3

RESEARCH DESIGN AND METHODOLOGY

3.1 INTRODUCTION

The key objects of investigation in this study are the concepts (food product attributes) of importance in meeting the needs of low-income consumers in urbanised informal settlements during food purchasing choice for maize meal, the starch staple-type food mostly consumed.

3.2 RESEARCH AIM

The aim of this study was to develop a food product concept formulation framework for low-income consumers in urbanised informal settlements in Gauteng, South Africa.

3.2.1 Sub-objectives of the study

The sub-objectives of this study, as outlined by the following five steps, were to:

- Identify concepts (food product attributes) of importance in food products purchased by low-income consumers;
- Select, organise (screen), and identify concepts applicable to low-income consumers;
- Formulate and develop design parameters for food product purchase by low-income consumers;
- Verify the design parameters through a test market evaluation of an established product and the description of the identified concepts;
- Formulate the process and modelling of a food product concept framework for the development of food products for low-income consumers.

3.3 CONCEPTUAL FRAMEWORK

Kindly refer to Figure 1 of this chapter for a graphic display of the conceptual framework.

3.4 CLARIFICATION OF TERMINOLOGY

In order to specify clearly the operational context of relevant terms (Babbie & Mouton, 2002:111), the concepts fundamental to this study are defined as follows:

- Need/s of the market

A need is an unsatisfactory condition experienced by the individual consumer that leads to an action that will make the condition better (Sheth & Mittal, 2004:17, G-1). This action relates to the achievement of specific goals through purchase behaviour as directed by consumer decision-making (Assael, 1992:719).

- Needs of the consumers

The basic goals and standards that consumers strive to fulfil, including adherence to attitudes and beliefs held, are imbedded in the basic needs they strive to meet. These expectations refer to the fulfilment of functional needs (satisfaction), hedonic needs (enjoyment) or need for self-social identity through product use (Lundahl, 2006:28-29). The acceptance or rejection of a food product will therefore be determined by the compatibility of food product attributes and consumer needs (Earle, Earle & Anderson, 2001:201; Sheth & Mittal, 2004:3, 4).

- Product characteristics

Product characteristics identifying the product to the company, the market and the consumer and are identified by consumers and designers in the creation of the product concept (Earl *et al.,* 2001:104). Multiple product characteristics can contribute to the description of a single product attribute (Van Kleef, Van Trijp & Luning, 2005:187).

- Food product concept formulation framework

For the purpose of this study, the food product concept formulation framework reports the tactical combination of the primary food product attributes (concepts) perceived as needed by the target population. By understanding these needs, and the product attributes and

3.3. Conceptual framework for the study (Adapted from Fuller, 2005:28; Conner & Armitage, 2002:6)

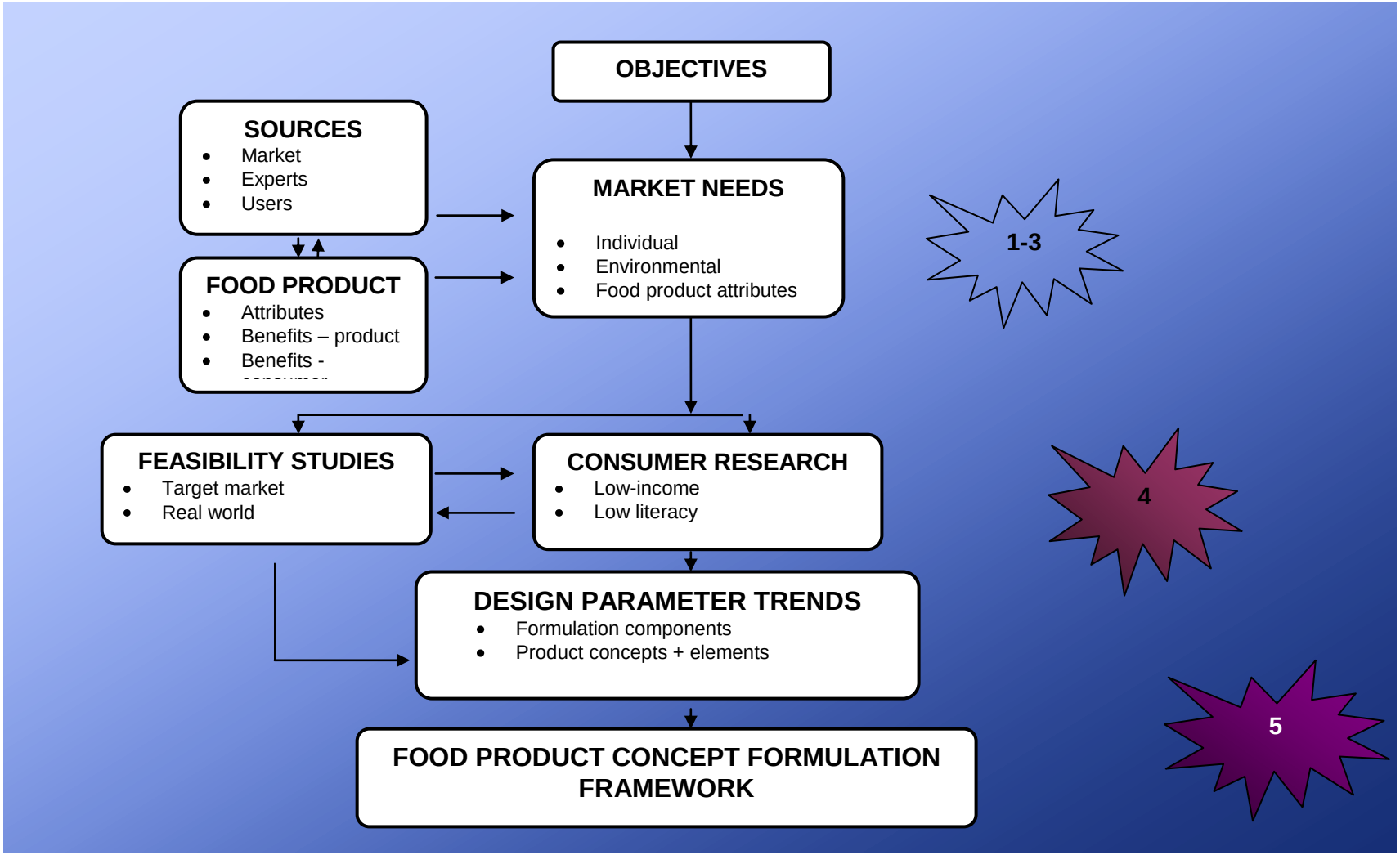

Figure 1: Conceptual framework

characteristics (concept elements) that the low-income consumers use to infer the presence of desired consequences, relevant advantages can be built into the product during formulation to provide a reason to buy (Moskowitz, Porretta & Silcher, 2005:3-7; Van Kleef *et al.,* 2005:187, 198). This approach contributes to an understanding of what the low-income consumers want in order to meet their perceived needs.

- Food product concepts (food product attributes)

Food product concepts represent the basic building blocks utilised during the formulation of a food product. For the purpose of this study, the product concepts are represented by food product attributes that can be operationally controlled by the developer (Moskowitz, Reisner, Krieger & Oksendal, 2004:4, 9), and can be further described through food product concept elements. Food product attributes (concepts) refer to the intrinsic or extrinsic characteristics that the consumer infers from the product (Van Kleef *et al.,* 2005:186), and are therefore tangible properties that are measurable, manipulable and physically under the control of technical product developers (Myers & Shocker as quoted by Van Kleef *et al.,* 2005:186).

- Food product concept elements

Food product concept elements indicate and describe the dimensions that define low-income consumers' perceptions (Kaul & Rao, 1995:296) of the food product attributes (concepts), for the purpose of this study. The food product concept elements (product characteristics) therefore act as descriptors for the respective food product concepts (Van Kleef *et al.,* 2005:187) and may include product benefits and consumer benefits.

- Product benefits

Product benefits report the product characteristics (food product concept elements) important to the target consumer and were identified in consumer discussion groups. Product benefits include four main areas – basic product benefits, package benefits, use benefits and psychological benefits – and need to be integrated into the final consumer preference (Earle, Earle & Anderson, 2001:104-105). Product benefits describe the pleasant consequences of consuming a product and indicate what the product does for the consumer (Van Kleef *et al.,* 2005:186).

- Consumer benefits

Consumer benefits are defined as a food product attribute expressed in terms of what the consumer gets from the product rather than its physical characteristics or features. Benefits can be linked to specific product characteristics (concept elements) but not necessarily (Van Kleef *et al.,* 2005:198).

3.5 RESEARCH DESIGN

3.5.1 Mode of inquiry and type of research design

In this study, the assumptions about the world followed a constructivist orientation, recognising multiple realities giving different views of the same situation. The purpose was to understand the situation from the perspective of the different respondents, and therefore flexible research methods and processes were utilised to incorporate emerging factors (McMillan & Schumacher, 2001: 37).

Following an empirical mixed-method strategy, both quantitative and qualitative (quant-qual) modes of inquiry were incorporated (Creswell, 2003:213). A quantitative, non-experimental mode of inquiry, with a comparative research design, was applied. Data were presented as numbers through which statistical results were derived to describe the phenomena. The role of the researcher was mainly a detached one, as instruments were used to report data (McMillan & Schumacher, 2001: 52; Babbie & Mouton, 2002:76, 78).

This approach was further supported by the contribution made by a collaborative qualitative study that developed narrative descriptions of the phenomena (concepts) identified by the initial quantitative survey (McMillan & Schumacher, 2001: 52). The aim was to provide richness to the context of the research through the inclusion of a phenomenological approach.

3.6 OPERATIONALISATION

The five steps comprising the sub-objectives of the study were incorporated into a three-phased approach:

3.6.1 Phase 1: Identification, selection and screening of concepts to formulate and develop food product design parameters

In order to understand the situation, two baseline surveys were conducted in different settings:

In a baseline investigation (Step 1), role players in the food environment in South Africa (including academics, health professionals, food producers and retailers) familiar with the deprived circumstances and low literacy level of the population at risk were sourced for information. Inquiries included the priority guidelines applied during research and development

of food products for the low-income consumers, food products produced for/ retailed to these consumers and the food product attributes perceived as important by them. See Annexure 1 at the end of this chapter for a copy of this questionnaire.

In a further quest to obtain a view of the need perceived for specific food product attributes in foodstuffs, according to the low-income consumers, a review of available literature was conducted to identify the food product attributes applied/ assessed during food product development for various consumer groups. A questionnaire was compiled accordingly, including 19 food product attributes. Both intrinsic and extrinsic food product attributes were reported (Cagan & Vogel, 2002:8; Moskowitz *et al.,* 2005:517*;* Van Kleef *et al.,* 2005:185).

As knowledge regarding a particular product category is required (Kaul & Rao, 1995:293), maize meal was selected for this purpose because it is the core starch staple-type food mostly consumed by all households in South Africa (Nel & Steyn, 2002:137; Bureau for Food and Agricultural Policy (BFAP), 2008:59;) and specifically by low-income consumers in an informal settlement in the Gauteng region (Oldewage-Theron, Dicks, Napier & Rutengwe, 2005a:20). Structured one-to-one interviews were conducted with 60 habitual low-income category users in the Eatonside urbanised informal settlement to determine the perceived importance of the identified food product attributes in meeting their needs.

This section of the study was conducted in collaboration of three BTech Food & Beverage Management students who reported their respective results for different geographical sections of the informal settlement in separate research project reports under mentorship of the researcher. These reports were presented as part of the requirements for BTech student grants sponsored by the National Research Foundation (Viljoen, 2006; Makgoa, 2006; Marumo, 2006). The data sets generated were then integrated and reported for the purpose of this study. In order to select and organise the identified concepts (Step 2), ranking was applied according to the need implied for the respective food product attributes, to determine the sequential order.

The results of both the baseline surveys were correlated (Step 3) to indicate the discrepancies between the food product attributes provided to and the needs perceived for food product attributes by the target population according to the food industry, and the needs the low-income consumers perceived for the food product attributes. A detailed description of the procedures and results of the project is presented in Chapter 4 of this thesis.

3.6.2 Phase 2: Evaluation of the food product design parameters against an established product and description of the identified concepts

During this phase, the concepts (food product attributes) reported for the food product design parameters were tested against an established food product utilised by low-income households. A sequential explanatory design, consisting of a dominant quantitative survey supplemented by a supportive qualitative procedure, was applied (Creswell, 2003:213).

The questionnaire used for gathering data from the habitual category users during the baseline study was condensed to include the 14 concepts (food product attributes) indicated as being of most importance during Phase 1 (see Annexure 2 at the end of this chapter for a copy of this questionnaire). In order to provide validation to the study, the respondent base was expanded to include informal settlements in the proximity of a town, a city and a metropolis covered by a broader geographical area. Further validation was obtained by inclusion of an adjacent urbanised, but not informal, metropolitan settlement, for the purpose of comparison.

Based on the prepared frequency table, results were ranked and compared between the informal and formal urbanised settlements respectively. Line graphs were also developed to facilitate the comparison of the importance of the different food product attributes (concepts) between the respondent groups (Berk & Cary, 2000:123-138). The comparison of relevant findings between groups was tested to derive a set of concepts (food product attributes) as design parameters for the development of the food product concept formulation framework.

To enable further description and clarification of the meaning of the identified food product attributes (concepts) as perceived by the low-income consumers, focus groups were conducted within each of these urbanised communities (Babbie & Mouton, 2002:123; Cooper & Schindler, 2003:231-2). The discussions were then transcribed, capturing the essence of what was recorded as textual data.

In order to focus the analysis, the food product attributes (concepts) constituting the food product design parameters (derived during Phase 1) were applied as preset categories to organise the textual data accordingly for each of the respondent groups (top-down analysis). During this process the possibility of additional recurring issues were kept in mind to allow for the identification of emergent concept categories (Babbie & Mouton, 2002:492; Taylor-Powell & Renner, 2003:3). Following, descriptive themes (concept elements) were identified within each of the concepts, as applicable for the respective respondent groups, to create subcategories to

allow a greater degree of discrimination. This format made it possible to identify patterns and relationships within and between categories (Taylor-Powell & Renner, 2003:4-5; Corbin & Strauss, 2008:45, 57). The derived descriptions were then compared between the different respondent groups to identify similarities and differences. These findings were applied to screen the data obtained from the quantitative questionnaire survey (first part of Phase 2) to ensure consistency in the meaning of terminology among all the participating groups (internal validity). A detailed description of the procedures and results of this phase of the study is presented as Chapter 5 and Chapter 6 of this thesis.

3.6.3 Phase 3: Development of a food product concept formulation framework

The results generated in the prior phases were integrated to deliver a comparative set of concepts (food product attributes) that was applied to derive the food product concept formulation framework in accordance with the needs of the specific target population.

3.7 QUALITY OF MEASUREMENT

Since the relationship people have with food is complex, meaningful research in this regard requires at least a multi-method and interdisciplinary approach, using tools and techniques specifically tailored for food-related research, and taking contextual factors into account (Jaeger, 2006:137). This study made use of both qualitative and quantitative methods, as well as respondents representing different viewpoints, in a quest to remain as closely as possible in touch with the needs of the low-income consumer as predicted category users, in order to obtain the most useful understanding of the studied concepts.

3.7.1 Validity

3.7.1.1 External validity

The purpose of the developed concept framework is to guide food product developers with less risk of bias and with an improved focus on compatibility with target consumer needs and preferences in the food product development process. In order to support accurate prediction of consumer preference and choice, external validity was indicated as a high priority (Garber, Hyatt & Starr, 2003:3).

External validity refers to the ability to generalise research findings to settings and populations beyond the scope or control of one particular study (Cooper & Schindler, 2003:231, 231; Bless, Higson-Smith & Kagee, 2007:93). Two factors need to be considered to enhance external validity. It is important firstly, that the study population should be representative of the population in question, and secondly, that the study should simulate reality as closely as possible (Bless *et al.,* 2007:93). However, validity cannot easily be addressed in consumer research as there are no external criteria by which to assess it.

Consumer behaviour is complex, reflecting various influences: economic, psychological (motives, attitudes, perceptions, learning), sociological (consumer socialisation, reference groups), anthropological (culture, tradition), geographical (regional factors), and nutritional and medical (nutritional needs, physiological regulation, sensory factors, etc.) (Von Alvensleben, 2002:209). The food product concept prototype derived from the baseline study was therefore tested in three different urbanised informal settlements and in one formal settlement in the broader geographical area, involving at least 100 low-income consumers in each settlement (n=502). The aim was to confirm that target consumers would most probably perform in a manner predicted by the research findings.

Validity may relate to the performance of the test stimulus in a new study or the performance of the product or concept in the marketplace (Moskowitz, Beckley, Mascuch & Keeling, 2002:4; Garber *et al.,* 2003:3). The latter approach was applied in this study to confirm the derived concept elements constituting the product concept prototype. In so doing, the applicability of a concept of the first world was tested within the context of the third world (De Wet, 2008).

The following procedures were applied to ensure external validity:

- Low-income consumers were screened for inclusion as respondents in the study, based on being habitants of the specific urbanised informal settlements, habitually consuming maize meal as staple food (at least twice/ day), and being the food purchasers of the household;
- To enhance the content and construct validity of the study, the starting questionnaire used for the pilot study was compiled so as to include all the various components (food product attributes) of the variable in question, as based on an extensive literature search in order to ensure linking to the theoretical components (Bless *et al.,* 2007:157; 159);
- To strengthen content validity even further, operational definitions were developed for the different concepts (food product attributes) through focus group discussions conducted in each of the different urbanised informal and formal settlements (Bless *et al.,* 2007:157). This information was then applied during the screening of data to ensure consistency in

meaning of terminology for the different groups. The object was first to understand the concepts (and elements) being tested, and then to apply this understanding;

- Similarity of consumer questionnaire format and terminology was maintained throughout the data-gathering process for the different consumer groups;
- The study was extended to include three informal urbanised and one formal urbanised settlement in three different settings (near a town, a city and a metropolis) in order to simulate reality;
- Results were compared with outcomes from similar studies in the field, including, as far as possible, consumers with average as well as low-income (Bless *et al.,* 2007:94).

3.7.1.2 Internal validity

As related to internal validity, the term validity refers to "the extent to which an empirical measure adequately reflects the real meaning of the concept under consideration" (Babbie & Mouton, 2002:122). In social research, internal and external validity tend to be inversely related, given that studies that take place in a specific social context can have high internal validity and low external validity owing to lack of control of real-world interfering variables or remoteness from the reality of everyday life (Bless *et al.,* 2007:93). In order to facilitate internal validity of this study, the following procedures were applied:

- Low-income consumers were screened for inclusion as respondents in the study based on being habitants of the specific urbanised informal settlements, habitually consuming maize meal as staple food (at least twice/ day), and being the food purchasers of the household
- Fieldworkers were trained with specific focus on techniques of gathering data without leading or influencing respondents
- The same questionnaires were used for all respondents, implying standardised question format, content and sequence conditioning
- Each respondent evaluated the same set of concept elements
- Owing to the high possibility of lack of literacy by the respondents, and possible related error, data were captured on the questionnaires by the fieldworkers, based on respondent feedback.

3.7.2 Reliability

Reliability relates to the precision and accuracy of a measurement procedure and depends on consistency (Babbie & Mouton, 2002:119-122; Cooper & Schindler, 2003:231, 236); it is perceived as very important to the successful outcome of a research project. Specific attention was given to the following aspects (Babbie & Mouton, 2002:122):

3.7.2.1 Procedures for precision of measurement

- Large base sizes of respondents cancel out the noise due to variability of individuals through averaging. Large base sizes of respondents relate to small standard errors, with the implication that very similar means are observed on subsequent replications (Moskowitz *et al.,* 2005:163). In application, 60 and 32 respondents respectively were included for the baseline and food environment study as part of Phase 1, and at least 110 respondents for each of the geographical areas included in phase two of this study (n=502). The purpose was to achieve the benefit of cancelled variability through averaging;
- A systematic random sampling procedure was followed by selecting every fourth household in the urbanised informal settlements for inclusion in the study population. To insure against any possible human bias in using this method, the first element will be selected at random (Babbie & Mouton, 2002:190);
- The control of test conditions also reduces noise. Any type of control that is maintained from replication to replication reduces the noise in the system and leads to more reliable data (Moskowitz *et al.,* 2005:163). For the purpose of this study, the same questionnaire was presented as far as possible by the same group of fieldworkers trained for data capturing in a specific phase of the study (Krueger, 1994:199-204). An attempt was made to maintain the tightest control by matching the respondents over the different phases of the study through screening (Moskowitz *et al.,* 2005:163);
- Standardised interpretation against existing norms to guide decision-making was problematic because of the very limited information available on similar emerging markets.

3.7.2.2 Procedures for accuracy of measurement

- The use of the rating scale to generate data requires no interpretation and is, therefore, more reliable (Bless *et al.,* 2007:161). An importance rating scale (a six-point hedonic rating, from “don’t know” to “extremely important”) to report the need for each concept (food product attribute) included as perceived by each respondent, was used for consumers. By using fewer categories, the accuracy of the scale was enhanced;
- The target study population (consumers) consisted of predicted category users satisfying the criterion of belonging to low-income households (SU-LSM 1);
- Clarity and specificity of concepts was established to support communication in focus group discussions;
- Prevention of researcher bias in data interpretation was achieved through selective observation and subjective interpretation;
- Captured data were screened to identify errors and inconsistencies;
- Reliability was applied as a criterion for the admissibility of any secondary data for this study e.g. data obtained from the initial baseline study (Oldewage-Theron *et al.,* 2005a).

3.8 STUDY POPULATION

3.8.1 Low-income consumers

Globally, and in South Africa in particular, some of the worst poverty levels have been identified amongst urban squatter shacks (United Nations Children's Fund (UNICEF), 1998:4; Higgs, 2007:1). From the urban-formal, urban-informal, rural-formal and tribal enumerator areas included in the National Food Consumption Survey Fortification Baseline South Africa 2005 (executive summary) (NFCS-FB-1) (NFCS-FB-1, 2008:254, 260), households at risk of hunger or experiencing hunger, with the lowest monthly income and spending the lowest amount of money weekly on food, tended to belong to the informal dwelling type. The mothers of these households also had a lower standard of education.

Marginalised consumers, being the main purchasers of food in their particular households, and living in identified urbanised informal settlements meeting the criteria for the SU-LSM 1 level for average household monthly income level (≤R1003) (US$98) (Statistics South Africa (SSA), 2005a; South African Advertising Research Foundation (SAARF), 2006; BFAP, 2007:47), and consuming maize meal as staple-type starch food at least twice/ day, were included as respondents for this study. These representatives of the predicted category users and consumers at risk were screened to meet the specific criteria before recruitment.

The communities of Eatonside, Boipatong and Central Alexandra were included in this study on the basis of meeting the criterion of being urbanised informal settlements, and representing the geographical setting near a town (Boipatong in the proximity of Vanderbijlpark), a city (Eatonside in the proximity of Vereeniging), and a metropolis (Central Alexandra in the proximity of Johannesburg). One formal urbanised and metropolitan settlement, Tsutsumani, was also included in the study (SSA, 2005b; Oldewage-Theron, Dicks, Napier & Rutengwe, 2005b:22-24).

For aerial photographs of the collaborating settlements, see Figures 2, 3 and 4 of this chapter as reported by Statistics South Africa (SSA, 2006). The results of the more recent census survey were not available at the time. Official permission was obtained for inclusion of these images in this report. It needs to be noted that the Eatonside informal settlement forms part of the greater Sebokeng Unit 6. Where no statistical data were available for Eatonside specifically, the overriding data available for the greater area, incorporating the particulars for Eatonside, have been utilised (see also Chapter 5). The study populations included for each of the phases of this study are described in Chapters 4 and 5 of this document.

Figure 2: Aerial photograph of the Boipatong informal settlement (SSA, 2006)

Figure 3: Aerial photograph of the Eatonside informal settlement (Sebokeng Unit 6) (SSA, 2006)

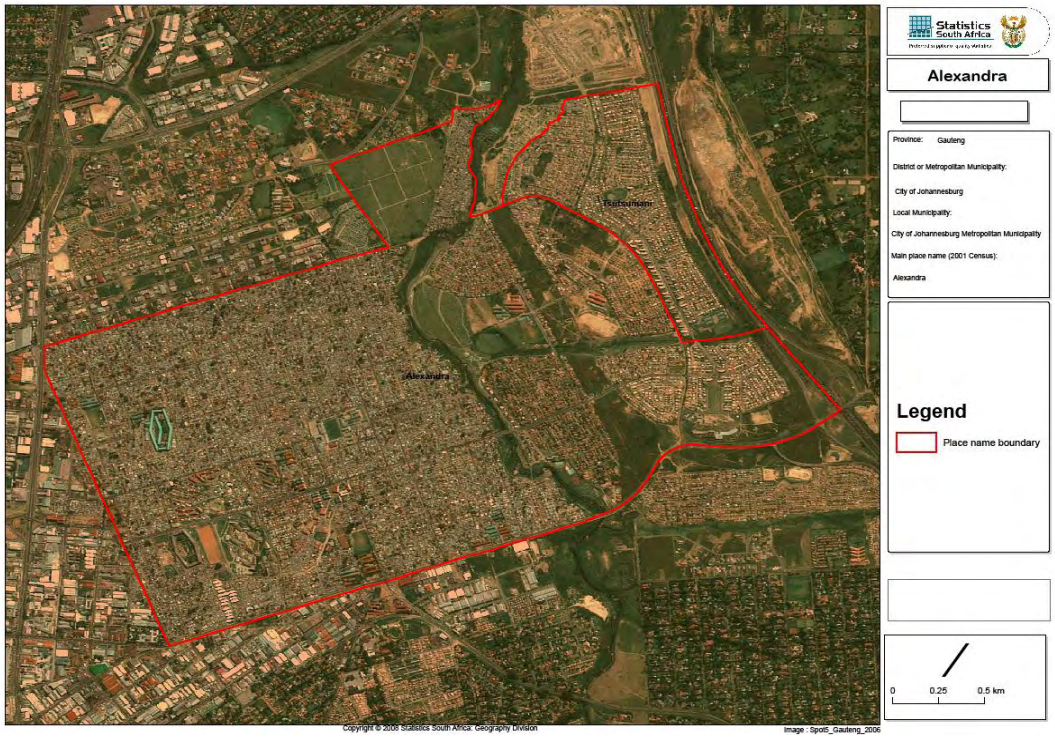

Figure 4: Aerial photograph of the Alexandra informal settlement and the Tsutsumani formal settlement (SSA, 2006)

3.8.2 Experts in food (in)security

South African food (in)security experts equipped with in-depth knowledge and experience relating to food insecurity in low-income households, were approached to contribute insight from academic, health, and industry perspectives. Respondents were selected, based on availability and probability, to assist in the identification of food product characteristics (potential concept elements) of importance in food products purchased by low-income households (Moskowitz *et al.,* 2005; Babbie & Mouton, 2002:175). The specific procedure is described in Chapter 4 of this document.

3.9 ETHICS

3.9.1 Permission

A collaboration agreement was established in 2002 between the Department of Hospitality and Tourism at the Vaal University of Technology, the Sedibeng Local Council and the Eatonside informal settlement, as indicated by the project strategy of the NRF approved research niche

area “Addressing household food insecurity in an urban area” under leadership of Prof WH Oldewage-Theron. In Phase 1 of the study, in order to reconfirm continued collaboration, a meeting was arranged between the researcher and Mr P Zondo (Community Leader of Eatonside), Mrs M Mokoro (a Ward Committee Member), and Mr W Dlamini (Community Development Worker allocated by the Provincial Office).

As the study expanded (Phase 2) to include the Boipatong and Alexandra urbanised informal settlements and the Tsutsumani formal settlement, the respective councillors and community leaders were approached to obtain permission and confirm collaboration before commencement of the research initiative.

3.9.2 Ethical considerations

It is important that ethical considerations should govern the activities associated with any research project. For the purpose of this study, the following aspects were considered (including the Nuremberg Code of 1947):

- The maintaining of scientific objectivity was a priority of this study, guiding the presentation of findings;
- Clearance for the project was obtained from the ethical research committee of the University of Pretoria, implying adherence to the institutional guidelines for research on human beings;
- As every person is entitled to the right of privacy and dignity of treatment, all data were treated with confidentiality, providing anonymity to personal and sensitive information. Dissemination of derived findings, as reported in articles based on this study and in presentations, will take place in a responsible and professional manner;
- Consenting informed caregivers participated on a voluntary basis and could withdraw from the study at any stage;
- Due acknowledgement to all assistance, collaboration and sources of information was given to all parties involved in this study where and when applicable, including sources of financial support.

3.10 OUTCOMES OF THE STUDY

The outcomes envisaged from this study include:

- A food product concept framework for low-income consumers in urbanised informal settlements as imbedded in the consumer preferences and consumption patterns and portrayed in consumer acts of the target population
- Collaboration with the role players in the food environment involved with food product development for low-income consumers
- Contribution to the development of suitable food products, meeting the needs of the target population
- Publication of at least two scientific articles in academic journals.

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ANNEXURE 1

University of Pretoria

DESIRABLE FOOD PRODUCT ATTRIBUTES
FOR LOW-INCOME HOUSEHOLDS IN URBANISED INFORMAL SETTLEMENTS
Questionnaire to experts

Please note that confidentiality and discretion are applicable to all personal and sensitive information and that individual respondent information will not be identifiable from any reports.

Section 1: Respondent demographics

1 Please complete / correct the following personal information

Surname:				
Initials:				
Preferred name:				
Title:				
Company employed at:				
Work / contact number:				
Fax number:				
e-mail address:				
Postal address:				
Area of specialisation:	Health	Industry	Academic	Other
Please specify:				
Experience in the field:	Years:			
Experience with low income households: How long have you been involved? Please specify nature of involvement				

2 Please answer the following questions according to your own experience in the field:

2.1 What is your company's research and development policy for the development / formulation of food products for low-income households?

2.2 Product development / New Product Development for low-income households:

2.2.1 Product range?

2.2.2 Food product attributes your company sees as important / gives attention to?

2.3 Food product attributes needed by low-income households?

2.4 Characteristics of food intake by low-income households?

2.5 Other characteristics of low-income households?

2.6 Consumer benefits low-income consumers expect from the food products they purchase?

******* Thank you for your time and effort *******

ANNEXURE 2

QUESTIONNAIRE

IMPORTANCE OF STAPLE FOOD PRODUCT ATTRIBUTES TO CONSUMERS IN URBANISED INFORMAL SETTLEMENTS

Name of settlement: ……..

CONFIDENTIALITY CLAUSE
TO WHOM IT MAY CONCERN

All data gathered from you as the respondent during this study will be treated with respect and confidentiality. Anonymity will be maintained regarding personal and sensitive information.
Yours Faithfully

……
Kuda Marumo
MTech student Vaal University of Technology

Household number…….

Section A

OBSERVE: Household appears to be very low-income? YES……. NO……
Is maize meal your habitual staple food? YES……. NO……

1. When were you born? Year: …… Month: …… Day:……
2. How old are you?.....Years
3. How many are you in the household?.....
4. What is your household language?.....
5. Your role in the family?

Mother	1	
Grandmother	2	
Caregiver	3	
Other, specify……	4	

6. How many times do you eat maize meal per day?

1	2	3	4

Section B

Please mark the face which best describes the importance of the indicated food product attribute to you when purchasing maize meal?

1. Satiety value/ Koora e e bakwang ke hojewa ha phofo/ Ukusutha okwenziwa yimpuphu

Extremely important	Very important	Fairly important	Slightly important	Not important	Don't Know
6	5	4	3	2	1

2. Affordability/ Bokgoni ba ho reka/ Ukukhona ko kuthenga

Extremely important	Very important	Fairly important	Slightly important	Not important	Don't Know
6	5	4	3	2	1

3. Packaging size/ Boholo ba pakana ya phofo/ Ubukhulu besaka lwe mpuphu

Extremely important	Very important	Fairly important	Slightly important	Not important	Don't Know
6	5	4	3	2	1

4. Value for money/ Kgotsofalo ya boleng jwa chelete/ Izinga le mali

Extremely important	Very important	Fairly important	Slightly important	Not important	Don't Know
6	5	4	3	2	1

5. Taste/ Tatso/ Ukunambitheka

Extremely important	Very important	Fairly important	Slightly important	Not important	Don't Know
6	5	4	3	2	1

6. Acceptability/ Kamohelo/ Ukwamukela

Extremely important	Very important	Fairly important	Slightly important	Not important	Don't Know
6	5	4	3	2	1

7. Appearance(colour)/ Tebello ya mmala/ Ukubukeka kombala

Extremely important	Very important	Fairly important	Slightly important	Not important	Don't Know
6	5	4	3	2	1

8. Product quality/ Boleng ba phofo (pakana) Izinga eliphezulu

Extremely important	Very important	Fairly important	Slightly important	Not important	Don't Know
6	5	4	3	2	1

9. Convenience (ease of preparation) / Bobebe ba ho phehwa ha phofo/ Ubulula ko kupheka

Extremely important	Very important	Fairly important	Slightly important	Not important	Don't Know
6	5	4	3	2	1

10. Consumer Nutrient requirement / Phepo e nepahetseng ho bareking/ Ukudla kahle kwabathengi

Extremely important	Very important	Fairly important	Slightly important	Not important	Don't Know
6	5	4	3	2	1

11.Texture/ Bobebe jwa phofo/ oboshelelezi be mpuphu

Extremely important	Very important	Fairly important	Slightly important	Not important	Don't Know
6	5	4	3	2	1

12. product safety (Shelf life)/ phofo e bolokehileng/ ukukhusileka kwe mpuphu

Extremely important	Very important	Fairly important	Slightly important	Not important	Don't Know
6	5	4	3	2	1

13. Brand name loyalty (Satisfaction)/ Tshephahalo ha phofo ho bareking/ ukuthembeka kwe mpuphu

Extremely important	Very important	Fairly important	Slightly important	Not important	Don't Know
6	5	4	3	2	1

Section C

14. How important is composite family structure (Boholo ba lelwapa) when purchasing maize meal?

……

……

……

15. What do you perceive as value for money when purchasing maize meal? Phofo ya boleng ba chelete ya gago ke e jwang fa oe reka?

……

……

……

16. What do you perceive as product quality when purchasing maize meal? Phofo e boleng ke e jwang fa o reka phofo?

……

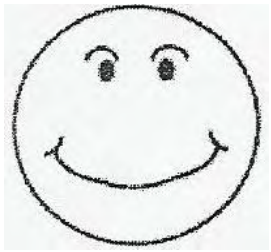
……

……

17 How much is your monthly income for the household?.....

Thank you for sharing your perceptions and other pertinent information with us. Your collaboration is appreciated.

IMPORTANCE OF STAPLE FOOD PRODUCT ATTRIBUTES

Extremely important	Very important	Fairly important	Slightly important	Not Important	Don't know
					
Bohlokwa haholo haholo	**Bohlokwa haholo**	**Bohlokwa**	**Bohlokwanyana**	**Hae bohlokwa**	**Hake tsebe**
6	**5**	**4**	**3**	**2**	**1**

4

ATTRIBUTES OF IMPORTANCE IN STAPLE-TYPE FOOD PRODUCT DEVELOPMENT FOR LOW-INCOME URBANISED CONSUMERS IN SOUTH AFRICA

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In this chapter the editorial guidelines as prescribed by the Food and Nutrition Bulletin, as the journal of publication, was applied.

ABSTRACT

Consumers perceive food product quality as a combination of attributes and accumulated benefits. Quality cues can be recorded through the priority value that a target population within a specific reality attaches to identified food product attributes. As consumers are natural satisfaction maximisers, desirable product attributes become buying goals. Successful (food) products communicate significant value in these key categories. The focus of this study was to ascertain whether the food product attributes prioritised by the South African food industry meet the needs of (very) low-income consumers during purchasing choice for their staple food, maize meal.

A total of 32 experts with experience in food product development and familiar with consumers living in deprived circumstances and with low levels of literacy, were identified from the South African food environment. Structured interviews were conducted. Sixty very low-income consumers from an urbanised informal settlement were approached to establish the level of importance they perceived for different food product attributes. A six-point hedonic rating scale was utilised. Quantitative analysis procedures, including ranking and correlation, were applied.

Affordability, consumer nutrient requirements, taste and product quality were indicated as the four food product attributes of most importance in staple-type food products currently provided to (very) low-income consumers. The target population indicated satiety value, affordability, packaging size, value for money and taste as the most important attributes. These findings suggest that a discrepancy exists between the food product attributes provided to and needed by (very) low-income consumers. The outcomes of this study will contribute to the establishment of a guideline to develop food products for higher satisfaction by (very) low-income consumers.

Key words
Food quality, food product attributes, low-income consumers, food choice trends

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INTRODUCTION

Poor households with an expenditure of less than ZAR800 (US$115) [1] per month, comprise about half of the 10 to 11 million households in South Africa (SA) [2]. Thus a substantial section of the SA population can be classified as (very) low-income households. On average, these households consist of five members [3, 4], translating into a total household availability of ZAR5.33 (US$0.77)/person/day to meet all needs. This amount is substantially lower than the international poverty line indicator of US$1/day (ZAR6.96) [5, 6]. The market expenditure by the poor and very poor households in SA amounts to ZAR129 billion/year (US$18.5 billion/year), representing 15% of total household expenditure in South Africa – revealing a large and relatively unknown market [2].

The South African Advertising Research Foundation (SAARF) devised a wealth measure segmentation tool to profile the South African consumer market. Ten relatively homogeneous groups were identified based on consumer living standards from least status (SU-LSM 1) to highest status (SU-LSM 10) (SAARF 2006) [7]. For the most marginalised consumers (SU-LSM 1), the food cash expenditure, as share of total cash expenditure, amounts to 70.8% of their average monthly household income. The small amount of income available to spend on food results in a very limited choice of basic food items [7, 8, 4]. Each of the food-purchasing choices of the (very) low socio-economic consumers thus becomes extremely important as no money is available for replacement or alternatives [9].

The target (very low socio-economic) group spends 32.8% of their total cash expenditure on grains, 21.9% of which is allocated to maize meal, 22.8% to rice and 52% to bread [10]. In an urbanised informal settlement, it was found that the majority of households (59.5%) had a monthly income of less than ZAR500/month (< US$71.83/month). Of this amount, up to 71% was allocated to the purchasing of food, which consisted mainly of maize meal [3]. The maize porridge consumption by this population amounts to approximately 532 grams (g)/day (345 g stiff maize porridge + 124 g soft maize porridge + 63 g crumbly maize porridge), eaten over two or three meals, and representing 66% of their total energy intake per day [11, 12]. These findings are in line with the South African food consumption studies undertaken amongst different population groups (1983-2002) that listed maize (78% of group: 848 g/person/day), white rice (13.5%), dry beans (11.7%), samp/mealie rice (7%), and peanut butter (6%) as the five most often consumed cereal grain and legume staple food products by all households in South Africa [13].

Food quality, as perceived by the end-user consumer, is subjective and can vary between users of the same product [14]. Consumers form quality expectations based on quality cues [15] that can be influenced by factors other than the product characteristics itself, such as the purchase situation and price [14], attitudes, beliefs, expectations, concerns and fulfilment of self-social identity [16]. The position that such a value assumes in the mind of a consumer determines the competitive position of these quality attributes within the market [17]. Successful (food) products communicate significant value in the key categories that are of importance to the target consumer and setting [18, 19].

The voice of the consumer is indicated by a hierarchical set of customer needs where each need is depicted by a priority value. These parameters then become key criteria in providing a quality product [20]. Consumers perceive a food product as accumulated benefits, with tangible and intangible attributes relating to their needs, wants and behaviour [21, 22]. A food product therefore consists of a combination of attributes [23], which can be reported as intrinsic (physical characteristics of the product, for example taste as inferred from the colour of food) and extrinsic quality cues (all other characteristics, such as price or brand) that the consumer infers from the product [24, 14]. The senses can perceive these quality cues prior to consumption [25].

After purchasing, consumers are further exposed to the quality of the experience attributes of the food (for example taste, convenience) within varied settings, as influenced by many factors in consumers' specific reality, including culture. Credence quality attributes relate to long-term benefits not experienced directly, such as health and environmental friendliness [25]. The

relationship between the quality expectation (cues) and the quality experienced is believed to determine consumer satisfaction based on product benefits obtained. It therefore influences the probability of repeated purchasing [15, 17, 25, 26, 27].

The discrepancy between the purchasing patterns of middle- (SU-LSM 4-6) and high-income (SU-LSM 7-10) consumers (modern economy) against low-income consumers (SU-LSM 1-3) (marginalised economy), reflects the duality of the South African economic market. The modern economy (65% of households) constitutes 78% of consumer spending, while the marginalised consumers (35% of households) contribute only 22% of the spending [10].

The food purchasing and consumption behaviour of the modern economy sector is indicative of increasingly complex food requirements, habitually portraying global food consumption trends. In contradiction, the main concern of the marginalised economy sector in South Africa is indicated as the provisioning of basic food security through the availability of an adequate quantity of affordable food to satisfy nutritional requirements [10].

The challenge and opportunity is therefore to skilfully integrate knowledge on consumer needs, as portrayed by food needs/preferences for specific product attributes [27], with food product design and development for low-income consumers [28, 29].

The purpose of the study on which this article is reporting, was to identify the importance of food product attributes to (very) low-income consumers according to their preferences and consumption patterns for maize meal. The findings were correlated with the food product attributes prioritised by the South African food industry for food product formulation at this stage. The outcome will contribute to the development of new food products that will be more compatible to the needs of low-income communities, improving marketability through consumer satisfaction.

METHODS

Study design

An empirical and exploratory approach was followed, recognising different realities to understand the perspectives of the role players in the food environment and the (very) low-income group regarding food product attributes of importance in food product development for the target consumers [30].

Study population

The study population consisted of two different groups:

- Sixty female household caregivers of no prescribed age and living in informal dwellings in an informal settlement within the boundaries of a local municipality [31, 32] within the Johannesburg – Vaal Area in South Africa. The respondents were identified through planned random sampling using a town map of the settlement and were screened according to household income (≤ ZAR1003/ month) (SU-LSM 1) [10], consumption patterns of maize meal (at least twice/ day) and being the main purchasers of food in their particular households. The informal settlement was identified as representative of such areas in terms of size and geographical positioning, and poverty, malnutrition and chronic food insecurity were indicated as major problems [4]. Permission to conduct the interviews was granted by the community leader, maintaining confidentiality of respondents' individual as well as locality information.
- A convenience sample of 32 experts familiar with consumers living in deprived circumstances and with a low literacy level and/or with food product development experience have been recruited from the role players in the food environment in South Africa. Firstly, academics involved in food product development for the target group at risk were identified at all major tertiary academic institutions in the country. Secondly, health professionals at various levels of involvement with food product development for (very) low-income households, including the Department of Health and private practitioners, were sourced. Thirdly, the major as well as other nationally established food producers and retailers (referred to as *food industry* in the rest of the text), were identified for inclusion in the study [33, 34, 35]. Companies focussing on the smaller up-market segment were excluded.

Methodology

- A study was conducted within the target community to test the perceived needs of low-income households for food product attributes (and imbedded benefits) that guide purchasing choice for maize meal. The questionnaire was tested and adjusted prior to implementation. The level of importance perceived for the different food product attributes were reported on a six-point hedonic rating scale (*don't know*, *not important*, *slightly important*, *fairly important*, *very important*, and *extremely important*) [36].
- A holistic approach was followed in the compilation of a questionnaire to source information from the role players in the food environment in South Africa. Issues that were addressed included approaches in the research and development of policies of companies in food product development for (very) low-income households, the food product range for this specific target market, and the identification of specific food product attributes perceived by the role players to be desirable in foodstuffs purchased by (very) low-income households. The characteristics of

(very) low-income households, as well as the food product attribute needs of these households were also addressed. Further attention was given to the perception of the food environment regarding the benefits (very) low-income consumers expect from the food products they purchase. Structured one-to-one telephonic interviews of between 20 to 30 minutes on average, utilising the questionnaire to guide the discussion, were conducted with the role players. In a few cases, the respondents preferred personal interviews or requested to receive the questionnaire in electronic format to be completed in their own time.

Data analysis

Quantitative analysis procedures, including ranking, were applied to identify the food product attributes of importance to most of the role players in the food environment (including academics, health professionals and food product developers and retailers), and the target population. The findings were then screened to indicate the attributes of most importance for each and then correlated to indicate discrepancies between what is provided to and what is needed by the (very) low-income households. As different data-gathering tools were used for the food environment and (very) low-income households, no formal statistical comparisons could be drawn between data sets.

RESULTS AND DISCUSSION

Research and food product development guidelines focussing on (very) low-income consumers

A summary of the research and development priority guidelines of the participating role players in the food environment is reported in Figure 1. Only a few companies focussed specifically on the needs of (very) low-income consumers but no policies have been formalised.

Figure 1 indicated the main focus of the research and development priority guidelines by the health professionals as addressing mal/nutrition (73%) and target group specificity (64%). The academics placed a high priority on consumer acceptance and needs (88%), followed by a research-based approach (75%) and addressing mal/nutrition (75%) – presenting the most balanced overall approach of all role players in the food environment. The food industry indicated the affordability of products as most important (71%) in their priority guidelines, followed by of the much lower importance attached to mal/nutrition and consumer acceptance and needs (41% respectively), with very little attention to staple food type products (6%).

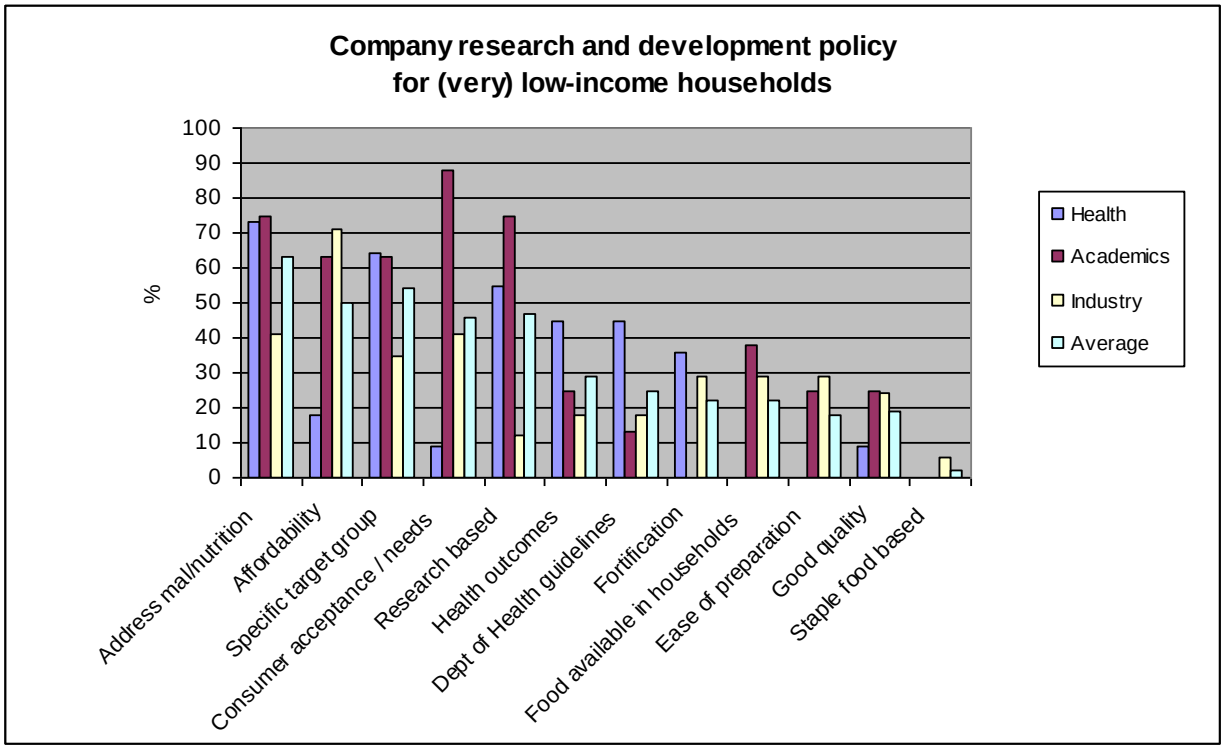

FIGURE 1. Priority guidelines applied by role players in the food industry during research and development of food products for (very) low-income consumers (n=32)

On average, the role players indicated addressing mal/nutrition (63%) as the most important food product development guideline, followed by target group specificity (54%), and affordability of food products (50%). Due to the differences in the priorities reported for the respective perspectives, the calculated average values are not necessarily truly representative of the food products found on the retail shelves, and were therefore not further included for discussion purposes.

Food product range

From the range of food products offered by the food environment for (very) low-income consumers (Figure 2), the role players indicated staple-type food products as the main focus (57%), with biscuits and snacks and fortified/enriched products (36% respectively) of lesser importance to the health professionals. Fortification entails the addition of nutrients above the original levels of the product and can provide a higher content of the nutrient than before processing. This process standardise variable nutrient concentrations. An example is the addition of zinc oxide to all maize meal and bread flour milled in South Africa. During enrichment nutrients are added in amounts to restore losses due to processing, resulting in an approximate natural content, e.g. addition of vitamin C to orange juice [37, 38]. The academics

indicated no other commodities of importance. The food industry indicated a much lower but more evenly distributed focus on the runner-up commodities, namely spray-dried foods (29%) (liquid or slurry, e.g. milk or vegetables, is dehydrated to produce a dry powder [39]; fortified/enriched foods, drinks and flavourants (24% respectively) (natural or artificial substances added to alter flavour and smell [40]; biscuits and snack foods and meals (12% respectively). Soy products were indicated as a separate category (27%), but were also indicated as an ingredient of several of the other food product ranges, and results were therefore not clearly distinguishable. By implication it can also be assumed that the differences between the values of the individual food product ranges are indicative of the commercial importance of each range.

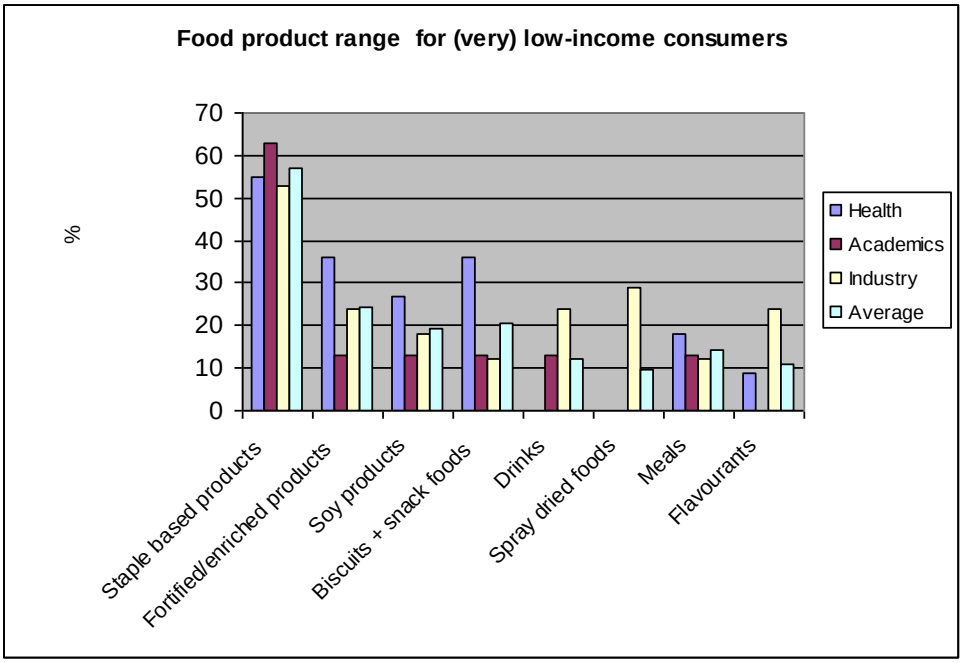

FIGURE 2. Food product range for (very) low-income consumers

According to the results reported in Figure 2, staple-type food products represent the most important range for food product development for (very) low-income households, as reported by all role players. The focus will therefore be solely on staple foods in order to derive the food product attributes of importance in food product development to most of the individual role players.

Household and food intake characteristics of (very) low-income consumers

Of further importance are the perceptions of the role players in the food environment about the characteristics of (very) low-income consumers. No clear characteristics were reported, on

average, by the role players. The academics indicated low household income, household influence and focus on quality and food product choice that is determined by the money available (38% respectively) as important. The health professionals only indicated the composite nature of the household composition as noticeable (38%), while the food industry noted the aspirational and quality mindedness (24% respectively) as important. Of importance is the fact that the most successful food industries in South Africa indicated substantial knowledge and understanding in this regard, as reported at a later stage in this article.

The very low percentages reported on average possibly indicate a lack of certainty or focus by most of the role players in the food environment regarding the characteristics of (very) low-income households.

Food product attributes of importance in meeting the needs of (very) low-income consumers

Due to the overlap in the food product attributes indicated by the food environment as important for and the consumer benefits expected by (very) low-income consumers from the food products they purchase, a combined summary has been prepared to report the staple-type food product attributes important for the target population (Figure 3). Certain of the food product attributes reported in this section may fit better as consumer benefits expected by the targeted consumers.

The food industry indicated nutrient requirements (65%) and satiety value (65%) of food products purchased as the food product attributes most needed, followed by meeting of consumer aspirations through benchmarking, affordability and taste (59% respectively), as well as product safety/shelf life (47%). This viewpoint was strongly advocated by the marketing sections of the most successful food industries in South Africa.

On average between the groups, the meeting of consumer aspirations through benchmarking (73%) was followed closely by consumer nutrient requirements (70%), and then product affordability (67%) and taste (56%). Satiety value was reported at a surprisingly low value (40%). Interestingly, the attributes highlighted here correspond closely with the determinants as reported for a single food choice event [41], listing sensory perceptions, monetary considerations, convenience, health and nutrition, managing relationships (making food choices in situations where the preferences and needs of others need to be considered) and quality as important considerations in value negotiations when making food choices. These findings were indicated for a study population including men and women of different ages, household situations and varying eating patterns [37] as is the case in the general food environment and

not for (very) low-income households specifically. The question can however be asked whether these food product attributes are of importance to the role players during food product development, and whether the food product attributes provided by available staple foods meet the needs of the population at risk.

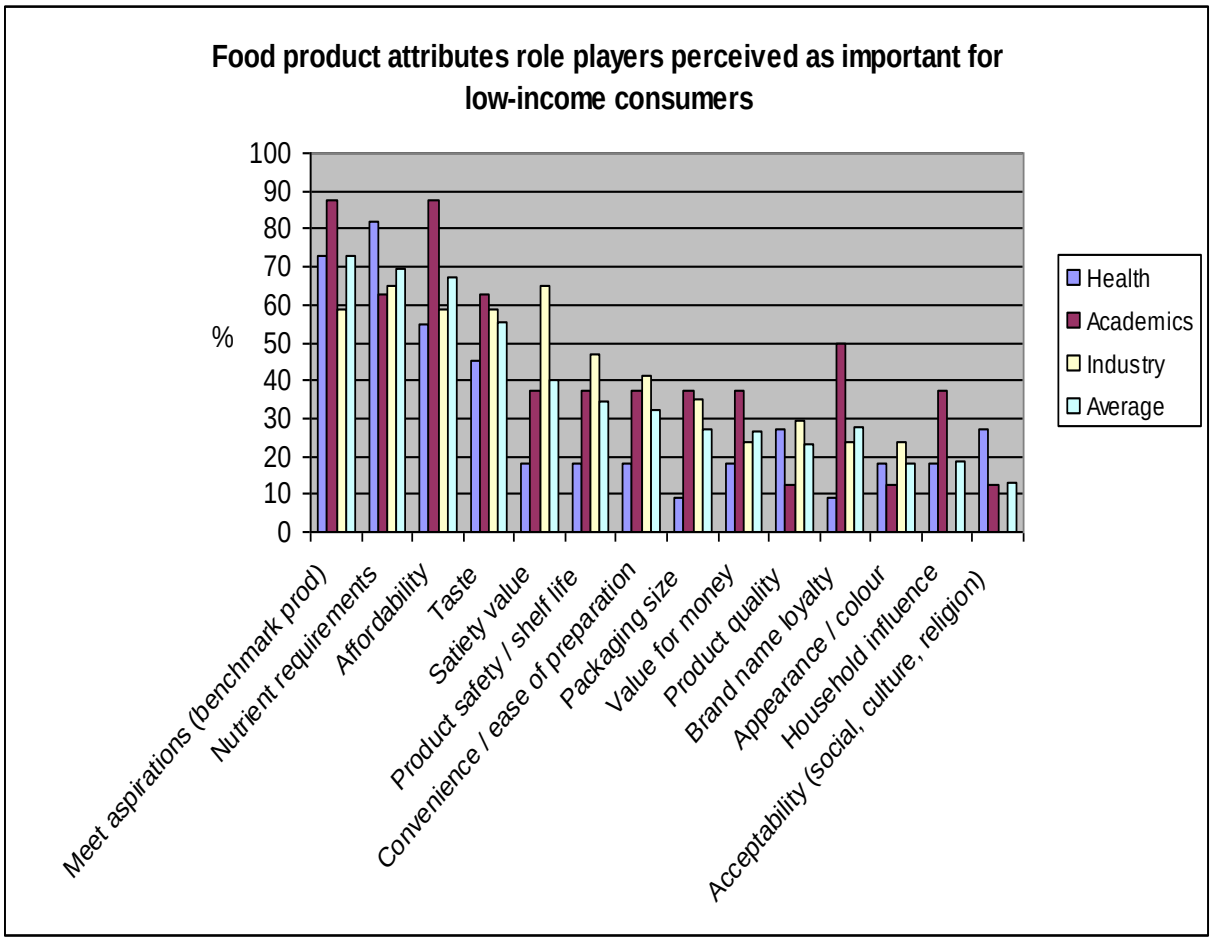

FIGURE 3. Food product attributes role players perceived as important for (very) low-income consumers

The importance allocated by the role players in the food environment and the (very) low-income consumers regarding food product attributes of importance, is displayed in Table 1. The data for the six-point rating scale was combined and reported in three different categories as indicated in the table.

The picture emerging from the average results indicates taste (66%), nutrient requirements (62%), price (53%) and to a lesser degree texture (40%) as the food product attributes of

importance in food product development to most of the role players in the food environment. The high priority indicated for food product price (82%) by the food industry is validated by the findings in Figure 1 indicating affordability (71%) as the main focus in the research and development policies of the major food industries. Validation is indicated in a similar manner for nutrient requirements (73%) as the main concern for the health sector.

Table 1. Food product attributes of importance in staple-type foods

	SA FOOD ENVIRONMENT				**(VERY) LOW-INCOME CONSUMERS**		
	Food product attributes important in food product development (%)				Food product attributes important in purchasing (%)[1]		
FOOD PRODUCT ATTRIBUTES	Health (n=11)	Academics (n=8)	Industry (n=17)	Average	Don't know + not important	Slightly + fairly important	Very + extremely important
Consumer nutrient requirements	73	50	65	62	4	23	74
Affordability	27	50	82	53	0	8	96
Taste	64	75	59	66	2	13	85
Satiety value					0	2	98
Product safety/shelf life	36	13	35	28	8	26	66
Convenience/ease of preparation	18	13	24	18	0	23	77
Packaging size					2	8	91
Value for money					4	8	89
Product quality	18	13	47	26			78
Brand name loyalty/satisfaction					21	32	47
Appearance/colour	36	38	24	32	6	15	79
Composite family structure							
Acceptability					8	11	81
Texture	45	50	24	40	11	19	70

[1] Used for ranking purposes only

For the individual role players it can be noted that nutrient content (73%) and taste (64%) were indicated as the most important food product attributes to the health professionals; for the academics taste (75%) and nutrient content, affordability and texture (50% respectively) were indicated; while the food industry reported affordability (82%), nutrient content (65%) and taste (59%) as most important.

The importance indicated for taste in food product development is not surprising as previous studies reported taste and flavour of food as the major determinants of food consumption [38]. It is of special interest that the importance of price (affordability) for (very) low-income consumers, as reported by the food industry during the current study, opposes findings previously reported [42].

Product safety/shelf life, product quality/reliability and convenience (13% respectively) are perceived by most academics as being of low importance. These attributes were viewed as of much higher importance by the food industry (35%, 47% and 24% respectively). All role players reported food product convenience as the food product attribute of lowest priority for the (very) low-income consumers, correlating with the findings by previous researchers [42].

In overview, the difference in importance allocated to the individual food product attributes (as reported by ranking position) by the (very) low-income consumers during the purchasing of staple food (maize meal) and the importance allocated by the food industry to these food product attributes during food product development for these consumers, are clear from Table 2.

When placing the results reported in Table 2 in context with the rest of the results, various aspects are illuminated:

- Satiety value was ranked as the most important food product attribute by the (very) low-income consumers, and the food industry also recognised it as one of the most important food product attributes (first together with consumer nutrient requirements) for the target population (65%) (Figure 3). However, this food product attribute was not mentioned as of any importance in food product development (Table 1).
- Affordability was indicated as the second most important food product attribute by the target population and as the most important in actual food product development by the food industry (82%) (Table 2). This food product attribute was indicated as the second most important (59%), similar to taste, when developing food products for (very) low-income consumers (Figure 3).

TABLE 2. Comparison of ranked importance of staple-type food product attributes by (very) low-income consumers versus the food industry

	Score for the importance of staple-type food product attributes	
Food product attributes	**During purchasing choice by (very) low-income consumers [1]**	**Applied by food industry in providing foods to (very) low-income consumers[1]**
Satiety value	1	Not important at all
Affordability	2	1
Packaging size	3	Not important at all
Value for money	4	Not important at all
Taste	5	3
Acceptability	6	Not important at all
Appearance/colour	7	Not important at all
Product quality	8	4
Convenience/ease of preparation	9	Not important at all
Consumer nutrient requirements	10	2
Texture	11	Not important at all
Product safety/shelf life	12	Not important at all
Brand name loyalty/satisfaction	13	Not important at all
Composite family structure	Not important at all	Not important at all

- Packaging size was reported by the target population as the third most important food product attribute, but not noted at all as of importance in food product development by the food industry at this stage (Table 2) for (very) low-income consumers (Figure 3). However, it should be noted that most staple foods (major food consumed by (very) low-income consumers [8]) are readily available in various packaging sizes in retail outlets (for example maize meal are mostly available in 1, 2.5, 5, 10, 12.5, 25, 50 and 90 kg units [3].

- Value for money was ranked as the fourth most important food product attribute by the target population (Table 2), but warranted no importance to the food environment for food product development (Table 1) or was of little importance when conducting food product development for (very) low-income consumers (Figure 3).
- Interestingly, taste was only ranked as the fifth most important food product attribute by the target population (Table 2), compared to the food industry who perceived this food product attribute as third in ranking order (Table 1). The food industry reported a consistent value (≤ 10%) for the importance of taste in current food product development (59%) and for the population at risk (59%) (Figure 3).
- Food product acceptability was ranked as sixth in importance by the target population (Table 2) but received no recognition according to any of the role players (Table 1). The question can however be asked whether this food product attribute can be allocated to the range of maize meal product choices readily available in retail outlets.
- Food product appearance/colour was ranked seventh by the target population (Table 2) but received no ranking of importance in food product development for the target population by any of the role players (Table 1) (Figure 3).
- Product quality was only ranked as eighth in importance by the target population (Table 2), but was indicated fourth in importance by the industry, although at a low 47% (Table 1).
- Convenience/ease of preparation, ranked ninth in importance by the target population (Table 2), was not ranked by industry as being an important food product attribute in food product development (Table 2), and accordingly was only allocated a low importance value for (very) low-income consumers (Figure 3).
- Consumer nutrient requirements were ranked only as the tenth most important food product attribute by the (very) low-income consumers (Table 2). This was in stark contrast with the food industry that awarded the second highest priority to this food product attribute in both food product development (65%) (Table 2) and in importance to (very) low-income consumers (65%) (Figure 3).
- The target population ranked texture in the eleventh position of importance (Table 2). This food product attribute was not ranked in a position of importance for food product development (Table 1) or for the (very) low-income consumers (Figure 3).
- Product safety/shelf life was awarded the twelfth position of importance by the target population (Table 2) but was ranked as fifth in importance for (very) low-income consumers by the food industry (Figure 3). Interestingly, no notable ranking was obtained for this food product attribute in food product development (35%) (Table 2), indicating a discrepancy between what was indicated by industry as important for (very) low-income consumers and what is currently provided by food products in the market (Table 1).

- Brand name loyalty/satisfaction was ranked as the least important food product attribute by the (very) low-income consumers (Table 2) and did not receive any notable ranking by the food industry either (Table 1 and Figure 3).
- The aspect of benchmarking or meeting of consumer aspirations was not indicated as of any importance by the target population, but was perceived of equal value to taste by the industry in meeting the needs of (very) low-income households.

CONCLUSIONS

The development of staple-type foods was only mentioned in the research and development policies of 6% of the food industries, although such products were reported as the main focus in the product range provided by the food industry (53%) for food product development for (very) low-income consumers (Figure 2). The discrepancy indicated by this void needs serious consideration. As the food consumption of the (very) low-income consumers consists mainly of starch type staples (e.g. stiff maize meal porridge, bread) [4], the importance indicated for the staple type food product range is welcomed. This approach is further confirmed by findings that the lower the income per capita the greater the portion of the budget spent on staple starch products [43, 44]. According to the food industry, the most important food product attributes for (very) low-income consumers include satiety value (65%) and meeting of nutrient requirements (65%), followed by affordability (59%), taste (59%), meeting of aspirations (59%) and shelf life (47%).

This scenario provides a closer match to the needs indicated by the (very) low-income consumers themselves than the food product attributes actually indicated as important in food product development for these consumers by the food industry. A more collaborated effort between food product development, marketing and management sections within food industries can possibly contribute to a better provisioning of staple food product attributes as important for, and needed by, the (very) low-income consumers.

The lower priority awarded by (very) low-income consumers to food product acceptability (sixth) is a possible indication that survival needs were overriding cultural, ethical and religious parameters, as imbedded in the achieving of basic goals, maintenance of standards, and adherence to attitudes and beliefs in the lives of these consumers [16]. This observation is supported by the words “eat what could be provided to you or find a manner that will make it possible for you to eat this food” [9].

The reality of the (very) low-income consumer within the South African context, indicated by the focus on the provisioning of satiety value, lower-priced foods (affordability, smaller packaging size and value for money), and very low importance to food product safety/shelf life (twelfth) and brand name loyalty/satisfaction (thirteenth) (Table 2), is suggestive of survival needs to maintain life. This links to the consumer food-demand pyramid [45, 46] and the holistic approach portrayed by the consumer behaviour ladder [16]. Only thereafter were the hedonic aspects (taste and appearance/colour) indicated as of importance. From this evidence it could be speculated that economic pressures, as priority in survival strategies, might have replaced the central dimension of the human enjoyment factor in food product attribute choice for (very) low-income consumers.

Belatedly the health-related long-term attributes (consumer nutrient requirements and product safety/shelf life) came into play for these consumers. Whether this was due to ignorance that can be ascribed to a very low literacy level or the very restricted availability of money [47] that makes it difficult to satisfy the need for nutritional requirements [10], or other reasons, has not been investigated. It seems that the critical level has been reached for household income beyond which the necessity for nutrient intake (and food product safety) just fades away under the pressure to survive.

From the results it is clear that the food industry ranked the food product attributes that are currently provided in commercial staple-type food products to the (very) low-income consumers quite differently than the target population did for the food product attributes important to them. In sequence of most importance, the four food product attributes indicated by the food industry were affordability, consumer nutrient requirements, taste and product quality (Table 1, 2). It is of interest that the target population reported satiety value, affordability, packaging size, value for money and only then taste as the five food product attributes of most importance to them (Table 2). These results are confirmed by the findings [48] indicating that the cost of food takes precedence over issues of taste, cultural acceptability and healthy eating for these consumers.

The quality perception of consumers in Western industrialised countries is represented by the four dimensions of taste and appearance, health, convenience, and process (for example environmental friendliness) [14, 45]. These findings are supported by the South African Bureau for Food and Agricultural Policy [10] in describing “redefining quality” as the modern-day trend by which “consumers seek high quality eating experiences through the fulfilment of needs encompassed in the trends”. The main global consumer food trends referred to include the increasing demand of consumers for convenience food, healthy food, attractive food and food variety, ethical/environmental eating, and value and simplicity. All of these seem to confirm the

expectations that consumer demand will be steered by the combination of convenience, health and pleasure as the three major food choice trends that will shape the food industry [49]. The positioning of the quality strategies of most South African supermarket chains was reported as being in line with these consumer trends, with a focus on quality and price [10].

Observations in food markets confirmed the difference in food consumption patterns by low-income and the middle- and high-income consumers [10], portraying the duality of the South African consumer market. However, the consumer trends reported for medium- and high-income consumers are often of low or no relevance to (very) low-income consumers, as confirmed by this study.

It is clear that the needs for food product attributes expressed by the (very) low-income consumers cannot be accommodated within the quality perception of either the modern-day trends (increasing demand of consumers for convenience food, healthy food, attractive food and food variety, ethical/environmental eating, and value and simplicity) or the food product attributes indicated by the general expectations of consumer demand (convenience, health and pleasure) [46]. This is illustrated by the indication of satiety value, affordability, (smaller) packaging size and value for money as the main concerns of (very) low-income consumers in an effort to provide basic food security through the availability of an adequate quantity (satiety value) of affordable food. No apparent urgency to satisfy nutritional requirements [10] was indicated.

RECOMMENDATIONS

The high priority the food industry placed on the nutrient requirements for these consumers that face potential nutritional risk, are commendable and should be addressed in food product development together with the stated priorities of the target population [50, 51].

The SU-LSM 1 level does not seem to be descriptive of the whole spectrum of (very) low-income consumers any more. It seems that a distinctive category consisting of extremely low-income consumers with specific food product attribute needs is emerging at the lower end of this category, necessitating specific attention to food product attributes, including nutritional requirements, in food product development by the food industry.

This study confirmed the need to formulate a product concept to guide staple-type food product development to best meet the food product attribute needs for (very) low-income urbanised consumers in a consumer-acceptable manner.

RECOGNITION

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