

Factors influencing healthy meal choice in Germany

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SUMMARY

The aim of this study is to discover what German restaurant customers consider to be healthy. Owing to the paucity of literature on healthy meals, this research attempts to initiate an exploratory investigation testing a new psychological construct of health meals by using college students as the study population. The proposed scale consists of three dimensions (nutrition value, organic content, and gastronomy), which are defined by 16 attributes. This study finds that low in fat is the major consideration for selecting healthy meals, whereas the aroma of meals is not a concern for healthy meal choice. In the final analysis 15 indicators are retained in the measurement scale after the reliability test. Since the dimension of organic content has the highest reliability score, it could be best utilized as the surrogate indicator assessing the perception of a healthy meal. The derived scale is rather embryonic since it is tested only on German students. It is suggested that the scale should be further tested by drawing large samples from heterogeneous populations to boost the scale's construct validity so as to collect samples from restaurant goers with different cultural background.

Key words:

healthy meal; restaurant; scale development; Germany

INTRODUCTION

Interest at consumer level in health foods has been on the rise since the “back to nature movement” in the 1970s when eating tofu or bean sprouts was seen more as a political expression rather than a quest for good nutrition. Customers now expect to find healthy food alternatives not only in supermarkets but also in restaurants. Many chefs and restaurateurs are gearing up their operations to meet the new demand.

Consumer motivations to conform to a healthier lifestyle are numerous but the perception that consumers have of what is healthy to eat appears to be not always clear and often conflictual. Reasons most commonly cited to seek a healthy eating lifestyle fall into four main categories: personal health, environmental/ecological, ethical and spiritual.

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In the past twenty years, much research has been conducted on the links between diet and chronic disease but little has been carried out on methods to assess diet quality and consumer perceptions of what really constitutes healthy eating habits. Many people are confused about what they should and should not eat and others do not follow healthy eating practices (Frazao 1999). The U.S. Department of Agriculture estimated in 2000 that only 12% of Americans eat healthfully.

This statistic is extremely alarming because the four most common causes of death in North America and Europe - heart disease, cancer, strokes and diabetes - are all associated with poor diets. Diet-related health conditions cost society an estimated \$250 billion annually in medical costs and lost productivity (Frazao 1999).

Factors influencing meal choices

Average personal food consumption in the Western hemisphere continues to increase, albeit slowly, increasing both nutritional disorders and obesity levels. Appetites are stimulated by the offerings of a food industry that provides a growing range of food products, many high in fat, sugar and salt. Eating is also being made easier with a shift away from the purchase of raw ingredients towards prepared and frozen meals and more packaging and more food-miles, including availability of exotic and out of season fruits and vegetables. Fresh fruit and vegetables are often ready-washed and chopped. Prepared food is increasingly available to eat out of home. However, shoppers are becoming better educated and more aware of health-related issues and are concerned about the nutritional content and functional value of their food. They are also considering production methods as part of product quality.

Among many demographic factors, personal income constraints may strongly influence and moderate purchase intentions. A trade-off commonly occurs between price and quality, once a food's quality is perceived, the perception is justified against the price before purchasing. Furthermore, because true price homogeneity rarely exists, customers remember prices as either 'expensive' or 'cheap' (Kyriakopoulos and Oude Ophuis 1997). In a study undertaken in the USA, it was found that food-related price and convenience concerns were highest among younger consumers and people with lower incomes (Glanz, Basil, Maibach, Goldberg and Snyder 1998).

However, once basic nutritional needs are met, the amount of income spent on diet may be due to social and cultural factors. More money and less time makes convenience a high priority and technology has come to the rescue with convenience foods, freezers and microwave ovens, where little time or skill are needed to prepare an individual meal. Populations in affluent western cultures are more likely to be driven by higher order needs having the means to make more sophisticated food choices. Maslow's (1970) hierarchy of needs attempts to explain that individuals have needs that are satisfied in a sequential way. Hunger and thirst are satisfied first before security, protection and self-fulfillment. In general, in western countries, lower order needs are seen to be largely met and thus the focus is on attending to higher order needs.

For example, someone with hardly any resources in a developing country may not spend more money to support environmental causes. However, those who wish to satisfy a self-actualization may well support an altruistic cause like fair trade and be willing to pay more.

A person's lifestyle has a relationship with food selection and purchasing behavior. It is determined by psychological, biological, and socio-demographic factors. Glanz et al. (1998) identified following seven significant clusters from the USA consumer market based on food- and health-related tendencies and behaviors.

- Physical Fanatics (24% of population) - very health-orientated, do not smoke or drink and watch weight
- Active Attractive (13%) - health-orientated, but in order to look attractive
- Tense but Trying (10%) - healthy in terms of food consumption but may smoke or drink
- Decent Dolittles (24%) - overweight, do not smoke, drink, exercise or eat healthily
- Passively Healthy (15%) - healthy lifestyle but consumer of a high-fat diet
- Hard-living Hedonists (6%) - smoke, drink, eat poorly but exercise
- Non-interested Nihilists (7%) - smoke, drink, eat poorly and do not exercise

Marketing factors often moderate consumer-purchasing intentions irrespective of established attitudes. Consumers intend to follow cues such as labels and government endorsements to ensure nutritional value and food safety. Although not all consumers read food labels, the value of labeling arises from the perception that a food is safe since it has met the labeling requirement the government imposed. Point-of-sale displays influence consumer behavior. Suggestive selling signs and loss leaders in restaurants encourage purchasers to change their intentions.

Customers are often puzzled about the meaning of organic food. A research by Harper and Makatouni (2002) found that buyers could not tell the difference between organic and free-range products because they review that organic is identical to free-range food. The same research categorized the consumer perceptions of organic food in four groups according to the food content, the food production method, the food values, the organic food and social class. Key issues covered by the four groups are that organic food contains no pesticides, hormones or GM ingredients, is produced naturally and in an environmentally-friendly way, is healthful and safe and is purchased by the higher socio-economic classes (Harper and Makatouni 2002).

However, the acid test for food is the sensation one feels by the means of taste buds. According to the research published in the British Food Journal on organic and GM food, consumers stated that they “believe that food has become less safe, less tasty, a bit more expensive and certainly less healthy” over the last 20 years (Verdurme, Gellynck and Viaene 2002:613). As such, a fifth element around consumer perception could be added to define and characterize the ‘taste’ of organic food. After all, “numerous claims are made about the benefits of organic foods, in order to justify the premium price that consumers have to pay” (Fillion and Arazi 2002:153) and taste should play a determining role in consumer preference. A research by Fillion and Arazi concluded that products must be assessed and compared individually rather than simply claiming that all organic foods taste better (2002).

Models used for understanding changes in eating patterns

Health educators use many different models for understanding behavior change and designing successful interventions to encourage people to eat more healthily.

The Health Belief model (Glanz, Lewis and Rimer 2002) was one of the first behavior change theories developed and provides insights for why people make health decisions and creates a process for encouraging change. It is also useful in understanding how to design health education programs and persuasive messages. According to this model, changes in behavior depend on five factors:

- *Perceived severity*—the belief that a health problem is serious
- *Perceived threat*—the belief that one is susceptible to the problem
- *Perceived benefit*—the belief that changing one’s behavior will reduce the threat
- *Perceived barriers*—a perception of the obstacles to changing one’s behavior
- *Self efficacy*—the belief that one has the ability to change one’s behavior

The model assumes a value expectancy approach, hypothesizing that behavior depends on the expected outcomes of actions, such as perceived physical, psychological or social benefits. Few studies have been carried out to understand dietary behavior. Trudeau, Kristal and Patterson (1998) stated that intrinsic motives for eating a healthy diet were associated with the consumption of fruit and vegetables (1998). Patterson, Kristal and White (1996) found a positive association between perceived pressure to eat a healthy diet (extrinsic motivation) and healthful dietary practices.

The Social Cognitive Theory (Bandura 1986) proposes that behavior change is influenced by the environment, personal factors, and aspects of the behavior itself. It helps health educators understand the complex relationships between the individual and his or her environment, how actions and conditions reinforce or discourage change, and the importance of believing in and knowing how to change. The theory explains the education process through a number of “constructs.” Those constructs which have applications in health education are perception of a situation, anticipated outcomes of behavior, knowledge and skills to perform a behavior, and confidence in performing a behavior. Using these constructs, Loughrey, Basiotis, Zizza and Dinkins (2001) determined effective ways to convince female head of households to change their eating patterns.

The Stages of Change model (Prochaska 1979) provides a framework for explaining how behavior change occurs. According to this model there are five stages of change: (1) Precontemplation—not thinking about changing behavior; (2) Contemplation—thinking about changing behavior in the near future; (3) Decision—making a plan to change behavior; (4) Action—implementing the plan to change behavior; (5) Maintenance—continuation of behavior change.

The Transtheoretical model views behavior change as a process in which individuals are at various stages of readiness to change. The Stages of Change Model is not linear. People can enter and exit at any point and some people may repeat a stage several times. Nigg, Burbank, Padula, Dufresne, Rossi, Velicer, Laforge and Prochaska (2004) used the Transtheoretical Model of behavior change to analyze the possible relationships between health behaviors. The study investigated the stage distribution of 10 healthy behaviors including avoidance of high fat food, eating a high-fiber diet, attempting to lose weight, exercising regularly. The majority of older adults were found to be in either precontemplation or maintenance, illustrating the need to target interventions to precontemplation.

Most elderly were in pre contemplation for losing weight and exercise, making these behaviors a priority for intervention research. Lach, Everard, Highstein and Brownson (2004) also applied the Transtheoretical Model to a health promotion program for older adults - Health Stages. The concepts of the model, especially stage of change, were successfully used for program planning, curriculum development and program evaluation. A Programming Grid was developed to guide curriculum development and evaluate if programs were reaching out to people at all stages of readiness to make healthy changes.

The above works summarize the relevant studies on the behavioral intention on healthy living style. Due to the paucity of literature on the measurement of healthy meals, the study attempts to develop a new measurement scale on the concept of healthy meal. The resultant model could be further utilized for theory development pertaining to behaviors on healthy eating. Since those who chose healthy meals aspire for a healthy living style, the study will also attempt to evaluate the relationship between choice preferences and the consciousness toward personal health.

The test could help determine the criterion-related validity of the derived scale in relation to healthy consciousness so as to reveal the influence of healthy meal on their healthy living style.

METHODS AND FINDINGS

To meet the aim of the study, the current research deployed a series of surveys on college students with study questionnaires including the measurement of demographic traits, perceptions of health meals and lifestyle assessment. The draft questionnaire was developed through two qualitative methods entailing focus group surveys and an expert panel. In the focus group survey, 65 attributes pertaining to the perceptions of healthy meals were recorded.

However, after the initial screening from an expert panel only 17 perception attributes were retained in the questionnaire. A pilot study was then conducted on 30 college students to examine the reliability and validity of the questionnaire. One perception question was eliminated due to a low reliability loading. In the final survey stage, the questionnaires with 16 perceptual questions on healthy meals were distributed to college students living in the cities of Cologne, Bonn and the surroundings. As a result, the study collected 383 useful responses.

Regarding questionnaire design, from the two types (focus group and expert panel) of qualitative studies on healthy meals, the study finds three sub-scales that could measure the perception on healthy meals: (1) nutrition value, (2) organic content, (3) gastronomy.

Therefore, the proposed scale entails three components. Five attributes (fat, calories, fiber, sugar and salt) represent the measurement on *nutrition value*; the *organic content* of meals is reflected by six items (no genetically-modified ingredient, fish, beef, pork, vegetable and poultry); five indicators (fresh ingredient, gourmet, good taste, well presented and good smell) depict the concept of gastronomy. In total, sixteen attributes with a five-point, Likert-type measurement constitute the scale of perceived healthy meals.

Table 1 shows the means of attributes assessing the concept on healthy meals and presents the frequency distribution of the responses to meal choices

Table 1
 THE AVERAGE PERCEPTION ON HEALTHY MEALS AND FREQUENCY DISTRIBUTION (n=383) (%)

Attributes	Means	Ran- kings	Strongly disagree	Disa- gree	Mode- rate	Agree	Strongly agree
Low in fat	3.91	1	1.6	8.7	15.8	43.4	30.5
No genetically modified ingredients	3.83	2	4.6	11.7	17.3	24.3	40.3
Low in calories	3.65	3	5.2	15.7	20.3	40.1	9.7
High in fiber	3.49	4	1.1	11.6	38.8	34.8	13.7
Fish from a natural origin	3.48	5	4.5	16.6	21.9	38.3	18.7
Low in sugar	3.34	6	1.8	13.4	10.1	47.6	18.1
Beef of an organic origin	3.34	6	4.5	19.1	28.4	32.6	15.4
Pork of an organic origin	3.32	8	5.4	18.6	29.6	31.5	14.8
Vegetable with an organic label	3.31	9	5.6	22.5	21.1	34.5	16.3
Low in salt	3.29	10	6.1	17.6	29.6	35.5	11.2
Poultry of an organic origin	3.28	11	4.0	16.8	36.9	30.5	11.8
With fresh ingredients	3.15	12	11.1	19.8	19.3	41.3	7.9
Gourmet	2.02	13	36.5	36.5	17.5	7.9	1.6
Good taste	1.47	14	70.8	19.2	3.9	4.2	1.8
Well presented	1.47	14	69.2	20.4	5.3	4.0	1.1
Good smell	1.45	16	71.2	19.3	4.5	3.7	1.3

Low in fat, no genetically-modified ingredients, and low in calories are the top three considerations for selecting healthy meals, whereas the *smell of meals, well presented and good taste* are not a concern for healthy meal choice. It appears that nutrition value plays a critical role affecting the choice of healthy meals. It is not surprising that in a well developed economy today's consumers have a good grasp of the nutritional factors influencing personal health. It has been evidenced that new generations are inclined to maintain a healthy lifestyle. Twelve choice attributes have a mean score above 3.0. In this case, the average response of the attributes falls into agree category. The 12 choice attributes relate to *nutrition value* and *organic content*. It indicates that the respondents agree that nutrition value and organic content are their choice criteria for healthy meals.

It appears that gastronomy has a little impact on consumer's healthy meal selection. Nevertheless, the perception of *gourmet food* could be a choice attribute for selecting the meals since the average response (mean >2.0) lands in the category of moderate. It is enlightening to know that the level of the refinement of meals could be regarded as a determinant of healthy meals. Logically, following the current life style trend in a fast-track economy, gourmet meals tend to be light and fresh in its appearance.

Gourmet food received a low mean of 2.02. When comparing the attribute of *gourmet food* and the attributes of *nutrition value* and *organic content*, the study suggests that the respondents have a great reservation of the fact that gourmet food is healthy. The findings seem to suggest that the knowledge of restaurants goes that highly tasteful dishes, such as gourmet meals, could contain heavy fat and high calorie along with artificial coloring and flavors. What has been added in gourmet meals is something unknown to the general public since cooking gourmet dishes requires training and experience. It is reasonable that consumers are skeptical about the positive nutrition values of gourmet meals.

The study further reviews the mode of the responses on 16 meal choice attributes. *No genetically - modified food* emerges as the only choice factor having a mode in the category of strongly agree while attributes concerning *good smell, well present food and good taste* have the mode in category of strongly disagree. The results depict that the respondents are highly concerned about the use of genetically modified food. Selling genetically modified (GM) food has been a very controversial issue in developed countries such as Germany. European Union countries have regulated the sale of GM foods.

However, scientific evidences have not clearly identified the harms to personal health by GM foods. It reveals the forward thinking of those in search of healthy meals concerning the materials potentially risky to human body.

The scale reliability test to determine if the subscales are stable was conducted and results are presented in Table 2. From the sub-scale test, the component of *nutrition value* seemingly has a weak reliability. However, all indicators tend to be correlated and effectively represent the sub-scale. As for *organic content*, it could well assess the perception on healthy meals, given a high reliability score. Further, the test indicates that the reliability of subscale could be improved as the attribute of *no genetically modified ingredients* is dropped from the scale. Regarding the dimension of *gastronomy*, the reliability seems moderate and could be increased if the item of *with fresh ingredients* is eliminated from the scale. Lastly, the proposed scale consisting of 16 indicators show a moderate reliability (Alpha= .732). To further augment the sub-scale reliability, two weak indicators were deleted: *no genetically modified ingredients* and *with fresh ingredient*. However, the test result show that the total scale reliability (Alpha=.72) decreases slightly.

Since the reliability of the revised scale decrease, this study ran a reliability test on the proposed scale containing 16 indicators to see which item could improve the scale reliability when deleted.

The result shows that if the item of *with fresh ingredients* is deleted from the scale the scale reliability will improve to .735. However, if eliminating the item of *no genetically modified ingredients*, the total scale will decrease to .72. As a result, this study only eliminates one weak indicator. In sum, this study suggests a new scale (Alpha = .735) assessing the perception on healthy meals. The resultant scale encompasses three distinct components with a reliability score of .869 (*organic content*), .787 (*gastronomy*), and .667 (*nutrition value*) respectively while being explained by 15 indicators in total.

To further assess the criterion-related validity of the scale in relationship to healthy consciousness which is measured by the attribute of *prevention against health problem*, this study tests the casual relationship between the three dimensions of choice preference and healthy consciousness. Table 3 reveals that all choice preferences could predict the concept of healthy consciousness.

Table 2
SUB-SCALE RELIABILITY TEST (n=383)

Attributes	Scale reliability	Cronbach's Alpha if item deleted
Nutrition Value	.667	
Low in fat		.571
Low in calories		.569
High in fiber		.665
Low in sugar		.606
Low in salt		.654
Organic Content	.869	
No genetically modified ingredients		.896
Fish from a natural origin		.843
Beef of an organic origin		.816
Pork of an organic origin		.825
Vegetable with an organic label		.862
Poultry of an organic origin		.831
Gastronomy	.787	
Gourmet		.692
Good taste		.632
Well presented		.686
Good smell		.634
Total Scale Reliable = .735		

Preferences concerning *nutrition value* and *organic content* have a positive relationship with healthy consciousness while *gastronomy* has a negative relationship. The results suggest that the emphases on *nutrition value* and *organic content* slightly represent individuals' tenacity toward maintaining healthy body. Especially, choosing organic ingredients has a much stronger tie with healthy consciousness. However, the respondents do not consider that fine gastronomy will add any benefit to their personal health. Retrospectively, *gastronomy* has a negative relationship to their healthy condition.

Table 3
SCALE CRITERION-RELATED VALIDITY TEST
ON PERSONAL HEALTHY

Choice dimension	Coefficients	P value
Nutrition value	.099	.049
Organic content	.106	.036
Gastronomy	-.210	.000

CONCLUSION

A three-dimension scale of perception of healthy meals is proposed in the study. The three dimensions are found reliable in regard to the measurement of healthy meal choice. The dimension of *organic content* has the highest reliability score. Thus, the attributes of *organic content* could be best utilized as the surrogate indicator assessing the perception on healthy meal. The results seemingly pronounce a surprise because extent literature reveals that *nutrition value* is a good indicator for gauging the concept of healthy meals. However, it may be attributed to the cultural differences and generation gap since the survey is conducted on German college students. Future studies should be deployed to examine if the variations on choice preference exist among restaurant goers from difference cultures. In general, the derived scale is rather embryonic and unrefined. It is suggested that the scale should be further tested by drawing large samples from heterogeneous populations to boost the scale's construct validity. As the scale validity is secured, researchers could further use the scale as a theoretical underpinning to construct models and theories explicating the concept of health living.

The study finds that personal references on nutrition value and organic content are related to prevention of illness. However, gastronomy does not have a positive

relationship with prevention against health problems. The possible explanations could be attributed to the follow two facets. First, the respondents may think a natural living style, instead of a modern life style surrounded by gastronomy and others, could better enhance their health. Second, it may be due to the fact that aspiring for gastronomy is, by large, tied to psychological needs and have less to do with physical health in the mind of respondent. However, a growing amount of literature suggests that psychological repertoire has a profound impact on personal healthy. In this regard, to further validate the above assumption, it is noteworthy that future studies could evaluate the relationship between psychological needs and enhancement of personal health in the context of healthy meal consumption.

Using no genetically modified food is found as a major criterion of determining if the meal is healthy or not. From the marketing point of review, as the meal providers use non GM foods and ingredients, they may acknowledge that fact in the menu. In addition, other vital meal information such as low fat, low calorie, low sodium, and high fiber may also be rendered as long as the information is authentic. Furthermore, regarding the use of organic produces and meats of an organic origin, it is also important to label the organic facts in the menu. In conclusion, it is of paramount importance to recognize that those apt to eating healthy meals are highly vigilant with the content of food and origins of meat. To effectively allure this market segment, the provision of needy information could be indispensable.

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