. Plus, it is bulky and fills me up for the day.” The lack of options for specific dietary needs or preferences was also a concern. A vegetarian student said, “Freezer vegetarian meals or, if I have time to cook, I make simple vegetarian meals. On campus, I eat at Dunkin or ABP because everywhere else takes too long or doesn't have vegetarian options.”

A student with celiac disease described the difficulties they face, explaining,

I typically eat animal protein and vegetables at lunch and dinner, and usually oatmeal, cereal, or toast for breakfast. It is not exactly what I would like to eat, but my on-campus food options are very limited. I am also not allowed to have a fridge larger than what the university provides, so I can't stock the kind of food I would like to eat in my small fridge.

These quotes highlight how cost, time, and dietary restrictions significantly shape students' food choices and accessibility.

### Awareness

Question #25 (*If you are aware, please list food assistance resources available to you on campus and in the community*) details the awareness on campus and in the community for students. Out of 681 responses, eleven themes were found. A total of 437 students reported not being aware of the resources available to them. The need to spread awareness of supported programs can play a huge role in supporting students facing food access worries.

Many students expressed a lack of awareness about available food resources. One student admitted, “I'm not exactly sure, I honestly didn't even know Virginia Tech offered many community resources for access to food.” Another showed interest in learning more, saying, “I am not sure of the specific types of support for access to food in the area, but I'd love to learn.” A transfer student mentioned, “Not aware of any, I'm a transfer student and I just dove right into classes and really haven't had time to even figure out any of that.”

The resources students were familiar with included “food banks, pantries, and SNAP.” Despite these options, access can be limited. For instance, The Market at Virginia Tech funding allows for only 115 spots for students dealing with food access concerns, highlighting the constraints of available support.

#### Accessibility and QoL (Environment)

A total of 743 responses were received for Question #26 (*What barriers, if any, restrict your access to food*), which uncovered seven distinct themes regarding barriers that impact food access. Among the primary obstacles reported by students, the foremost barrier was their “schedule,” followed by “academics” and their “job.” These responses provide valuable insights into how a student's demanding lifestyle can greatly affect their ability to access food. Students balancing academics and work face several challenges accessing food while in school. One student shared, “Some days I go straight from class to work and only have time to eat a few chips.” Another mentioned skipping meals due to work commitments, saying, “Money, and work. I am working two jobs currently, so lunch is a frequently skipped meal.” Transportation was also a significant hurdle. One student, lacking a car, said,

I don't have a car and despise carrying my groceries on the bus, so I usually go to the grocery store when one of my friends with a car is going. I also pay for groceries out of my own bank account, so that restricts how much I get/spend.

Another student, who commutes long distances, noted the difficulty accessing campus resources:

I have never used the food pantry at school because I take the bus from home. Once on campus, I stay within one region to minimize time spent walking. My bookbag is very heavy because I pack a lot for 10+ hours on campus.

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The challenges of managing a heavy workload can lead to skipped meals, particularly for those with back-to-back classes, underscoring the impact of time constraints on food access.

### Affordability

Question #27 (Can you typically purchase nutritious food without forgoing *other basic needs in life*) had a total of 781 responses. Most students responded with “yes, I can,” while listed “sometimes.” A small number of responses were listed as “no, I can’t” to foregoing other basic needs for nutritious foods. Students described the difficulty of balancing food costs with other financial obligations, often compromising quality or skipping meals. One student expressed frustration, saying, “I cannot purchase quality food because they are very expensive. I have to compromise with the quality.” Financial strain led another to prioritize food at the expense of other responsibilities:

I usually prioritize my food costs over other important financial obligations. I'm often late on bills, but I always make sure I eat in some way. But sometimes other priorities are more urgent, so I have to readjust my normal food schedule or quality.

Even this balance was challenging for some, with one student admitting, “I cannot afford food without stressing about affording rent.” Another mentioned, “Sometimes, I do not buy any groceries at all because I need money for other things.” International students faced additional challenges, as one shared, “No. Rent and health insurance consume all I earn. It is worse for international students with families who depend entirely on one source of income.” The rising costs of housing and food have further complicated these struggles. Housing expenditures increased by 4.7% in 2023 after a 7.4% rise in 2022, while food spending grew by 6.9% following a 12.7% increase in the previous year (Bureau of Labor Statistics, 2024). This financial pressure has forced students to make difficult choices between necessities like rent and food, often opting for quantity over quality when they have money for groceries. International students face additional obstacles due to visa restrictions limiting work opportunities.

### Accessibility and QoL (Physical Health)

The next question, #28 (*Has limited food access impacted your ability to carry out daily life tasks*), explored how limited food impacts one’s ability to carry out daily life tasks with 769 responses. A majority of students did not have their daily lives impacted by food access. For the ones that stated having been impacted, “mental health” and “physical health” affected QoL. Students described the physical and mental toll of insufficient food access on their daily lives. One student shared, “I feel extremely tired most days, especially when I haven’t eaten enough that day, and it is hard to get through classes, work, and then homework at the end of the night.” Another, unable to afford food on campus, relied on vending machines, explaining, “I either have to starve or eat via the vending machine, and even if

I did stay on campus while hungry, I am not as well able to do my work.”

The lack of nourishing food affected students' focus and energy levels. One said,

I often feel like I'm running on fumes when I haven't eaten something nourishing. Depending on my commute, I worry about falling faint when I'm operating on limited sleep and food. I even feel impacted by my ability to focus on class or work.

Another student spoke of extreme hunger causing nausea, stating, “If I'm hungry enough, I can't even eat to fix it because it makes me nauseous.” Research supports that inadequate food access can severely impact students' physical and mental health (Hanmer et al., 2021; Payne-Sturges et al., 2018; WHO, 2012). Students need proper nourishment to improve their concentration, energy, and overall well-being, making it challenging to manage daily responsibilities effectively.

### Food Access and Psychological Health

In question #29 (*Has limited food access impacted your feelings, thinking, learning, concentration, self-esteem, or body image*), students were asked how limited access to food has impacted their feelings, thinking, learning, concentration, self-esteem, or body image. A total of 763 students responded, and eight themes were identified from feedback. Of the respondents, 496 selected “No,” while “Yes” was indicated by 270 students. “Feelings,” “body image,” and “concentration” were listed as ways food access had impacted QoL. Students reported that food access issues significantly impacted their psychological health. One student said, “Yes, it has increased the effect of my depression, concentration is harder, and I have a lower self-esteem.” Another expressed anxiety, stating,

Food access has impacted my feelings because I feel anxious thinking about if I will be able to afford to buy the groceries I need and still afford rent. It impacts my thinking/learning/concentration because I frequently feel hungry, which distracts me from being able to focus in class.

One student described how hunger took a toll on their focus, sharing, “Yes, body image and concentration in the sense of focusing on hunger pains instead of work/class.” Another mentioned constant stress about finances, saying, “I'm constantly stressed about money and being able to afford being alive.”

Stress and worry about food insecurity were shown to affect students' psychological well-being, with repercussions for their academic performance. Lack of access to nutritious food was linked to difficulties in concentration, learning, and thinking while also negatively impacting body image, self-esteem, and overall emotional health.

### Food Access and Social Relationships

After analyzing question #30 (*Has limited food access impacted the relationships in your life, such as personal or social*), four distinct themes emerged. Out of the 758 responses received, 655 respondents selected “No”. In

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addition, students indicated that food access impacted their relationships; of those 98 students, 80 reported social relationship issues. Students opened up about the impact of food access on their social relationships, revealing how the struggle for reliable meals created rifts and challenges in their connections with others. One student noted,

Sometimes yes because money is required for some social events, and I have difficulty justifying spending money on a social gathering that I might need for everyday food. Not going to these events, however, makes my social life feel nonexistent.

Another described the toll on personal relationships: "It has put a HUGE strain on my marriage because we argue over what we can afford to buy for dinner."

The stigma around food insecurity made some students reluctant to share their struggles. One said, "It's awkward and hard to talk about even with peers. I don't want to hang out with friends because I don't want to make someone else feel awkward if I can't afford food, or offer food when hosting." Another mentioned hiding their situation: "I often lie about my financial and food status. I pretend everything is okay most of the time when it's not. I go without real food for a week until I can afford something."

Social interactions are important to students, but financial constraints often prevent participation in friend outings or hosting events. This leads to feelings of isolation, embarrassment, and anxiety, making it difficult to maintain relationships when struggling with food insecurity.

### Awareness

In the concluding question, question #31 (*In what way does Virginia Tech and your community provide resources to support your need to access food*), students were prompted to share their insights into how they perceive Virginia Tech and their community supporting their access to food. There were 691 responses, with students listing being unaware of resources as the top response. Students listed as being aware of most were the dining halls on campus because of easy access to them. Like in question #24, unawareness was a common theme in question #31. Students often voiced a lack of awareness or difficulty accessing food resources. One said, "Not aware of any ways currently. I really just show up, study, go home. I need to look more into these options." Another reflected on the financial strain of being a college student, explaining,

I don't know. Honestly, if my off-campus living was cheaper things would be substantially easier. College students do not have a lot of money... People from low-income areas or are first-generation students will have a harder time and need to find external funding (part-time jobs) to support their daily needs.

Access barriers were a common issue, with one student sharing,

I know there are some resources out there, but they are often offered at inconvenient times... Once, I asked about a program, vouchers for food, and they had already handed out all of them. At the same time, I don't ask because it's embarrassing, and I don't want to answer a bunch of invasive questions.

While some students did not seek out resources because they felt they didn't need them, others wanted to know what support was available, highlighting the challenge of navigating resources effectively amidst financial pressures.

## Discussion

### Availability: What Do I Have to Eat?

College students may have access to food, but is the food they have access to what they would prefer to eat? According to this study, most students in the CALS program at Virginia Tech are eating the foods they prefer. However, those experiencing food access problems are not eating what they may prefer or their ideal choice of food. The ongoing rhetoric for college students is surviving an inexpensive food diet. However, this should not be the standard nor the expectation. This is especially important because a student facing food insecurity will likely be less academically successful and have poorer psychological health (Raskind et al., 2019).

### Awareness: What do students know?

A high number of students indicated unawareness of available resources and programs for accessing food, with 437 students responding to question #25 and 344 to question #31. This is important because a previous study by Hall et al. (2019) found that 29% of undergraduate and 35% of graduate students had low or very low food insecurity at Virginia Tech. The need to spread awareness of supported programs can greatly support students facing food access concerns. Students will often only be aware of what is available if the resources are marketed and provided.

Spreading information can help build awareness on campus. Virginia Tech does have programs and resources like emergency grants through the Dean of Students, The Market at Virginia Tech, Campus Kitchen, and 209 Marketplace, whereas the surrounding community has the Interfaith Food Pantry and The NRV Food Assistance Directory, which connects people who need food assistance with 53 programs across Virginia.

### Affordability: Food or Rent?

Today's students face high tuition prices and struggle to purchase basic needs while in school (Lillis & Tian, 2008; The Hope Center for College, Community, and Justice, 2021). Tuition and expenses have shown to continue to increase over the years. For many students, the high cost of living and increasing tuition have resulted in a need to prioritize finances. As a result, some students are forced to make hard choices and struggle to afford necessities such as rent and food.

## Accessibility and QoL

The relationship between food access and QoL has been studied and proven to correlate with each other (Hanmer et al., 2021; Sok et al., 2018). As Maslow (1943) emphasizes, a person lacking food would prioritize accessing or obtaining food above all else. A student who is experiencing food access concerns will struggle to focus and succeed in a classroom if their basic need is unmet.

A person's physical health can be negatively impacted if they are not consuming enough food to complete daily life tasks (Hagedorn-Hatfield et al., 2022; Payne-Sturges et al., 2018; WHO, 2012). A college student needs access to nutritious food to perform well academically; otherwise, how can they have the energy to concentrate or study in class? Access to healthy food is important for college students' physical and mental well-being. Becerra & Becerra (2020) conducted a study that lacking food caused psychological distress. Martinez et al. (2020) stress that addressing low access to food may improve both mental health and academic performance. The responses from students show that attention needs to be paid to how food access impacts their psychological health.

One area of QoL and food access that has not been often explored is how social relationships are affected. As Cutrona and Russell (1987) stated, "Friends can be good medicine." The inability of a student to socialize with friends due to a lack of food or funds to purchase food raises questions about the potential impact on social relationships. Higher education promotes social relationships with students, creating a sense of belonging and improving retention rates (Meehan & Howells, 2019; O'Keeffe, 2013). However, as detailed by students, if they are financially unable to purchase or provide food, they will not hang out with friends. Some students avoided socializing with friends and made excuses to avoid shame, which led to a diminished social life. In addition, one student expressed challenges in their marriage due to their inability to engage in social activities due to lack of funds.

Environmental factors, such as transportation, residential location, and proximity of food resources, can influence food access for students (Gerritsen et al., 2019). College students have lives that involve many competing obligations and interests for their time. In an academic setting, students frequently need to prioritize their role as students, relegating other aspects of their lives. The responses showed how a student's demanding lifestyle can affect their overall access to food. In addition to academic and work schedules, students discussed the environment and transportation barriers to accessing food. Not having access to a car has been shown to tremendously impact food access for people (Baugus, 2020). As a result of inadequate access to transportation, many students face significant challenges when it comes to acquiring sufficient food for themselves.

## Conclusion

This study explores the complex factors affecting food access for college students today. It examined key dimensions such as availability, awareness, affordability, and accessibility and their correlation with QoL. The findings emphasize the multifaceted nature of food access challenges faced by college students, highlighting the need for approaches to support issues students face that impact well-being and academic success. The research revealed that inadequate food access could lead to physical challenges such as fatigue, low energy levels, fainting episodes, and nausea. Furthermore, students' psychological well-being can be compromised, affecting their self-esteem, concentration, stress, anxiety, depression, and body image. Social relationships are also negatively impacted, as students may choose to miss social events due to financial constraints related to food access.

As MHoN demonstrated, food is an essential life necessity, and students can only achieve self-actualization when their nutritional needs are met. While higher education institutions acknowledge the issue of student hunger, a more equitable perspective on food access is crucial. Recognizing the importance of addressing these challenges is essential for promoting college students' overall well-being and academic success. Future interventions and policies should prioritize ensuring equitable access to food resources for students, recognizing nutrition's integral role in their development within the academic environment.

## References

- Alt, R. J. (2008). *Obesity and spatial context in Appalachia*. <https://doi.org/10.33915/etd.882>
- Ansorger, J. (2021). An Analysis of Education Reforms and Assessment in the Core Subjects Using an Adapted Maslow's Hierarchy: Pre and Post COVID-19. *Educ. Sci. (11)* 376. <https://doi.org/10.3390/educsci11080376>
- Baugus, K. E. (2020). Food insecurity, inadequate childcare, & transportation disadvantage: student retention and persistence of community college students. *Community College Journal of Research and Practice, 44*(8), 608–622. <https://doi.org/10.1080/10668926.2019.1627956>
- Bureau of Labor Statistics. (2024). *Consumer expenditures in 2023 (Economic News Release)*. U.S. Department of Labor. <https://www.bls.gov/news.release/pdf/cesan.pdf>
- Cason, J., & Boege, S. (2020). *The Intersection of Food Availability, Access, & Affordability with Food Security and Health*. University of New Hampshire. School of Public Policy. Retrieved June 29, 2022, from [https://nhchildrenshealthfoundation.org/assets/2021/02/Carsey\\_Food-InsecurityLiterature-Review\\_Final\\_121720.pdf](https://nhchildrenshealthfoundation.org/assets/2021/02/Carsey_Food-InsecurityLiterature-Review_Final_121720.pdf)
- Clarke, V., & Braun, V. (2017). Thematic analysis. *The journal of positive psychology, 12*(3), 297–298.

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- Coleman-Jensen, A., Rabbitt, M. P., Gregory, C.A., & Singh, A. (2021). *Household Food Security in the United States in 2020, ERR-298, U.S. Department of Agriculture, Economic Research Service.*
- Costigan, M. (2020). *The True Meaning of Food Access.* Sustainable Food Center. Retrieved June 28, 2022, from <https://sustainablefoodcenter.org/latest/blog/the-true-meaning-offood-access>
- Cutrona, C. E., & Russell, D. W. (1987). The provisions of social relationships and adaptation to stress. *Advances in personal relationships, 1*(1), 37-67.
- Davis, H., Sisson, S. B., & Clifton, S. (2021). A call for evidence to support food security interventions on college campuses. *Journal of American College Health, 69*(6), 693–695. <https://doi.org/10.1080/07448481.2019.1705829>
- Dhillon, J., Diaz Rios, L. K., Aldaz, K. J., De La Cruz, N., Vu, E., Asad Asghar, S., Kuse, Q., & Ortiz, R. M. (2019). We don't have a lot of healthy options: food environment perceptions of first-year, minority college students attending a food desert campus. *Nutrients, 11*(4). <https://doi.org/10.3390/nu11040816>
- Engelman, A., & Kushalnagar, P. (2021). Food Insecurity, Chronic Disease and Quality of Life among Deaf Adults who use American Sign Language. *Journal of hunger & environmental nutrition, 16*(2), 271–280. <https://doi.org/10.1080/19320248.2019.1699220>
- Frongillo, E., Nguyen H., Smith M., Coleman-Jensen A. (2017). Food Insecurity Is Associated with Subjective Wellbeing among Individuals from 138 Countries in the 2014 Gallup World Poll. *J Nutr. 147*(4) :680-687. doi: <https://doi.org/10.3945/jn.116.243642>
- Gutiérrez, J., Benna, N., Fernandez, K., Shanahan, A., & Cruz, D. (2013). A Correlational Investigation of the Relationships Among Nutrition-Related Attitudes and Behavior, Body Mass, and Learning and Verbal Memory Performance in College Students. *The New School psychology bulletin, 10*, 37-43.
- Hagedorn-Hatfield, R. L., Hood, L. B., & Hege, A. (2022). A Decade of College Student Hunger: What We Know and Where We Need to Go. *Frontiers in public health, 10*, 837724. <https://doi.org/10.3389/fpubh.2022.837724>
- Hall, R.P., S. Ranganathan, J. Agnew, M.E. Christie, S. Clark, G. Kirk, C. Lucero, & T. Archibald. (2019). *Virginia Tech Food Access and Security Study.* Virginia Tech, Blacksburg.
- Haraldstad, K., Rohde, G. E., Helseth, S., Wahl, A., Andersen, M. H., Borge, C. R., Engebretsen, E., Larsen, M. H., Andenaes, R., Halvorsrud, L., Loyland, B., Kvarme, L. G., Ribu, L., Andersen, J. R., Beisland, E., Haugstvedt, A., Johansen, V. A., Eisemann, M., Hanssen, T. A., Haugstvedt, A., Haugland, T., Johansen, V.A., Larsen, M.H., Løvereide, L., Løyland, B., Kvarme, L.G., Moons, P., Norekva, T.M., Ribu, L., Rohde, G.E. (2019). *A systematic review of quality of life research in medicine and health sciences.* Quality of Life Research, (2019). <https://doi.org/10.1007/s11136-019-02214-9>
- Hanmer, J., DeWalt, D. A., & Berkowitz, S. A. (2021). Association between food insecurity and health-related quality of life: a nationally representative survey. *Journal of General Internal Medicine, 36*(6), 1638–1647. <https://doi.org/10.1007/s11606-020-06492-9>
- Lillis, M. P., & Tian, R. G. (2008). The impact of cost on college choice: beyond the means of the economically disadvantaged. *Journal of College Admission, 200*(200), 4–14.
- Kiger, M. E., & Varpio, L. (2020). Thematic analysis of qualitative data: AMEE Guide No. 131. *Medical teacher, 42*(8), 846-854.
- Maslow, A.H. (1943). A Theory of Human Motivation. *Psychol. Rev. (50)* 370–396
- Martinez, S. M., Frongillo, E. A., Leung, C., & Ritchie, L. (2020). No food for thought: Food insecurity is related to poor mental health and lower academic performance among students in California's public university system. *Journal of Health Psychology, 25*(12), 1930–1939. <https://doi.org/10.1177/1359105318783028>
- Meehan, C., & Howells, K. (2019). In search of the feeling of 'belonging' in higher education: undergraduate students transition into higher education. *Journal of Further and Higher Education, 43*(10), 1376–390.
- Mozaffarian, D., Fleischhacker, S., & Andrés, J. R. (2021). Prioritizing nutrition security in the us. *Jama, 325*(16), 1605–1605. <https://doi.org/10.1001/jama.2021.1915>
- O'Keeffe, P. (2013). A sense of belonging: improving student retention. *College Student Journal, 47*(4), 605–613.
- Ortiz, F., Ortiz Flores, S., Rodriguez Cruz, E., Kaur, B., Hlubik, K., & Diaz Rios, L. K. (2020). *Food resource awareness and information sharing among college students at high risk of food insecurity.* University of California, Merced. [https://doi.org/10.1093/cdn/nzaa043\\_109](https://doi.org/10.1093/cdn/nzaa043_109)
- Payne-Sturges, D. C., Tjaden, A., Caldeira, K. M., Vincent, K. B., & Arria, A. M. (2018). Student hunger on campus: food insecurity among college students and implications for academic institutions. *American Journal of Health Promotion, 32*(2), 349–354. <https://doi.org/10.1177/0890117117719620>

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Rose, D., Bodor, J. N., Hutchinson, P. L., & Swalm, C. M. (2010). *The importance of a multi-dimensional approach for studying the links between food access and consumption*. Tulane University School of Public Health and Tropical Medicine. <https://doi.org/10.3945/jn.109.113159>

Sok, P., Gardner, S., Bekele, T., Globerman, J., Seeman, M. V., Greene, S., Sobota, M., Koornstra, J. J., Monette, L. V., Hambly, K., Hwang, S. W., Watson, J., Walker, G., & Rourke, S. B. (2018). Unmet basic needs negatively affect health-related quality of life in people aging with HIV: results from the positive spaces, healthy places study. *Bmc Public Health*, 18(1). <https://doi.org/10.1186/s12889-018-5391-z>

The Food and Agriculture Organization of the United Nations. (2003). *Trade Reforms and Food Security: Conceptualizing the Linkages*. Food and Agriculture Organization of the United Nations; Rome, Italy. p. 313.

The Hope Center for College, Community, and Justice. (2021). *#RealCollege 2021: Basic Needs Insecurity During the Ongoing Pandemic*. Philadelphia, PA.

Usher, K. M. (2015). Valuing all knowledge through an expanded definition of access. *Journal of Agriculture, Food Systems, and Community Development*. Advanced online publication. <http://dx.doi.org/10.5304/jafscd.2015.054.018>

Virginia Tech. (n.d.). *We are VT CALS*. College of Agriculture and Life Sciences (CALS). Retrieved July 26, 2022, from <https://www.cals.vt.edu/academic-programs/current.html>

Wong, Y. K., Ibrahim, R., Sulaiman, N., & Chwen, L. T. (2024). Securing survivability for urban poor: A review on food accessibility and food affordability. *International Journal of Advanced Research in Economics and Finance*, 6(3), 135-148. DOI: <https://doi.org/10.55057/ijaref.2024.6.3.10>

World Health Organization. (2012). *Programme on Mental Health*. WHOQoL User Manual. Retrieved August 31, 2022, from <https://apps.who.int/iris/handle/10665/77932>

World Health Organization. (1947). *The constitution of the World Health Organization*. WHO Chron. 1-29.

Appendices

Appendix A: Question #24 Summary

Question	Total Number of Responses	Themes	Example Response
<p>24. What food do you typically eat and is it the food you prefer to eat?</p>	<p>782</p>	<ol style="list-style-type: none"> <li>1. Preferred to Eat</li> <li>2. Not Preferred to Eat</li> <li>3. Not Ideal Choices</li> <li>4. Easy Meals</li> <li>5. Skipped Meals</li> <li>6. Limited Options</li> <li>7. Cost</li> <li>8. No Time</li> <li>9. Ramen</li> <li>10. Pasta</li> <li>11. Fast Food</li> <li>12. Rice</li> </ol>	<ol style="list-style-type: none"> <li>1. Japanese, Chinese, southern, etc. those are some of satisfying food I prefer to eat.</li> <li>2. Rice and spaghetti. These foods are not what I typically prefer to eat.</li> <li>3. Cheaper food microwaved things I'd like more healthy food.</li> <li>4. Since being at college, I eat a lot of packaged, easy food. It has been difficult for me to eat a healthy variety of fruits, vegetables, and proteins. I have noticed a huge decrease in energy and major digestive and bloating issues. I believe it to be related to my poor diet.</li> <li>5. I typically eat 1 meal per day and maybe a snack. It's usually something consisting of rice or pasta and maybe frozen meat or eggs or some vegetables. I get tired of eating the same food all of the time to the point where I get disgusted by some things and have no desire to eat them anymore, so no, usually I don't prefer what I'm eating.</li> <li>6. Eating at Virginia Tech is difficult for me because it's hard to find healthy options that aren't bad or have an incredibly long wait. So, I usually get unhealthy food which has gotten very old.</li> <li>7. I typically buy groceries but Aldi as it is a cheaper store, so the quality of food isn't always the best because we usually buy the cheapest option, but I make about half of my meals and the other half I eat on campus.</li> <li>8. Usually, some sort of homemade meal prep. It's fine for now because I don't have time to cook every day.</li> <li>9. I typically eat one meal a day and it varies between ramen noodles, frozen meals, or quick meals that I can prepare.</li> <li>10. Pasta because it's cheap and easy. I would prefer to eat chicken, vegetables, and rice (well-balanced meal).</li> <li>11. Typically eat fast food. Not really.</li> <li>12. I typically eat rice based food with vegetables &amp; eggs and bread. However, I prefer to eat rice with meat that I can't afford sometimes.</li> </ol>

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## Appendix B: Question #25 Summary

Question	Total Number of Responses	Themes	Example Response
25. If you are aware, please list food assistance resources available to you on campus and in the community.	681	<ol style="list-style-type: none"> <li>1. Not Aware</li> <li>2. SNAP</li> <li>3. Food Bank and Food Pantry</li> <li>4. Nutrition Counseling</li> <li>5. Emergency Grant</li> <li>6. Food Drive</li> <li>7. Donating Dining Money</li> <li>8. The Market at Virginia Tech</li> <li>9. Campus Kitchen</li> <li>10. Dining Halls</li> <li>11. 209 Market</li> </ol>	<ol style="list-style-type: none"> <li>1. I am not aware of any resources.</li> <li>2. SNAP</li> <li>3. I know that there are food banks and on campus food assistance programs but have not had to utilize them.</li> <li>4. I think there are dietitians in McComas.</li> <li>5. Talking to the dean</li> <li>6. Occasional food donation drives.</li> <li>7. The only thing I'm aware of is emergency money for dining plan.</li> <li>8. The Market at Virginia Tech</li> <li>9. The Campus Kitchen.</li> <li>10. Dining halls.</li> <li>11. I just learned about 209 marketplace.</li> </ol>

## Appendix C: Question #26 Summary

Question	Total Number of Responses	Themes	Example Response
26. What barriers, if any, restrict your access to food? (Examples would be transportation, location, academic and work schedule)	743	<ol style="list-style-type: none"> <li>1. Money</li> <li>2. Academics</li> <li>3. Location</li> <li>4. Schedule</li> <li>5. Job</li> <li>6. Transportation</li> <li>7. No Barriers</li> <li>8. Limited Options</li> <li>9. Health</li> </ol>	<ol style="list-style-type: none"> <li>1. I have the smallest dining plan so I try to make it stretch as much as I can to save money.</li> <li>2. I usually put studying above my meals.</li> <li>3. Location of living is far from dining halls.</li> <li>4. Schedule.</li> <li>5. Sometimes I have to work through lunch.</li> <li>6. Transportation.</li> <li>7. No physical barriers.</li> <li>8. I really like to eat, so I don't let too much get in my way of accessing food.</li> <li>9. I have an anaphylactic milk allergy. All dairy items and items with milk are off limits.</li> </ol>

## Appendix D: Question #27 Summary

Question	Total Number of Responses	Themes	Example Response
27. Can you typically purchase nutritious food without forgoing other basic needs in life?	781	<ol style="list-style-type: none"> <li>1. Yes, I Can</li> <li>2. No, I Can't</li> <li>3. Sometimes</li> </ol>	<ol style="list-style-type: none"> <li>1. I normally get nutritious foods at the store but still allow myself to eat the foods I want.</li> <li>2. NO, I run at zero balances every month and hence I purchase what can get me through the month.</li> <li>3. I usually prioritize my food costs over other important financial obligations. I'm often late on bills but I always make sure I eat in some way. But sometimes other priorities are more urgent so I have to readjust my normal food schedule or quality. Sometimes I'll skip meals or make a quick non-filling, non-nourishing meal just to.</li> </ol>

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## Appendix E: Question #28 Summary

Question	Total Number of Responses	Themes	Example Response
28. Has limited food access impacted your ability to carry out daily life tasks? If yes, in what way?	769	<ol style="list-style-type: none"> <li>1. No</li> <li>2. Yes</li> <li>3. Sometimes</li> <li>4. Mental Health</li> <li>5. Physical Health</li> </ol>	<ol style="list-style-type: none"> <li>1. No, I feel as though I am able to carry out daily life tasks.</li> <li>2. Yes, because usually I eat Asian food from home and coming to college has been a huge transition change that has been hard on me and my stomach.</li> <li>3. Sometimes, I can be very hungry, but not have food available to consume causing lethargy and hunger pain.</li> <li>4. Yes I get depressed when I don't eat.</li> <li>5. Yes, it lowers my energy level</li> </ol>

## Appendix F: Question #29 Summary

Question	Total Number of Responses	Themes	Example Response
29. Has limited food access impacted your feelings, thinking, learning, concentration, self-esteem, or body image? If yes, in what way?	763	<ol style="list-style-type: none"> <li>1. No</li> <li>2. Yes</li> <li>3. Feelings</li> <li>4. Thinking</li> <li>5. Learning</li> <li>6. Concentration</li> <li>7. Self-Esteem</li> <li>8. Body Image</li> </ol>	<ol style="list-style-type: none"> <li>1. No</li> <li>2. Yes, it can hurt my stomach and make me become upset.</li> <li>3. Yes. My feeling is impacted.</li> <li>4. Yes slows my thinking down.</li> <li>5. Yes learning.</li> <li>6. Yes, it will influence concentration.</li> <li>7. Yes. There's not a lot of healthy food options here that taste good. So, I either eat junk food or nothing. This has been causing me to have bad acne, which makes me scared to show my face.</li> <li>8. At times, I feel the only food that is available is unhealthy. This has led to me having a very unhealthy relationship with how I view my body.</li> </ol>

## Appendix G: Question #30 Summary

Question	Total Number of Responses	Themes	Example Response
30. Has limited food access impacted the relationships in your life, such as personal or social? If yes, in what way?	758	<ol style="list-style-type: none"> <li>1. Yes</li> <li>2. No</li> <li>3. Personal</li> <li>4. Social</li> </ol>	<ol style="list-style-type: none"> <li>1. Yes, like not able to take friends or family to outside dinner.</li> <li>2. I don't think so.</li> <li>3. it has put a HUGE strain on my marriage because we argue over what we can afford to buy for dinner.</li> <li>4. Absolutely yes. When others are going to a restaurant or a bar, money is tight, and I don't go. But I am not going to tell them that I can't afford it.</li> </ol>

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**Appendix H: Question #31**

Question	Total Number of Responses	Themes	Example Response
<p>31. In what way does Virginia Tech and your community provide resources to support your need to access food?</p>	<p>691</p>	<ol style="list-style-type: none"> <li>1. Unaware</li> <li>2. Food Bank or Food Pantry</li> <li>3. Resource Suggestions</li> <li>4. Farmers Market</li> <li>5. The Market at Virginia Tech</li> <li>6. Graduate School</li> <li>7. Food Donations</li> <li>8. SNAP</li> <li>9. Athletics</li> <li>10. Word of Mouth</li> <li>11. Dining Halls</li> <li>12. Nutrition Counseling</li> <li>13. Transportation</li> <li>14. Virginia Tech salary</li> <li>15. Food Options/Variety</li> <li>16. 209 Market</li> <li>17. Campus Kitchen</li> </ol>	<ol style="list-style-type: none"> <li>1. I am not aware of any resources.</li> <li>2. We have many food pantries in our area.</li> <li>3. Have more healthy food and not calorie dense foods.</li> <li>4. The farmers market.</li> <li>5. I think The Market at Virginia Tech is a phenomenal resource.</li> <li>6. The graduate school also provides emails regularly with directions to relevant resources, if very hard times ever did happen.</li> <li>7. I don't personally need food assistance, but I have participated in multiple food drives through club sports and other clubs I'm in.</li> <li>8. My professors and bosses are helpful in making sure that I eat full meals Clubs often provide food and allow people to take extras home.</li> <li>9. Virginia tech athletics feeds me 5 days a week.It could not be better.</li> <li>10. I have heard about different resources from lectures in a few of my classes</li> <li>11. Providing dining halls to be able to get food.</li> <li>12. Dietitian program thing was helpful.</li> <li>13. Bt access.</li> <li>14. It pays me for working?</li> <li>15. They have lots of food options.</li> <li>16. I would like to go to 209 marketplace, but it's at an inconvenient time for my schedule.</li> <li>17. Campus kitchen and other resources from student life.</li> </ol>