Abstract

Farmworkers in the United States are a population of nearly three million people who harvest the food that ends up at our tables. In North Carolina this population consists primarily of men of Mexican origin who undergo a process of acculturation as they become exposed to this culture. This process can affect multiple aspects of life, including changes in diet and health outcomes. Limited data exists on acculturation and nutritional status of NC farmworkers. This study introduces new observational and qualitative data to help fill this informational gap with hopes of providing better health care for this population.

Background & Literature Review

Agriculture is an industry of paramount importance, contributing billions of dollars to the U.S. economy.¹ This work could not be done without the efforts of the farmworker population. There are approximately three million farmworkers in the U.S., who come from various countries, but are mostly of Mexican and South and Central American origin or descent. Most of these farmworkers (about 80%) are men, younger than 31², who have left their wives and children to work long hours and help make ends meet for their families back home. Farm work can be seasonal or migratory. Migrant workers travel from place to place for different crops, based on the seasons, and live in temporary housing. Their legal status in the U.S. varies. Some are U.S. citizens or permanent residents who travel from state to state “following the crops”; others are undocumented and are able to find work with smaller farms, but may be more isolated from society due to their fear of deportation. Migrant workers can also be legally recruited from other countries for agricultural work under the H2A program, a program of The Department of Labor which provides temporary visas for these guest workers (otherwise known as H2A workers). These workers come only for the season, especially to the areas of the country where there is a shortage of domestic workers³ and often have the opportunity to return to the U.S. every year, if the growers are interested in re-hiring them. In addition, there are seasonal workers who work primarily in agriculture, but may have other jobs during the off season; they live in the same communities year-round and often times are accompanied by their families.

Farming is one of the three most dangerous occupations in the U.S. and some argue that farmworkers are not fairly compensated. Even though farmworkers work very long hours they do not get paid overtime. Some work from 6:00 am to 8:00 pm during the peak season in a very tough and risky environment, exposed to pesticides and working with hazardous machinery. In addition, the Fair Labor Standards Act (1935) does not require farmers to pay minimum wage, unless they own very large farms. Therefore, these men and their families live in extreme poverty, with an average annual income of about $16,000 per family and around $11,000 per single man.²

Agriculture contributes over $69.6 billion annually to North Carolina’s economy. NC hosts the sixth largest population of farmworkers, comprised mainly of males from Mexico. It is estimated that around 150,000 farmworkers and their dependents are present during each season. This is considered a low estimate, as there is not very accurate data on this population given the
fact that some are undocumented and tend to be isolated from society. While the total number of farmworkers in NC has decreased over the past 20 years, the number of migrant workers has nearly doubled. NC is, in fact, the largest user of the H2A program in the country, with about 8,000 of these temporary agricultural workers around the state. The most common crops in NC are tobacco, Christmas trees, sweet potatoes, cucumbers, apples, bell peppers, and other fruits and vegetables.

Farmworkers face many issues that affect their quality of life and their overall health. Those on the East Coast earn about 35% less than the national average, placing them under the poverty line and contributing to a lifestyle that may be unhealthy and challenging in more ways than one. Lack of transportation, limited clinic hours, costly services, no interpreter service, frequent relocation, and risk of losing their jobs are just a few barriers these individuals are faced with when trying to access healthcare. Seven out of ten farmworkers on the East Coast live in substandard and crowded housing. State regulations only require one toilet for every fifteen workers and one shower for every ten. These conditions put them at risk for spreading infections, such as gastrointestinal illnesses. Living with a large group of men who don’t know each other and who may have different lifestyles can be a challenging change in environment, one that can lead to mental health problems. Nearly five out of ten farmworker households in NC suffer from food insecurity, reporting not being able to afford enough food to feed their families. Farmworkers are at very high risk for injuries at the workplace but also are prone to chronic illnesses, such as obesity, diabetes, and hypertension, to name a few. According to HRSA’s (Health Resources and Services Administration) Health Center Data, diabetes and hypertension are amongst the top five diagnoses by Migrant Health Centers across the country.

In addition to all of these issues facing farmworkers on a daily basis, they are challenged with having to adapt to a new culture. Language, discrimination, and changes in the food environment are only some examples of challenges that immigrants face when they arrive in a new country. This process, known as acculturation, is complex and consists of adopting the attitudes, customs, values, beliefs, and behaviors of a different culture.

Even with lower socio-economic status and education, Latino migrants in the U.S. tend to have better health than their American counterparts until they begin adapting to the culture and attain a greater level of acculturation. Research focused on Latino immigrants suggests that increased time spent in the U.S. results in a linear process of acculturation and adoption of health behaviors similar to the U.S. born population.

While increased levels of chronic illness as well as changes in diet have been reported in research, migrant farmworkers have been relatively understudied with regard to acculturation, and there is not enough research to inform whether or not the change in health and nutritional status is a result of this process. This study explores the acculturation process and impact on diet in North Carolina farmworkers.
Methods

Information was gathered using three methods in order to add different layers of understanding to this subject.

Literature Review:

A review of the literature was conducted in order to find background information, and to create a results section that would be more robust, reliable, and based on sound research. Literature was reviewed on the general process of acculturation in the farmworker community; the diet and its influence on health within this population; and the influence of acculturation on diet and dietary behaviors. Studies were obtained by searching terms such as “farmworkers AND nutrition” and “acculturation AND farmworkers” on PubMed, as well as “acculturation AND diet AND farmworkers” using Google Scholar. A total of 43 studies and articles were reviewed and 11 were included in this paper. Out of those used, 9 studies looked at these topics nationwide, and 2 focused on these issues within NC.

Direct Observation:

Six weeks of outreach in the field, working directly with the farmworkers in Central NC (Orange, Durham, Person, Caswell, Rockingham, Guilford, Alamance, and Chatham counties specifically) provided rich baseline information and context. Nearly 40 farms were visited during this time frame, and workers were engaged in discourse on valuable and applicable health topics, individual health assessments, and basic nutrition counseling. This experience provided valuable qualitative data that is incorporated into this paper in the form of anecdotes and observations.

Systematic Qualitative Data:

Key informant interviews were conducted with farmworkers and members of organizations working directly with farmworkers. These interviews were designed to further investigate the issue of acculturation and its perceived effect on nutritional health status of the migrant farmworkers living in NC, in order to add depth and new data to help bridge the informational gap on this topic.

Recruitment: The key informant interviews were performed at the end of the tobacco season, coinciding with the time most migrant (H2A) workers are returning to Mexico. Participants were recruited through the North Carolina Growers Association (NCGA), the organization in charge of bringing H2A workers to NC. The requirements for recruitment were to be male, H2A migrant workers coming from Mexico. All potential candidates met this criteria and 12 were recruited to participate.

Key Informant Interviews: Three interviewers were present and a total of 12 key informant interviews were performed with farmworkers. These interviews were conducted in person, in Spanish language, and were completely confidential. They consisted of a series of questions within three sections.

The first section focused on demographic information designed to gain a better understanding of the background of the population, and to determine whether or not this sample
was typical of the farmworkers in the state (Appendix A: Farmworker Key Informant Interview). The second section was an acculturation test (utilizing a Likert scale). ARSMA II or Acculturation Rating Scale for Mexican Americans II, is an abbreviated 12 item questionnaire which measures different dimensions of acculturation, including language, ethnic identity, and ethnic interaction. Its aim is to measure participant’s inclination towards American or Mexican culture. This test was selected for its ease of use as well as its multilevel approach. The third section consisted of questions on dietary acculturation. Questions such as “what are your favorite foods?” demonstrate their level of assimilation to U.S. dietary patterns.

In addition, four key informant interviews were conducted with members of various organizations that work with farmworkers. These interviews focused on their observations of health and dietary status of the farmworker population and their perceptions regarding the process of acculturation. (See Appendix B: Outreach Coordinator/Worker Key Informant Interview).

Results

Questions regarding demographic information revealed that the farmworkers interviewed were between the ages of 24 to 55, with a mean age of 37.4 years. All participants were H2A workers and none of them had medical insurance. Participants came from Nayarit (2), Tamaulipas (1), Apizaco Tlaxcala (1), Hidalgo (3), Veracruz (1), and San Luis Potosí (4). The map below illustrates these different locations.

![Map of Mexico showing the locations of the participants.](image)

These workers have been coming for agricultural work anywhere from 1 to 24 seasons (or years), with a mean of 9.3 seasons. We also asked participants how many seasons they’ve been working with the same grower, their responses were anywhere from 1 to 23, with a mean of 7.6 seasons. All participants have been married, and one is divorced. All of them also have children, and their families all reside in Mexico. Table 1 provides demographic information on all 12 participants.
### Table 1. Participants’ Demographic Information

<table>
<thead>
<tr>
<th>Participant</th>
<th>Age</th>
<th>Hometown</th>
<th># of Seasons in US</th>
<th>Married?</th>
<th>Family lives in Hometown?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>34</td>
<td>Nayarit</td>
<td>1</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>2</td>
<td>38</td>
<td>Nayarit</td>
<td>3</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>3</td>
<td>33</td>
<td>Hidalgo</td>
<td>7</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>4</td>
<td>24</td>
<td>Hidalgo</td>
<td>3</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>5</td>
<td>55</td>
<td>San Luis de Potosi</td>
<td>23</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>6</td>
<td>44</td>
<td>San Luis de Potosi</td>
<td>24</td>
<td>No (Divorced)</td>
<td>Yes</td>
</tr>
<tr>
<td>7</td>
<td>38</td>
<td>San Luis de Potosi</td>
<td>10</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>8</td>
<td>51</td>
<td>Tamaulipas</td>
<td>16</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>9</td>
<td>24</td>
<td>Apizaco Tlaxcala</td>
<td>1</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>10</td>
<td>24</td>
<td>Hidalgo</td>
<td>3</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>11</td>
<td>42</td>
<td>Veracruz</td>
<td>11</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>12</td>
<td>42</td>
<td>San Luis de Potosi</td>
<td>10</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

In order to understand whether there is a connection between the process of acculturation and the health status of migrant farmworkers living in NC, it is important to investigate the health status of this population prior to their arrival as well as their health status after years of coming to the U.S. for work. One way to explore this topic was through the key informant interviews. During the interviews with farmworkers, we asked “do you feel healthier when you are back home (Mexico)? Why or why not?” to which 50% (6 participants) responded that they do feel healthier when they are in Mexico. Many of these responses were attributed to being with family, having the ability to eat on a regular schedule, and being able to consume fresher and healthier foods. Interactions with farmworkers indicated that being away from family was not only emotionally challenging, but also put a strain on their overall health, causing much anxiety and depression. In fact, findings from a study exploring the effects of family separation, indicated that farmworkers who are separated from their families are at a disadvantage in relation to their social conditions as well as their medical care access, which can ultimately adversely affect their health.⁸

Based on field observations and health screenings, hypertension and diabetes are two major problems related to nutrition in the migrant farmworker population. According to a key informant interview with a physician, the top health problems in the farmworker population derive from cigarette smoking and alcoholism, or are related to muscular skeletal issues, hypertension, and diabetes. Key informant interviews with farmworkers revealed that the most common health problems perceived by them were colds, green tobacco sickness, pesticide related illness, dehydration due to sun exposure, stress, diabetes, and hypertension. When asked “do you have any health concerns at this time?” most farmworkers (9) answered that they did not have any health problems at this time. One participant mentioned having musculoskeletal pains, another experienced dizziness every once in a while, and another stated that he has diabetes.¹

While field observations revealed a much greater amount of illness due to tobacco contamination, sun and pesticide exposure, hypertension and diabetes were also commonly seen. Due to the significant amount of farmworkers experiencing these chronic illnesses, blood pressures were measured at every initial outreach visit as well as during follow up visits, and if accompanied by a healthcare provider, blood glucose levels were measured for those with higher
risk or already diagnosed with diabetes. Many of these men have been diagnosed in Mexico, but a lot of them have never been screened, meaning a lot of workers may go undiagnosed until the camp receives a visit from a clinic. According to a key informant interviewee who is a physician working with this population, the incidence of diabetes increases with age, therefore we don’t see that many cases, as many of the H2A workers who come to the U.S. are younger men. However, it is very typical to find farmworkers with high blood sugars, and care must be taken to follow up with them and teach them ways of preventing the onset of diabetes.ii

During the key informant interviews with farmworkers, we attempted to discover how much their diet has shifted in relation to their level of acculturation. Asking questions such as “what are your favorite foods?” helped shed light on whether or not they have grown accustomed to the foods in the U.S., and whether this has a direct relationship with their level of acculturation. When asked the previous question, farmworkers had a variety of answers, but most of them specified typical Mexican dishes (such as mole, bistec, pozole, and tacos) as their favorites. A few of them mentioned foods like pizza, hamburgers, and barbecue,1 potentially suggesting some level of dietary acculturation. However, a direct relationship between level of acculturation and favorite food was not found within this particular sample.

In order to measure said level of acculturation, participants were given the ARSMA II Acculturation test. All farmworkers interviewed fell within Level 1 of acculturation, or a score of less than -1.33. Level 1 represents a low score, meaning that all the farmworkers interviewed are more Mexican oriented than Anglo oriented. This finding is not very surprising, as this particular subset of the farmworker population is isolated and does not have much contact with the American culture. However, the scores varied from -4 (less acculturated) to -2.2 (more acculturated). The participants who scored closer to Level 2 were, for the most part, those who have been coming to the U.S. for over 10 years and have had more experience and contact with the culture.1 Table 2 refers to each participants’ score utilizing the ARSMA II test.

Table 2. Participants’ Level of Acculturation

<table>
<thead>
<tr>
<th>Participant</th>
<th>Acculturation Score</th>
<th>Level</th>
<th>Seasons coming to US</th>
<th>Favorite Foods?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-3.5</td>
<td>1</td>
<td>1</td>
<td>Chicken, pizza, hamburger, pozole</td>
</tr>
<tr>
<td>2</td>
<td>-3.3</td>
<td>1</td>
<td>3</td>
<td>Chicken, BBQ</td>
</tr>
<tr>
<td>3</td>
<td>-3.5</td>
<td>1</td>
<td>7</td>
<td>Mole (Mexican)</td>
</tr>
<tr>
<td>4</td>
<td>-4</td>
<td>1</td>
<td>3</td>
<td>Beef broth (Mexican)</td>
</tr>
<tr>
<td>5</td>
<td>-3.7</td>
<td>1</td>
<td>23</td>
<td>Bistec, mole (Mexican)</td>
</tr>
<tr>
<td>6</td>
<td>-2.8</td>
<td>1</td>
<td>24</td>
<td>Bistec (Mexican)</td>
</tr>
<tr>
<td>7</td>
<td>-2.2*</td>
<td>1</td>
<td>10</td>
<td>Vegetables, beef, chicken</td>
</tr>
<tr>
<td>8</td>
<td>-2.4*</td>
<td>1</td>
<td>16</td>
<td>A little of everything</td>
</tr>
<tr>
<td>9</td>
<td>-2.2*</td>
<td>1</td>
<td>3</td>
<td>Beef, vegetables, soda</td>
</tr>
<tr>
<td>10</td>
<td>-2.3*</td>
<td>1</td>
<td>3</td>
<td>Tacos (Mexican)</td>
</tr>
<tr>
<td>11</td>
<td>-2.5*</td>
<td>1</td>
<td>11</td>
<td>Vegetables</td>
</tr>
<tr>
<td>12</td>
<td>-2.8</td>
<td>1</td>
<td>10</td>
<td>Mexican food</td>
</tr>
</tbody>
</table>

*Highest levels of acculturation.
The question “how often do you shop for groceries?” was also intended to get at the topic of shift in diet, by investigating the difference between their shopping habits back home versus those acquired while living here. Most participants (7) responded that they shop once a week or every 8 days (3). This seems to be much less frequent than when they are in Mexico, where food is fresher and goes bad faster. However, it is important to note that the frequency of shopping while in the U.S. is directly correlated with the amount of time they have to do so. Most migrant workers are only allowed one day off per week, usually Sundays. This is typically the day they take for shopping for a week’s worth of food. As sub-questions, participants were also asked “where do you shop?” as well as “how much do you typically spend on each shopping trip?” Most participants (9) shopped at Walmart, and others at Food Lion, Piggly Wiggly, and Compare Foods. Several participants (4) stated they spend between $45-50 per week on groceries, while others varied between $30 and $80. Based on conversations with farmworkers, the shopping experience in itself is very different from what they are accustomed to in Mexico. While big grocery stores do exist and are frequented there, superstores such as Walmart, with the variety of food and large scale, can be a very different experience and even overwhelming for some, especially those who are new to coming to the U.S. Interviewees working with farmworkers agree that in the U.S. there is greater access to a variety of foods. Beverages, cereals, sweets, and snacks are all cheaper and more accessible and abundant in the U.S. than in Mexico.

Another question that was asked was “who prepares the food?” while they are working in the U.S. Typically in Mexico, women (be it wives or mothers) are the ones in charge of cooking for the family. We see a shift in this cultural norm when the H2A migrant workers come to the U.S., unaccompanied by their wives and obligated to cook by necessity. In answer to this question, most farmworkers who live in groups stated they take turns cooking for everyone (5) and several others (3) said they were the one responsible or assigned to cook for everybody. However, a key informant interview with an outreach coordinator revealed that many camps order food from Mexican women who live nearby. This is a lot more expensive for the farmworkers than cooking their own food; therefore, not too many workers use these services.

While food insecurity can be prevalent in this population, participants in the key informant interviews did not experience this problem. When asked “What are some barriers to eating healthy?” the majority (7) of the participants answered that they did not see any barriers, and none of the participants spoke about food insecurity as a barrier to eating healthier. Interviews with those working with this population were in line with these findings. None of the four interviewees thought of food insecurity as a problem within migrant H2A workers, although some of them mentioned it being more prevalent within the seasonal farmworker families.

The key informant interviews were very useful in shedding light on whether or not there is a shift in diet from the diet they are used to in Mexico to a more “Americanized” diet based on their level of acculturation. We asked “has your diet changed much since you came to the U.S.?” to which 5 participants answered that it has changed a lot. They went on to explain that what they eat here is not as healthy as what they would eat in Mexico, and one participant felt that he
had gained weight, as he thinks he eats a lot more food here than back home. He states: "... [My diet has changed] probably for worse. I was skinny when I came from Mexico. We enjoy more food when we are here and we gain weight." The interviewees from the various organizations working with migrant farmworkers all agree that there is a shift when it comes to increasing consumption of certain beverages, in particular sodas, energy drinks, Gatorade, beer, and other alcoholic beverages. It appears many farmworkers perceive the U.S. as being the "land of abundance" and this rings true when it comes to food as well. There is more availability and variety of foods here, therefore they can be tempted to buy and consume a lot more food than what they are used to in Mexico. In addition, migrant workers also have very demanding jobs, and as such are very aware that their caloric needs are increased. Due to this concern, farmworkers will tend to overcompensate and eat a greater amount of calories than what they truly need.

Another apparent shift in diet is the addition of snacks that are not considered commonplace in Mexican food culture. We often hear of growers providing their farmworkers with snacks, so we asked the workers whether or not this was the case, and what types of snacks they were provided. Most of the participants (8) stated that in fact they are provided with snacks at least once, and some even twice a day. They indicated that the snacks consist of soda, with either cookies, breakfast biscuits, or crackers. When speaking with members of various organizations, they agreed that similar snacks are being provided to the farmworkers, such as cookies, sweets (Little Debbie and Hostess cakes), salted crackers, and chips, most of the time paired with soda. These foods were not commonly consumed in Mexico, but have been adopted into their daily diet.

In addition, another perceived shift is the incorporation of fast food in their diets. While this population may be less exposed to these foods due to time constraints, they tend to frequent these restaurants once a week. When asked "do you eat out at all?" 7 out of 12 participants reported doing so, and the majority of them frequent these businesses once a week. The most common places to go out to eat on their days off were the Chinese buffets, followed by Mexican restaurants, McDonalds, and Golden Corral.

When it comes to the foods farmworkers buy for their cooking throughout the week, it compares favorably to the foods they purchase in Mexico. When asked "what are some common foods you purchase?" most participants responded that meat is the item they buy most (especially beef and chicken, followed by pork). Other common items purchased are vegetables, beans, tortillas, soda, eggs, rice, juice, milk, and oil. Some of these items are not as commonly purchased when living in Mexico, such as juices and sodas, but others are typical staples, like beans and rice. The farmworkers in these interviews spoke about purchasing vegetables (specifically potatoes, carrots, and cabbage), however, observations at farms show that few farmworkers purchase vegetables. When vegetables were present at the camps, the ones previously mentioned were most common, as these could be used in soups (a common staple food for farmworkers) and kept fresh for longer periods of time. Rarely do farmworkers seem to purchase other vegetables (such as dark leafy greens), and the same can be said for fruit. This
aspect of their diet is definitely a shift from what they are used to back home, as usually home cooked meals would include salads or cooked vegetables, as well as fruits as snacks or desserts.

Research Limitations:

*Literature review:* One of the limitations of the literature review is the lack of studies that have been performed directly on the subject of acculturation within the farmworker population in NC. For this reason, only a small sample of studies were used that had a direct correlation to the population in question, limiting its representativeness. Many studies from other states were utilized to add depth to this study. However, the specific circumstances demonstrated in these studies may not be applicable to the conditions in NC.

*Direct Observation:* Observations may run the risk of being subjective to one person’s opinion and feelings at the moment, potentially adding a level of bias. Efforts were made to avoid making biased statements and to limit all anecdotes to factual information backed up by the farmworkers themselves.

*Key Informant Interviews:* The sample size of key informant farmworkers was relatively small and likely not representative of the entire farmworker population in NC. However, the sample was composed of farmworkers from different areas of the state, who were of various ages, and had varying amounts of experience coming to the U.S. as H2A workers. In addition, because the interviews were conducted at an initial encounter, there was not a chance to build rapport with participants and it is possible that their responses were skewed based on what they thought we (as researchers) wanted to hear. Another limitation was the inability to assess Body Mass Index (BMI) for each participant. Ideally, this measure would have been included, but unfortunately we were unable to do so, as we did not have the proper tools (scale and tape measure) available at that time.

Discussion

This study attempted to bridge the informational gap existing on the topic of acculturation and its effect on nutrition and health within the farmworker population. In order to do so, research was focused on H2A migrant workers who reside seasonally in NC. Three methods of data collection were used: literature review, direct observation, and systematic qualitative data, from which we can conclude that the quality of the diets of farmworkers in the U.S. is impacted by many factors including, but not limited to, the migrant lifestyle, food insecurity, chronic illnesses, and acculturation.  

One of the most obvious barriers when it comes to choosing foods is the unfamiliarity of migrant farmworkers with U.S. products. All of our products have a nutrition facts label, which we tend to use to better understand what nutrients and ingredients are in our foods. Many farmworkers have low literacy levels and might not understand these concepts in Spanish, much less in English (the language the majority of these labels are written in). Unfortunately, the foods they are most familiar with are often unavailable or hard to find. Additionally, it may take them time to get used to the layout of grocery stores and where to find certain items. It is important to
realize that the men that come on their own are usually not accustomed to cooking and it may be their first time in the kitchen. For this reason, the foods that they prepare may be those that are easiest to fix and that can feed large crowds, at the expense of being nutritious. Another environmental factor that may affect their diet is the availability of kitchen equipment. It is common for farmworkers to only have one stove for a large group of people, so cooking individually is not an option. At times the burners may not be functioning properly, and in some cases they do not have proper refrigeration or a safe way to store food.

Low wages and often unpredictable work availability mean farmworkers and their families face high levels of poverty and in some cases food insecurity, which is defined as not being able to afford enough nutritious foods to lead an active and healthy life. Rural isolation can also contribute to being food insecure and to making poor dietary choices based on what is available.  

As previously noted, acculturation - the process a cultural group goes through in order to adopt the beliefs and behaviors of another cultural group - can have an impact on various aspects of life. Migration often involves disrupting supportive networks, losing identity, adopting the status of a “minority”, and adapting to the cultural norms of the new country of residence. These cultural norms include things like ways of speaking, rhythm of life, and dietary behaviors. For Mexican migrant farmworkers, those supportive networks, cultural traditions, and identity are often protective factors towards disease and chronic illness, and the longer the time spent in the U.S., the greater the loss of their “natural defense”.  

This process of acculturation can, therefore, have an impact on the health of a population. A clear example of this within the farmworker community is how the changes in dietary behaviors negatively impact their health long-term. The traditional diet (in this case from Mexico) tends to be low in fat and includes a variety of fruits and vegetables, which unfortunately are often substituted for high fat, high sugar, and lower nutrient foods while living in the U.S. This new diet can lead to unhealthy patterns of dietary behavior and consequently to obesity, hypertension, diabetes, and other chronic illnesses.

Even though the causes of obesity are complex, and include factors such as environment and genetics, we know there is an association between the length of residence in the U.S. and obesity rates among immigrants. This is due in part to a change in physical activity patterns as well as food choices. While it’s true that farm work is very labor intensive and a type of physical activity, farmworkers don’t usually engage in leisurely forms of physical activity for lack of time and energy. In addition, their food choices tend to be limited to what they know, what they can cook easily, or what doesn’t require cooking, which leads them to make choices that are not always very nutritious. A survey performed on farmworkers in Monterey County, California, found that higher acculturation (measured by years lived in the U.S.) was the strongest correlate of obesity (measured using BMI), followed by less exercise and poorer diet. Unfortunately, BMI was not measured in our sample, therefore we cannot make an inference in terms of acculturation and its influence on obesity, but the results of the study mentioned proposes the need for further research on this subject.
Farmworkers come from groups that have higher genetic predisposition to diabetes. In addition, because this population is prone to obesity, there are also higher rates of obesity associated diabetes. For those individuals who are already predisposed genetically and are also obese, there is a higher likelihood of becoming glucose impaired or diabetic. During the key informant interviews with farmworkers, one out of a sample of twelve reported having diabetes. There is no data on the exact number of migrant farmworkers with this disease; however, direct observation indicates that it is certainly a problem within this population and this should be an important consideration for those directly working with and educating farmworkers on health topics.

Gaining a better understanding of farmworkers’ traditional dietary patterns and the differences and similarities to those of the broader American culture would help public health nutritionists promote good health and prevent diseases such as obesity, hypertension, and diabetes. In addition, learning more about the process of acculturation and its effects on migrant farmworkers can be extremely beneficial when planning strategies to improve health and dietary behaviors. It is also important to understand the vulnerability of this population when planning for their care. Referrals to food pantries, social workers, and health care providers, can truly help better navigate the system and ultimately promote better health outcomes.

One important lesson learned during the course of this study was how much more research needs to be done within the migrant farmworker population. Many related studies have focused on obesity rates and food insecurity, but not many have focused on dietary patterns. There is definitely a gap in research when it comes to acculturation and its effect on diet. Researchers should aim at targeting this migrant population over time and determining whether or not this apparent shift in diet (related to the process of acculturation) has any long term consequences such as an increase in chronic illness.

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References


Appendix A

Farmworker Key Informant Interview

Demographic information:

1. Edad/Age
2. H2A/seasonal/other?
3. Seguro medico/Insurance?
4. ¿De dónde es usted? / Where are you from?
5. ¿Cuántas temporadas lleva viniendo a los Estados Unidos? / How many seasons have you been coming to the U.S.?
6. ¿Cuántas temporadas lleva con este patrón? / How many seasons with the same grower?
7. ¿Está casado? ¿Tiene hijos? / Married? With children?
8. ¿Ellos viven en su país? / Do they live back home?

ARSMA II Acculturation Test:

(3) Muchísimo o casi todo el tiempo/Always or almost all the time
(4) Mucho o muy frecuente / Very much or very frequently
(3) Moderado/ Moderate
(2) Un poquito o a veces / A little or sometimes
(1) Nada/ Nothing or not at all

1) Hablo Español/ I speak Spanish [ ]
2) Hablo Ingles/ I speak English [ ]
3) Me gusta hablar en Español/ I enjoy speaking Spanish [ ]
4) Me asocio con Americanos/ I associate with Anglos [ ]
5) Me gusta escuchar música en Ingles/ I enjoy listening to English language music [ ]
6) Me gusta ver televisión en Español/ I enjoy Spanish language TV [ ]
7) Me gusta ver películas en Español/ I enjoy Spanish language movies [ ]
8) Me gusta leer libros en Español/ I enjoy reading books in Spanish [ ]
9) Escribe cartas en Ingles/ I write letters in English [ ]
10) Mis pensamientos son en Ingles/ My thinking is done in the English language [ ]
11) Mis pensamientos son en Español/ My thinking is done in the Spanish language [ ]
12) Mis amigos son de origen Americano/ My friends are of Anglo origin [ ]

Dietary Acculturation Questions:

9. ¿Cuáles son sus comidas favoritas? / What are your favorite foods?

10. ¿Cómo decide que alimentos comer? / How do you decide what foods to eat? (what factors influence food choice?)

11. ¿Qué tan seguido hace las compras? / How often do you shop for groceries?

-¿Donde hace las compras? / Where do you shop?

-¿Cuánto gasta típicamente en comida? / How much do you typically spend on each shopping trip?
12. ¿Qué alimentos compra típicamente? / What are some common foods you purchase?

13. ¿Quién prepara la comida? / Who prepares the food?

14. ¿Come fuera (en restaurantes, comida rápida)? / Do you eat out at all?
   - ¿Qué tan seguido? / If yes, how often?
   - ¿Cuáles son sus lugares favoritos? ¿Porqué? / What are your favorite places? Why?

15. ¿El patrón les da bocadillos/antojitos durante el día de trabajo? Que les da? (ejemplos)/ Does the grower provide snacks during work? If so, what type? (give examples)

16. ¿Ha cambiado mucho su dieta desde que llegó a este país? / Has your diet changed much since you came to the U.S.?

17. ¿Cuántas comidas come al día? / How many meals do you eat a day?

18. ¿En qué consiste para usted una dieta saludable? / What do you consider a healthy diet?

19. ¿Qué tipo de obstáculos se le presentan cuando está tratando de comer sano? / What are some barriers to eating healthy?

20. ¿Tiene algún problema de salud? / Do you have any health concerns at this time?

21. ¿Usted cree que estos problemas de salud tienen que ver con nutrición? / Do you think these health concerns are in any way related to nutrition?

22. ¿Usted se siente más sano cuando está en su país? ¿Porqué? / Do you feel healthier when you're back home? Why?

23. ¿Qué tipos de problemas de salud son los más comunes entre los trabajadores del campo? / What health problems do you typically see in the farmworker community?

24. Si tuviera la oportunidad de aprender más acerca de la nutrición, ¿qué tipo de información le gustaría saber? / If you had the opportunity, what type of information would you like to learn about nutrition?
Appendix B

Outreach Coordinator/Worker Key Informant Interview

Demographic Information:
1. What is your title/position?
2. What organization (health department, clinic, etc.) do you work with?
3. How long have you been working at this job? And with this population?

General Health and Dietary Acculturation Questions:
4. What do you think are the most pressing health issues in this farmworker population?
5. Have you observed any nutritional issues? If so, what exactly?
6. What are the barriers/limitations for them to access services?
7. Have you noticed this population experiencing food insecurity (limited access to food)?
8. Do you notice an adaptation to the American culture at all? Explain.
9. Have you noticed (or heard) if their diet changes drastically from that consumed in Mexico?
10. What types of food have you noticed they’ve adopted and grown accustomed to?
11. Does this particular population visit fast food restaurants very frequently?
12. What have you noticed about the snacks provided on the fields?
13. Have you noticed anything else in terms of their diet/nutritional health that we didn’t address? Any concerns on your part?

\[^1\text{Farmworker Key Informant Interviews}\]
\[^2\text{Outreach Coordinator/Worker Key Informant Interviews}\]