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## **The effectiveness of nutrition education and implications for nutrition education policy, programs, and research: a review of research**

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### **Authors' objectives**

To evaluate the effectiveness of nutrition education for the public. More specifically, to address two key questions: (1) Does nutrition education work? If so, what are the successful elements across interventions? (2) What are the implications of the findings for nutrition education programme implementation, research, and policy?

### **Searching**

AGRICOLA, CRIS (including HNRIMS), MEDLINE, ERIC, PsycLIT (including PsycINFO), NHLBI-NIH, Food Science and Technology Abstracts (FSTA) and AgeLine databases were all searched.

Key journals in the appropriate fields, and references of articles and reviews were handsearched. Reports and additional information were obtained from federal and state agencies, national voluntary, professional, educational, and non-profit-making organisations, private foundations, and trade and advertising associations. Key individuals in each of the relevant fields were contacted for additional material.

### **Study selection**

#### **Study designs of evaluations included in the review**

Randomised controlled studies (RCTs) or quasi-experimental studies with some evidence of instrument reliability and validity. The review also included other studies of restricted nature, providing they illustrated promising approaches and their limitations were noted.

#### **Specific interventions included in the review**

Strategies used to deliver nutrition education for the US population. Nutrition education is defined as any set of learning experiences designed to facilitate the voluntary adoption of eating and other nutrition-related behaviours, conducive to health and well-being.

#### **Participants included in the review**

Pre-school children, school-aged children, adults, pregnant women, caregivers of infants, older adults, and paraprofessionals and professionals in training.

#### **Outcomes assessed in the review**

Changes in eating and other nutrition-related behaviours that could be measured by the following: dietary recalls, records, or food frequency questionnaires; intakes of specific foods, some composite index of food intake or food score; actual behaviours such as eating 5 portions of fruit and vegetables daily, having fruits available and visible at home, salting foods, taking skin off chicken, having one's serum cholesterol checked, or even, in the ecological domain, reusing grocery bags. Other outcomes included changes in knowledge, attitudes or other mediating variables, skills, behaviours and health outcomes.

#### **How were decisions on the relevance of primary studies made?**

The authors do not state how the papers were selected for the review, or how many of the authors performed the selection.

### **Assessment of study quality**

Validity was not explicitly assessed, although the review's inclusion criteria were random assignment of participants, strong quasi-experimental design, and evidence of instrument reliability and validity. The authors do not state how the validity assessment was performed.

### **Data extraction**

The authors do not state how the data were extracted for the review, or how many of the authors performed the data extraction.

### **Methods of synthesis**

#### **How were the studies combined?**

The studies were combined by a narrative description.

#### **How were differences between studies investigated?**

Reviews were conducted separately for pre-school children, school-aged children, adults, pregnant women, and caregivers of infants, older adults, professionals and paraprofessionals.

### **Results of the review**

This review included 217 nutrition education intervention studies.

Nutrition education generally works, but intervention effects may be different depending on outcome measures and gender. Positive results were often only achieved in some components in large, multicomponent interventions. In general, interventions using educational methods directed at behavioural change were more effective than those focusing on the dissemination of information, which assumed attitude and behavioural changes would ensue.

Behaviourally-focused nutrition education uses a set of learning experiences to facilitate the voluntary adoption of food- and nutrition-related behaviours that are conducive to health and well-being. The behaviours addressed are identified from the needs, perceptions, motivations and desires of the target audience, as well as from national nutrition and health goals, and science-based research findings.

More effective educational strategies have the following characteristics: they take into account the motivations of particular population groups; they involve self-assessment and feedback; and they require active participation. Mass media campaigns can improve knowledge and may change behaviour if the behaviour is highly targeted and messages are carefully focused. Systematic behavioural change strategies should be tailored to the needs of target groups or individuals. Availability of healthy food in restaurants and the community supports the maintenance of change. Active participation by community leaders is likely to improve long-term effectiveness.

### **Authors' conclusions**

Nutrition education programmes should be ongoing and multifaceted. The more effective programmes are those that are behaviourally-focused and based on appropriate theory and prior research. This review has also found that effective programmes use a combination of contemporary models of individual, social and environmental change. Studies based on a 'dissemination of information and teaching of skills' model were not very effective in bringing about behavioural change.

### **CRD commentary**

The abstract is based mainly on the Executive Summary of this monograph review, which is very comprehensive and nine chapters in length. It is necessary to read the original review if more details are needed. The strategy of the literature search is very extensive, but it only included studies that were conducted in the United States.

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### **Bibliographic details**

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