Impact of nutrition environmental interventions on point-of-purchase behavior in adults: a review
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CRD summary
This review aimed to evaluate research related to environmental and policy nutrition interventions, to summarise the findings and to identify areas for further research. Unfortunately none of the identified studies measured health-related outcomes; therefore, the results were not relevant for a DARE abstract. The authors made various recommendations for further research, which are supported by the evidence presented.

Authors' objectives
To identify the strengths and weaknesses of the research relating to environmental and policy nutrition interventions, to summarise the findings, and to identify areas for further research.

Searching
MEDLINE, CDP databases, CHID Online, PsycINFO and Web of Science for articles published between 1970 and June 2003; the search terms were reported. The reference lists of the original research articles identified and reviews of health promotion or environmental research were checked for additional relevant studies.

Study selection
Study designs of evaluations included in the review
The authors did not state any inclusion criteria relating to the study design. However they stated that studies with serious methodological flaws, such as those with no baseline period or comparison group, were excluded from the review.

Specific interventions included in the review
Studies that included a nutrition intervention with an environmental or policy component, either alone or as part of a larger socio-ecologic intervention, were eligible for inclusion. An environmental nutrition intervention was defined as one that affects availability, access, incentives or information about foods at the point of purchase. A nutrition policy intervention was defined as an intervention that intentionally enacts a law, regulation or rule in a worksite, university, grocery store or restaurant that will influence the nutrition environment. Interventions in schools were excluded from the review, as were studies of food enrichment, fortification and labelling.

Only studies with an environmental component were identified and included in the review; no studies with a policy component were identified. The included studies used information strategies, changes in the availability of foods with or without other strategies, and incentives.

Participants included in the review
The studies had to be conducted in English-speaking industrialised countries to be eligible for inclusion. Studies were conducted at worksites, universities, grocery stores and restaurants.

Outcomes assessed in the review
Studies that measured a change in behaviour through sales data, dietary assessment, or physiologic changes such as blood-pressure, were included in the review. Studies that measured only psychosocial variables, such as nutrition knowledge, were excluded from the review. Only data relating to physiological changes (i.e. health related outcomes) are reported in this abstract.

How were decisions on the relevance of primary studies made?
The authors did not state how the papers were selected for the review, or how many reviewers performed the selection.
Assessment of study quality
The authors developed a validity assessment scale using two published rating scales. The following validity criteria were assessed: study details, methodological flaws, sample size and duration of study, assignment of the participants to the intervention groups, generalisability of the results, and the use of validated dietary assessments. The studies were rated as having a weak, moderate, strong or very strong design. Two reviewers independently performed the validity assessment. They did not state how any disagreements were resolved.

Data extraction
The authors did not state how the data were extracted for the review, or how many reviewers performed the data extraction.

Methods of synthesis
How were the studies combined?
The studies were grouped by location of intervention and intervention type and were combined in a narrative.

Heterogeneity was not formally assessed.

Results of the review
Thirty-eight studies were included in the review. The studies reported the sample size in different units (sites, employees, vending machines and meals sold). Most of the studies were of a pre-test post-test design.

Two studies had very strong research designs, 17 had strong research designs, 16 had moderate research designs and 3 had weak research designs.

None of the included studies collected physiological data; only sales and dietary assessment results were presented in the review. Therefore, these results are not reported in this abstract as they are not health-related outcomes.

Authors' conclusions
Interventions in limited access sites (i.e. those with few other choices available) had the greatest effect on food choices. Further research, using consistent methods, better assessment tools and of longer durations, is needed. Such research should target diverse populations and examine sustainability. Future interventions should also influence access and availability, policies and macro-environments.

CRD commentary
The review question was clear in terms of the participants, interventions and outcomes of interest. Several relevant sources were searched for published studies and the search terms were reported. There was no attempt to identify unpublished studies and this increases the possibility of publication bias. Only studies conducted in English-speaking industrialised countries were eligible for the review. This might have been appropriate given the intervention of interest and the differences in dietary baseline values between different countries.

The validity of the included studies was assessed using appropriate criteria and was conducted by two independent reviewers, thus reducing the possibility of error or reviewer bias. However, the authors did not report the methods used to assess the relevance of studies for the review or to extract the data, so the potential for error or reviewer bias cannot be assessed. Adequate details of the included studies were tabulated and the studies were combined in a narrative, which seemed appropriate given the differences between the interventions. Unfortunately none of the identified studies measured health-related outcomes, therefore, none of the results were relevant for this abstract.

The authors' conclusion that further research is required is supported. However, they did not highlight that future research should measure health-related outcomes, which would seem appropriate.
Implications of the review for practice and research
Practice: The authors did not state any implications for practice.

Research: The authors stated that future studies should examine different types of foods, and also survey vending machine and cafeteria customers to determine who is buying promoted items and measure the acceptability of healthier items. Promising environmental nutrition interventions should be re-tested for longer durations using validated assessment tools, target diverse populations, and use follow-up study populations to examine sustainability and assess costs. Research into nutrition policy interventions is also required.

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Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.