Assessing food offerings among emerging food outlets in northern Arkansas

Bryan Mader, DrPH, MPH, CHES

Abstract

Limited study of the availability of food in nontraditional food stores (pharmacy and convenience stores) has left a gap in the understanding of the food environment in Arkansas. Recent corporate action among nontraditional food stores suggests the consumers are looking to these stores as sources of healthier food. A NEMS-derived assessment tool was used to document the availability of food products across thirteen measures, including: fruit, vegetables, dairy products, meat products, frozen dinners, baked goods, bread, beverages, chips and snacks, and cereal in 54 stores in the northern half of Arkansas. Pharmacy stores had a higher mean availability score (x̅=19.0) than convenience stores (x̅=7.2). A paired sample t test indicated that the difference in mean availability score between the store types was not likely due to chance [t(26) = 16.01, p < .001]. These findings suggest that pharmacy stores, with higher mean availability scores, offer a healthier supply of foods, on average, as compared to convenience stores. Assessing non-traditional food outlets in Arkansas is an important step in better characterizing the types of food available for purchase in the state. Small food stores may also be important intervention sites to look at these stores for an increasing proportion of their food purchases. Further study may help to uncover differences in rural and urban food supply in Arkansas, and may have positive consequences for better understanding best practices for increasing access to food across the state.

Keywords: corner stores, pharmacy stores, healthy retail, healthy food availability, nontraditional food outlets, Arkansas, food environment, NEMS

Introduction & Objectives

Strong evidence has demonstrated the relationship between dietary patterns and the risk of obesity, cardiovascular disease, and type 2 diabetes (USDA, 2014). These issues are exacerbated by the lack of access to healthy foods, especially in rural areas of the country, and in predominantly rural states like Arkansas. Many Arkansans live in food deserts, many miles from their nearest grocery store, and several counties have seen a recent decrease in the number of grocery stores in business (HRS, 2016). Other, smaller food retailers may be underutilized because they are often associated with fast food or snack-type food, rather than fresh or healthy food (Creel et al., 2008). Regardless of healthy intent, many rural customers are only able to choose from the foods available to them. Therefore, consumers may have a limited selection of healthy food choices as a direct result of the limited availability of healthy foods where they shop.

While traditional grocery stores and supermarkets have long been go-to sources for healthy foods, several large chain pharmacies, namely CVS and Walgreens, have sought to capture more market share in this space by dedicating more of their store shelf space to healthier foods (Hamstra, 2018), while generally responding to their customers’ demand for healthier foods (Walgreens Newsroom, 2011; Nielsen, 2016) and fulfilling the goal of becoming a local destination for healthy food products (Hamstra, 2018). However, little research has been done nationally, and to the author’s knowledge none has been completed in Arkansas, to determine what food products these nontraditional stores stock on their shelves, and whether or not these smaller food retailers offer a healthier supply of food delivered to their stores.

The question that guided this work asked, “Are there differences in food offerings among non-traditional food outlets, such as CVS and Walgreens, and how do those offerings compare to the offerings of convenience stores, in Arkansas?” Understanding differences among these food store types may be useful for subsequent efforts to improve equitable access to healthy food across Arkansas.

For References

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Methods and Materials

In Arkansas, non-traditional food outlets have garnered little research, and thus little is known about the impact that drugstores, such as CVS and Walgreens, have on Arkansas’s food environment, access, and availability. The final sample was derived by starting with the full sample of 15 CVS and 66 Walgreens in 33 cities. After removing cities due to lack of comparison stores, the final sample consisted of a total of 27 CVS/Walgreens stores, including 9 CVS locations and 18 Walgreens locations in 6 cities in the northern half of the state (see Figure 1 below).

This study used an observational design to assess offerings in non-traditional food outlets. The NEMS-derived assessment tool was used to document and score the availability of food products in 54 stores in the northern half of Arkansas, including 27 pharmacy stores and 27 convenience stores within a 2.5 mile radius. The NEMS tool gathered availability data across thirteen measures, including: fruit, vegetables, dairy products, meat products, frozen dinners, baked goods, bread, beverages, chips and snacks, and cereal.

Figure 1. Arkansas cities/counties selected for survey

Figure 2. Percentage of stores with item available

Results

A total of 54 stores were assessed, including 27 convenience stores and 27 pharmacy stores across 8 cities in 7 counties in the northern half of Arkansas. Pharmacy stores had a higher mean availability score (x̅=19.0) than convenience stores (x̅=7.2). A paired sample t test indicated that the difference in mean availability score between the store types was not likely due to chance [t(26) = 16.01, p < .001].

Comparing the availability scores of the pharmacy stores in this sample to pharmacy stores in this sample. These findings suggest that the pharmacy stores with higher availability scores offer a healthier supply of foods, on average, as compared to convenience stores. This is in spite of the fact that convenience stores, on average, had more offerings of items such as fresh fruit available for sale. While pharmacy stores did carry similar snack and junk-type foods as convenience stores, the selection of food in pharmacy stores was more varied and comprehensive, and tended to represent healthier selections, overall.

Assessing non-traditional food outlets in Arkansas is an important step in better characterizing the types of food available for purchase by Arkansans across the state. Additionally, smaller food stores, such as pharmacy stores and convenience stores, may play a different role in the food environments of more rural areas of Arkansas. Their role in the food environment may have an impact on the food offerings and stocking patterns within the stores. Further study on the role these smaller food stores may play in urban areas is necessary to clarify this. It may also be important to note that all of the pharmacy stores assessed in this study were part of large chain pharmacy corporations with locations across the United States. Because of this corporate affiliation, store managers may be unable to influence the types of food delivered to their stores.

Conclusions

These findings suggest that pharmacy stores offer a healthier supply of foods as compared to convenience stores. Nontraditional food stores may be important intervention sites as consumers look to these stores for an increasing proportion of their food purchases. Further study may help to uncover differences in rural and urban food supply in Arkansas, and may have positive consequences for better understanding best practices for increasing access to food across the state.

Discussion

This was the first known study to compare differences between food availability in pharmacy stores and convenience stores in Arkansas, using a modified version of the NEMS. The study sought, in part, to determine whether pharmacy stores and convenience stores in the sample had available food items that align with national dietary guidelines. Items such as fruit, vegetables, whole grain breads, and low-fat dairy products were assessed for availability. The current study found that convenience stores had lower mean availability scores as compared to pharmacy stores in this sample. These findings suggest that the pharmacy stores with higher availability scores offer a healthier supply of foods, on average, as compared to convenience stores. This is in spite of the fact that convenience stores, on average, had more offerings of items such as fresh fruit available for sale. While pharmacy stores did carry similar snack and junk-type foods as convenience stores, the selection of food in pharmacy stores was more varied and comprehensive, and tended to represent healthier selections, overall.

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Table 1. Mean availability score by store type and paired sample t-test results

<table>
<thead>
<tr>
<th>Store Type</th>
<th>Overall (n=54)</th>
<th>Pharmacy Stores (n=27)</th>
<th>Convenience Stores (n=27)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Availability</td>
<td>13.1</td>
<td>19.0</td>
<td>7.2</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>(6.40)</td>
<td>(1.68)</td>
<td>(2.85)</td>
</tr>
<tr>
<td>95% Confidence</td>
<td>11.35, 14.85</td>
<td>18.37, 19.70</td>
<td>6.09, 8.35</td>
</tr>
<tr>
<td>Interval of the mean</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>3-23</td>
<td>15-23</td>
<td>3-14</td>
</tr>
<tr>
<td>Paired sample t-test</td>
<td></td>
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</tr>
</tbody>
</table>

Figure 1. Arkansas cities/counties selected for survey

Arkansas cities included in the final sampling frame

Some corrections and clarifications were made to the original text to improve clarity and coherence. The abstract was expanded to provide a more comprehensive overview of the study's objectives, methods, and findings. The introduction was revised to include a more detailed background on the issue of food deserts in Arkansas and the role of non-traditional food outlets. The methods and materials section was updated to reflect the specific tools and techniques used in the study. The results section was adjusted to better align with the findings and conclusions. The discussion section was expanded to provide a more detailed analysis of the implications of the findings. The Acknowledgements were added to recognize the support and contributions of various entities and individuals. The contact information was updated to reflect the most current contact details.