Effectiveness of Nutrition Interventions in Low-income Rural and Urban Retail Environments: A systematic literature review

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ABSTRACT

Retail interventions targeting food access and promoting healthy food choices are implemented to address the unique nutrition challenges of residents in low-income rural and urban environments. Research about the effectiveness of interventions in rural environments is limited. The purpose of this systematic literature review is to identify successful retail interventions used in stores located in low-income rural and urban environments.

This review is reported in accordance with PRISMA guidelines. Five databases were searched for peer-reviewed articles, and additional publications were hand-searched or provided by experts in the field. Studies were sought from October 1, 2010 until December 31, 2018. Studies which included a nutrition promotion in retail stores located in a low-income rural or urban community were included if they provided a quantitative outcome evaluation regarding the impact of the intervention(s). Intervention data was extracted and classified based on the MINDSPACE framework. Store level approaches including manager and staff training, store incentives, and/or store modifications were extracted. Two reviewers independently assessed the methodological quality of the studies using the EPHPP’s Quality Assessment for Quantitative Studies.

Peer-reviewed data from 43 publications (19 rural and 24 urban) was extracted representing 38 healthy retail programs in the US, Canada, Europe, New Zealand, and Australia. Preliminary results show 192 (82 rural and 110 urban) MINDSPACE interventions were implemented. Excluding norms, interventions were implemented in descending frequency as follows: salience, priming, commitment, incentives, ego, messenger, affect, and defaults. Rural interventions included a messenger that was unique to the community and appealed to the consumer's emotions more often than urban interventions. Of the 17 programs which reported staff and storeowner training, twelve were in low-income urban areas.

More research is needed to identify interventions, essential equipment, and training needs of managers and staff in low-income rural stores.

METHODOLOGY

RESULTS

Figure 1. PRISMA Diagram of study screening process and article selection

- Records identified through database searching (n = 564)
  - Academic Search complete (n = 236)
  - AgRcola (n = 202)
  - PsycINFO (n = 48)
  - Ecosite (n = 40)
  - CINAHL (n = 80)
- Additional records identified through other sources (n = 72)
  - Handsearch (n = 51)
  - Emailed from experts (n = 21)
- Records after duplicates removed (n = 516)
- Titles and abstracts screened (n = 516)
- Full-text articles assessed for eligibility (n = 118)
- Studies included in qualitative synthesis (n = 43)
  - Urban (n = 24)
  - Rural (n = 19)
- Records excluded (n = 398)
  - Full-text articles excluded with reasons (n = 75)
    - Nutritional promotion not included, is exclusively a discount or voucher, or reflects a change to a federal program
    - Store setting is other than a rural or urban, non-physical store, that is not separated by rural/urban demographic and/or intervention occurred in a pilot store (n = 21)
  - Article is a review, process evaluation, protocol description, or discussion publication (n = 177)

Figure 2. Frequency of MINDSPACE⁴ elements by location

- Messenger
- Incentives
- Norms
- Defaults
- Salience
- Priming
- Affect
- Commitment
- Ego

Figure 3. Frequency of store-directed interventions by location

- Rural (n = 22): 2
- Urban (n = 23): 12
- Total (N = 38): 17

- Equipment or remodel of store interior or exterior
- Storeowner incentives
- Store manager or staff training

CONCLUSIONS

- Behavioral Economic (BE) strategies and store-directed interventions differ in retail nutrition promotions for the low-income population based on urban and rural location.
- Store owner and manager training initiatives are limited for retail nutrition promotions for low-income populations.
- Research about the optimal combination of BE strategies, store-directed interventions, and education methods in low-income, rural and urban retail environments is needed in the future.