Influences on Food Choice and Dietary Behaviour

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University of Surrey, UK
Outline of talk

• Introduction
• Factors affecting food choice
• Cereal foods
  – Wholegrain
  – Functional cereal products
• Organic foods
• Risk perception and foods
• Conclusions
Food choice
Choice in the supermarket
Factors affecting food choice

**Food**
- Physical/chemical Properties
- Nutrient content
- Physiological effects e.g. satiety, hunger, thirst, appetite

**Person**
- Perception of Sensory attributes e.g. appearance, aroma, taste, texture
- Psychological factors e.g. personality, experience, mood, beliefs
- Food choice

**Economic and social**
- Price, availability
- Brand
- Social/cultural
- Attitudes e.g. to: sensory properties, health/nutrition, price/value

**From Shepherd (1985)**
Cereal foods

- Health benefits of wholegrain but low consumption
- Functional cereal products
- HEALTHGRAIN project- www.healthgrain.org
Cereal consumption in the UK 1942-2000

![Graph showing cereal consumption in the UK from 1942 to 2000. The graph indicates a decrease in cereal consumption over time, with a peak around 1947 and a steady decline towards 2000. The graph includes data on cereals and bread, with cereals showing a steeper decline compared to bread.](image)
Cereal consumption in the UK 1942-2000

Year

Garns per week


Cakes & pastries

Biscuits

Breakfast cereal

National Food Survey
Wholegrain labels
Functional foods
Functional grain products
HEALTHGRAIN consumer module

- UK, Finland, Italy, Germany
- Objectives:
  - Assess consumer expectations and attitudes towards modified cereal-based products
  - Assess the impact of the modification method on acceptability
  - Assess how appealing different types of health promoting aspects of cereal-based product are
  - Assess how they fit with the existing health image of products
- Qualitative – focus groups
- Quantitative – survey
Survey

• Survey on approx. 500 people in each of four countries
  – UK, Italy, Germany and Finland

• Main foods:
  – bread
  – pasta
  – biscuits

• Main modifications:
  – cholesterol lowering
  – added fibre

• Health Belief Model
Survey: topics covered

- Views on refined vs wholegrain
- Use frequency of range of grain products
- Attitudes towards and appeal of modified products
- Acceptability of different ways of achieving the health benefits
- Willingness to use these products if they contained health benefits
- Motivation factors (perceived need to pay attention to a number of health related issues)
- General attitudes to functional foods
- Socio-demographic background (e.g. gender, age, education, size of household)
Ratings of refined and whole grain products – three countries

What you expect refined / whole grain products to be on the following characteristics?
Pooled data for UK, Italy and Finland

![Graph showing ratings of natural, healthy, nutrient balanced, filling, slow energy release, easy to digest, good taste, and inexpensive for refined and whole grain products.](chart.png)
Ratings of refined and wholegrain by country

UK

ITALY

FINLAND

Natural Healthy Nutr. balanced Filling Slow energy release Easy to digest Good taste Inexpensive

Natural Healthy Nutr. balanced Filling Slow energy release Easy to digest Good taste Inexpensive

Natural Healthy Nutr. balanced Filling Slow energy release Easy to digest Good taste Inexpensive
Gender differences

• Women are more aware of benefits of grain based foods than men
• Women are more health conscious
• Women expect less illness in later life caused by their eating habits
• Men describe themselves as paying less attention to a healthy diet but are conscious of possible health problems arising from this
Gender differences

Would you be willing to use the following products if they were available on the market?

- Bread containing added fibre, $r=0.096$
  - Female: 5.2
  - Male: 4.9

- Pasta containing added fibre, $r=0.109$
  - Female: 4.8
  - Male: 4.4
Age differences

• Older people more concerned about health

• Older people more positive about:
  – functional foods generally
  – grain based foods particularly
Age differences

How much attention do you need to pay to the following?

- Gut health: 0.294
- Blood cholesterol level: 0.385
- Fibre intake: 0.266
- Overall healthiness of diet: 0.178

- <30 years
- 30-39 years
- 40-49 years
- 50-59 years
- 60+ years

[Bar chart showing age differences in attention to health aspects]
Age differences

Would you be willing to use the following products if they were available on the market?

- Cholesterol lowering biscuits
  - r = 0.199

- Bread containing added fibre
  - r = 0.219

- Cholesterol lowering pasta
  - r = 0.182

- Biscuits containing added fibre
  - r = 0.127

- Pasta containing added fibre
  - r = 0.107

- Cholesterol lowering bread
  - r = 0.309

Categories: <30 years, 30-39 years, 40-49 years, 50-59 years, 60+ years
Perceived benefit – differences between foods

![Graph showing perceived benefit of different foods](image)

- **Cholesterol**
  - Bread: 5.4
  - Pasta: 4.8
  - Biscuit: 4.2

- **Fibre**
  - Bread: 5.2
  - Pasta: 5.0
  - Biscuit: 4.8
Health Belief Model

Willing to use cholesterol lowering/added fibre products

Healthiness

Pleasantness

Perceived control

Susceptibility to heart disease/gut disorders

Severity of heart disease/gut disorders

Cue to reduce heart disease/gut disorders

Products
- Bread
- Pasta
- Biscuits
## Health Belief Model for bread – significant predictors

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<th>Italy</th>
<th>UK</th>
<th>Finland</th>
<th>Germany</th>
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<td>*</td>
<td>*</td>
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<td>Pleasantness</td>
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<tr>
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<td>Susceptibility</td>
<td></td>
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<tr>
<td>Cue to action</td>
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<table>
<thead>
<tr>
<th></th>
<th>$R^2$</th>
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<td>0.58</td>
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<td></td>
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</table>
Cereals - concluding comments

- Perceptions differ between countries
  - Refined grain products seen less positively in Finland
- Women and older people more positive about functional grain products
- More positive about modifying bread and pasta than biscuits
- Pleasantness and perceived healthiness main influences on willingness to use
Organic foods

• Increase in consumption over time
• Variation across EU countries
• Processed organic foods
• Moral and affective influences on choice
• CONDOR project - www.condor-organic.org
EU-15: Organic area as share of usable agricultural area

CEC (2004)
EU-15: Organic area as share of usable agricultural area

Country

Percent organic

AT  BE  DE  DK  EL  ES  FI  FR  IE  IT  LU  NL  PT  SE  UK  UE15

CEC (2004)
## Development of market

<table>
<thead>
<tr>
<th>Special Segment</th>
<th>Mainstream</th>
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<tr>
<td>• Particular type of consumers</td>
<td>• ‘Ordinary’ consumers</td>
</tr>
<tr>
<td>• Health food shops</td>
<td>• Supermarkets</td>
</tr>
<tr>
<td>• Environmental concerns</td>
<td>• More concerned about:</td>
</tr>
<tr>
<td>• Altruistic values</td>
<td>- price</td>
</tr>
<tr>
<td>• Less concerned about:</td>
<td>- convenience</td>
</tr>
<tr>
<td>- Price</td>
<td>- food quality</td>
</tr>
<tr>
<td>- Convenience</td>
<td>- availability</td>
</tr>
<tr>
<td>- Food quality</td>
<td></td>
</tr>
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</table>
Organic foods
Organic fresh foods
Organic frozen foods
Organic processed food
Organic processed food

SACLA' organic pesto

freshly made from naturally grown basil
dicked in the open fields of Italy
Organic Cola
Theoretical background

- Theory of planned behaviour (TBP)
- Means-end chains (MEC)
- Food Related Lifestyle (FRL)
Theory of Planned Behaviour

Adapted from Ajzen (1988)

- Behavioural Beliefs x Outcome Evaluations → Attitude
- Normative Beliefs x Motivation to Comply → Subjective Norm
- Control Beliefs x Power → Perceived Control

Behavioural Intention → Behaviour

Adapted from Ajzen (1988)
Extended Theory of Planned Behaviour

- Behavioural Beliefs x Outcome Evaluations
- Normative Beliefs x Motivation to Comply
- Control Beliefs x Power

- Moral Norm
- Attitude
- Subjective Norm
- Perceived Control

Behavioural Intention → Behaviour
CONDOR organic study

• Elicit moral and affective concerns (n=50 in each country)

• Questionnaire based on TPB and FRL
  – the UK, Finland, Denmark, Sweden, Germany, Italy, Spain and Greece
  – Only UK data presented

• Two foods
  – Fresh organic tomatoes (n=499)
  – Organic tomato sauce (e.g. used on pasta) (n=501)
Theory of Planned Behaviour

Adapted from Ajzen (1988)
Multiple regression: fresh tomatoes

<table>
<thead>
<tr>
<th>Predictor of intention</th>
<th>Final beta</th>
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<tr>
<td>Attitude - affective</td>
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<td>Past behaviour</td>
<td>.18***</td>
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### Multiple regression: tomato sauce

<table>
<thead>
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Theory of Planned Behaviour

Adapted from Ajzen (1988)
## Factor analysis

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Multiple regression: fresh tomatoes

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## Multiple regression: tomato sauce

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<td>.05</td>
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<tr>
<td>Green identity</td>
<td>.12***</td>
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Organic - concluding comments

• Organic markets are still relatively small
• Increases in processed organic foods
• Moral issues are not very salient
• However, moral norms do predict both intention and attitude within the TPB
Risk concerns

The US public is apparently worried about: ‘Nothing much …

• except the food they eat,
• the water they drink,
• the air they breathe,
• the land they live on,
• and the energy they use.’

Douglas and Wildavsky (1982)
Factors underlying risk perception

Sparks & Shepherd (1994)
Risk ratings

Frewer, Shepherd & Sparks (1994)
Control ratings

- Alcohol
- Fat
- Food poisoning (home)
- Food poisoning (outside)
- Microwave ovens
- Irradiation
- Pesticides
- GM animal
- GM micro-organisms
- GM plants

0 20 40 60 80 100

- society
- other people
- personal

Frewer, Shepherd & Sparks (1994)
Optimistic bias

• Feeling of being less at risk than other similar people
• Feeling of invulnerability
• Related to control
• True for many hazards including food hazards
• Optimism about behaviours
• Difficult to reduce
For years these Ministers have denied any link between mad cow disease and humans. Yesterday they finally changed their minds.

**CAN WE STILL TRUST THEM?**
Trust ratings

TV Current Affairs: 65
Quality Newspaper: 60
Consumer Organisation: 60
Research Publication: 60
TV News: 55
Environmental Group: 55
Friends: 50
Food Industry: 50
Government Information: 45
Government Minister: 40
Tabloid Newspaper: 25

Frewer & Shepherd (1994)
Factors underlying trust

Frewer, Howard, Hedderley & Shepherd (1996)
## Reasons for trusting a source

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<tr>
<th>Category</th>
<th>Trust</th>
<th>Gaining trust</th>
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<tbody>
<tr>
<td>Expert</td>
<td>12</td>
<td>2</td>
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<tr>
<td>Factual</td>
<td>12</td>
<td>1</td>
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<tr>
<td>Knowledgeable</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>No vested interest</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>Proven right</td>
<td>11</td>
<td>14</td>
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<tr>
<td>Responsible</td>
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<tr>
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Adapted from Frewer *et al.* (1996)
## Reasons for distrusting a source

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<tr>
<td>Biased</td>
<td>16</td>
<td>4</td>
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<tr>
<td>Lack of knowledge</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Not factual</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td>Proven wrong</td>
<td>8</td>
<td>15</td>
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<tr>
<td>Vested interest</td>
<td>14</td>
<td>3</td>
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</table>

Adapted from Frewer et al. (1996)
Asymmetry in gaining and losing trust

• Negative events more visible
  – Specific, well defined, e.g. accidents

• Positive events more indistinct
  – How many positive events in safely running a nuclear power plant for one day?

• Negative events carry more weight

• Bad news seen as more credible

• Distrust reinforced by:
  – Not mixing with those who are distrusted
  – Interpreting new information according to initial view (e.g. Three Mile Island)
GM tomato paste
GM in the media

Daily Mail
FRIDAY, FEBRUARY 20, 2004
NEWSPAPER OF THE YEAR

FRANKENSTEIN FOODS
THE GREAT BETRAYAL
NEWS AND ANALYSIS: PAGES 6-7
COMMENT: PAGES 12-13

4ft 10in tall and angry as hell
Genomics survey

- Included in British Social Attitudes Survey
- 3500 members of the public
- Approximately 60 questions on genomics
- Plus demographics and other information
- Fieldwork: June – September 2003
‘In order to compete with the rest of the world, Britain should grow GM foods’

Sturgis, Cooper, Fife-Schaw & Shepherd (2004)
‘On balance, the advantages of GM foods outweigh any dangers’

Pro

Anti

Sturgis, Cooper, Fife-Schaw & Shepherd (2004)
‘GM foods should be banned, even if food prices suffer as a result’

Sturgis, Cooper, Fife-Schaw & Shepherd (2004)
Risk perception – concluding comments

• Factors underlying risk perception
  – Known risks and severity

• Optimistic bias

• Trust

• Genetically modified foods
  – Negative but less negative than in the 1990s
Overall concluding comments

• Food choice is influenced by different factors and the effects of these will vary depending on the context

• Various theories and methods for investigating consumer attitudes and influences on food choice
  – Theory of planned behaviour
  – Health belief model
  – Risk psychometric model