



## Review Article

## Dollar stores as food retailers in the United States: A scoping review

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## ABSTRACT

**Objective:** This study aims to examine the role of dollar stores as food retailers in the United States and to identify gaps in existing research regarding dollar stores' impact on food access and healthy eating.

**Methods:** Following Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) guidelines, this study reviewed PubMed, Web of Science, EconLit, Scopus, and AgEcon databases to identify research on dollar stores, capturing literature from May 2009 to October 4th, 2023. Only peer-reviewed U.S.-based articles were included.

**Results:** Few studies focused on dollar stores alone until recently. Dollar stores were often grouped together with other small storefronts. We identified 63 articles that describe dollar stores' role as food retailers. The literature pertaining to dollar stores as food retailers shifted, with the focus shifted from product offerings in the early 2010s to the business landscape recently. The business landscape theme covered the widest array of topics, while the consumer behavior theme comprised the largest number of published studies (~40 %). The most consistent results were found in the product offerings theme, as studies overwhelmingly found that foods offered in dollar stores were less healthy. The health outcome theme had the fewest number of studies, and these findings were inconsistent.

**Conclusions:** Dollar stores are becoming key players in the U.S. foodscape but remain limited in the availability of healthy food choices, particularly fresh produce. The evidence space of dollar stores and food access is still evolving. Further research is needed to inform public health action.

## 1. Introduction

Dollar stores have existed for nearly 70 years but did not gain nationwide popularity until the 1990s (Shrestha, 2016). Dollar stores refer to a type of retailer that sells general merchandise, including grocery items, that are typically priced around one dollar. In recent years, multiple dollar store chains have increased prices, but prices remain low, typically under five dollars (Selyukh, 2021; Dollar Tree, Inc, 2021). With a competitive price range, dollar stores were conceived as a bargain shopping destination targeted towards lower-income individuals as a way to “stretch their dollar.” (John et al., 2023) The three major dollar store chains – Dollar General, Dollar Tree, and Family Dollar (owned by Dollar Tree 2015–2025) – increased their number of U. S. locations by 62 % between 2008 and 2018, and now operate over 30,000 stores across the country (Shannon, 2021). The topic of dollar

stores as food retailers has sparked contested reactions amid their recent growth.

While dollar stores are often criticized for their sparse offerings of healthy food, a limited but growing body of literature indicates they are becoming prominent actors in the food environment. Today, dollar stores are the fastest-growing food retailers in terms of household expenditure in the contiguous United States (Feng et al., 2023). Dollar stores began offering food products at the turn of the 21st century (Shrestha, 2016). They tend to sell shelf-stable items, including sugar-sweetened beverages, salty snacks, canned goods, and cereals (Bustillos et al., 2009; Caspi et al., 2016; Racine et al., 2016). Some local governments see dollar store growth as a threat to grocery stores that carry healthier options, and over 75 local governments across the U.S. have already imposed restrictions on new dollar store construction to limit their role in the competitive business landscape, particularly in

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low-income communities of color (McCarthy et al., 2022; Mitchell et al., 2023).

Despite the policy interest in dollar stores and the role they may play in food access, empirical findings on dollar stores are limited. On the one hand, the quality of food items sold at dollar stores have raised public health concerns (Caspi et al., 2017a); on the other hand, consumers express high levels of satisfaction with these non-traditional food retailers (John et al., 2023). To our knowledge, only a handful of studies have focused specifically on dollar stores. There is only one previous narrative review addressing the topic of healthy food access in dollar stores (Accordino and Conte, 2024), and no systematic review has examined the studies that address the role of dollar stores as food retailers as part of their investigation. A review of the empirical evidence regarding dollar stores is timely. It can help researchers and practitioners understand the nuance of their role in food access and identify research needs going forward. Our goal is to summarize and categorize existing knowledge regarding the growth of dollar stores and their role in the food retail landscape in the U.S.

## 2. Methods

### 2.1. Study design

This study aims to examine the role of dollar stores as food retailers and identify gaps in existing research regarding dollar stores' impact on food access and healthy eating. We found limited studies investigating dollar stores as food retailers in a preliminary search. We did not see a sufficient number of studies to allow for a systematic review, presumably due to the recency of dollar stores' role in the greater foodscape. Scoping reviews apply a systematic approach to capture the literature in an existing or emerging area (Thomas et al., 2017). Compared to systematic reviews that focus on synthesizing evidence on a specific topic, scoping reviews are more appropriate when the review aims to determine the coverage of the literature on a certain topic (Munn et al., 2018). A scoping review is more appropriate for the current landscape of dollar store review and our research aim. Therefore, we decided that a scoping review was most appropriate for summarizing the existing literature and the evolving nature of dollar stores. We followed the methodology and reporting protocol of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses for Scoping Reviews (PRISMA-ScR) (Page et al., 2021). The study reviewed the literature and did not involve human subjects, therefore did not require an ethical review from the institutional review board.

### 2.2. Search strategy

In October 2023 we conducted a formal search to identify all relevant literature, effectively capturing articles published between May 2009 through October 4th, 2023. We performed keyword searches in PubMed, Web of Science, Scopus, EconLit, and AgEcon to identify published studies that analyze the relationship between dollar stores and food purchases.

In determining search terms, our preliminary explorations indicated that few studies focused on dollar stores alone until recently and that dollar stores are often grouped with other small storefronts. Therefore, we expanded the search to encompass studies on non-traditional retailers, even though their primary focus was not dollar stores. Dollar store-specific findings were identified and synthesized in later steps. The final keywords and phrases used in the search included: "dollar store\*" or "GOV OSB" or "non traditional food retailer\*" or "nontraditional food retailer\*" or "combination grocer\*" or "other store\*." "GOV OSB" stands for Government-recognized Other Storefront Businesses. For the scoping review, we included peer-reviewed, U.S.-based articles published in English.

### 2.3. Study selection

We performed three rounds of screening (title, abstract, and full-text) before including articles in the literature review. After using our keywords to identify all articles in the chosen databases, we removed duplicates. In the first round of screening, we reviewed titles and excluded non-U.S.-based articles and articles not related to food, nutrition, food retailers, or the food environment. In the second round, we reviewed abstracts and excluded articles not about the business landscape, product offerings, consumer behavior, or health in reference to food, nutrition, food retailers, or the food environment. Finally, only articles referencing dollar stores in their findings were kept during full-text screening. Ultimately, we included 63 indexed, peer-reviewed articles in the literature review.

### 2.4. Data synthesis

To investigate the role of dollar stores in food retailing and access, we grouped the articles into four themes: the business landscape, product offerings, consumer behavior, and health outcomes. These categories were selected a priori by the review team on the basis of key themes among other research on healthy retailing. A few articles fit into more than one theme. To summarize this emerging literature, we categorized each article into its most pertinent theme but acknowledge that nuances exist in how any paper may be categorized. Some articles were mentioned in their non-primary theme if their findings proved relevant to numerous thematic sections. For purposes of categorization, the "health outcomes" theme was reserved for articles that measured health status in some way; articles relating to the healthfulness of purchases without explicitly addressing health indicators were categorized as being focused on consumer behavior. We generated two summary tables, with information including author, publication year, study type (e.g., cross-sectional study, longitudinal study), exposure of interest (e.g., customer intercept survey, in-store audit), study location, and a brief summary of findings about dollar stores. We then summarized the findings in each theme.

## 3. Results

We initially identified 2419 papers through database searching (Fig. 1). After removing 198 duplicates, 2221 unique articles were included in the title screening phase. A total of 311 articles were then assessed based on abstracts, which yielded 191 articles for full-text screening. Among those included in the full-text review, 63 articles included findings specific to dollar stores, and these were included in the synthesis of the results.

Although dollar stores have been around since the 1950s (Shrestha, 2016), most studies investigating their role as food retailers are from the last decade. All the studies identified in our review were published after 2009, with the majority of these studies published after 2015. Fig. 2 illustrates this shift in the literature and the thematic breakdown of published articles. From 2009 to 2011, only five articles were published that explicitly mentioned dollar stores in the foodscape, primarily investigating food product offerings. In the most recent period of 2021–2023, a thematic shift in research shows the growing discourse of dollar stores as a food business and the subsequent health implications of their offerings.

Although many of the studies reviewed were national in scope, several articles were related to others included in the review through common authors working on larger umbrella studies of multiple retail channels, often within specific geographic areas. Among studies not national in scope, the most common geographic region examined was Minnesota, with several other studies conducted in New York, Texas, and South Carolina. Most of the earlier studies collected qualitative primary data, involving customer-intercept interviews and surveys for real-time data. In more recent years, studies have incorporated

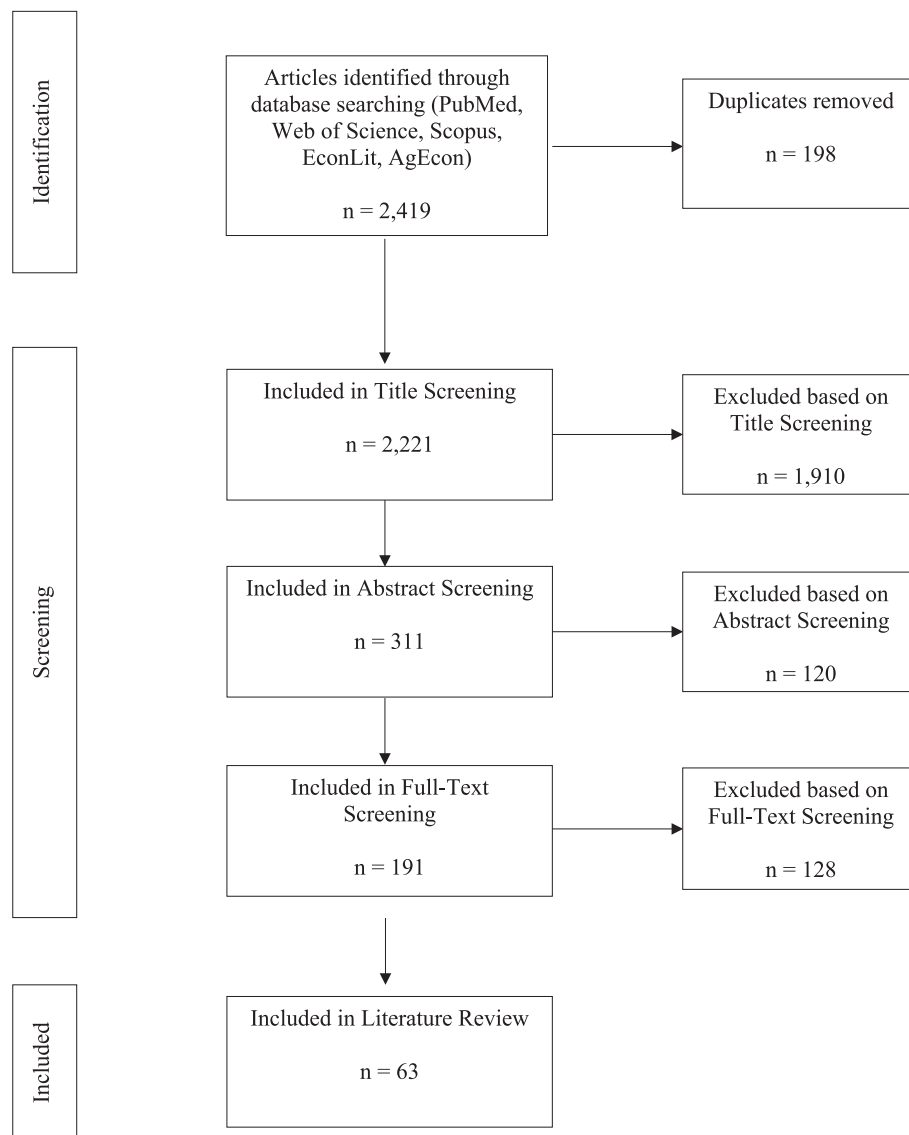


**Fig. 1.** PRISMA-ScR Flow Diagram on the Study Selection Process for the Scoping Review of Peer-reviewed Literature on Dollar Stores as Food Retailers.

secondary data that are mostly quantitative, such as the American Community Survey and Nielsen or Circana consumer panel datasets.

Among the four themes, the most articles were associated with consumer behavior (25 articles) and the fewest with health and diet (8 articles). The two remaining themes had similar amounts of articles, with 17 addressing the business landscape and 13 focused on product offerings. The business theme had the broadest scope, ranging from articles about databases to ground-truthing studies.

### 3.1. Business landscape theme

The business landscape theme included 17 articles, and the findings are summarized in [Table 1](#), *Business Landscape Theme*. This theme was the broadest, encapsulating topics from the economics and growth of dollar stores, to the inclusion of dollar stores as a business in commercial databases, to the impact of dollar store expansion on retail competitors. Dollar stores are the most rapidly growing food retailer by the percentage of household expenditure, and some studies indicate their competitive pricing heightens the exit probability of independent food outlets in rural areas (Feng et al., 2023; Lopez et al., 2023; Chenarides et al., 2023). These discount retailers are expanding locations across the U.S., with numerous research studies finding proximity to a dollar store

to be correlated with socioeconomic disadvantage and racial diversity (Shannon, 2021; Feng et al., 2023; Brown-Amilian, 2022; Winkler et al., 2019). Despite dollar stores' blossoming role as a food retailer, one limitation in the literature is that dollar stores are often grouped with other store types, such as convenience, drug, and other variety stores, muddling the findings of many articles.

#### 3.1.1. Business expansion

Dollar stores became increasingly popular around the 1990s, primarily due to growing income inequality and the widening socioeconomic spectrum in the United States (Shrestha, 2016). Growth was steady through the early 2000s. Unlike many retailers at the time, dollar stores thrived during the economic recession of 2008 (Shrestha, 2016; Donald, 2013). In recent years, dollar stores have rapidly expanded the number of locations in communities across the U.S. For example, between 2009 and 2017, dollar stores were one of the fastest-growing food retail types in the Bronx, rising at a rate of 43.7 % as measured by the number of locations (Cohen et al., 2020). In rural Maryland, dollar stores and other non-traditional retailers, account for a high percentage of food stores available in the area, second only to convenience stores (Campbell et al., 2017). Expansion is also occurring within individual communities; for example, most residents in St. Louis, MO, now live within a five-

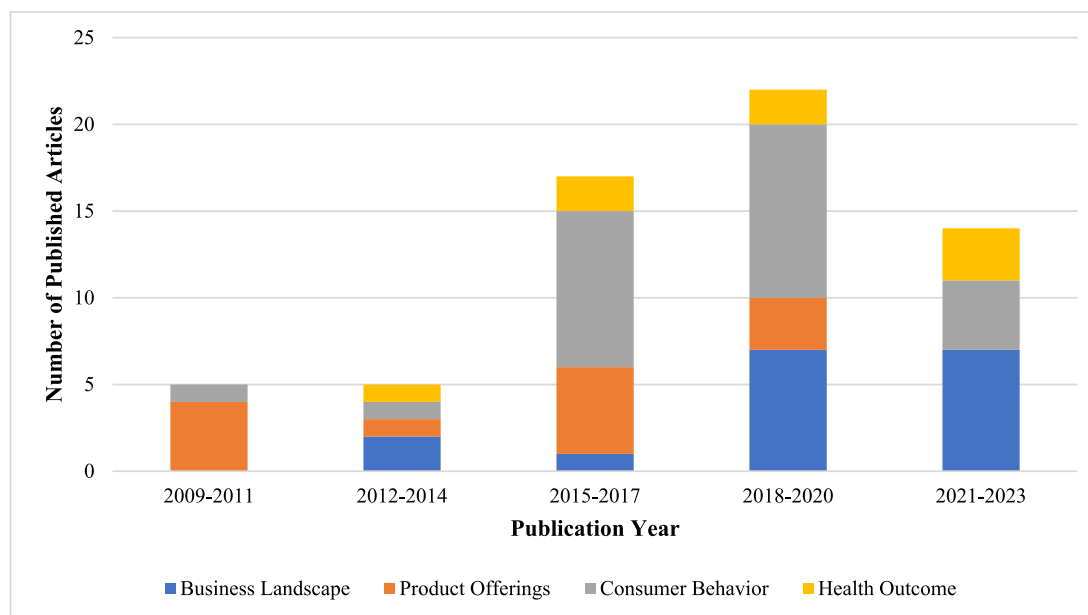


Fig. 2. Dollar Store Research Themes Identified in the Literature in the United States by Three-Year Period, 2009–2023. Note: Results are based on the 63 final papers identified in the scoping review.

minute drive of a dollar store (Brown-Amilian, 2022). Numerous studies indicate that distance to a dollar store is correlated with lower socioeconomic status, lower levels of education, and more racially diverse areas (Shannon, 2021; Feng et al., 2023; Brown-Amilian, 2022; Winkler et al., 2019). The expression “dollar store economy” has been coined to paradoxically ascribe their expansion to exacerbating the very economic and social conditions that discount retailers aim to address in the first place (Vargas, 2021).

### 3.1.2. Business competition

The proliferation of dollar stores has raised concerns that local grocers will be challenged and forced out through competitive pricing (Feng et al., 2023; Lopez et al., 2023; Chenarides et al., 2023). One study found dollar stores were associated with a 2.3 % rise in independent grocery retailers' probability of exiting a market (Lopez et al., 2023), with the likelihood being three times more likely in rural areas. This has raised caution about how dollar store entry impacts rural community livelihoods. Other research indicates that once a dollar store enters a low-income area with low access to food (historically known as a food desert), that area is more likely to remain a food desert (Chenarides et al., 2021). While these studies raise concerns with the entrance of dollar stores as food retailers, others argue that it allows dollar stores to function as business models for community development in areas that otherwise lack affordable and accessible food (Accordino and Conte, 2024).

### 3.1.3. Responses to policies that promote healthy eating

There were also conflicting findings on the operations side of dollar stores as businesses, especially in response to policies designed to increase healthy food options by retailers. In Minneapolis, the 2014 Staple Food Ordinance revised the stocking requirements for grocery stores by requiring stores to offer more healthy staple foods (Caspi et al., 2020). Minneapolis food retailers' ability to comply with the ordinance has been documented in the literature, and results are inconsistent. One study found that the success of minimum stocking requirements for small retailers, such as dollar stores, may depend on the ownership status of the corporation (Caspi et al., 2020). Another study found no significant difference between the stocking of produce as required by the ordinance in Minneapolis compared to nearby St. Paul, where no such ordinance existed – suggesting that an increase in produce stocking

could be a reflection of evolving societal and business trends, rather than a response to the ordinance (Winkler et al., 2020).

In addition to city ordinances, state and federal programs also play a role in dollar store operations. In particular, the authorization of dollar stores by the Supplemental Nutrition Assistance Program (SNAP) and Women, Infants, & Children Nutrition Program (WIC) has been of interest to many researchers. “Limited-variety” stores, which include dollar stores, make up over 80 % of SNAP-authorized retailers in North Carolina (Racine et al., 2018). Limited-variety stores are more prominent in urban areas, whereas access to full-variety SNAP-authorized retailers is better in rural areas (Racine et al., 2018). Additionally, WIC authorization is associated with increased sales of healthy foods in discount variety stores, but most dollar stores are not currently WIC-authorized (Hudak et al., 2020).

## 3.2. Product offerings theme

The product offerings theme included 13 articles, and the findings are summarized in Table 1, *Product Offerings Theme*. Over the last decade, dollar stores have increased both the quantity and variety of food options available to their consumers (Winkler et al., 2020; Sharkey et al., 2010). A common result across many studies was the lack of healthy options, specifically fresh produce, at dollar stores across the U. S. (Bustillos et al., 2009; Caspi et al., 2016; Racine et al., 2016; Sharkey et al., 2010; Barnes et al., 2019; Bodor et al., 2010; Gantner et al., 2011; Jithitikulchai et al., 2012; Thatcher et al., 2017) However, product offerings varied across geographic and racial contexts of store locations (Bodor et al., 2010; Gantner et al., 2011; Jithitikulchai et al., 2012).

### 3.2.1. Produce availability

Very few dollar stores offered fresh fruit and/or vegetable options, but the majority offered produce in canned varieties, and some offered frozen options (Bustillos et al., 2009; Caspi et al., 2016; Jithitikulchai et al., 2012; Laska et al., 2015). One study identified better options for canned vegetables in urban compared to rural stores (Jithitikulchai et al., 2012), while another noted canned fruits as the most consistent product across all small to mid-size food retailers (a category which, in their study, included dollar stores) (Laska et al., 2015). A study in upstate New York found that rural residents lived 68 % further from fresh produce than processed food, and only 43 % of stores sold fresh produce

**Table 1**

Research on Dollar Stores as Food Retailers in the United States, Business Landscape and Product Offerings Themes, 2009–2023.

| First author & publication year                  | Article/study type                           | Location                       | Outcome/exposure of interest                                       | Results                                                                                                                                                                                             |
|--------------------------------------------------|----------------------------------------------|--------------------------------|--------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Business landscape theme</b>                  |                                              |                                |                                                                    |                                                                                                                                                                                                     |
| Accordino and Conte (2024)                       | Review essay                                 | Nationwide                     | Review of business literature on dollar stores                     | Community planners must consider the growth of dollar stores when planning for improved healthy food access, particularly in rural communities.                                                     |
| Brown-Amilian (2022)                             | Cross-sectional study                        | St. Louis, MO                  | Assessment of dollar store location and access                     | Dollar stores tend to locate in neighborhoods with lower income, lower education level, and higher amounts of African Americans.                                                                    |
| Caspi et al. (2020)                              | Longitudinal study                           | Minneapolis & St. Paul, MN     | Retailer compliance with staple food ordinance                     | Larger and corporate-run stores had an easier time complying with the staple food ordinance in the long term compared to smaller or independently-owned stores (including dollar stores).           |
| Chenarides et al. (2021)                         | Longitudinal study                           | Nationwide                     | Dollar store expansion and food access tracking                    | In food deserts, entrance of a dollar store creates higher likelihood that the area will remain without a supermarket.                                                                              |
| Chenarides et al. (2023)                         | Longitudinal study                           | Texas                          | Impact of dollar store entry on competing store formats            | Dollar store entry decreases the density of small-format stores and increases the success of large-format stores.                                                                                   |
| Cohen et al. (2020)                              | Cross-sectional with Ground-Truthing study   | Bronx, NY                      | GSV image review and food retail change                            | The number of dollar store locations increased by 43.7 % between 2008 and 2017, making them the fastest-growing food retailer in the Bronx.                                                         |
| Donald (2013)                                    | Review article                               | Nationwide                     | Retail store locations                                             | Dollar stores are one of the few retailers to demonstrate consistent success through economic recessions.                                                                                           |
| Gustafson et al. (2012) (Gustafson et al., 2012) | Data source Validation study                 | Appalachia, KY                 | Food retail environment characteristics                            | Dollar stores were among one of the most likely food retailers to be omitted from government database, but identified through ground-truthing.                                                      |
| Hudak et al. (2020)                              | Difference-in-Differences study              | Nationwide                     | Impact of WIC authorization on healthy food sales                  | Becoming a WIC vender, which most dollar stores are not, significantly increased sales of healthy foods at discount variety store chains.                                                           |
| Lopez et al., 2023                               | Longitudinal study                           | Nationwide                     | Effects of dollar store entry on independent grocery retailers     | Dollar store entry is associated with a 5.7 % decrease in sales, a 3.7 % reduction in employment, and a 2.3 % rise in probability of independent grocery retailers closing.                         |
| Lucan et al. (2018a)                             | Cross-sectional study                        | Bronx, NY                      | Assessment of food/drink availability across storefront businesses | “Other storefront businesses” (including dollar stores) have recently grown to account for more than one-third of all food/drink sources, surpassing food stores and nearly equaling restaurants.   |
| Lucan et al. (2019)                              | Cross-sectional with Ground-Truthing study   | New York City, NY              | Government records for food business identification                | Government records frequently omitted dollar stores and other food/drink-offering businesses, missing over 25% of all such sources and underrepresenting both healthful and less-healthful options. |
| Racine et al. (2018)                             | Spatial distribution study                   | North Carolina                 | Characteristics and access to SNAP-authorized food stores          | Limited variety SNAP-authorized stores (such as dollar stores) were more accessible than full-variety stores.                                                                                       |
| Shannon (2021)                                   | Cross-sectional and first-difference studies | Nationwide                     | Dollar store proximity and neighborhoods' racial makeup            | Proximity to dollar stores is strongly associated with patterns of racial segregation and retail redlining, even when controlling for HH income, population, and overall retailer density.          |
| Shrestha (2016)                                  | Review article                               | Nationwide                     | Dollar store growth within the U.S. economy                        | In the last decade, dollar stores have increased the number of middle-income shoppers.                                                                                                              |
| Vargas (2021)                                    | Ethnography                                  | Urban centers in the northeast | Identification of redlining at Dollar generals                     | Major discount retailers (i.e., Dollar General) operate under a profit-driven business strategy that exacerbates a lack of worker autonomy in favor of lower prices for retail consumers.           |
| Winkler et al. (2019)                            | Cross-sectional study                        | Minneapolis & St. Paul, MN     | Structural characteristics of small food retailers                 | Higher prevalence of dollar stores in communities that consist predominantly of people of color, but no significant price differences across neighborhoods.                                         |
| <b>Product offerings theme</b>                   |                                              |                                |                                                                    |                                                                                                                                                                                                     |
| Bodor et al. (2010)                              | Cross-sectional study                        | New Orleans, LA                | In-store surveys for food availability and shelf space             | Predominantly black neighborhoods had less access to supermarkets and greater access to small-retail stores, such as dollar stores, with less fresh produce and greater snack food availability.    |
| Bustillos et al. (2009)                          | Cross-sectional study                        | Rural Texas                    | In-store surveys for healthy food options                          | Fresh produce was not readily available in non-traditional food stores (including dollar stores), but dollar stores offered the greatest variety of canned goods.                                   |
| Caspi et al. (2016)                              | Cross-sectional study                        | Minneapolis & St. Paul, MN     | In-store assessments and manager interviews                        | Dollar stores had one of the lowest healthy food scores out of all store types, and managers reported difficulty stocking fresh produce due to limited refrigeration space.                         |
| Caspi et al. (2017a)                             | Cross-sectional study                        | Minneapolis & St. Paul, MN     | Store and neighborhood food environment assessment                 | In general, staple food prices are 6–54 % higher in small-food retailers (including dollar stores) than large supermarkets, with differences most significant in isolated locations.                |
| Gantner et al. (2011)                            | Cross-sectional study                        | Upstate NY                     | In-store surveys for fresh produce availability                    | Rural residents lived about 68 % further from fresh produce than processed foods, and only 43 % of stores sold produce (none of which were dollar stores).                                          |
| Jithitikulchai et al. (2012)                     | Cross-sectional with ground-Truthing study   | Brazos Valley, TX              | In-store product offerings and price assessment                    | No dollar stores offered any fresh produce, and no price difference between rural and urban dollar store offerings.                                                                                 |
| Laska et al. (2015)                              | Cross-sectional study                        | Minneapolis & St. Paul, MN     | In-store food audits at SNAP-authorized retailers                  | Healthier food options were limited across all small food retailers (including dollar stores), but whole grain cereals and canned produce were commonly offered.                                    |
| Lucan et al. (2018b)                             | Cross-sectional study                        | Bronx, NY                      | In-store assessments of healthy foods                              | “Other storefront businesses” (including dollar stores) made up nearly one third of food/drink sources, with over two thirds of these businesses offering only less-health options.                 |

(continued on next page)

Table 1 (continued)

| First author & publication year | Article/study type                            | Location                   | Outcome/exposure of interest                       | Results                                                                                                                                                                                                                                                                                        |
|---------------------------------|-----------------------------------------------|----------------------------|----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Lucan et al. (2020)             | Cross-sectional<br>With ground-Truthing study | New York City, NY          | Food retail locations and product offerings        | Higher prevalence of “other storefront business” retailers (including dollar stores) in the Bronx compared to the upper east side, with a greater variety of less-healthy foods.                                                                                                               |
| Racine et al. (2016)            | Cross-sectional study                         | North Carolina             | In-store surveys of product offerings              | Most of the SNAP-authorized dollar stores offered healthy food staples besides fresh produce, and product offerings did not differ across urban and rural settings.                                                                                                                            |
| Sharkey et al. (2010)           | Cross-sectional study                         | Brazos Valley, TX          | In-store assessments and special access of produce | No dollar stores offered fresh produce, but other produce varieties available were reported as medium to high quality.                                                                                                                                                                         |
| Thatcher et al. (2017)          | Mixed-methods Study                           | Appalachian County, VA     | In-store food audits and accessibility             | Dollar stores had a wide range of food products available, but very few healthy options.                                                                                                                                                                                                       |
| Winkler et al. (2020)           | Longitudinal study                            | Minneapolis & St. Paul, MN | Fruit and vegetable sales                          | Significant increases in sales of fresh fruit and in stocking of fresh fruit, frozen fruit, and frozen vegetables at small food retailers (such as dollar stores) over time were not attributable to an enhanced stocking ordinance relative to comparison sites not subject to the ordinance. |

(none of which were dollar stores) (Gantner et al., 2011). In Louisiana, a study noted that neighborhoods with predominately African-American residents had greater access to small food stores (including dollar stores), yet less access to fresh produce (Bodor et al., 2010).

### 3.2.2. Protein and dairy availability

In addition to the overall lack of fresh produce available in dollar stores, there was also a limited selection of fresh meats and other animal-based protein sources. Most studies found that no dollar stores offered fresh beef or fish products, and one study identified lean turkey as the sole fresh meat offering (Bustillos et al., 2009; Gantner et al., 2011; Jithitikulchai et al., 2012). In addition to animal-based proteins, most dollar stores had various dry and canned beans available (Bustillos et al., 2009; Jithitikulchai et al., 2012; Caspi et al., 2017b). Most dollar stores offered eggs, and all offered at least one type of milk (Bustillos et al., 2009; Caspi et al., 2017b). Reduced-fat milk was found in almost all stores, and many also offered skim milk (Bustillos et al., 2009; Jithitikulchai et al., 2012).

### 3.2.3. Grain availability

Compared to produce and protein, dollar stores had a better selection of grains and dry grocery products. Almost all dollar stores had at least one type of breakfast cereal, and many also carried rice (Bustillos et al., 2009; Caspi et al., 2017b). However, whole-grain options for pasta and rice were limited (Jithitikulchai et al., 2012). Grain options also differed across communities; rural stores had higher percentages of cereal offerings, while urban stores had a greater selection of bread (Jithitikulchai et al., 2012).

### 3.2.4. Product availability by neighborhood

A notable aspect of dollar stores is the frequent use of “downward brand extension”: Many companies design smaller and cheaper packaging for dollar stores so that their products can be offered at lower prices (Shrestha, 2016). However, one study noted that smaller food stores (including dollar stores) sell staple food items at higher prices than supermarkets, regardless of geographic location (Caspi et al., 2017b). The products offered at dollar stores varied across communities, with stores in neighborhoods experiencing higher rates of poverty having a greater percentage of food and drink offerings compared to other neighborhoods, although the options tended to be less healthful (Lucan et al., 2020; Lucan et al., 2018a). Even when stores did have a decent food selection, dollar and variety stores scored low on the healthfulness of product quality (Caspi et al., 2016).

## 3.3. Consumer behavior theme

The consumer behavior theme contained the most articles (25), and the findings are summarized in Table 2, *Consumer Behavior Theme*. Many

articles referenced dollar stores in conjunction with other small food retailers. Purchases at these store types were typically less healthy and had the lowest healthy eating index (HEI) scores (Caspi et al., 2017c). The likelihood of unhealthy purchases at dollar and other variety stores was higher for males, those with lower educational attainment, those shopping for convenience, and those with a Body Mass Index (BMI) greater than 30 (Lenk et al., 2018). Visits to these store types were most frequent in low-income communities, and people experiencing food insecurity reported spending twice as much money at dollar stores in a given month compared to people who did not (Hosler et al., 2021; Lenk et al., 2020).

### 3.3.1. Foods purchased in dollar stores

Dollar stores have been gaining popularity for decades and consumers' food purchases have evolved over time (Shrestha, 2016). Packaged food purchases from dollar stores and other non-traditional stores increased among all racial and ethnic groups between 2000 and 2012, while similar purchases from grocery stores decreased during that period (Stern et al., 2015). The shift in food purchases is also evident through geographic regions, where rural households purchased more calories per day from mass merchandisers and dollar stores compared to urban households (Lacko et al., 2020).

The calories purchased from these stores were often less healthful (Caspi et al., 2017a; Barnes et al., 2019; Lacko et al., 2020; Lo et al., 2019; Madsen et al., 2019; Powell et al., 2020; Barnes et al., 2016; Cai et al., 2018). The *Dietary Guidelines for Americans* recommends that added sugar not exceed 10 % of total caloric intake, but packaged food purchases from dollar stores exceed that ratio by over threefold (Lacko et al., 2020). Compared to other store types, purchases from dollar stores were often the most sugar-laden (Caspi et al., 2017a). A California study reported that about 10 % of all sugar-sweetened beverage purchases were from dollar or drug stores (Madsen et al., 2019), while a study in Missouri found that participants were willing to travel to dollar and other stores outside of their traditional shopping regions when a sugar-sweetened beverage tax was implemented in their area (Powell et al., 2020).

The nutritional content of dollar store food purchases was relatively similar within a given racial-ethnic group, whereas there were significant differences across different racial-ethnic groups, as well as between urbanicity and socioeconomic status (Lacko et al., 2020; Stern et al., 2016). SNAP household purchases at these variety stores were higher in sodium-rich foods and sugar-sweetened beverages compared to non-SNAP participants (Taillie et al., 2018).

### 3.3.2. Drivers of consumer decisions

Despite the rise of dollar stores, consumers' shopping patterns indicated that other retail outlets were used to assist with total food acquisition that could not be met at dollar stores alone (Peterson and

**Table 2**

Research on Dollar Stores as Food Retailers in the United States, Consumer Behavior and Health Outcomes Themes, 2009–2023.

| First author & publication year | Article/study type                         | Location                                    | Outcome/exposure of interest                                        | Results                                                                                                                                                                                                                                      |
|---------------------------------|--------------------------------------------|---------------------------------------------|---------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Consumer behavior theme</b>  |                                            |                                             |                                                                     |                                                                                                                                                                                                                                              |
| Barnes et al. (2016)            | Cross-sectional study                      | Minneapolis & St. Paul, MN                  | In-store audits on advertisements and food placement                | Less healthy food and beverages are more apt to be advertised and placed by the checkout leading to greater impulse purchases at small food stores (such as dollar stores).                                                                  |
| Barnes et al. (2017)            | Cross-sectional study                      | South Carolina                              | Perceived versus actual fast-food availability                      | Living closer to dollar, drug or convenience stores was associated with higher perceived fast food availability than living farther from these stores.                                                                                       |
| Barnes et al. (2019)            | Cross-sectional study                      | Minneapolis & St. Paul, MN                  | Customer intercept surveys and in-store assessments                 | Customers' perception of the food environment is the greatest indicator of healthy food purchasing behavior at small and non-traditional food retailers (including dollar stores).                                                           |
| Cai et al. (2018)               | Longitudinal scanner data study            | Nationwide                                  | Produce sales and market structure                                  | The presence of non-traditional food retailers (such as dollar stores) is associated with decreased produce purchases, particularly in rural areas.                                                                                          |
| Campbell et al. (2017)          | Cross-sectional study                      | Rural Maryland                              | Healthy food scores in rural environments                           | “Other stores” (including dollar stores) outnumbered supermarkets, had fewer healthy food options, and below average HFAI scores.                                                                                                            |
| Caspi et al. (2017b)            | Cross-sectional study                      | Minneapolis & St. Paul, MN                  | Customer intercept interviews and healthy eating index (HEI) scores | Dollar store customers were most likely to buy sugar-sweetened beverages and candy than any other store type, with purchases containing an average of 53 % calories from added sugar.                                                        |
| Caspi et al. (2017c)            | Cross-sectional study                      | Minneapolis & St. Paul, MN                  | In-store assessments and customer intercept interviews              | Consumers were more likely to purchase produce in small-retail stores (such as dollar stores) due to product availability rather than marketing strategies.                                                                                  |
| Feng et al. (2023)              | Longitudinal study                         | Nationwide                                  | Consumer food purchases and household expenditure                   | Dollar stores are the fastest-growing food retailers by household expenditure share in the contiguous U.S.                                                                                                                                   |
| Hosler et al. (2021)            | Survey study                               | Schenectady, NY                             | Socioeconomic variables and supermarket access                      | Living in a low supermarket access neighborhood and shopping at a dollar store are positively associated with food pantry use.                                                                                                               |
| Kar et al. (2021)               | Longitudinal study                         | Columbus, OH                                | Decline and recovery patterns of store visits during Covid-19       | Visits to dollar stores declined the least out of all other store types during Covid-19, especially in low-income areas.                                                                                                                     |
| Kopetsky et al. (2021)          | Cross-sectional study                      | Rural Tennessee                             | Rural food shopping frequency and store types                       | A mean of 3.1 store types were visited monthly; supermarkets, convenience stores, and dollar stores were the most frequented, but federal nutrition assistance program recipients shopped significantly less frequently than non-recipients. |
| Lacko et al. (2020)             | Longitudinal scanner data study            | 52 metro and 24 nonmetro markets nationwide | Nutritional profiles of packaged food purchases                     | Households purchase the same quality of food from a particular store type regardless of urbanicity or SES, but rural shoppers tend to shop more at dollar stores with less healthy packaged food purchases.                                  |
| Lenk et al. (2018)              | Cross-sectional study                      | Minneapolis & St. Paul, MN                  | Customer intercept interviews regarding food purchases              | Women, individuals with higher educational achievement, and individuals with a lower BMI were more likely to make healthful purchases at non-traditional retailers (including dollar stores).                                                |
| Lenk et al. (2020)              | Cross-sectional study                      | Minneapolis & St. Paul, MN                  | Customer intercept interviews regarding food purchases              | People experiencing food insecurity reported spending twice as much money at dollar stores on food/beverages per month compared to people with food security.                                                                                |
| Lo et al. (2019)                | Cross-sectional study                      | Upstate New York                            | Shopping frequency and produce purchases                            | Frequent shopping at dollar stores was associated with lower vegetable intake, particularly root vegetables.                                                                                                                                 |
| Ma et al. (2017)                | Cross-sectional study                      | South Carolina                              | Food security and shopping behaviors                                | Participants with very low food security were more likely to be consistent dollar/convenience store shoppers than food secure counterparts.                                                                                                  |
| Madsen et al. (2019)            | Cross-sectional study                      | Bay area, CA                                | Street-intercept surveys                                            | The majority of sugar-sweetened beverage purchases came from grocery and corner stores, with a small fraction coming from dollar stores.                                                                                                     |
| Pelletier et al. (2016)         | Cross-sectional study                      | Minneapolis & St. Paul, MN                  | Customer-intercept interviews                                       | Customer-intercept interviews at dollar stores had the second highest response rate across all store types, and differences in response rates were noted between racial/ethnic groups.                                                       |
| Peterson & Procter (2019)       | Case study                                 | Kansas & Nebraska                           | Store price comparison and consumer interviews                      | Consumers' shopping behaviors suggest that not all shopping needs can be met from dollar stores alone.                                                                                                                                       |
| Powell et al. (2020)            | Pre-post difference-in-differences study   | Cook County, IL & St. Louis County, MO      | Effects of sugar-sweetened beverage tax on purchases                | Purchases of sugar-sweetened beverages decreased after a tax was implemented, with subsequent increases in purchases from dollar and other stores outside of the tax-region.                                                                 |
| Sharkey et al. (2009)           | Cross-sectional with ground-Truthing study | Texas                                       | Spatial access to different store types                             | The most accessible store types were convenience stores, fast food restaurants, and dollar stores.                                                                                                                                           |
| Sharkey et al. (2013a)          | Cross-sectional With ground-Truthing study | Texas                                       | Consumer store preferences and dietary choices                      | A third of participants shopped at dollar stores at least once a week, and distance to store was not a strong predictor of shopping frequency.                                                                                               |
| Stern et al. (2015)             | Cross-sectional study                      | Nationwide                                  | Household food shopping patterns                                    | Increase in food purchases among low-income households at convenience (including dollar) stores for all race-ethnic groups, with concurrent decrease in grocery store purchases.                                                             |
| Stern et al. (2016)             | Cross-sectional study                      | Nationwide                                  | Consumer purchasing patterns of pre-packaged food                   | No differences in pre-packaged food purchases at different store types (including dollar stores) within the same race-ethnic group, but significant differences across race-ethnic groups.                                                   |
| Taillie et al. (2018)           | Cross-sectional study                      | Nationwide                                  | Nutritional profile of food purchases                               | SNAP household purchases at “other” stores (including dollar stores) contained more sodium and sugar-sweetened beverages, but were lower in total volume of calories compared to purchases at traditional supermarkets.                      |

(continued on next page)

Table 2 (continued)

| First author & publication year | Article/study type        | Location       | Outcome/exposure of interest                    | Results                                                                                                                                                                                 |
|---------------------------------|---------------------------|----------------|-------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Health outcome theme</b>     |                           |                |                                                 |                                                                                                                                                                                         |
| Drichoutis et al. (2015)        | Cohort study              | Arkansas       | Food environment effects and child BMI          | Presence of dollar stores within close proximity to a child's home has no significant effect on BMI, but there is an increase in BMI when a dollar store leaves a child's neighborhood. |
| Findling et al. (2018)          | Cross-sectional study     | Nationwide     | Food access and childhood obesity               | Higher odds of obesity were found with greater neighborhood access to combination grocery/other (including dollar) stores and SNAP-participating children.                              |
| Hole et al. (2023)              | Review essay              | Nationwide     | Non-traditional sites for delivering healthcare | Community health partnerships should be considered with non-traditional sites, such as dollar stores.                                                                                   |
| Liese et al. (2017)             | Cross-sectional study     | South Carolina | Food shopping habits and adult BMI              | Participants who reported a dollar store as their third most frequented store had a lower BMI than those who did not.                                                                   |
| Love et al. (2018)              | Cross-sectional study     | Oklahoma       | Produce intake and chronic disease risk         | Obesity and diabetes were significantly higher among people who frequently shop at non-traditional food retailers (including dollar stores).                                            |
| McCarthy et al. (2022)          | Policy review             | Nationwide     | Local policies targeting dollar stores          | Twenty-five policies were enacted between 2018 and 2020 to reduce dollar store proliferation, most of which were framed as public health policies.                                      |
| Saint Onge et al. (2022)        | Secondary analysis of RCT | Nationwide     | Rural environmental factors on weight change    | Participants living in a 5-mile zone around dollar stores experienced about 2 % lower weight loss.                                                                                      |
| Sharkey et al. (2013b)          | Cross-sectional study     | Texas          | Food environment and childhood hunger           | Greater frequency of shopping at dollar stores was associated with childhood hunger.                                                                                                    |

Procter, 2019; Kopetsky et al., 2021). The literature identified multiple drivers as to why customers opted to shop where they did, including product prices, store location, and transportation access, with one study finding that customer perception of the food environment was an important indicator for purchasing behavior (with consumers holding more favorable perceptions of neighborhood food environments being more likely to purchase produce, even controlling for actual offerings) (Barnes et al., 2019). In another study, dollar stores were the only store type for which customers reported “price” as the most important reason for shopping there (Caspi et al., 2017a).

### 3.3.3. Shopping frequency

Studies varied in their findings for how often consumers shopped at dollar stores; one study reported that one-third of participants frequented dollar stores at least once a week (Sharkey et al., 2013a), whereas another found that most customers visited dollar stores once a month (Lo et al., 2019). However, the literature consistently found dollar stores as one of the most accessible and frequented food shopping retailers in low-income neighborhoods (Lenk et al., 2020; Stern et al., 2015; Kar et al., 2021; Sharkey et al., 2009; Ma et al., 2017). Transportation availability and store distance were strong determinants for shopping patterns, whereas product availability, food quality, and advertising had little impact on consumers' decision to shop at dollar stores (Powell et al., 2020; Barnes et al., 2016). Regardless of distance, a nationwide study found that rural shoppers frequented dollar stores more often than any other store type (Lacko et al., 2020). Neighborhood and food environment also influenced consumer perception of food (Barnes et al., 2019), and the odds of reporting perception of fast food availability increased as the distance to the nearest dollar store increased, regardless of actual retail proximity (Barnes et al., 2017).

### 3.3.4. Participation in research

When examining consumer behavior at dollar stores, many reviewed studies relied on customer-intercept interviews outside of the stores. One study that characterized the participation of customer-intercept interviews found small retail groceries and dollar stores had higher response rates than other types of stores, suggesting future research should take account of participation differences by various mechanisms (Pelletier et al., 2016).

## 3.4. Health outcome theme

While articles about the healthfulness of consumer purchases are in

the consumer behavior theme, we focus on articles about dollar store food purchases and health outcomes here. Throughout the literature review search, this theme had the least readily available information, and the findings were often conflicted. For example, it is hard to discern the health impacts that dollar stores have on people given the fact that they are already most prominent in communities with historically higher rates of obesity (Drichoutis et al., 2015); such challenges are not unique to studies involving dollar stores. Only eight articles fit this theme, with most recently published in the past decade. Results are summarized in Table 2, *Health Outcome Theme*.

### 3.4.1. BMI and obesity

There were contested findings about dollar stores' relationship with BMI and obesity status. One study found that access to combination grocers, such as dollar stores, was associated with higher childhood obesity prevalence and that SNAP participants had higher odds of obesity compared to non-SNAP recipients (Findling et al., 2018). However, another study noted that when a dollar store left a neighborhood, there was a subsequent increase in childhood BMI in that area, suggesting that dollar stores may provide access to healthy staple items that encouraged home meal preparation (Drichoutis et al., 2015). In addition to the mixed findings regarding childhood obesity, greater frequency of shopping at dollar stores was associated with childhood hunger (Sharkey et al., 2013b).

Among adults, obesity was more prevalent for consumers who shopped at dollar stores at least three times a week compared to other store types, but the association was not significant among those with less frequent visits (Love et al., 2018). A study in South Carolina asked participants to report their three most frequented stores for food purchases (Liese et al., 2017). Dollar stores were grouped as “other stores,” along with convenience, drug, small grocery, and specialty stores; when “other stores” were reported as the third most frequented store, BMI was significantly lower among this group compared to groups that did not report “other stores” as the third option (Liese et al., 2017).

### 3.4.2. Rural food environment and health

Rural America is disproportionately impacted by health disparities, many of which are related to diet. Of the over 20,000 Dollar General stores in the U.S. (Dollar General, 2024), 75 % are situated in towns with less than 20,000 people (Hole et al., 2023). One nationwide study found that the role of rural environments impacted weight change in a weight loss intervention trial; living within a five-mile radius of a dollar store was associated with 2 % less weight loss for rural participants (Saint

Onge et al., 2022). Between 2018 and 2020, twenty-five policies were implemented to curb the proliferation of dollar stores, with most framed as public health initiatives (McCarthy et al., 2022).

#### 4. Discussion

The role of dollar stores has evolved since their creation seven decades ago. Initially coined as a bargain shopping destination, dollar stores are now the fastest-growing food retailers by household expenditure in the United States (Feng et al., 2023). The literature about dollar stores as food retailers is shifting away from merely reporting product offerings, and a rise of research is exploring their position in the business landscape and questioning subsequent health impacts for frequent shoppers. While no published articles within our search criteria focused on these thematic areas in 2009, over two-thirds of recently published literature relates to business landscape and health themes a mere decade later.

This scoping review only includes peer-reviewed literature, but many findings are shared in preliminary form or otherwise non-peer-reviewed channels ("grey literature") that may also contribute to understanding the evolving role of dollar stores. In the grey literature, topics of business competition are frequently explored, emphasizing understanding how dollar store entry impacts local grocers (Kim et al., 2021; Caoui et al., 2022). Rural versus urban wellbeing, impacts at the household level, community response, and labor issues have also been topics of exploration in recent conferences and working papers related to dollar stores (Mitchell et al., 2023; Marchesi et al., 2024; Schneier and Sun, 2023; Chenarides et al., 2022; Feng et al., 2024). A recent workshop identified nine areas for future research: local community impacts; health and nutrition impacts; policy and programs; systemic issues (racism, poverty, and food access); store offerings and locations; shoppers and customers; employees and employment; corporate distributions, strategy, and marketing; and dollar stores compared with other food retailers (Feng et al., 2024). While the literature on dollar stores is expanding, these areas remain underexamined.

Dollar stores have expanded their food options over the last decade. The largest amount of literature in agreement is around dollar stores' offerings of food products. Their findings consistently highlight the lack of healthy food choices in dollar stores. Dollar stores generally score low on dietary quality, and purchases from these stores often contain higher levels of added sugar with lower HEI scores than other store types (Caspi et al., 2017a; Caspi et al., 2017c). Although the selection is limited in fresh produce, meats, and other refrigerated products, dollar stores have demonstrated the ability to offer healthier options for packaged food items, such as whole grains, beans, and milk. The literature encourages policymakers to recognize dollar stores as critical retailers for food acquisition nationwide, particularly in low-income and rural communities that demonstrate stronger reliance on this store type.

Despite the recency of dollar stores' growth as food retailers, policies have been fairly quick to prohibit entrance and expansion. Over 75 local governments across the U.S. have already imposed restrictions to prevent dollar stores from forcing out local competition with their competitive prices yet unhealthy offerings (McCarthy et al., 2022; Mitchell et al., 2023). However, based on the literature, it remains unclear if dollar stores hurt local economies or fill gaps in the U.S. where traditional food retailers are not entering. The ambiguity of this topic poses a new angle on the relationship between dollar store expansion and food access that has only been minimally explored. This issue is particularly relevant in rural areas, where dollar stores are disproportionately located and where rates of diet-related disease are higher than in urban counterparts.

As dollar stores' role in the foodscape proliferates, customer response has been mixed. Primarily through customer-intercept interviews, findings related to consumer behavior suggest that while dollar stores serve as important food shopping destinations, concerns remain about the healthiness and nutritional content of purchases. Factors such as

price, accessibility, and the broader food environment significantly shape consumer behavior at dollar stores. While consumer surveys indicate overall satisfaction with the shopping experience in dollar stores, they also emphasize customers' desire for healthier food offerings (John et al., 2023; Reimold et al., 2024). Most shoppers currently use dollar stores as supplemental to their total household food acquisition, suggesting that visiting them alone is insufficient to meet dietary needs. There are inconsistent findings regarding how often consumers shop at dollar stores, but the literature reports that people in lower-income communities rely on and frequent dollar stores more than those in wealthier neighborhoods, particularly in rural areas (Lenk et al., 2020; Stern et al., 2015; Lacko et al., 2020; Kar et al., 2021; Ma et al., 2017).

A notable finding of our review of the literature is the relative paucity of findings directly relating use of dollar stores as food sources to health outcomes. Given that health implications have often been referenced in discussions of dollar store-related interventions such as zoning policies and attempts to expand produce offerings, expanding this part of the evidence base here is an opportunity for dollar store research.

##### 4.1.1. Strengths and limitations

This study has multiple strengths. To our knowledge, we are the first to perform a scoping review on dollar stores as food retailers in the United States. By locating dollar store literature from various search databases, we took a broad approach to conceptualize dollar stores across disciplines as a reflection of their quickly evolving role in the foodscape. This study enables researchers to identify gaps in the discussion of dollar stores' role as food retailers and creates foundation for future analyses when sufficient studies warrant a systematic review.

One of the main limitations noted in conducting this literature review was the inconsistency of dollar store classification compared to other small retailers. Few articles focused solely on dollar stores, with many grouping dollar stores and other non-traditional food retailers, such as drug stores, convenience stores, or mass merchandisers. Studies that had findings only related to dollar stores often had very small sample sizes that may not represent dollar stores nationwide. For future research, it will be important to conduct studies focusing specifically on dollar stores while obtaining a large enough sample size to validate the findings.

In addition, due to the scoping nature of this review and that there has not been sufficient literature on dollar stores, our findings are not conclusive and therefore cannot yet provide a definitive summary of the role of dollar stores or provide specific policy suggestions. In addition, the scoping review process does not include an assessment of the risk of bias (Pham et al., 2014), which leads to our findings prone to potential bias from the individual studies included in our review; nor does this review include an assessment of the quality of the reviewed studies.

#### 5. Conclusion

This scoping review highlights the complex dynamics surrounding dollar stores amid their rise as food retailers. A recent wave of literature pertains to the business landscape of dollar stores, ranging from exploring policies affecting dollar store operations to concerns regarding business competition forcing out local grocers. Literature about dollar stores' product offerings is consistent in reporting increased food options in recent years, but still, a lack of healthy choices, particularly fresh produce, hinders nutritional acquisition. Studies related to consumer behavior show that purchases at dollar stores are less healthy, and frequent visits are especially common in low-income rural areas. There is limited information on the health impacts of dollar stores. Current literature regarding the relationship between dollar stores, obesity, and BMI is mixed, especially among children and SNAP participants. More research is necessary to investigate dollar stores' impact on health

outcomes in the communities they serve.

### CRedit authorship contribution statement

**Wenhui Feng:** Writing – review & editing, Supervision, Resources, Project administration, Methodology, Funding acquisition, Conceptualization. **Nicole Barry:** Writing – original draft, Visualization, Project administration, Methodology, Formal analysis, Data curation. **Michaela Mazure:** Writing – original draft, Project administration, Methodology, Formal analysis, Data curation. **Elina T. Page:** Writing – review & editing, Methodology. **Charlotte Blumenthal:** Writing – review & editing, Validation, Project administration, Data curation. **Sean B. Cash:** Writing – review & editing, Supervision, Methodology, Funding acquisition, Conceptualization.

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The authors declare the following financial interests/personal relationships which may be considered as potential competing interests:

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### Data availability

N/A. Publicly available data.

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