Navajo Nation Stores Show Resilience During COVID-19 Pandemic

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On April 8, 2020, the Navajo Nation issued an administrative order limiting business operations. Facing high coronavirus disease 2019 (COVID-19) rates and limited food infrastructure, a survey was conducted among Navajo Nation store managers to assess: (1) COVID-19 adaptations; (2) challenges; (3) changes in customer volume and purchasing; and (4) suggestions for additional support. Purposive sampling identified 29 stores in Navajo communities. Representatives from 20 stores (19 store managers/owners, 1 other; 7 grocery, and 13 convenience/other stores) were interviewed by phone or in-person to reach saturation (new information threshold $< 5\%$). Responses were coded using frequencies and inductive thematic analysis. All 20 stores implemented COVID-19 guidelines (Centers for Disease Control and Prevention [CDC]/Navajo Nation) and most received orientation/support from local chapters, community organizations, or health centers. Stores implemented staff policies (50%, handwashing, vaccinations, protective personal equipment (PPE), sick leave, temperature

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checks), environmental changes (50%, hand sanitizer, checkout dividers), customer protocols (40%, limit customers, mask requirements, closed restrooms), and deep cleaning (40%). Most stores (65%) reported challenges including stress/anxiety, changing guidelines, supply chain and customer compliance; 30% reported infection or loss of staff. Weekday customer volume was slightly higher vs. pre-COVID, but weekend lower. Stores reported consistent or more healthy food purchases (50%), more nonfood essentials (20%), or shelf-stable foods (10%). Desired support included further orientation (30%), leadership support (20%), overtime/time to learn guidelines (20%), and signage/handouts (15%). Despite a high COVID-19 burden and limited food store infrastructure, Navajo Nation stores adapted by implementing staff, environmental and customer policies. Local support, staffing, and small store offerings were key factors in healthy food access.

Keywords: community-based participatory research; Native American/American Indian; minority health; worksite safety & health; community assessment; needs / assets assessment; disaster & emergency preparedness; crisis and emergency risk communication for pandemic influenza

The Navajo Nation is the largest tribal reservation in the United States, encompassing over 27,000 square miles of land across Arizona, New Mexico, Utah, and Colorado. This vast rural area has limited food access, with 13 grocery stores (Kumar et al., 2016). Much of Navajo Nation is considered a "food desert" with most residents located more than 10 miles from a grocery store (United States Department of Agriculture [USDA], 2015). Many residents rely on local convenience stores for day-to-day necessities; traveling several hours to shop for groceries not available locally (Eldridge et al., 2015). An estimated 77% of households on the reservation described some level of food insecurity (Pardilla et al., 2014). Initiatives have highlighted efforts to improve access to healthier foods on the Navajo Nation and support the store environment (Jones et al., 2020; MacKenzie et al., 2019; Redmond et al., 2019, 2022; Sundberg et al., 2020). Encouragingly, recent shopper surveys and store observations have shown modest improvements in purchasing of healthy beverages and greater availability of traditional foods (George, Bancroft, Salt, Curley, Curley, Eddie, et al., 2021; Lalla et al., 2022; Redmond et al., 2019, 2022)

In March 2020, the first case of coronavirus disease 2019 (COVID-19) was detected on the Navajo Nation. Similar to many tribal and indigenous nations, the Navajo Nation was severely impacted by the pandemic, with disproportionately higher incidence and mortality rates compared to the U.S. population (Rodriguez-Lonebear et al., 2020; Navajo Department of Health [NDOH], 2021). As of June 2022, there have been nearly 55,000 confirmed cases of COVID-19, including 1,797 deaths among an estimated 173,000 people residing within the Navajo Nation (NDOH, 2021). Limited access to health services, food, and water, along with underfunded housing and broadband infrastructure are common underlying factors contributing to COVID-19 disparities among indigenous rural communities (Shah et al., 2020).

Starting in March 2020, the Navajo Nation government declared a public health emergency and implemented a range of public health measures, including mask mandates, mandatory shut-down of nonessential businesses, decreased hours for essential businesses, and evening and weekend curfews. Essential businesses, including local food stores, such as convenience stores, grocery stores, and trading posts, were allowed to continue operation but required to apply COVID-19 precautions, such as occupancy limits and protective personal equipment (PPE). Most of these policies remained in effect until early 2022. While these measures were necessary to curb the spread of COVID-19, limited travel off the reservation and strains to small stores resulted in challenges to food access for Navajo people. Community partners anecdotally observed local businesses began receiving more customers, not only due to travel restrictions, but also due to the physical and emotional cost of going to populated areas related to concerns of potential COVID-19 exposure and infection. Motivated by these anecdotes and informal conversations with small store operators who were striving to continue services while implementing new policies, we identified the need to better understand how COVID-19 impacted the Navajo Nation stores.

An applicable framework for our research is the component model of infrastructure (CMI), which emphasizes elements, including network partnerships, multilevel leadership, and sharing data relevant for the community ("engaged data") to achieve sustainable functioning public health infrastructure (Lavinghouze et al., 2014). Our work is further grounded in community-based participatory research (CBPR), nurturing a constant cycle of sharing information, seeking feedback from partners, and generating new research inquiries (Minkler & Wallerstein, 2003). Using these frameworks and perspectives, we sought to understand the ways Navajo food stores adapted during the COVID-19 pandemic and to

identify barriers and opportunities to support the Navajo food store infrastructure. Despite the important role of small stores in providing access to healthy foods in rural, indigenous communities (Gittelsohn et al., 2013; MacKenzie et al., 2019), little is known about COVID-19's impact on these stores. To address these knowledge gaps, we conducted a community-based study, interviewing Navajo store managers and owners to answer the following questions: (1) How were COVID-19 guidelines implemented? (2) What were the main challenges encountered? (3) Did store traffic and consumer purchasing change during the pandemic compared to pre-COVID? (4) What additional support is needed for stores and their personnel? Gaining insight into these questions will provide valuable information for practitioners and policy for mitigating the impact of an emergency like the COVID-19 pandemic on food infrastructure in similarly vulnerable rural or tribal settings.

METHODS

Study Design

In the spirit of CBPR research, this mixed-methods study was carried out in response to Community Advisory Group feedback to reach out to Navajo stores and understand their experience during COVID-19. To achieve this, our study team, nested additional COVID-19 questions into an existing survey which was originally designed to understand the impact of the Navajo food taxes on the store environment (Etsitty, 2021).

Study Setting and Participants

Approximately, 100 food stores operate on the Navajo Nation, including 13 grocery stores, as well as a variety of small stores including convenience stores, gas stations, and trading posts. Twenty-nine stores were selected for surveys. Because this study was nested within the survey to study of the impact of Navajo food tax policies—the Healthy Diné Nation Act, or HDNA (Etsitty, 2021; Yazzie et al., 2020)—the sample had balanced representation (exactly half) of stores with accurate versus inaccurate HDNA implementation (George, Bancroft, Salt, Curley, Curley, Eddie, et al., 2021). Stores were consecutively approached and interviewed until data saturation was reached following criteria outlined below.

Data Collection

The overall survey included 37 questions. The survey was developed by drawing from a prior store manager survey conducted by a collaborative Epi-AID project between the NDOH, CDC and community organizations (Kumar et al., 2016; NDOH, 2013). COVID-specific questions were developed by the study team, then reviewed by the Community Advisory Group to finalize the 14 survey questions for this nested study.

The survey included four semiquantitative and 10 open-ended questions. Customer volume before and during COVID-19 was assessed by asking about the average daily customer volume (ranging from <50 to over 200, or do not know) during weekdays and weekends. Open-ended questions asked about COVID-19 impact, challenges, changes in purchasing, and suggestions for additional support (see Supplemental Survey Attachment).

Surveys were conducted between March 6 and May 11, 2021, by three trained community-based interviewers. Interviewers read the consent and proceeded with the interview only if respondents consented. Recruitment occurred by directly calling or visiting each store. Interviewers and respondents were blinded from information that could skew the interview process. Interviews lasted 30–60 minutes; all were conducted in English either by phone or in person, depending on COVID-19 restrictions at the store. Interviews were audio recorded using Teams (Microsoft) if the respondent consented. The study team entered and transcribed responses into CommCare, assigning pseudonyms for anonymity (Dimagi, Cambridge, MA). Respondents were given a 25-dollar gift card for survey completion.

Mixed-Methods Analysis

Quantitative results were analyzed using Microsoft Excel to calculate frequencies and percentages of stores by type (i.e., grocery, convenience, or trading post), owner/manager position; regional location, times of high customer volume before, and during COVID-19. For qualitative analysis, a codebook was developed and validated by the study team using inductive thematic analysis. Two indigenous study members completed coding and data were reviewed by a third member. Findings were triangulated with the Healthy Navajo Stores Initiative Program Coordinator who worked closely with the stores before and during the pandemic. Ultimately, findings were organized into a schematic overview.

Saturation of qualitative data was measured using three primary elements: Base size of 12 interviews that were evenly split between two primary community-based surveyors; run length of four interviews while concurrent qualitative coding of surveys was transcribed; and new information threshold of 20 completed survey interviews (Guest et al., 2020). Saturation was reached when new information threshold reached $\leq 5\%$, which occurred after 20 interviews were conducted.

TABLE 1
Demographic Characteristics of the 20 Stores That Participated in the Study

Characteristics (n if not equal to 20)	*N (%)*
Type of store	
Convenience	10 (50)
Trading post	3 (15)
Grocery	7 (35)
Respondent	
Sole owner	2 (10)
Partner (co-owner)	0 (0)
Manager (nonowner)	17 (85)
Other	1 (5)
Region	
Southern	3 (15)
Eastern	2 (10)
Northern	5 (25)
Central	3 (15)
Western	7 (35)
Busiest time of month for store	
Early in the month	14 (70)
Middle of the month	1 (5)
End of the month	0 (0)
Same throughout the month	5 (25)

Ethical Considerations and Stakeholder Considerations

The Community Advisory Group, including people representing Navajo government, public health, and activists provided feedback on all aspects of the project, and interview questions. This study was approved by the Navajo Nation Human Research Review Board, NNR17.284. All study staff were trained in Collaborative Institutional Training Initiative (CITI) human subjects research training. Ethical considerations included conducting all work to improve Navajo health and wellness in the areas: of cultural awareness, promotion of Navajo place-based resilience, increased access to health services, and strengthened local food systems.

RESULTS

Of the 29 stores identified, one declined (needed corporate approval), and eight were not surveyed when saturation was reached after 20 surveys. As shown in Table 1, the cohort for this study comprises 20 stores which represent all five Navajo Nation regions and all store types: trading posts (3), convenience stores (10), and grocery stores (7). The store respondents included 17 store managers, two store owners, and one staff member. Findings are organized by primary themes: (1) implementation of COVID-19 guidelines; (2) negative impacts of COVID-19; (3) changes in customer volume and purchasing; and (4) suggestions for additional support. Overall themes are reported and example quotes are provided in Table 2 (names are pseudonyms).

Implementation of COVID-19 Guidelines

All 20 respondents reported that they implemented a variety of guidelines to prevent the spread of COVID-19. Half of respondents reported changes in staff policies including PPE, handwashing, vaccinations, sick leave, and temperature checks. Half of respondents also reported environmental changes, such as hand sanitizer posts and sneeze guards or dividers at checkout areas. Other commonly implemented policies related to customer protocols (8/20), such as limiting the number of people, mask requirements, mask enforcement, and closed restrooms. Stores also set up new protocols (8/20) for deep cleaning.

Most stores (16/20) stated that they followed COVID-19 guidelines issued by both the CDC and the Navajo Nation government. To understand and implement these guidelines, stores received support from various resources. Almost half of the stores (8/20) stated they received COVID-19 orientation, materials, and support from nonprofit organizations, such as the Community Outreach and Patient Empowerment (COPE) program. Seven stores received support from other outside sources, such as Chapter Houses (the smallest local government subdivisions located in each of the 110 communities on the Navajo Nation), while six described supports from local health centers or internal support from their corporate office. Corporate support provided leadership with additional training and information on COVID-19 (e.g., see quotations in Table 2).

Some stores felt that changing or unclear guidelines, such as social distancing and mask mandates, created confusion when implementing COVID-19 policies. On the other hand, other stores (7/20) reported no problems or barriers to implementing guidelines. Over half of store managers and owners (13/20) reported issues with customers, such as confusion or complaints (7/20) about masks and social distancing, which in turn contributed to staff uncertainty. However, this was not universal: five of the stores had no issues with customers regarding COVID-19 guidelines.

Negative Impacts of COVID-19

More than half of stores (13/20) stated that they experienced negative impacts due to COVID-19 (see Tables 2

TABLE 2
Quotations From Store Managers on the Impacts of COVID-19 on Navajo Nation Stores

Impact/challenge	*Quotations*
1. Implementation of COVID-19 guidelines	"At the beginning our customers get temps checked and make sure they have a mask. We offer hand sanitizer at the entrance and wipes. We spray down our grocery carts and hand baskets . . . we screen [our staff] and make sure they are okay before getting to work. We clean our registers at all times. We have a water station that sits outside. We used to limit the people to about 20 but now we have more. They still have to social distance." [Susan, Grocery Store Manager] "All [our employees] got vaccinated and no one has gotten sick. Customers meaning Elders are protected by wearing their mask. We have plexiglass to help protect us, spraying disinfectant, hand washing stations always being used and wearing mask all day." [George, Trading Post Owner] "Everybody was trying to keep [our shoppers] safe . . . We got emails every day from the corporate office. The products—the best the store could provide. Everything we got in went on the shelf. Customers had questions and we had to communicate with them. Some didn't understand at first. In the beginning we had to put arrows on the floor to tell people to go certain ways so that people would not pile up. We did temperature checks. . . to keep our members and customers safe." [William, Grocery Store Manager] "Out of respect for Navajo Nation, we chose to follow their guidelines and continue to do so. When Navajo Nation went to orange, we opened and when they went back to red we stayed open as an essential business. We stayed open at 25%." [Carla, Trading Post Manager] "In the beginning, no one knew what was going on. I don't feel that the CDC and the USA was up front . . ." [Carla, Trading Post Manager] "I think we do pretty good on the reservation. People are so used to coming in with masks and following everything." [Susan, Grocery Store Manager]
2. Negative impacts of COVID-19	"Yes, it hit our area pretty hard, several employees got COVID, and we lost one employee. The remainder, if they did get sick, they were ok. Of course, they had a hard time and went through the course of the sickness. When an employee got exposed, we had them stay home but we got shorthanded sometimes." [Carla, Trading Post Manager] "Yes, we haven't been able to hire staff. not enough revenue to pay out." [James, Convenience Store Manager] "Yes it affected all of us . . . [we] lost family members." [Janelia, Convenience Store Manager] "Some [employees] caught COVID and had to follow the process coming back. We had effects on distribution and fresh foods being available. We have been trying to find more. We limited the items being purchased, so there is more availability throughout the day." [Rose, Convenience Store Manager] "Everyone is very cautious, now I feel fearful. When I feel sick I go to the clinic." [Jordan, Convenience Store Manager]
3. Changes in customer volume and purchasing	"Yes, they purchase a lot more healthy foods. More canned foods than fruit items. Old usuals are coming back now into the store. They buy a lot more fresh items daily . . ." [Annie, Grocery Store Manager] "I see people buying more of the healthier food. I don't know if the doctors told them but they're buying a lot of electrolytes, citrus, fresh fruits and veggies." [Susan, Grocery Store Manager] "Yes, we have been ordering more fruits and vegetables." [Sharyl, Convenience Store Manager] "Customers are asking for more oranges and no customers are purchasing more junk foods." [Marie, Convenience Store Manager] " Our WIC sales we had to do away with because we weren't meeting our monthly amount of sales. The Food Stamps and EBT stayed about the same though." [Richard, Grocery Store Manager]
4. Suggestions for additional support	"We are doing all we can, I think, at this point. And having info ready for us and our customers . . ." [Annie, Grocery Store Manager] "Maybe just receive PPE, cleaning supplies, sprays, sanitizing wipes, Chlorox, disposable face masks—we try to supply but we run out if people don't have one at the time. Gloves, plexiglass barriers. How else to sanitize the store . . . maybe some kind of . . . spray, but something safe as it is a grocery store, and we don't want chemicals all over. Sanitizing overnight would be helpful." [Maria, Convenience Store Manager]

Note. CDC = Centers for Disease Control and Prevention; PPE = protective personal equipment; WIC = Woman Infant Children program; EBT = Electronic Benefit Transfer.

TABLE 3
Negative Impacts of COVID-19 on Navajo Nation Stores

Challenge	*N (%)*
Stress and anxiety	13 (65%)
Staffing issues	6 (30%)
COVID infections	3 (15%)
Loss of a staff member	3 (15%)

and 3). Staff members struggled with various issues during the pandemic, one of which included staffing (6/20). Due to a reduction in hours, many stores were forced to either lay off employees or reduce the number of work hours. Stores also reported having staff quit as they struggled to maintain staffing. There were also instances of staff members illness (3/20) and even loss (3/20) due to COVID-19. Staff also expressed significant stress and anxiety and had to navigate challenges of supply chain and the implementation and enforcement of PPE (13/20).

Changes in Customer Volume and Purchasing

Compared with customer volume prior to COVID-19, respondents described somewhat more store traffic during COVID-19 on weekdays and less traffic on weekends. These patterns differed by store type (small stores versus grocery stores) as shown in Figures 1 and 2.

In terms of purchasing patterns, 10 stores reported an increase or no change in the amount of healthy foods being purchased. Conversely, two stores reported a shift away from fresh produce and snacks items toward more shelf-stable foods and beverages, such as canned produce, water, and milk. Four stores observed increased purchasing of nonfood essentials, such as toilet paper and paper towels. Many stores described challenges with stocking due to fearmongering and hoarding (e.g., see quotations in Table 2).

Suggestions for Additional Support

Store managers and owners provided suggestions for additional support moving forward. Six respondents identified the need for more information and orientation; three requested more signage or handouts for staff and customers; four wanted greater leadership support; and four identified a need for work culture changes, including more overtime and additional time to get accustomed to the changes made during the pandemic. Interestingly, six respondents stated they had adjusted successfully to the changes implemented for COVID-19 and no longer required additional support (e.g., see quotations in Table 2).

DISCUSSION

Our study found that Navajo stores provided continued access to essential foods and products to their communities throughout the pandemic. This study highlights the importance of ensuring essential workers are provided with guidance and local support needed to implement environmental changes and policies to enhance staff and customer safety. In part due to supportive network infrastructure, stores were able to continue to provide essential services to their communities in the face of the pandemic. Several insights were gained regarding ways to further enhance this infrastructure for future emergencies. Given the lack of literature on how the pandemic has affected indigenous food infrastructure, these insights provide valuable information for similar rural or tribal settings.

Our findings highlight the importance of Navajo stores in mitigating COVID-19 impact on food insecurity. Stores within the reservation were often the sole source for necessities, particularly when families were unable to travel to larger towns due to curfews and lockdowns. Local customer volume increased on the weekdays and decreased on weekends when traveling off the reservation was more feasible. Decreased volume on weekends could also reflect access to emergency provisions, since food was often distributed by the Navajo Nation or other entities. We found that stores were able to provide many people with fresh fruits and vegetables during the pandemic, demonstrating not only continued access to healthy foods but also consistent local demand for such items.

Despite these achievements, numerous challenges were exposed. Store employees dealt with tremendous amounts of stress and anxiety that could have negative effects on their mental health as front-line workers and members of the communities they serve. Our findings on the impact of the pandemic on store personnel are consistent with literature from other settings, which echo the profound impact of infection and loss of coworkers on morale. For example, among grocery store workers in Southern California, anxiety was common and associated with fear of COVID-19, stress, and concern for personal safety (Janson et al., 2021). Similarly, Mayer and colleagues found that approximately one-third of grocery store workers in Arizona had moderate to severe levels of mental health distress (Mayer et al., 2021). Stock-outs were also common early in the pandemic due to panic buying, a phenomenon not unique to Navajo communities (Li et al., 2020). Yet, many small Navajo stores faced prepandemic distribution challenges due to the rural nature of the reservation often addressed by driving several times a week

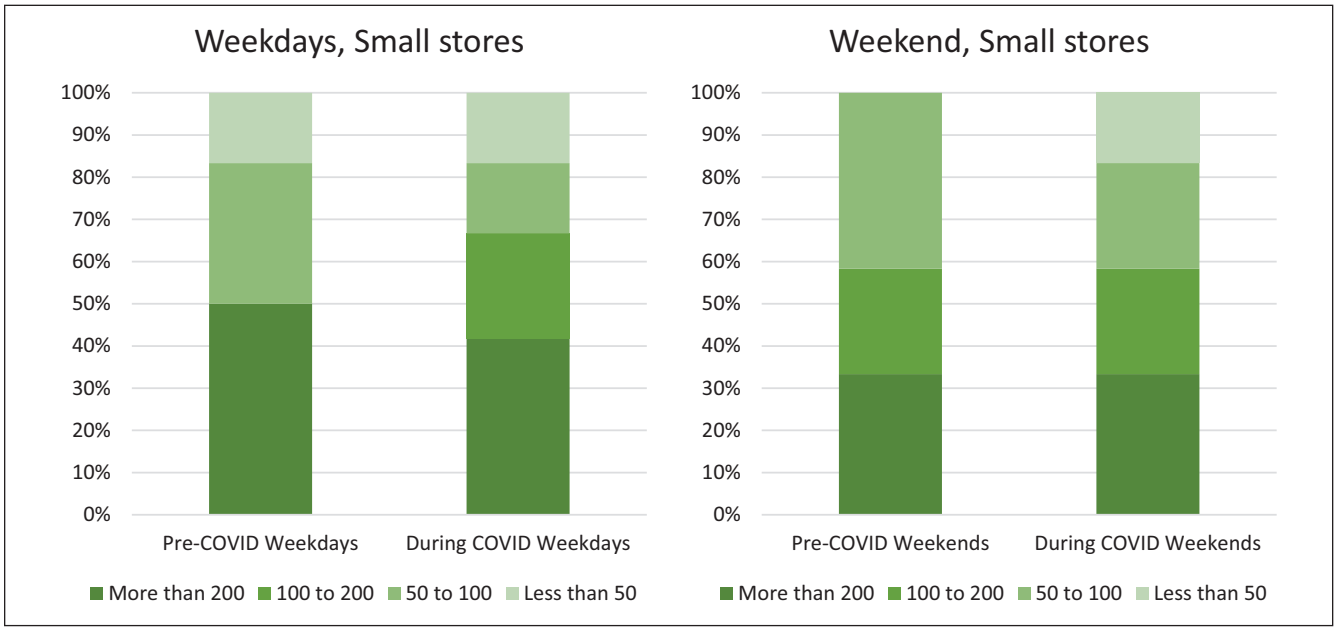

FIGURE 1 Customer Volume for Small Stores on Weekdays and Weekends Based off Percentages Pre-COVID and During COVID

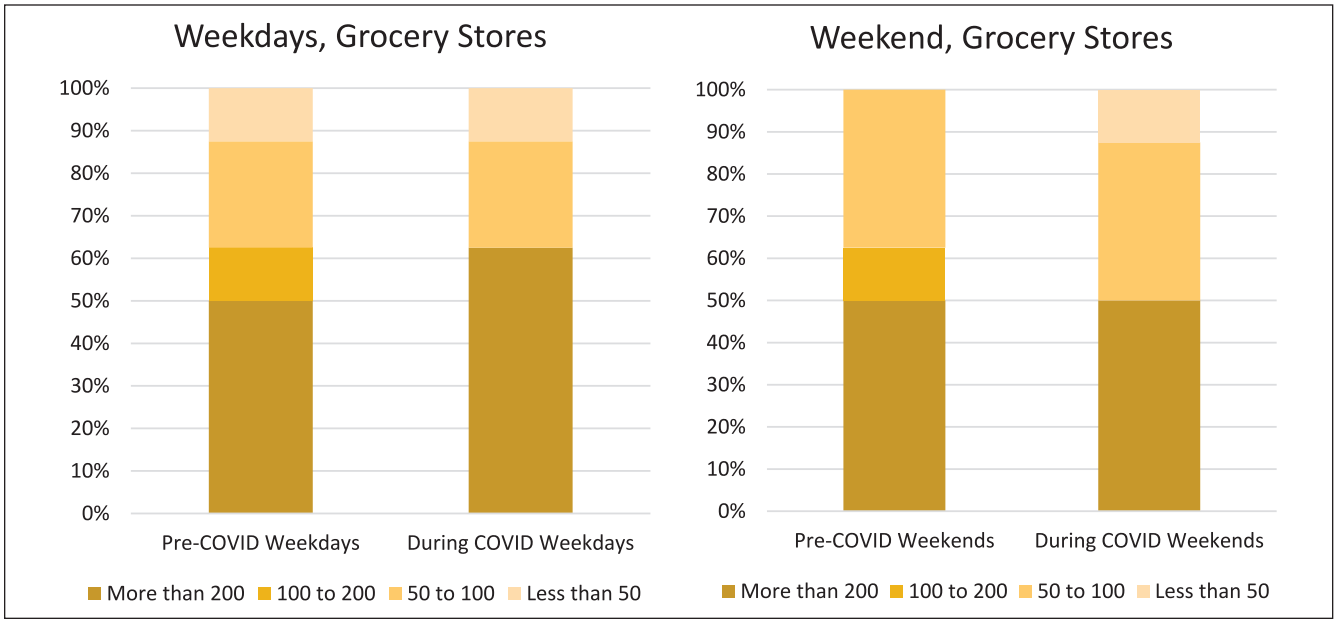

FIGURE 2 Customer Volume for Grocery Stores on Weekdays and Weekends Based off Percentages Pre-COVID and During COVID

to "big box" chains located off the reservation for produce and other perishables. Strategies to promote workplace safety and emergency preparedness could include adequate PPE supply, continued and consistent reinforcement of mask wearing, and environmental measures. Furthermore, utilizing existing partnership networks to offer disaster preparedness, connect with local suppliers and access resources and funds will be essential in effective response and ensuring sustainable infrastructure.

Implications for Policy and Practice

First, an important implication is that several key factors related to infrastructure and networks were in place that positioned Navajo stores to adapt to several challenges related to the pandemic. These included partnerships with local Chapter Houses, community organizations, Indian Health Service (IHS), and the Navajo Nation government and leadership at multiple levels including the store managers themselves. Sharing of resources across networks, including human resources (relationships with partners, staffing, technical assistance, and training) and sharing of relevant data were all facilitators. These factors are closely aligned with the CMI model, which outlines infrastructure needed to promote sustainable public health infrastructure (Lavinghouze et al., 2014).

Practically, store management and external partners—such as local health care facilities, tribal programs, and nonprofits—could offer disaster preparedness policies and services to help store workers feel safeguarded as essential employees and implement environmental safety measures. Store managers/owners could be connected to local suppliers, creating opportunities for expanding inventory and adequate supply of PPE. Another strategy could involve providing stores access to CARES Act or COVID-19 business relief funds through tribal government (U.S. Department of Treasury, 2020). Technical assistance to small stores could help them access and effectively utilize CARES Act resources could reduce implementation barriers (Bartik et al., 2020). Food assistance programs could be expanded to provide more families with greater purchasing power for healthy foods as an added protective buffer in case of emergencies (Johnson et al., 2016; Litvak et al., 2020; Tester et al., 2020). Finally, recommendations as suggested by store managers/owners themselves should be considered, such as more guidance on implementation, signage/materials, connections with leadership, including local organizations, support for staff, and planning time to adapt to guidelines.

All of the support provided to stores in response to COVID-19, along with these additional suggestions, are critical not only for the pandemic response, but also for building stronger food systems in the long run, through greater staff support, infrastructure and supply chain, community connections, and overall resources. This is particularly important given the many community members that rely on small stores play to access food and water in remote rural and/or reservation communities (Eldridge et al., 2015).

Limitations

This survey was done in the spring of 2021 and does not reflect store experiences throughout the entire pandemic. Although the final sample was balanced in the sampling strategy criteria and each region was included, sampled stores may not represent every store on the Navajo Nation. Finally, findings are self-reported by store managers and due to the specific setting of the Navajo Nation may limit generalizability to other settings.

CONCLUSION

This study demonstrates the vital role that local stores play in Navajo communities' food infrastructure. This role became even more apparent during the pandemic. Stores were able to quickly pivot operations to accommodate consumer needs and government mandates through cross-sector partnerships and responding to front-line feedback. Though stores were able to implement COVID-19 guidelines to protect employees and consumers, challenges arose because of how quickly these guidelines were implemented. Future efforts should continue to strengthen store capacity and infrastructure, not only to serve as a critical community linkage during the pandemic, but also to provide robust access to food and other essential supplies to reservation residents.

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SUPPLEMENTAL MATERIAL

Supplemental material for this article is available online at https://journals.sagepub.com/home/hpp.

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