

Citation:

Giskes K, Kamphuis CB, van Lenthe FJ, Kremers S, Droomers M, Brug J. A systematic review of associations between environmental factors, energy and fat intakes among adults: is there evidence for environments that encourage obesogenic dietary intakes? Public Health Nutr. 2007 Oct;10(10):1005-17. Epub 2007 Feb 22.

PubMed ID: [17381942](#)

Study Design:

Systematic Review

Class:

M - [Click here](#) for explanation of classification scheme.

Research Design and Implementation Rating:

POSITIVE: See Research Design and Implementation Criteria Checklist below.

Research Purpose:

To review the literature examining associations between environmental factors, energy and fat intakes among adults and to identify issues for future research.

Inclusion Criteria:

This study was part of a larger literature review of environmental factors associated with energy, fat, fruit and vegetable consumption among adults.

PubMed, Human Nutrition, Web of Science, PsychInfo and Sociofile were searched using database specific indexing terms.

Studies utilized were:

- published in English,
- contained human subjects,
- conducted between January 1, 1980 to December 31, 2004,
- conducted with a population based sample of adults (18-60 years old),
- inclusive of quantified dietary intake with dependent variable(s) of energy intake, total/saturated fat intakes or fruit and vegetable intakes, and
- conducted in an established market economy (per World Bank).

Exclusion Criteria:

Intervention studies and studies with a research design that made it impossible to decipher associations between environmental factors and the outcome behaviors were excluded.

Description of Study Protocol:**Recruitment**

Database searches revealed 20653 potentially relevant titles for review.

Design

Review of literature for studied relationships between diet and environmental factors such as:

1. Accessibility and availability including physical and financial access to products and shops that support a healthy diet (or not).
2. Social conditions related to inter-personal relationships including marital status, social support and psychosocial stressors.
3. Cultural conditions such as culture specific eating patterns, health value orientations, food experiences and cultural participation.
4. Material conditions including financial status, deprivation and unfavorable working, housing and neighborhood conditions.

Blinding used (not applicable)

Intervention (not applicable)

Statistical Analysis

Effect sizes were calculated to interpret the magnitude of an association

Data Collection Summary:

Timing of Measurements

Varied by study

Dependent Variables

- Environmental factors and energy intake
- Environmental factors and total fat intake
- Environmental factors and saturated fat intake

Independent Variables

Age

Control Variables (not applicable)

Description of Actual Data Sample:

Initial N: 67 studies; 27 excluded due to study design or they were theoretical papers; 19 studies did not examine energy, total fat or saturated fat intake.

Attrition (final N): 21 articles

Age: Adult subjects aged 18-60 years old

Ethnicity: USA, 11 studies; United Kingdom/Europe, 6; Canada/Australia/Israel, 4

Other relevant demographics: 9 studies measured environmental factors objectively

Anthropometrics (not available)

Summary of Results:

Key Findings

- 14 of 22 studies found significant relationships between environmental factors and energy intake.
- 16 of 39 studies found significant relationships between environmental factors and total fat intake.
- 9 of 20 studies showed significant relationships between environmental factors and saturated fat intake.

Table Summary of association found in the reviewed articles where (+) indicates a positive association between environmental determinant and dietary outcome and (-) indicates a negative association between environmental determinant and dietary outcome and numbers in parentheses indicate non-significant effects or ones that did not report significance.

	Total Energy	Total Fat	Saturated Fat
High-fat food stocked in stores		+ 1	
High-fat food at home		+ 1	
Grocery store in residential area		(1)	+ 1
Supermarket in residential area		(1)	(1)
Full service restaurant in residential area		(1)	(1)
Fast-food restaurant in residential area		(1)	(1)
Married	+ 2	+ 2 / (2)	- 2
Have Children	1	1	
Living with others	+ 1 / - 1	+ 2	+ 2
Others present during mealtimes	+ 1	+ 1	
% community exhibits high-fat intake		+ 1	
Living in rural area	+ 2	+ 2 / (2)	+ 2
Living in disadvantaged area	(2)	(2)	(4) / - (2)
Household income		(3)	
Household food insecurity	- 1	(1)	
Portion size	+ 2		
Weekend	+ 1	+ 1	
Winter	+ 1 / (2) / (3)	+ 2 / (1)	+ 1 / (1)
Workload	+ 2	+ 1 / (1)	+ 1 / (1)
Work psychological demands		+ 1 / (1)	
Job strain		+ 1 / (1)	
Job latitude		(2)	
Live in northern region (Belgium)		+ 2	

Author Conclusion:

Potentially relevant environmental factors from social-ecological models for health behaviors were relatively understudied in relation to specific dietary outcomes. Therefore, it is too premature to conclude that the environment does or does not play an important role in unhealthy dietary behavior among the adult population.

Reviewer Comments:

Strength: Highlights lack of evidence of environmental factors impact on diet

Weakness: Considers large number of factors in same study, thus difficult to observe trends

Research Design and Implementation Criteria Checklist: Review Articles

Relevance Questions

- | | | |
|----|---|-----|
| 1. | Will the answer if true, have a direct bearing on the health of patients? | Yes |
| 2. | Is the outcome or topic something that patients/clients/population groups would care about? | Yes |
| 3. | Is the problem addressed in the review one that is relevant to nutrition or dietetics practice? | Yes |
| 4. | Will the information, if true, require a change in practice? | Yes |

Validity Questions

- | | | |
|----|--|-----|
| 1. | Was the question for the review clearly focused and appropriate? | Yes |
| 2. | Was the search strategy used to locate relevant studies comprehensive? Were the databases searched and the search terms used described? | Yes |
| 3. | Were explicit methods used to select studies to include in the review? Were inclusion/exclusion criteria specified and appropriate? Were selection methods unbiased? | Yes |
| 4. | Was there an appraisal of the quality and validity of studies included in the review? Were appraisal methods specified, appropriate, and reproducible? | Yes |
| 5. | Were specific treatments/interventions/exposures described? Were treatments similar enough to be combined? | Yes |
| 6. | Was the outcome of interest clearly indicated? Were other potential harms and benefits considered? | Yes |
| 7. | Were processes for data abstraction, synthesis, and analysis described? Were they applied consistently across studies and groups? Was there appropriate use of qualitative and/or quantitative synthesis? Was variation in findings among studies analyzed? Were heterogeneity issues considered? If data from studies were aggregated for meta-analysis, was the procedure described? | Yes |

8.	Are the results clearly presented in narrative and/or quantitative terms? If summary statistics are used, are levels of significance and/or confidence intervals included?	Yes
9.	Are conclusions supported by results with biases and limitations taken into consideration? Are limitations of the review identified and discussed?	Yes
10.	Was bias due to the review's funding or sponsorship unlikely?	Yes

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