



## Heuristic cues and healthiness perceptions: How Gen-Z students evaluate processed foods in South Africa

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### ABSTRACT

South Africa is undergoing a nutrition transition characterised by increased consumption of processed foods and rising diet-related health risks. Understanding how consumers evaluate the healthiness of such products is therefore critical. This study investigates how Generation Z students in South Africa construct healthiness judgments across three processed food categories—crisps, snack bars, and beverages—and examines the role of intrinsic and extrinsic product cues in these evaluations. Three focus groups ( $N = 30$ ) were conducted using paired product comparisons and semi-structured discussions, and the data were analysed using qualitative content analysis. The findings show that perceived healthiness is not derived from objective nutritional assessment alone but is constructed through context-dependent cue utilization. Across categories, participants relied predominantly on extrinsic, easily interpretable cues—particularly packaging design, brand familiarity, and price—while engaging less consistently with detailed nutritional information. At the same time, the relative importance of cues varied by product category, with ingredient-related considerations more salient for beverages and visual and brand-related cues dominating in snack categories. Price played a dual role, functioning both as a heuristic signal of quality and healthiness and as a constraint on accessible choices. The study contributes to consumer food choice research by providing multi-category qualitative evidence of how healthiness perceptions are constructed through hierarchical and context-dependent cue use in an emerging market setting. The findings offer implications for food marketing, product design, and public health interventions aimed at improving consumer decision-making.

### Introduction

The global food landscape has undergone significant transformation over recent decades, with processed foods becoming increasingly dominant in consumer diets worldwide. This shift is particularly evident in emerging economies, where urbanization, changing lifestyles, and rising incomes have accelerated the adoption of Western dietary patterns (Nnyepi et al., 2015). South Africa reflects this trend, experiencing a “nutrition transition” characterized by a movement away from traditional diets toward processed foods high in sugar, salt, and saturated fats (Vorster et al., 2011). This transformation fundamentally reshapes consumer decision-making. As processed foods become more prevalent and diverse, consumers are increasingly confronted with complex choice environments in which the actual nutritional quality of products is not directly observable. Consequently, healthiness judgments are often

constructed using simplified cues and heuristics rather than systematic evaluation of detailed nutritional information. Despite the growing importance of these consumption patterns, limited research has examined how consumers interpret and evaluate the healthiness of processed foods in such contexts.

From a public health perspective, the increased consumption of processed foods is associated with rising rates of obesity and diet-related non-communicable diseases in South Africa (Shisana et al., 2013). For instance, 68% of women and 31% of men are classified as overweight or obese, while diabetes prevalence has reached 12.7% among adults (National Department of Health [NDoH] et al., 2019). These developments highlight the importance of understanding how consumers make food-related health judgments, as such perceptions ultimately influence dietary choices. At the same time, the South African food environment presents additional challenges that shape consumer

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decision-making. Ultra-processed foods account for a substantial share of diets, and consumers face a marketplace characterized by a wide variety of products across multiple categories, ranging from snack foods to functional beverages (Frank et al., 2024; Ronquest-Ross et al., 2015). Socioeconomic factors further complicate these decisions, as healthier food options are often more expensive and less accessible, reinforcing reliance on affordable and convenient processed alternatives (Temple and Steyn, 2011).

Taken together, these conditions create a context in which consumers must evaluate the healthiness of processed foods under uncertainty and constraint. In such environments, heuristic processing becomes particularly relevant, as consumers rely on easily accessible cues—such as packaging, brand, and price—to form judgments about product healthiness. Understanding how these cues are used, and how they interact with nutritional information, is therefore critical for advancing research on consumer food choice and health perception.

The perception of healthiness in food products can be understood through information processing theory, which explains how consumers rely on available cues to evaluate product attributes that are not directly observable. These cues can be categorized into intrinsic attributes (inherent to the product itself, such as ingredients and nutritional content) and extrinsic attributes (external to the product but related to it, such as packaging, brand, and price) (Petrescu et al., 2019). This study integrates Cue Utilization Theory with dual-process models of consumer decision-making. Cue Utilization Theory suggests that consumers rely on intrinsic and extrinsic cues to evaluate product quality, particularly when direct assessment is difficult (Thøgersen et al., 2017; Zheng et al., 2022). Prior research indicates that consumers tend to overweight extrinsic cues due to their accessibility and ease of interpretation, even when intrinsic information is available. As a result, healthiness judgments are often formed through heuristic processing rather than systematic evaluation, increasing the likelihood of simplified or biased perceptions. To further explain how consumers process these cues, this study draws on the Heuristic–Systematic Processing Model (HSM), which distinguishes between effortful, analytical evaluation and simplified, heuristic-based decision-making (Chaiken, 1980; Chan and Zhang, 2022). In this framework, heuristic processing relies on easily accessible cues and requires limited cognitive effort, whereas systematic processing involves more detailed evaluation of available information. In food choice contexts, heuristic processing is often dominant, leading consumers to rely on simplified rules of thumb rather than comprehensive analysis when forming healthiness judgments.

Previous research shows that consumers' use of nutritional information varies across product categories and is influenced more by individual motivations than by demographic factors alone (Buse and Meyerding, 2025; Grunert et al., 2010). In particular, characteristics such as nutrition knowledge and health consciousness shape how consumers interpret product attributes, with more health-motivated individuals placing greater emphasis on nutritional aspects over taste and convenience (Mai and Hoffmann, 2015). Beyond individual factors, broader contextual influences also play an important role. Cultural values and social norms affect how consumers evaluate food products and define healthiness (Meyerding and Trinh, 2025; Pettinger et al., 2004), while marketing and media environments can further shape perceptions through mechanisms such as the "health halo" effect, where specific claims bias overall product evaluations (Chandon and Wansink, 2007).

Building on this perspective, research in consumer behaviour and food marketing shows that perceived food healthiness is often constructed through cue-based inference rather than objective nutritional assessment. In particular, salient front-of-pack and marketing cues—such as colour, simplified claims, and naturalness signals—can create health halo effects, leading consumers to overestimate product healthiness (Chandon and Wansink, 2007; Iles et al., 2017; Plasek et al., 2020; Talati et al., 2016). This is especially relevant for processed and ultra-processed foods, where nutritional quality is difficult to infer

directly and visible cues substitute for deeper evaluation (Monteiro et al., 2019; Bopape et al., 2025). While front-of-pack labels can support interpretation, their effectiveness depends on factors such as consumer motivation, literacy, and label design, with simplified formats generally enabling faster and more accurate judgments than information-heavy alternatives (Egnell et al., 2018; Grunert et al., 2010; Huang and Lu, 2015). These dynamics are particularly pronounced among Generation Z consumers, whose food choices are shaped by visually dense environments and rapid, cue-driven decision-making (Meyerding and Ahrens, 2024; Sprake et al., 2018). Taken together, this literature highlights that healthiness perceptions emerge from the interaction between product cues, heuristic processing, and consumer-specific characteristics.

A key implication of heuristic cue processing is the emergence of cognitive biases such as the health halo effect, whereby a single positive attribute (e.g., "high protein" or natural imagery) leads consumers to infer overall product healthiness (Her and Seo, 2017; Wang and Begho, 2024). Building on these perspectives, this study conceptualizes perceived healthiness as a subjective evaluation constructed through the interpretation and weighting of intrinsic and extrinsic cues. This evaluation is shaped by cue utilization processes and influenced by the extent to which consumers rely on heuristic versus systematic processing, potentially resulting in biased or simplified health judgments.

The South African food environment presents distinct contextual challenges that differentiate it from developed markets where most consumer perception research has been conducted. High levels of income inequality and limited affordability of healthier food options shape consumer decision-making, as healthier alternatives often carry substantial price premiums (Temple and Steyn, 2011). As a result, economic constraints play a key role in shaping how consumers evaluate and select processed foods, reinforcing reliance on affordable and accessible options. In addition, prior research indicates that many South African consumers face difficulties in interpreting nutritional information on food labels, particularly among lower education groups (Vorster et al., 2011). This limited label comprehension suggests that consumers may rely less on detailed nutritional information and instead depend more on easily interpretable cues when evaluating product healthiness.

University students of Generation Z represent a particularly relevant demographic for understanding processed food consumption and evaluation patterns. Their transition to independent living, combined with academic pressures and time constraints, often leads to increased reliance on processed foods (Sprake et al., 2018). The university environment further facilitates this reliance through the widespread availability of convenient food options, making processed products an integral part of students' daily choices (Roy et al., 2019). This context provides a relevant setting for examining how young consumers perceive and evaluate the healthiness of such products.

While prior research has examined consumer perceptions of food healthiness, limited attention has been paid to how these judgments are constructed in real-world decision-making contexts, particularly regarding the role of heuristic cues versus nutritional information. Several important gaps remain. First, existing studies predominantly rely on quantitative approaches and structured survey measures, focusing on predefined constructs such as nutrition knowledge, attitudes, or label use (Grunert et al., 2010). While valuable, these approaches provide limited insight into how consumers actually construct healthiness judgments in practice, where heuristic cues—such as packaging, branding, or simplified claims—often guide evaluations (Chandon and Wansink, 2007). Second, much of the literature focuses on single product categories, limiting understanding of whether consumers apply similar evaluation strategies across different types of processed foods. Comparative, multi-category studies remain scarce, particularly those using qualitative approaches capable of capturing the complexity of consumer reasoning processes. Third, although research in the South African context has addressed dietary patterns and specific product perceptions (Vorster et al., 2011; Bopape et al., 2025), it does

not systematically examine how consumers evaluate processed food healthiness across categories or how different product cues interact in shaping these perceptions.

To address the identified gaps, this study investigates how Generation Z student consumers in South Africa evaluate the healthiness of processed food products across different categories. Specifically, the study is guided by the following research questions: RQ1: How do Zulu Generation Z students in South Africa form healthiness judgments of processed food products? RQ2: Which intrinsic (e.g., ingredients, nutritional value) and extrinsic (e.g., packaging, brand, price) product attributes influence these healthiness perceptions? RQ3: To what extent do consumers rely on heuristic cues versus nutritional information when forming healthiness judgments? RQ4: Are these evaluation strategies consistent across different processed food categories (e.g., snack bars, beverages, crisps)? RQ5: How do contextual factors, such as everyday consumption conditions and socioeconomic constraints, influence healthiness perceptions within the South African student context?

This study makes three key contributions to the literature. First, it advances research on consumer food choice by providing qualitative insights into how healthiness judgments are constructed, with particular emphasis on the role of heuristic decision-making. Second, it extends existing work by adopting a comparative, multi-category perspective, enabling the identification of both common patterns and category-specific differences in evaluation strategies. Third, it contributes to the limited literature on emerging markets by offering in-depth insights into South African Generation Z Zulu student consumers, highlighting how cultural and socioeconomic factors shape healthiness perceptions.

The remainder of this article is structured as follows. The methodology section describes the research design, data collection, and analysis procedures. The results section presents findings across the three product categories, followed by a discussion that interprets these findings, outlines theoretical and practical implications, and highlights limitations and directions for future research.

## Methodology

This study is grounded in Cue Utilization Theory and information processing theory, which together posit that consumers rely on available cues to evaluate product attributes that cannot be directly observed (Thøgersen et al., 2017; Zheng et al., 2022). These cues can be broadly categorized into intrinsic attributes (e.g., ingredients, nutritional composition, processing level) and extrinsic attributes (e.g., packaging design, brand, price, and labelling) (Petrescu et al., 2019). In line with the Heuristic-Systematic Processing Model, consumers may process these cues either analytically or through simplified heuristics, with prior research indicating a dominance of heuristic processing in food-related decisions (Chan and Zhang, 2022). Consequently, perceived healthiness is conceptualized as the outcome of cue utilization processes that are shaped by heuristic decision-making and susceptible to biases such as the health halo effect (Her and Seo, 2017). Fig. 1 illustrates this conceptual framework, showing how intrinsic and extrinsic cues are

processed through heuristic or systematic pathways to form perceived healthiness judgments, with the health halo effect representing a potential bias arising from heuristic processing.

In the context of food choice, prior research suggests that consumers often rely on heuristic processing, using simplified decision rules based on salient extrinsic cues rather than systematically analysing detailed nutritional information (Chandon and Wansink, 2007; Bucher et al., 2016). Building on this framework, the present study conceptualizes perceived healthiness as the outcome of consumers' interpretation of intrinsic and extrinsic product cues, mediated by heuristic decision-making processes. These theoretical categories guided both the design of the focus group discussions and the subsequent qualitative content analysis.

## Study design

This study examines consumer perceptions of healthiness across three distinct categories of processed foods in South Africa: snack bars, beverages, and crisps. The research employs a multi-category comparative approach to understand how consumers evaluate and differentiate healthiness across different product types. A qualitative methodology was chosen to capture the nuanced and subjective nature of health perceptions, which are shaped by complex interactions between product attributes, cultural context, and individual beliefs, as people interpret healthy eating in "complex and diverse ways that reflect their personal, social, and cultural experiences, as well as their environments" (Bisogni et al., 2012, p.282).

The study utilizes focus group discussions as the primary research method due to their effectiveness in exploring consumer attitudes and perceptions in food research. Focus groups facilitate dynamic interactions between participants, revealing both individual viewpoints and collective understandings that emerge through group dialogue. This approach is particularly valuable for investigating health perceptions because it allows participants to compare, contrast, and build upon each other's perspectives, leading to richer insights than individual interviews might provide. The research design incorporates systematic paired comparisons within each product category, enabling participants to articulate the specific factors that influence their health judgments when choosing between alternatives. This comparative framework mirrors real-world shopping decisions and helps explore the relative importance of different product attributes such as packaging, branding, nutritional claims, and price positioning. The methodology combines structured questioning with open discussion, allowing for both comprehensive coverage of key topics and the emergence of unexpected themes through participant interaction (Kitzinger, 1994).

By examining multiple processed food categories within the South African context, the study aims to identify recurring health perception drivers across product categories, as well as category-specific factors that may vary across different types of processed foods. Participants were recruited using a purposive sampling approach to capture information-rich cases relevant to the research objectives (Patton,

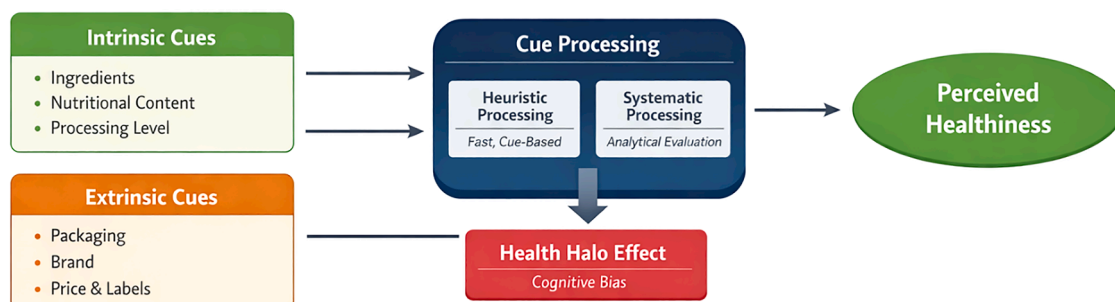


Fig. 1. Conceptual framework of cue utilization of perceived food healthiness.





2015). The sampling criteria were defined to include university students belonging to Generation Z, with a Zulu cultural background, who are regular consumers of processed food products. Recruitment was conducted through on-campus announcements and direct invitations in relevant courses at Durban University of Technology, ensuring voluntary participation. The purposive strategy aimed to achieve variation in gender, academic background, and urban–rural origin in order to capture a range of perspectives within the target population. This approach is appropriate for exploratory qualitative research focusing on understanding underlying perceptions and decision-making processes rather than statistical generalization. This purposive sampling approach enables the selection of information-rich participants who can provide detailed insights into how consumers construct healthiness perceptions in real-world contexts. The sample size ( $N = 30$ ) is consistent with qualitative research standards for focus group studies, where the aim is depth of insight rather than statistical generalization. The aim of this sampling strategy is not to achieve statistical representativeness of the broader South African Generation Z population, but to enable analytical insights into how healthiness perceptions are constructed within a relevant consumer segment. In line with qualitative research principles, the findings are intended to be intended to be analytically transferable at a conceptual level rather than generalizable in a statistical sense. The focus group discussions were conducted with university students in Durban, South Africa, in October 2024, providing insights into health perceptions within this important consumer demographic. This project was approved by the Durban University of Technology Institutional Research Ethics Committee (IREC 181/24).

Data collection proceeded until thematic saturation was reached at the level of overarching evaluation patterns, defined as the point at which no substantially new themes or insights emerged from additional discussions (Guest et al., 2006; Saunders et al., 2017). Given the study’s design, in which each focus group addressed a different product category, saturation was not assessed within individual categories but across the focus groups as a whole. Recurring patterns in participants’ evaluations of processed food healthiness—particularly regarding the role of intrinsic and extrinsic cues and the reliance on heuristic judgments—became evident early in the data collection process and were consistently observed across all discussions. The final focus group did not yield novel insights at this general level but rather reinforced previously identified themes, indicating that an adequate level of saturation had been achieved for the exploratory purposes of this study.





**Study procedure**

A comprehensive moderation guide was developed in advance to guide the structure of each focus group discussion. The sessions followed a semi-structured format, utilizing standardized moderation guidelines with predetermined questions (Table 5) and product examples (Tables 1, 2, and 3) while allowing for spontaneous participant interactions and moderator follow-up inquiries based on emerging themes. The moderation guide and stimulus materials were designed to capture both intrinsic (e.g., ingredients, nutritional value) and extrinsic cues (e.g., packaging, brand, price), in line with the study’s conceptual framework.

**Table 1**  
South African Snack Bars used in the Focus Group Discussion.

Attributes	Product 1	Product 2	Product 3	Product 4
<b>Brand and name</b>	Jungle Oats	Future Life	NPL	Nestlé Bar One
<b>Product category and flavour</b>	Energy bar (yoghurt)	High protein lite bar (chocolate crunch)	Vegan bar (almond berry)	Chocolate bar (chocolate)
<b>Product size</b>	40 g	40 g	45 g	52 g
<b>Product design</b>				

**Table 2**  
South African Beverages used in the Focus Group Discussion.

Attributes	Product 1	Product 2	Product 3	Product 4
<b>Brand and name</b>	Coca-Cola	Woolworth Foods	Liqui Fruit	Simple Truth
<b>Product category and flavour</b>	Zero sugar soft drink	Brewed iced tea (mixed berry)	Cranberry cooler	Flavoured sparkling drink (lime and ginger)
<b>Product size</b>	300 ml	500 ml	200 ml	500 ml
<b>Product design</b>				

**Table 3**  
South African Crisps used in the Focus Group Discussion.

Attributes	Product 1	Product 2	Product 3	Product 4
<b>Brand and name</b>	Simba NikNaks	Woolworths Foods	Woolworths Food	Lay’s
<b>Product category and flavour</b>	Maize snack (original cheese)	Lentil chips (sour cream and chives)	Veggie crisps (sea salted)	Potato chips (spring onion and cheese)
<b>Product size</b>	135 g	100 g	100 g	120 g
<b>Product design</b>				

During analysis, participant statements were systematically coded according to these categories, while allowing for the emergence of additional themes through inductive coding. Each session began with the moderator welcoming participants and introducing the research team, followed by an explanation of study procedures. During this introductory phase, consent forms were distributed and participants were informed about the study’s purpose, confidentiality measures, recording procedures, and their right to withdraw at any time. Following these formalities, discussions commenced with exploratory questions about participants’ conceptualization of healthy products, including “What are healthy products for you?” and “How can you tell if a product is healthy?”. The session then focused on the specific product category under investigation, with participants discussing their preferences, consumption patterns, and selection criteria for products within that category. The moderator subsequently introduced four sample products for each category/focus group (Tables 1, 2, and 3; the complete Tables including all information can be found in the appendix as Tables 9, 10, and 11) to evaluate product familiarity, with participants indicating their knowledge and previous consumption experience with these items. The

selected products were chosen to reflect a range of commonly available options within each category in the South African market, including variations in brand familiarity, price positioning, and perceived healthiness. This diversity was intended to capture realistic choice scenarios and to stimulate discussion around different product attributes and evaluation strategies. The core component of each discussion involved systematic paired comparisons between sample products, with participants evaluating perceived healthiness in each pairing:

#### Snack bars:

- Future Life (high-protein bar) vs. NPL (vegan bar)
- Jungle Oats (energy bar) vs. Nestlé Bar One (chocolate bar)
- Jungle Oats (energy bar) vs. Future Life (high-protein bar)
- NPL (vegan bar) vs. Nestlé Bar One (chocolate bar)

#### Beverages:

- Coca-Cola (zero sugar soft drink) vs. Woolworth Foods (brewed iced tea)
- Liqui-Fruit (cranberry cooler) vs. Simple Truth (flavoured sparkling water)
- Woolworth Foods (brewed iced tea) vs. Simple Truth (flavoured sparkling water)
- Coca-Cola (zero sugar soft drink) vs. Liqui-Fruit (cranberry cooler)
- Woolworth Foods (brewed iced tea) vs. Liqui-Fruit (cranberry cooler)

#### Crisps:

- Woolworths Foods (lentil chips) vs. Woolworths Foods (veggie crisps)
- Lay's (potato chips) vs. Simba NikNaks (maize snack)
- Woolworths Foods (veggie crisps) vs. Lay's (potato chips)
- Woolworths Foods (lentil chips) vs. Simba NikNaks (maize snack)

The use of paired comparisons is well established in consumer research as it facilitates more concrete and comparative evaluations by prompting participants to articulate trade-offs between alternatives. This approach reduces abstract responses and encourages participants to make explicit the criteria underlying their judgments, thereby providing deeper insight into decision-making processes. Following these comparative evaluations, discussions explored specific product attributes including brand influence, packaging aesthetics and colour associations, price perceptions, labelling effects, ingredient list comprehension, nutritional information relevance, and energy content considerations.

#### Qualitative content analysis

The focus group discussions were audio-recorded and subsequently transcribed verbatim. All non-English spoken content (primarily Zulu) was translated into English. To ensure translation accuracy and preserve contextual meaning, at least two native Zulu-speaking members of the research team were present during each focus group discussion and involved in the translation process. Translations were reviewed collaboratively, and any ambiguities or culturally specific expressions were discussed and resolved within the research team. This approach allowed for a context-sensitive interpretation of participants' statements and enhanced the trustworthiness of the translated data. The resulting transcripts were analysed using Mayring's summarizing content analysis methodology (Mayring, 2003), which follows a systematic seven-step process as illustrated in Fig. 2. This qualitative content analysis approach was applied across all three product categories.

Following data collection, participant statements were systematically categorized into thematic areas and corresponding subtopics. This structured approach enabled a comprehensive organization of findings and facilitated a clear presentation of results. A comprehensive overview of all themes and sub-themes for the three product categories is presented in Tables 5, 6 and 7 in the appendix, while the primary findings

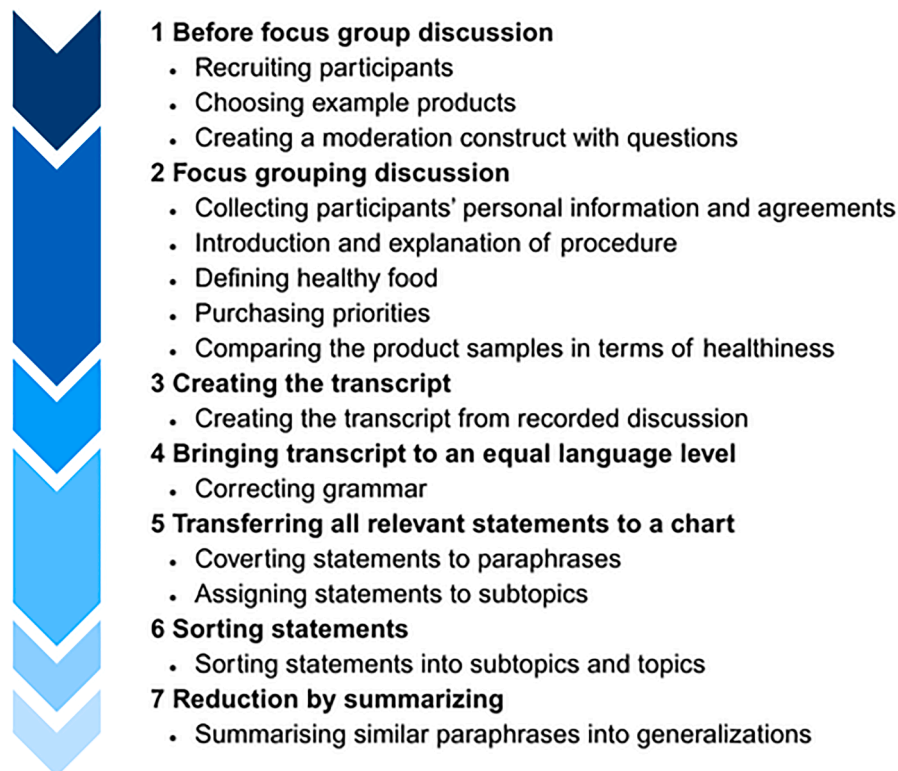


Fig. 2. Overview of the steps applied in the qualitative content analysis. (Modified according to Meyerding and Ahrens (2024) and Kitzinger (1994).

are described in the main results section. When multiple participants expressed similar viewpoints, these were consolidated into generalizations to identify common patterns and perspectives.

To enhance the rigor and trustworthiness of the qualitative analysis, several measures were implemented. Prior to coding, the research team agreed on a set of preliminary categories derived from the conceptual framework to ensure consistency in terminology and analytical focus across researchers. The transcripts of each focus group were then coded independently by two members of the research team. Following this step, coding and category development were conducted iteratively and discussed within the research team to ensure consistency and a shared understanding of emerging themes. Rather than relying on formal intercoder reliability metrics, which are debated in qualitative research, the study followed an interpretive approach emphasizing intersubjective agreement through researcher discussion. Second, attention was given to identifying divergent or contradictory statements within the data, allowing for the inclusion of differing perspectives and reducing the risk of selective interpretation. Third, the coding process was systematically documented, enabling transparency in how categories were developed and refined. While formal member checking was not conducted, the use of focus group discussions allowed participants to reflect on and respond to each other's statements in real time, providing a form of internal validation of emerging viewpoints. Together, these measures contribute to the credibility and dependability of the findings.

## Results

The results section synthesizes data through the lens of intrinsic and extrinsic product cues from the focus group discussions with South African students, exploring their decision-making processes when evaluating the healthiness of processed food products. The findings are organized around participants' choice determinants, their evaluation criteria for assessing healthiness, and their prioritization of health-related product features. While the following sections present findings by product category, recurring themes across categories are highlighted where relevant to avoid redundancy and to emphasize underlying patterns in consumer evaluation strategies.

The presentation of results is guided by the study's conceptual framework based on information processing theory. Accordingly, consumer evaluations of food healthiness are interpreted as the outcome of processing both intrinsic cues (e.g., ingredients and nutritional value) and extrinsic cues (e.g., packaging, brand, and price). The following sections retain the empirical structure of the findings while making explicit how these cues shape perceived healthiness. The findings are presented as aggregated patterns across participants, with selected quotations used to illustrate recurring themes rather than represent isolated viewpoints. To enhance transparency, semi-quantitative descriptors ("few", "some", "many", "most") are used to indicate the relative prevalence of themes across participants. These terms reflect patterns observed within the focus group discussions rather than precise counts.

### Sample description

The focus group discussions were conducted with academic students enrolled at Durban University of Technology (DUT), representing young South African consumers from a Zulu cultural background. As shown in Table 4, a total of 30 individuals participated in three focus group discussions, comprising 13 females and 17 males.

The participants ranged in age from 19 to 23 years and represented diverse academic backgrounds. The sample reflected geographical diversity, with 12 participants from urban areas and 18 from rural backgrounds. The majority of participants had no specialized knowledge in nutrition or dietetics, ensuring that discussions captured typical consumer perspectives rather than expert opinions. However, the sample included some food science students who likely possessed greater

**Table 4**  
Sample Description.

Nr.	Age	Gender	Hometown	Current Major of Studies
<b>Snack Bars</b>				
1	19	f	City	Somatology
2	20	f	City	Somatology
3	20	f	City	Somatology
4	19	f	Rural	Food science and technology
5	22	m	City	Mechanical engineering
6	21	m	Rural	Urban and regional planning
7	21	m	Rural	Civil engineering
8	23	m	City	Public administration
9	20	m	Rural	Food science and technology
10	20	m	City	Electronic and computer engineering
11	20	m	City	Electronic and computer engineering
<b>Beverages</b>				
1	22	m	Rural	Power engineering
2	19	m	Rural	Power engineering
3	19	f	Rural	Food science and technology
4	19	m	Rural	Power engineering
5	22	m	Rural	Mechanical engineering
6	22	m	Rural	Mechanical engineering
7	19	f	Rural	Food science and technology
8	20	f	Rural	Drama and production studies
<b>Crisps</b>				
1	21	f	Rural	Sports science
2	21	m	Rural	Chemical engineering
3	20	f	Rural	Marketing
4	20	f	Rural	Marketing
5	20	f	City	Marketing management
6	22	m	City	Food science
7	20	f	Rural	Food science
8	21	m	City	Food science
9	21	m	City	Consumer science
10	22	m	City	Consumer science
11	20	f	Rural	Food science

nutritional awareness than their peers, though most were in early stages of their studies. Additionally, participants from sports science and consumer science backgrounds demonstrated enhanced familiarity with nutritional concepts due to their academic focus areas. This subset of participants from food-related study programs demonstrated higher familiarity with nutritional concepts, which occasionally influenced the depth of discussion.

### Important aspects of choosing food products

When asked about the primary factors influencing their food product choices, participants across all three focus groups identified five key attributes: taste, price, convenience, nutrients, and packaging. Price emerged as a central factor in participants' decision-making, with many participants highlighting it as a primary consideration and frequently referring to budget constraints. This reflects the financial realities of university students, as illustrated by one participant stating, "*I can only afford Lays*" (Participant 7, focus group crisps). Beyond affordability, most participants associated higher prices with better quality and healthiness, interpreting price as an indicator of product superiority. Taste was also an important factor, with many participants acknowledging that flavour could override health considerations. As one participant stated, "*I would rather take taste*" (Participant 2, focus group snack bars), highlighting the tension between health intentions and actual purchasing behaviour. Convenience was mentioned by many participants, particularly in relation to portability, ease of consumption, and storage. Products that could be consumed on-the-go or stored for later use were generally preferred. Nutrients played a less prominent role in stated importance, with few participants identifying them as the primary factor in product choice. However, across discussions, many participants demonstrated nutritional awareness when evaluating specific products, suggesting that the complexity of nutritional information may limit its prioritisation compared to more accessible cues such as

price and taste. Packaging functioned as a secondary consideration, with many participants referring to visual design elements, colours, and material quality when evaluating perceived healthiness and product quality. These cues often shaped immediate judgments.

Consumer perception of snack bars' healthiness

The section presents the results from the focus group discussion on snack bars, based on 11 participants. While individual statements are illustrated using selected quotes, the findings reflect recurring patterns observed across the majority of participants, with some variations in specific comparisons. The diagram (Fig. 3) provides a summary of the key indicators that influence the perceived healthiness of snack bars. A detailed overview of participants' statements, grouped by indicator, is provided in Table 6 in the appendix.

The diagram illustrates that both intrinsic and extrinsic cues contribute to perceived healthiness, with a particularly strong influence of extrinsic, visually accessible factors such as packaging design, brand, and price. While intrinsic attributes such as ingredients and nutritional value are considered, their role appears less consistent and often secondary to heuristic cues. This pattern supports the notion that healthiness evaluations in this category are largely shaped by simplified, cue-based decision-making processes. Across participants, extrinsic cues—particularly packaging, brand, and price—emerge as the most consistently applied and influential factors, while intrinsic attributes

such as nutritional value are considered less systematically and vary more strongly between individuals.

Ingredient list and ingredients as an indicator of snack bars' healthiness

Ingredient-related evaluations represent intrinsic cues within the information processing framework, as they relate directly to the product's composition. Such evaluations were mentioned by many participants, with individuals referring to ingredient lists and composition when assessing healthiness. The length of the ingredient list was frequently discussed, although views differed. Some participants associated shorter lists with higher healthiness, as illustrated by one participant stating, "A shorter ingredient list is healthier, depending on what the ingredients actually are. But the shorter the list, the healthier it is" (Participant 3). In contrast, some participants emphasised that the type and quality of ingredients were more important than the number: "The amount of ingredients doesn't really matter. But what matters is which specific ingredients are in there [...]" (Participant 5). Many participants expressed a preference for natural over artificial ingredients. For example, one participant noted, "I'll buy products with natural ingredients rather than preservatives and chemicals" (Participant 3). In contrast, few participants raised concerns about specific aspects such as sugar substitutes: "But I'll choose that one because at least there, I know that I'm eating sugar and no sugar substitutes" (Participant 3). Many participants also showed a preference for familiar ingredients, often prioritising known components over unfamiliar ones regardless of perceived healthiness. This

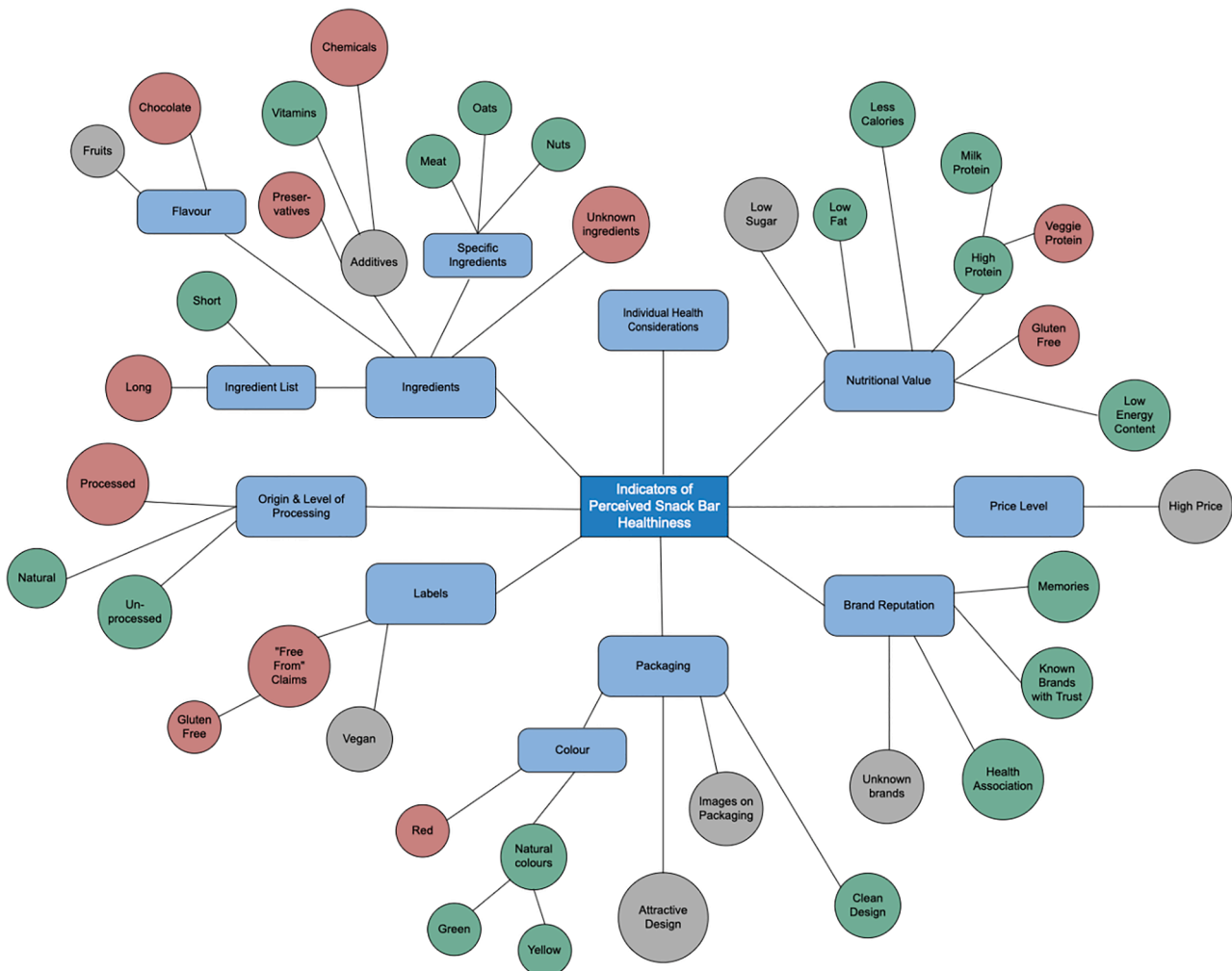


Fig. 3. Summary of influencing indicators for perceived healthiness of snack bars. Note: Green indicates aspects perceived as healthy, red highlights factors associated with unhealthiness, and gray represents the presence of conflicting opinions.

tendency is illustrated by one participant stating, *“I’d rather buy something that is made with the ingredients I know [...] than buying something that doesn’t have those ingredients”* (Participant 1). Across discussions, participants referred to specific ingredients associated with healthiness or unhealthiness. Most participants identified chocolate as an unhealthy ingredient that negatively affected perceived healthiness (e.g., *“You don’t associate chocolate with healthiness”*; Participant 3). Conversely, many participants associated fruits, nuts, and oats with higher healthiness, as reflected in statements such as *“I’ll probably buy a bar with nuts”* (Participant 2) or *“it has oats, which is healthy”* (Participant 5). Ingredient composition emerges as a central evaluation criterion, with many participants associating natural and familiar ingredients with higher perceived healthiness, despite variation in how this information is interpreted.

#### *Nutritional value as an indicator of snack bars’ healthiness*

Similar to ingredients, nutritional value constitutes an intrinsic cue, although participants’ engagement with this information varied in depth. Nutritional composition was mentioned by many participants as an indicator of food healthiness, but only some engaged with it in detail. For example, some participants referred to macronutrients as a key evaluation criterion, as illustrated by one participant stating, *“You have to check the macros [...] that will tell you everything [...]”* (Participant 3), while many participants did not engage at this level. Protein content was frequently associated with healthiness, particularly in the context of fitness-related goals (e.g., *“Protein is the selling point for these two bars”*; Participant 2). Similarly, some participants expressed a preference for low-fat products (*“low fat is better”*; Participant 3). In contrast, concerns about sugar content emerged across discussions, with many participants evaluating high sugar levels negatively. However, few participants expressed scepticism regarding low-sugar claims, particularly due to potential substitutes: *“It depends on what’s added to replace the sugar [...]”* (Participant 3). Calorie content played a limited role overall, with few participants engaging with it. One participant described actively counting calories due to specific fitness goals and preferred products with lower calorie content (e.g., *“it has less calories which makes it healthier”*; Participant 3), while many participants indicated that they do not consider calories. Other nutrients, such as vitamins or supplements, were mentioned by few participants and were generally associated with healthier options. Taken together, nutritional value plays a secondary and uneven role in evaluations, with some participants engaging in detailed assessments, while many rely on simplified interpretations or largely ignore this information.

#### *Packaging design as an indicator of snack bars’ healthiness*

In contrast, packaging design functions as an extrinsic cue, providing immediate visual signals that shape healthiness perceptions without requiring detailed product knowledge. Packaging emerged as an important but not uniform influence on perceived healthiness. In the comparison between the vegan bar and the Future Life bar, participants expressed divided views, indicating that packaging cues influenced perceptions but did not lead to consistent evaluations. As one participant noted, *“A cleaner design is always better when it comes to health”* (Participant 3). Colour was referenced by many participants as a key heuristic cue. Many participants associated colours such as yellow and green with healthiness and naturalness, while red packaging was often linked to negative connotations such as “danger.” This is illustrated by statements such as *“Yellow packaging seems more natural”* (Participant 2) and *“The Bar One looks unhealthy because it’s red, which screams for danger”* (Participant 5). Many participants also associated packaging quality with product quality, although some participants expressed scepticism, suggesting that attractive packaging may mask less healthy products (e.g., *“Sometimes the packaging will sway your decisions [...]”*; Participant 3). In contrast to these mixed evaluations, most participants identified the Jungle Oats bar as healthier than the Bar One chocolate bar based on packaging cues. Visual elements such as images of oats and

natural ingredients were interpreted as signals of healthiness, while chocolate imagery signalled an unhealthy option (e.g., *“The images indicate how healthy a product could be”*; Participant 3). Packaging design functions as a salient heuristic cue, with visual elements such as colour, imagery, and perceived design quality shaping immediate healthiness judgments.

#### *Brand familiarity as an indicator of snack bars’ healthiness*

Brand familiarity represents a key extrinsic cue, allowing consumers to rely on trust and prior associations when evaluating product healthiness. It was mentioned by many participants as influencing healthiness perceptions, with known brands such as Jungle Oats and Future Life generally viewed as more trustworthy than unfamiliar ones. As one participant explained, *“Future Life is just much more well known [...] you trust the brand. I’ve had that my entire life”* (Participant 3), while another noted familiarity with related products (*“And I know other products based on the brand”*; Participant 4). This trust in familiar brands was often linked to risk aversion, with many participants expressing a preference for known products over unfamiliar ones. For example, one participant stated, *“I’m not going to risk something I don’t know. I’d rather take something that is well known”* (Participant 2). In contrast, few participants expressed openness to trying new products, particularly when packaging suggested higher quality: *“I choose the vegan bar because the packaging and name show quality, and I like trying new things”* (Participant 5). Brand familiarity operates as a trust-based heuristic, reducing perceived risk and influencing healthiness judgments even in the absence of detailed product knowledge.

#### *Price as an indicator of snack bars’ healthiness*

Price serves as an extrinsic heuristic cue, often used as a proxy for product quality and healthiness. However, its role emerged as ambiguous and contested across participants. Some participants explicitly rejected a direct relationship between price and healthiness, arguing that higher prices do not necessarily reflect better nutritional quality (e.g., *“the price difference isn’t necessarily related to health content”*; Participant 2). This scepticism was further illustrated by observations highlighting contextual influences such as geographical price variation and marketing effects (e.g., *“Does that mean the same product is healthier in Ballito just because it costs more? Of course not”*; Participant 3; and *“sometimes the price might blindside a person [...]”*; Participant 3). In contrast, some participants associated higher prices with superior ingredients and product quality, reflecting the belief that *“quality products tend to be more expensive”* (Participant 3). Beyond these differing interpretations, many participants referred to financial constraints, indicating that affordability often overrides health considerations. For example, one participant stated, *“I know Future Life and it’s cheaper [...] so I can’t waste a lot of money”* (Participant 4). Price functions as an ambiguous heuristic cue: while some participants interpret it as an indicator of quality and healthiness, others question its reliability or prioritise affordability.

#### *Processing level as an indicator of snack bars’ healthiness*

Processing level was mentioned by few participants as a factor in evaluating food healthiness. One participant explicitly associated higher levels of processing with lower healthiness, stating, *“The more processed it is, the more nutrients you lose. More processed, more unhealthy”* (Participant 2). No opposing views on processing level were expressed within this focus group. Processing level appears to play a limited and inconsistently applied role, emerging as a relevant factor for some participants but not as a dominant evaluation criterion.

#### *Labelling as an indicator of snack bars’ healthiness*

Labels and health claims were mentioned by many participants as influencing perceptions of snack bar healthiness, although their importance varied. Some participants referred to claims such as “high protein” or “vegan” when explaining their evaluations. For example, one

participant stated, “I think I’ll go for Future Life [...] just because it’s high protein” (Participant 2), illustrating how front-of-pack claims can shape perceived healthiness without detailed evaluation. At the same time, some participants expressed scepticism, particularly towards “free-from” claims (e.g., sugar-free or gluten-free). Participants raised concerns that such claims may involve artificial substitutes, as reflected in statements such as, “when there’s no sugar [...] it means that they added something else [...]” (Participant 3). Additionally, few participants indicated reliance on front-of-pack information rather than detailed product information: “I don’t check at the back. I only focus on the front” (Participant 4). Labelling functions as a mixed cue, guiding healthiness perceptions through simplified claims while also triggering scepticism regarding their credibility.

*Further aspects as an indicator of snack bars’ healthiness*

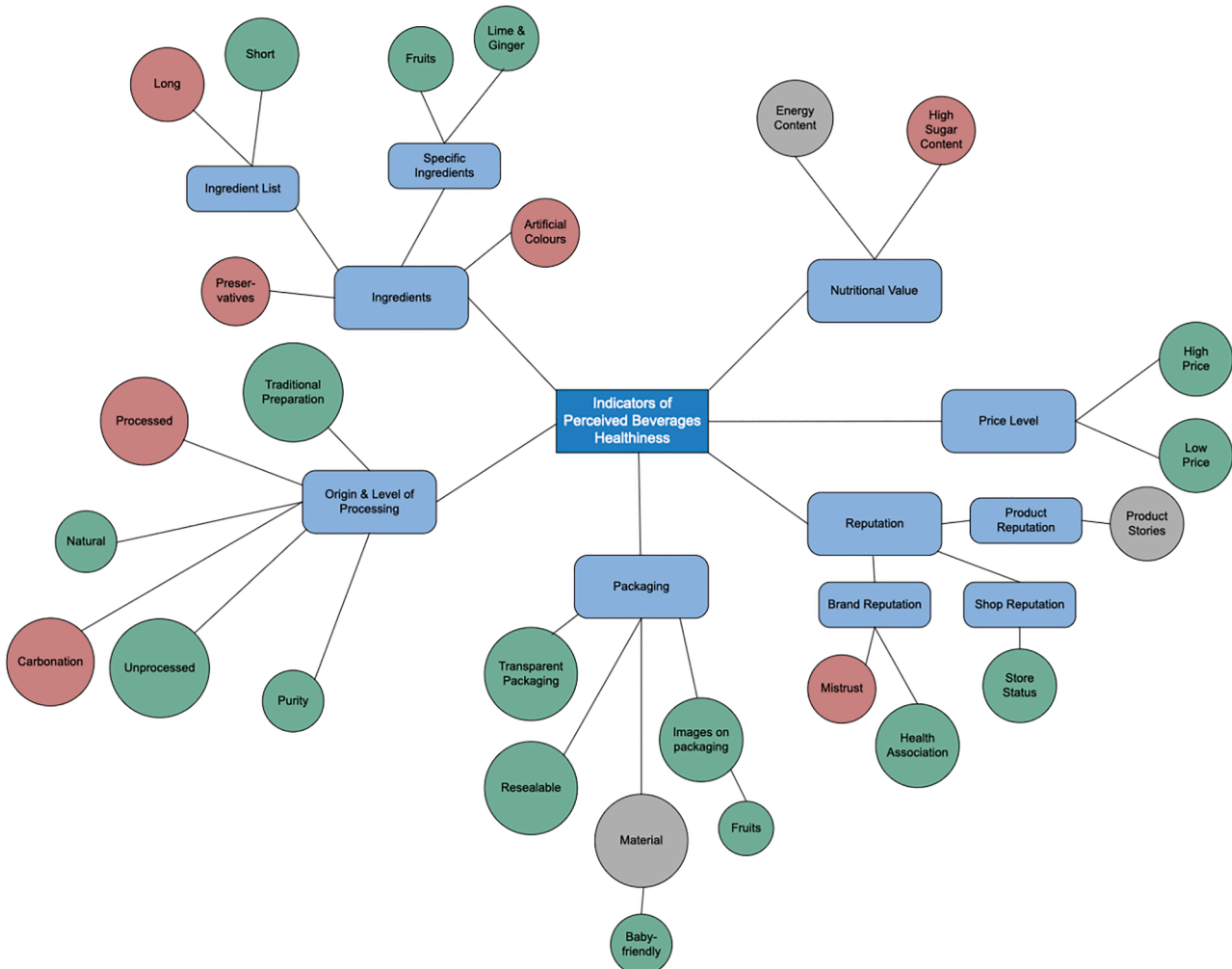
Many participants emphasised that the healthiness of snack bars is individual and depends on personal health goals and bodily responses. As one participant explained, “you need to check [...] it might be having a bad effect on your body, not other people, but your body” (Participant 3), while another noted, “it’s more relative to the person [...] and what your goals are” (Participant 2). Similarly, some participants described their food choices as situational and purpose-driven, with health perceptions varying depending on specific needs such as weight loss or post-exercise consumption. For example, one participant stated, “I would take the high protein one after the gym” (Participant 7), while another indicated, “If you

want to lose weight I would choose the vegan one [...]” (Participant 5). These findings suggest that healthiness perceptions are not fixed but context-dependent, shaped by individual goals, situational factors, and personal interpretations of product suitability.

*Consumer perception of beverages’ healthiness*

The section presents the results from the focus group discussion on beverages, based on 8 participants. While individual statements are illustrated using selected quotes, the findings reflect recurring patterns observed across multiple participants, alongside some variation in specific product comparisons and attribute evaluations. The diagram (Fig. 4) provides a summary of the key indicators that influence the perceived healthiness of beverages. A detailed overview of participants’ statements, grouped by indicator, is provided in Table 7 in the appendix. These patterns provide insight into how participants evaluate beverages using a combination of intrinsic and extrinsic cues.

The diagram highlights that healthiness perceptions in the beverage category are primarily driven by ingredient-related considerations—particularly sugar content—while the influence of extrinsic cues such as packaging is less pronounced compared to other categories. At the same time, participants frequently rely on simplified assumptions about product types, indicating that heuristic processing remains central, although expressed through different dominant cues. In this category, ingredient-related cues—especially sugar content—represent the



**Fig. 4.** Summary of influencing indicators for perceived healthiness of beverages. Note: Green indicates aspects perceived as healthy, red highlights factors associated with unhealthiness, and gray represents the presence of conflicting opinions.

most consistently applied evaluation criterion, while the influence of other cues varies in strength and is often mediated by simplified assumptions about product types.

#### *Ingredient list and ingredients as an indicator of beverages' healthiness*

The number and type of ingredients were mentioned by many participants as influencing perceptions of beverage healthiness. Some participants expressed scepticism toward long ingredient lists, associating them with lower healthiness, while beverages with fewer and more recognizable ingredients were perceived as more natural and healthier. The type of ingredients was also central to evaluations. Many participants associated fruits with healthiness, with some participants indicating that a greater variety of fruits further reinforced this perception (e.g., "*Liqui-Fruit has more fruits [...]*"; Participant 1). In addition, certain ingredients were evaluated particularly positively, with lime and ginger perceived by some participants as even healthier than fruit (e.g., "*lime and ginger [...] are the healthier ingredients*"; Participant 3). Avoidance of additives such as preservatives and artificial colours was mentioned by few participants as an indicator of healthiness, reflecting a preference for products without preservatives. In contrast, few participants linked physical reactions to perceived healthiness, with one participant interpreting carbonation and burping as signs of an unhealthy product (e.g., "*it makes it unhealthy [...] the body wants it out*"; Participant 6). Ingredient-related evaluations emphasise naturalness and recognisability, with many participants associating fewer and more familiar ingredients with higher perceived healthiness.

#### *Nutritional value as an indicator of beverages' healthiness*

In the focus group discussion, nutritional value emerged as an important criterion for beverage health perceptions. Many participants identified sugar content as the dominant factor, with most indicating that beverages with lower sugar content were perceived as healthier (e.g., "*the iced tea is more healthy [...] less sugar than coke*"; Participant 8; "*sugar is not healthy*"; Participant 4). At the same time, some participants relied on general product assumptions rather than detailed nutritional information, for example criticising Coke for sugar content even when a sugar-free variant was presented, reflecting scepticism towards such claims. Energy content was discussed by some participants, but interpretations varied. Some participants associated lower energy values with higher healthiness, while some expressed opposing views, suggesting that higher energy content could be beneficial depending on individual needs (e.g., "*the body needs a lot of energy [...]*"; Participant 7). Participants did not engage with detailed nutritional metrics, as no references were made to specific nutrient amounts or recommended intakes. Protein, fat, and sodium were not mentioned as factors influencing health perceptions. Taken together, sugar content emerges as the primary nutritional cue, while other aspects of nutritional value are considered less consistently and often interpreted through simplified assumptions.

#### *Packaging design as an indicator of beverages' healthiness*

Packaging design was mentioned by many participants as influencing health perceptions of beverages, although different elements were emphasised to varying degrees. Some participants referred to fruit imagery as an indicator of healthiness, associating it with natural content without consulting ingredient information (e.g., "*this one is healthy [...] because of the fruits on the packaging*"; Participant 4). In addition, few participants linked packaging material to perceived healthiness, with carton packaging viewed as more suitable and healthier than cans. This was justified through associations with child-appropriateness (e.g., "*you would give it to a baby [...] but not a can*"; Participant 2), suggesting that packaging context can serve as a proxy for perceived quality. In contrast, packaging colour was not mentioned as a relevant indicator in this category. However, some participants highlighted transparency as a positive attribute, associating visibility of the product with purity and naturalness (e.g., "*it's clear and pure*"; Participant 7). Packaging plays a

less consistent and more category-specific role in beverage evaluations, indicating that its influence as a heuristic cue varies depending on the product context.

#### *Brand familiarity as an indicator of beverages' healthiness*

Brand familiarity and related cues were mentioned by few participants as influencing health perceptions of beverages. For example, one participant referred to the product name as a heuristic, assuming that a label such as "Liqui-Fruit" indicates higher fruit content and thus greater healthiness. More broadly, some participants indirectly linked brand-related trust to price, assuming that higher-priced products reflect higher quality. In addition, few participants attributed an inherent health advantage to water as a product category, creating a "health halo" independent of specific product attributes (e.g., "*sparkling water [...] [has] that whole aesthetic about being healthier*"; Participant 8). Brand-related cues played a secondary role compared to other factors such as ingredients, nutritional value, or packaging. When present, they functioned as heuristic shortcuts, shaping health perceptions without detailed evaluation of product composition.

#### *Price as an indicator of beverages' healthiness*

Price was mentioned by many participants as an indicator of healthiness, although interpretations differed. Some participants associated higher prices with greater product quality and, consequently, higher healthiness, reflecting a "you get what you pay for" logic. In contrast, some participants suggested that products with fewer and more natural ingredients can be both cheaper and healthier (e.g., "*fewer ingredients [...] makes it cheaper and healthier at the same time*"; Participant 1), indicating an alternative logic linking simplicity with both affordability and healthfulness. Taken together, price operates as an inconsistent cue in this category, with some participants associating higher prices with better quality, while others prioritise affordability or question the link between price and healthiness.

#### *Processing level as an indicator of beverages' healthiness*

Processing level was mentioned by many participants, although interpretations differed. Some participants associated higher levels of processing with lower healthiness, reflecting the belief that processing reduces natural nutritional value (e.g., "*when you process something [...] you take away most of its natural nutrients*"; Participant 8). In contrast, some participants associated certain forms of processing with increased purity, particularly in the case of filtered or sparkling water, where processing was interpreted as improving quality and safety. In addition, many participants expressed a preference for products perceived as natural or minimally processed, reflecting the assumption that nature-derived products are inherently healthier than manufactured alternatives. Processing appears to play an implicit and secondary role in beverage evaluations, with participants often inferring healthiness from product type (e.g., natural vs. artificial) rather than explicitly assessing processing levels.

#### *Labelling as an indicator of beverages' healthiness*

Labelling played a minor role in participants' evaluations of beverage healthiness, with few participants referring to label information such as "zero sugar" claims. Overall, labelling functions as a simplified decision aid, with front-of-pack claims influencing perceptions for some participants, while deeper engagement with detailed nutritional information remains limited.

#### *Further aspects as an indicator of beverages' healthiness*

Consumption context was mentioned by few participants as a factor influencing health perceptions, with one participant linking healthiness to temperature. Specifically, this participant expressed scepticism about iced tea's healthfulness because its cold temperature deviates from traditional hot tea consumption (e.g., "*[...] he doesn't think cold tea is healthier than how it's supposed to be which is hot*"; Participant 7). This

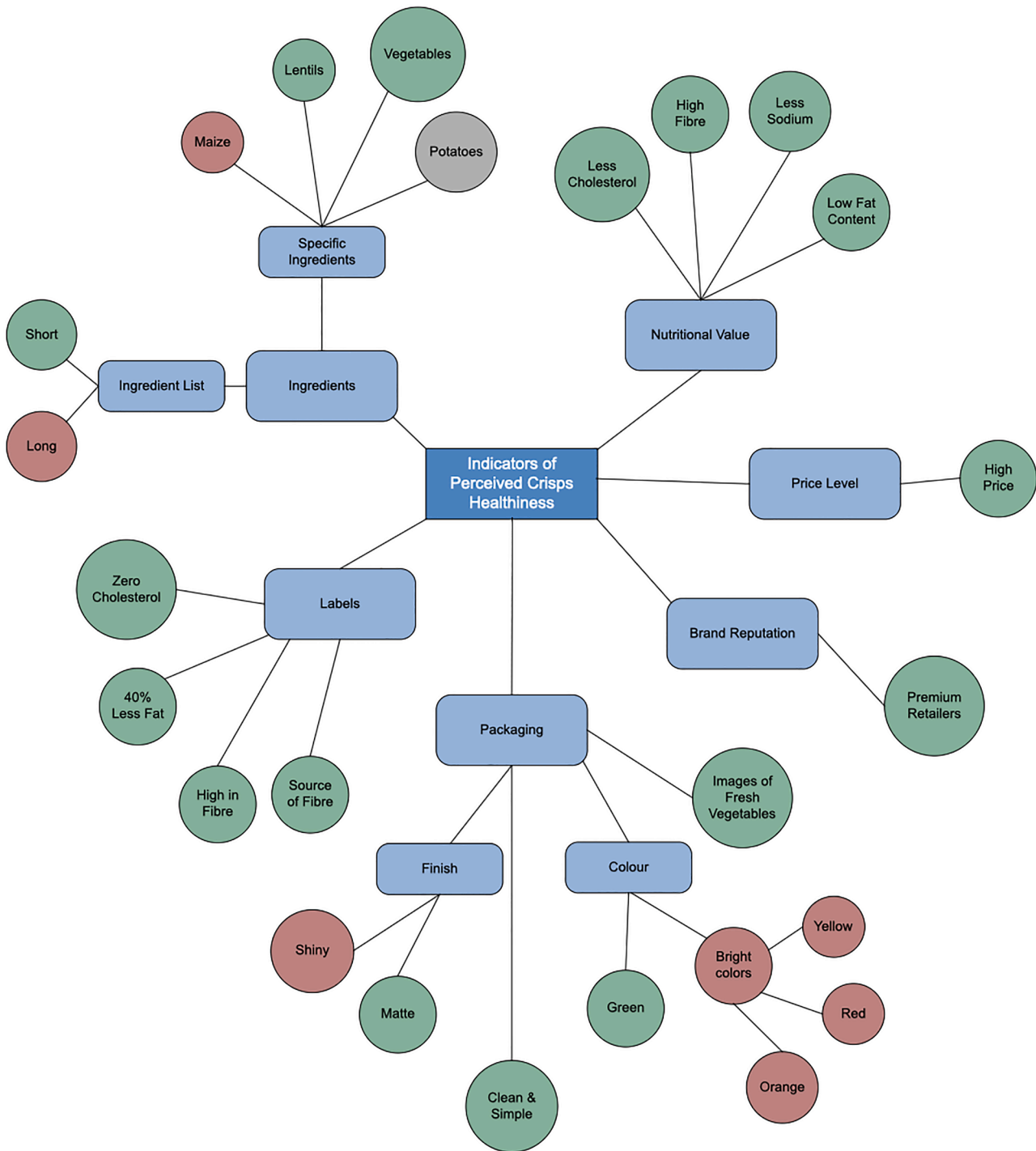
suggests that healthiness perceptions may, in some cases, be influenced by culturally familiar consumption practices, highlighting the context-dependent nature of consumer evaluations.

*Consumer perception of crisps' healthiness*

This section presents the results from the focus group discussion on crisps. Fig. 5 summarizes the key indicators influencing the perceived healthiness of crisps. A detailed overview of participants' statements, grouped by indicator, is provided in Table 8 in the appendix.

The diagram suggests that healthiness evaluations in the crisps

category are dominated by extrinsic and easily interpretable cues, particularly packaging design and product type associations, while intrinsic attributes such as nutritional value and processing level play a comparatively minor role. This reinforces the importance of heuristic cues in shaping perceptions, especially in categories that are generally perceived as less healthy. Valuations in this category are dominated by heuristic cues, with packaging and product-type associations playing a central role, while intrinsic attributes such as nutritional value and processing level are less consistently considered.



**Fig. 5.** Summary of influencing indicators for perceived healthiness of crisps. Note: Green indicates aspects perceived as healthy, red highlights factors associated with unhealthiness, and gray represents the presence of conflicting opinions.

### *Ingredient list and ingredients as an indicator of crisps' healthiness*

The focus group discussions showed that ingredient composition influenced health perceptions of crisp products. Participants referred to multiple ingredient-related characteristics when explaining their evaluations. Many participants associated vegetables and legumes with healthiness, with some linking them to higher nutritional value and diversity (e.g., “vegetables [...] come with different nutrients”; Participant 5). Additive content also influenced evaluations, with some participants expressing a preference for products perceived to contain fewer artificial ingredients (e.g., “I try to avoid additives [...]”; Participant 4). At the same time, some participants relied on assumptions about specific brands, sometimes inferring the absence of additives without verifying ingredient lists (e.g., “NikNaks have no additives I think [...]”; Participant 5). Ingredient list comprehensibility was mentioned by few participants, with some reporting that they research unfamiliar ingredients (e.g., “If I don't understand it, I check it online”; Participant 9). In addition, some participants used ingredient list length as a heuristic, associating shorter lists with healthier products (e.g., “the shorter the list, the healthier the food”; Participant 2). Ingredient-related evaluations are present but relatively simplified in this category, with participants relying on general associations rather than detailed assessments of ingredient composition.

### *Nutritional value as an indicator of crisps' healthiness*

The focus group showed that participants associated specific macronutrient profiles with the perceived healthiness of crisp products. Many participants referred to nutritional attributes as part of their evaluations, although the depth of engagement varied. Protein content was associated with healthiness by many participants, with some identifying higher protein levels—particularly from plant-based sources—as a positive indicator (e.g., “they have more protein”; Participant 1; “the lentils [...] have more protein”; Participant 2). Similarly, some participants associated lower fat, cholesterol, and sodium levels with healthier products (e.g., “lower fat content [...] more healthy”; Participant 3; “zero cholesterol and high fibre”; Participant 5; “Lays have less sodium [...]”; Participant 1), indicating a general awareness of conventional nutritional cues. Fibre was also highlighted by few participants as a beneficial component. In contrast, some participants expressed an opposing view regarding calorie content, associating higher calories with greater healthiness due to their perceived role as an energy source (e.g., “higher calories [...] it's healthier”; Participant 6). Nutritional value plays a limited and inconsistently applied role, with participants demonstrating general awareness of key nutrients but rarely engaging in systematic or comprehensive evaluation.

### *Packaging design as an indicator of crisps' healthiness*

The focus group analysis showed that packaging design influences perceived healthiness of crisp products, with multiple visual elements acting as heuristic cues. Colour was referenced by many participants, with green tones associated with healthiness and naturalness (e.g., “green colour is more healthy”; Participant 1), while red, orange, and yellow hues were often linked to less healthy or more artificial products. Packaging material was also mentioned by some participants, with less shiny designs perceived as higher quality and healthier, whereas glossy packaging was associated with lower quality (e.g., “NikNaks looks cheap [...] because it is so shiny”; Participant 5). In addition, many participants interpreted images of vegetables as signals of healthiness, associating visual representations of natural ingredients with higher perceived health value (e.g., “fresh vegetable on the packaging [...] seems healthy”; Participant 11). Finally, some participants associated clean and simple packaging with healthier products, reflecting a broader link between simplicity and perceived naturalness. Packaging design functions as a prominent heuristic cue in this category, with visual elements such as colour, imagery, and perceived naturalness shaping immediate healthiness judgments.

### *Price as an indicator of crisps' healthiness*

The focus group on perceived healthiness of crisps showed that price functions as a quality indicator and, by extension, an indirect health cue. Many participants associated higher prices with better product quality (e.g., “a higher price [...] indicates excellent quality”; Participant 1; “Lays has a higher price [...] better ingredients”; Participant 5). Some participants extended this logic to health perceptions, linking higher prices—particularly for products containing legumes—to greater health value (e.g., “higher price equals higher quality”; Participant 5). In addition, few participants linked price to target audience, with products perceived as aimed at children associated with lower prices and, in some cases, lower quality (e.g., “the price is lower [...] because it's for kids”; Participant 5). Price operates as a heuristic cue, with participants often inferring quality and healthiness from price, although this relationship is not uniformly applied.

### *Processing level as an indicator of crisps' healthiness*

Processing level was largely absent as an evaluation criterion in the crisps discussion. Few participants differentiated between products based on processing methods, and no participants explicitly referred to the degree of processing when comparing products. Instead, evaluations focused on other cues such as ingredients, nutritional values, and packaging characteristics. This suggests that processing level does not function as a salient factor in healthiness judgments for crisps in this context.

### *Labelling as an indicator of crisps' healthiness*

Participants showed limited engagement with product labelling on crisp packages. Many participants expressed disinterest in health claims such as “40% less fat” (e.g., “I don't really look at those labels”; Participant 5), suggesting that promotional claims have a limited influence on health perceptions. However, in few cases, participants referred to specific nutritional information (e.g., “zero cholesterol and high fibre”; Participant 5), indicating that detailed label content may play a role for those who actively engage with it. Labelling plays a limited but occasionally influential role, with front-of-pack cues guiding perceptions for some participants, while detailed information is largely overlooked. While the above findings are presented by product category, recurring patterns emerge across categories, particularly regarding the role of extrinsic cues and heuristic processing. These cross-category insights are synthesised in the following section.

## **Discussion**

While prior research has established that consumers rely on heuristic cues when evaluating food healthiness, the present study extends this understanding by providing a more differentiated view of how these cues are used in practice. Specifically, the findings show that healthiness perceptions are not only heuristic-driven, but are shaped by a hierarchy of cues whose relative importance varies across product categories. In addition, the results highlight that these evaluations are context-dependent and influenced by factors such as price sensitivity, brand familiarity, and product type assumptions, thereby offering a more nuanced understanding of how perceived healthiness is constructed in real-world decision contexts.

### *Consumer perception of processed food healthiness across the three product categories*

Our research across three distinct product categories (crisps, snack bars, and beverages) in the South African market suggests indicative patterns in how participants perceive the healthiness of processed food. Despite the differences between these product categories, several overarching health perception drivers were observed across the focus groups, although these should be interpreted as exploratory rather than strictly comparable. Across all product categories, the findings suggest that

participants reported combining intrinsic and extrinsic cues in their evaluations, with a noticeable reliance on extrinsic, heuristic signals when forming healthiness judgments.

While the following analysis highlights recurring patterns across product categories, these should be interpreted as indicative rather than strictly comparable, given the qualitative design and minor procedural differences between focus groups. Rather than aiming for controlled comparisons, the cross-category perspective is used to identify consistent and context-dependent patterns in consumer reasoning. The recurrence of similar themes across independently conducted discussions suggests that these patterns reflect robust tendencies in how participants construct healthiness judgments, even if their relative strength cannot be directly compared across categories. Moreover, the observed differences across product categories indicate that cue utilization and information processing are context-dependent. While ingredient-related cues (e.g., sugar content) are more salient in beverages, visual and brand-related cues dominate in categories such as crisps and snack bars. This highlights that the relative importance of intrinsic and extrinsic cues is not fixed but varies depending on product characteristics and consumer expectations, thereby extending existing theoretical models.

#### *Ingredient list and ingredients as an indicator of processed food healthiness*

Indicative cross-category similarities were observed in ingredient evaluation patterns. In the snack bars focus group discussion, participants described shorter ingredient lists as being perceived as healthier. A similar pattern was observed in the beverages discussion, where participants described sparkling water as healthier because it was perceived to have fewer and more natural ingredients compared to processed drinks. Several participants expressed a preference for crisps with shorter and more recognizable ingredient lists, particularly describing veggie crisps as healthier because they were perceived as having more natural ingredients.

Category-specific patterns showed distinct ingredient associations for each product type. The beverages focus group reflected positive evaluations of natural ingredients like lime and ginger, with participants referring to these as healthier compared to artificial additives. In the snack bars discussion, fruit content was frequently valued, with participants often describing products that featured fruits or natural components like oats and nuts as healthier. Vegetable content was frequently associated with higher healthiness in the crisps discussion, with all participants describing veggie crisps as healthier in the comparisons presented, specifically because they contained vegetables. However, certain ingredients were associated with negative perceptions across multiple categories. The snack bars discussion included scepticism about artificial sweeteners and chemical preservatives, with participants expressing concerns about products claiming "no sugar" because they suspected artificial replacements. Similarly, chocolate content was mentioned as a negative attribute by some participants.

#### *Nutritional value as an indicator of processed food healthiness*

Engagement with nutritional information was observed in all product categories, although the level of detail differed. The snack bars focus group showed relatively detailed nutritional analysis, with participants discussing macronutrients such as protein, fat, and carbohydrate content. Some participants in this group demonstrated awareness of calorie counting and protein requirements, particularly those with fitness goals. The beverages discussion included references to nutritional aspects, with participants primarily referring to energy content and sugar levels. One participant specifically stated that products with fewer calories were perceived as healthier, while a small number of participants referred to sugar content or caffeine. However, the nutritional considerations appeared less detailed than in the snack bars discussion. The crisps focus group showed comparatively less detailed nutritional evaluation, with participants demonstrating some awareness of fat content and calories while also referring to visual cues and packaging elements. When nutritional information was discussed, it often centred on basic

concepts such as "40% less fat" rather than detailed macronutrient analysis. Participants sometimes expressed contradictory understandings, with some associating higher calories with better health while others described lower-calorie options as healthier.

#### *Packaging design as an indicator of processed food healthiness*

Packaging design showed indicative similarities across the product categories. In the crisps focus group, green packaging was frequently described as an indicator of healthiness. A similar pattern was observed in the snack bars discussion, where green packaging elements were associated with higher healthiness, while in the beverages discussion packaging was also mentioned, although colour was referred to less frequently. Material-related evaluations showed similar tendencies across the three focus groups. In the crisp discussion, some participants noted that non-shiny, matte packaging suggested higher quality and healthiness, describing shiny packaging as cheap. The snack bars focus group showed similar patterns, with participants describing packaging with a cleaner design and less glossy appearance as healthier. The beverages discussion included references to transparency, with participants stating that clear packaging allowed them to see the product and was associated with perceived purity. Colour associations were observed across categories. The crisps focus group showed negative reactions to bright, colourful packaging, particularly red and orange, with some participants associating these with products targeted at children or artificial flavouring. A similar pattern was observed in the snack bars discussion, where participants associated red packaging with "danger" (Participant 5, focus group snack bars), and in the beverages study, where artificial colours in packaging were viewed negatively. Conversely, clean, simple designs were associated with higher perceived healthiness across the focus groups, regardless of the specific product category being evaluated.

#### *Brand familiarity as an indicator of processed food healthiness*

Brand effects were observed across the product categories, with indicative recurring references to retailer brand equity. The crisps focus group included associations with Woolworths, with participants stating that products from Woolworths were healthier "because it is from Woolworth" (Participant 6, focus group crisps) and associating the retailer with premium food and high-quality products. A similar pattern was observed in the snack bars discussion, where participants indicated that they perceived certain products as healthier because of the Woolworths brand association. Established brand equity was mentioned in multiple categories. In the snack bars focus group, Future Life was associated with brand recognition and health perceptions, with participants expressing trust based on familiarity and prior exposure to the brand. The crisps discussion included references to established brands like Lays, which were perceived as higher quality due to brand recognition and pricing positioning. Negative brand associations were also observed across categories. The beverages focus group included an example where Coca-Cola's negative health image was reflected in participants' statements, such as "[...] there's a lot of stories going around about Coke how it's unhealthy." (Participant 8, focus group beverages). This suggests that such brand perceptions may persist even when products are modified, such as in the case of Coke Zero. In the crisps discussion, certain brands like NikNaks were associated with children's products and therefore perceived as less healthy, indicating that brand positioning may influence health perceptions.

#### *Price as an indicator of processed food healthiness*

The price-quality association was observed across all product types, with indicative similarities appearing in each focus group. In the crisps discussion, participants stated that "higher price equals higher quality" (Participant 5, focus group crisps) and often described more expensive options as healthier when comparing products. The snack bars focus group included similar observations, with participants explaining that higher prices indicated "better quality ingredients" (Participant 3, focus

group snack bars) and more expensive production processes. The beverages focus group also included associations between higher-priced products and perceived health benefits and quality. Across the three discussions, price appeared to function as a heuristic in participants' evaluations of healthiness. However, a recurring tension between price and accessibility was observed across the focus groups. In the crisps discussion, participants acknowledged that while expensive products might be healthier, affordability constraints were described as influencing purchasing decisions, with comments like *"I can only afford Lays."* (Participant 7, focus group crisps). A similar sentiment was expressed in the snack bars focus group, where participants noted that they *"[...] never go shopping there [at premium stores], but if I had the money I would."* (Participant 3, focus group snack bars). The beverages discussion also included references to accessibility concerns, indicating that price may act as a barrier to options perceived as healthier across product categories.

#### *Processing level as an indicator of processed food healthiness*

Processing level was mentioned as a health-related factor, with noticeable category differences across the three focus group discussions. The beverages focus group included references to processing concerns, with participants stating that *"[...] the iced tea goes through a bit more processing than water [...]"* (Participant 8, focus group beverages). This was associated with participants describing water as the healthier option. When asked why processing affects healthiness, one participant explained that *"[...] when you process something that's where you take away most of its natural nutrients."* (Participant 8, focus group beverages). The snack bars discussion also included references to processing, with participants noting that *"[...] the first thing you look at is how processed the food is [...] because [...] the more processed it is, the more nutrients you lose [...]"* (Participant 2, focus group snack bars). This suggests that some participants considered the relationship between processing and nutrient retention and described less processed products as healthier. However, processing considerations were largely absent in the crisps focus group discussion. Participants focused primarily on ingredients, packaging, and brand factors without explicitly discussing processing levels or their health implications. This suggests that processing awareness may be less salient for product categories where processing is expected or less visible to consumers, representing a category-specific difference in health evaluation criteria across the three studies.

#### *Labelling as an indicator of processed food healthiness*

Health claims were discussed differently across the three focus group categories, with some recurring patterns and category-specific responses. The snack bars focus group included relatively detailed discussion of labelling effects, with participants showing scepticism toward certain claims, particularly no sugar labels. Participants expressed concerns that such claims might mask artificial ingredient substitutions, noting that *"[...] when there's no sugar in something, it means that they added something else to make it flavourful."* (Participant 3, focus group snack bars). The crisps discussion included more positive responses to health-related labels, with participants noting claims like "40% less fat" without expressing the same degree of scepticism observed in the snack bars discussion. Labels highlighting natural ingredients or vegetable content were mentioned positively in the crisps focus group. Simple, clear labels were generally described as more favourable, while the beverages focus group showed relatively limited engagement with specific health claims, focusing more on basic product descriptions and visible ingredients rather than detailed label analysis. The beverages discussion included references to clear product identification over complex health messaging, suggesting that labelling strategies may need to vary by product category.

#### *Consumer perception of processed food healthiness in comparison to results from the literature*

The present study examined South African Gen-Z participants' perceptions of food healthiness across three processed food categories: snack bars, beverages, and crisps. The findings suggest several factors associated with perceived healthiness, which both align with and diverge from international research. This section compares the study's results with existing literature across the dimensions: ingredients, nutritional value, packaging design, brand familiarity, price, processing level, and labelling. While the findings provide insights into how participants articulate their evaluation of processed food healthiness, it is important to distinguish between stated perceptions and actual consumer behaviour. Prior research has consistently demonstrated an attitude-behaviour gap in food choice, where expressed health preferences do not necessarily translate into real purchase decisions (Grunert et al., 2010; Chandon and Wansink, 2012). The present study captures how participants reason about healthiness in a focus group setting, which may differ from behaviour in real-world contexts characterized by time pressure, habitual choices, and environmental constraints. Therefore, the findings should be interpreted as reflecting perceived evaluation strategies rather than directly observable consumption behaviour.

These findings refine existing models of consumer health perception by demonstrating that heuristic processing is not uniform but varies systematically across product categories and cue types. While prior studies have emphasized the general dominance of heuristic cues (e.g., Chandon and Wansink, 2007), the present study shows that different cues (e.g., packaging, ingredients, price) assume varying levels of importance depending on the consumption context. This suggests that cue utilization in food evaluation is better understood as a context-sensitive process rather than a fixed reliance on specific heuristics. Thus, rather than simply confirming the use of heuristics, the findings provide insight into the specific mechanisms and contextual conditions under which these heuristics are applied. Interpreted through the lens of information processing theory, the findings suggest a clear dominance of extrinsic cues in shaping perceived healthiness, indicating that consumers rely heavily on easily accessible and cognitively efficient signals when evaluating processed foods. While intrinsic cues such as ingredients and nutritional value are available, they are less consistently utilized, which points to limited engagement in systematic processing. Instead, the results support the notion that consumers predominantly operate under heuristic processing conditions, particularly in complex choice environments where detailed evaluation is costly in terms of time and cognitive effort.

From a cue utilization perspective, the findings further indicate that not all cues are weighted equally. Extrinsic cues—such as packaging design, brand familiarity, and price—consistently function as dominant signals, while intrinsic attributes play a more variable and secondary role. This suggests that cue utilization in the context of processed food evaluation is characterized by a hierarchical structure, in which the accessibility and interpretability of cues determine their influence on perceived healthiness.

#### *Ingredient list and ingredients as an indicator of processed food healthiness*

When evaluating product healthiness, participants in the focus groups referred to the length of the ingredient list as an indicator. Shorter lists were often associated with healthier products, reflecting participants' perception that fewer ingredients indicate less processing and greater naturalness. This finding aligns with Kim et al. (2022), who demonstrated through multiple experiments that consumers perceive products with fewer ingredients as more natural and healthier. Their research showed this effect persists even when identical products are merely framed differently, suggesting a consumer heuristic linking ingredient quantity to health perception.

Beyond simple ingredient counting, the present study suggests that some participants articulated a more nuanced evaluation approach.

Rather than solely focusing on list length, some participants also referred to specific functional ingredients that were perceived to have health benefits. Across the product categories, participants referred to recognizable, natural ingredients – vegetables in crisps, fruits in beverages and bars, and familiar components like lime, ginger, and rooibos. This pattern is consistent with recent research by Plasek et al. (2020), which shows that consumers increasingly differentiate between beneficial functional ingredients and processing aids or preservatives when making healthiness judgments. This ingredient-focused evaluation suggests that participants applied categorical distinctions in their assessments. Participants classified certain ingredients as healthy or unhealthy, with chocolate mentioned as a negative signal of nutritional value. When chocolate was present in a product (snack bar discussion), participants described it as less healthy than alternatives, irrespective of other nutritional characteristics, which corresponds with Bucher et al.'s (2016) findings. Their study demonstrated that the majority of participants (76.7%) cited chocolate as a negative factor when assessing food healthiness. Additionally, they reported that sugar or sweetness was identified by nearly all participants (95.9%) and fat by a substantial proportion (72.6%) as negative indicators. Conversely, our research found that ingredients like fruits, nuts, and oats were viewed favourably in terms of healthiness, which aligns with Bucher et al. (2016), who observed that fruit (74%) and nuts (49.5%) were frequently mentioned as positive factors in food healthiness assessments. This positive fruit association was particularly evident when fruit juice (Liqui-Fruit in the beverages discussion) was described as healthier for these reasons. These findings are consistent with research conducted by Bopape et al. (2025) in South Africa, which revealed that merely 13% of participants perceived fruit juice as unhealthy, while 41.8% remained unaware of its elevated sugar content.

#### *Nutritional value as an indicator of processed food healthiness*

South African participants demonstrated varying levels of engagement with nutritional information across the three product categories. While some participants reported referring to calories, sugar content, and protein levels, others described relying primarily on front-of-pack visual cues. In the snack bar focus group, participants demonstrated a more detailed engagement with macronutrients, whereas discussions about beverages and crisps indicated simpler approaches to nutritional evaluation. Protein content was mentioned as a positive health indicator across product categories, reflecting the increasing prominence of protein in health and fitness discourses. As noted by Plasek et al. (2020), high protein content in snack bars positively influenced health perception among consumers. This emphasis on protein quality over other nutritional aspects suggests that some participants may place greater emphasis on nutrient composition than on energy content when evaluating food healthiness. Nutritional literacy varied among participants, with some associating higher calories with better health while others viewed lower calories as healthier. The beverage focus group also reflected this pattern, with several participants stating that they perceived lower energy content as indicating healthier products. This aligns with findings from Carels et al. (2006) in the USA, which showed that consumers tend to associate low-calorie products with healthiness and often underestimate the calorie content of foods they perceive as healthy. However, the South African focus groups also showed more complex interpretations, as some participants in the snack bar discussion viewed higher calories as beneficial for energy provision, suggesting cultural or contextual differences in calorie perception. Calorie content was not frequently mentioned as a health indicator across the product categories, except by participants with specific weight management goals. This finding aligns with focus group discussions in Brazil, which showed that food healthiness was not associated with calorie content, but rather with food composition as a whole (Pinto et al., 2021). This pattern is consistent with research by Chandon and Wansink (2012), indicating that calorie information only slightly improves food decisions and primarily among consumers who are already health-conscious and when

the calorie counts diverge from expectations.

#### *Packaging design as an indicator of processed food healthiness*

Packaging design was identified as an influence on healthiness perceptions across the product categories. Colour played an important role, with green frequently associated with health in snack bars, beverages, and crisps. Participants noted that green packaging appeared more natural and healthy. Conversely, bright colours like red and orange were associated with artificial flavouring and unhealthiness, with red in some cases described as signalling danger. The packaging material also influenced perceptions, with matte, non-shiny textures perceived as more premium and healthier than glossy packaging. Transparent packaging allowing product visibility was described as favourable, particularly for beverages where transparency was associated with purity. The research findings align with literature demonstrating that package colour influences perceived healthiness. Studies have shown that blue packaging is often perceived as healthier than red packaging (Huang and Lu, 2015). This supports the focus groups' association of red packaging with negative health perceptions in multiple categories, from Bar One in snack bars to NikNaks in crisps, where participants described red as "[...] screaming for danger [...]" (Participant 5, focus group snack bars). Natural colours like yellow (Jungle Oats) and green (Lays, veggie crisps, and clear sparkling water) were frequently associated with healthiness. This finding from the focus groups is supported by research conducted in Spain involving 300 young consumers with an average age of 21.84 years (Vila-López and Küster-Boluda, 2018). The study investigated whether hedonic packaging elements differ from functional/healthy packaging in consumer perception. Results demonstrated that young consumers are more susceptible to commercial and aesthetic packaging cues, particularly colours, than to technical information such as health messages (Vila-López and Küster-Boluda, 2018). A related pattern can be observed in the focus group discussions, where participants referred to visual colour cues as immediate indicators of healthiness, suggesting that aesthetic packaging elements may serve as heuristic signals in health evaluations. Although the results of Huang and Lu (2015) indicate that blue has a positive influence on perceived healthiness, participants made no mention of the blue packaging of the Future Life high-protein bar when discussing its health attributes. Red has often negative associations in the context of food healthiness, as "red often means negative information, such as danger, hence arousing caution" (Huang and Lu, 2015, p. 194). The participants' responses directly reflect this colour-healthiness connection through their comments across categories: yellow appearing more natural (Jungle Oats), green indicating freshness and health (Lays spring onion, veggie crisps, Woolworth iced tea), and clear/transparent beverages being perceived as pure and natural (sparkling water). Conversely, red packaging was associated with potential danger or unhealthiness in snack bars (Bar One), crisps (NikNaks), and also influenced perceptions of the orange-red colours in veggie crisps, which some participants associated with artificial spices rather than natural vegetables. The focus group discussions indicated that clean, simple designs were perceived as indicators of healthier products, which aligns with broader research on package design and food perception. When participants noted that cleaner designs suggest healthier products, this reflects how "consumers tend to make inferences on some missing attributes based on contingent cues and related information retrieved from memory" (Huang and Lu, 2015, p. 193). Our results also align with Plasek et al.'s (2020) finding that products were considered healthier when, in addition to captions communicating ingredients, there were also pictures or images on the packaging.

#### *Brand familiarity as an indicator of processed food healthiness*

Brand recognition was associated with healthiness perceptions across the product categories, but in complex ways. Established brands like Future Life and Jungle Oats benefited from positive health associations built through marketing and familiarity. Participants expressed

trust in known brands based on familiarity and prior exposure to brand-related information. Retailer brands also carried connotations, with Woolworth frequently associated with premium, healthy products. Participants described Woolworth products as healthier even without referring to ingredient information, suggesting the influence of retailer brand equity on health perception. Conversely, some brands like Coca-Cola carried negative health associations that persisted even with product modifications like Coke Zero. This brand stigma appeared to persist across different product comparisons. These observations align with international research on brand equity and health perceptions. Furthermore, participants referred to brand trust in their healthiness evaluations, which aligns with research showing that established brand trust can enhance consumer perceptions of product healthiness. The Woolworth case aligns with research showing how retailer innovativeness and the perception of selling healthy foods can enhance store prestige and consumer trust (Konuk, 2018). However, retailer brand influence appears particularly salient in the South African context, where Woolworth's positioning as a premium health-focused retailer is associated with healthiness perceptions that extend beyond individual product attributes.

#### *Price as an indicator of processed food healthiness*

Price emerged in the present study as a salient but ambivalent cue in participants' evaluations of processed food healthiness. Across product categories, participants tended to associate higher prices with better quality and greater healthiness, suggesting that price operated as a heuristic indicator of superior ingredients, production standards, or overall product value. At a general level, this supports research showing that consumers often rely on extrinsic cues when evaluating food products whose health-related properties are not directly observable (Petrescu et al., 2019). In this sense, price functions not simply as a monetary attribute, but as a shortcut for inferring otherwise difficult-to-assess qualities. However, the present findings also indicate that price cannot be interpreted solely as a conventional quality cue. In contrast to studies conducted largely in higher-income consumer settings, where price may operate primarily as a weak or inconsistent signal of perceived quality, the findings here suggest that price in the South African student context has a more structurally embedded role. Chandon and Wansink (2012) argue that price is often unrelated to perceived quality in packaged food categories. Yet in the present study, participants repeatedly associated higher prices with healthier products. This discrepancy suggests that the meaning of price may be context dependent and shaped by the broader food environment in which judgments are made. In a setting marked by inequality and constrained food budgets, price may acquire stronger symbolic and practical importance as an indicator of what counts as a desirable or aspirational healthy option.

A particularly important implication of the findings is that affordability should not be understood merely as an economic barrier to healthy consumption. Rather, affordability also appears to function as a cognitive constraint on food evaluation. Where consumers know in advance that certain products are likely to be unaffordable, the scope for detailed comparison is narrowed, and heuristic cues such as price, brand, and packaging may become even more central to judgment. This interpretation is consistent with broader work showing that scarcity and financial strain can reduce cognitive bandwidth and shift decision-making toward simplified and immediately actionable cues rather than effortful evaluation (Mani et al., 2013). Applied to the present study, this suggests that participants' reliance on price as a healthiness cue may reflect not only perceptual bias, but also adaptation to economically constrained choice environments. Thus, in the South African context, heuristic processing may be reinforced not only by product complexity but also by material conditions of decision-making. The findings further point to a pronounced price–healthiness paradox. Participants often appeared to interpret more expensive products as healthier, while simultaneously recognising that such products may be inaccessible in everyday purchasing contexts. This means that price

plays a dual role: it signals perceived healthiness while also marking exclusion from it. South African research has shown that healthier diets tend to cost more, making them less attainable for many consumers (Temple and Steyn, 2011). The present findings extend this insight by showing that affordability does not simply constrain final choice; it also shapes the symbolic structure of health perception itself. Products seen as healthier may also be seen as products for those with greater financial means. In this respect, the association between high price and healthiness may be especially strong in South Africa because healthy eating is experienced not only as a nutritional issue but as a question of economic access. This interpretation becomes even more relevant when considered alongside the unequal and segmented nature of South African food environments. Prior research has shown that the South African consumer food environment is stratified, with healthier or premium-positioned foods often concentrated in retail spaces that are more accessible to higher-income groups, while lower-cost food environments tend to offer fewer nutritionally favourable choices (Battersby, 2017; Igumbor et al., 2012). In such a context, price does not merely indicate product cost; it also points to broader patterns of retail differentiation and social inequality. The meaning of a “healthy” processed food product is therefore partly shaped by where it is sold, who is assumed to shop there, and whether the product is perceived as belonging to a premium or ordinary consumption space. This makes the price cue particularly significant in South Africa, where evaluations of food healthiness may be intertwined with structurally unequal access to healthier food environments.

More broadly, the present findings suggest that affordability may reshape the meaning of healthiness itself. In much of the international literature, healthiness is often treated as an evaluative judgment based on nutritional properties, label information, or product composition. The present study suggests a more bounded understanding. In this context, healthiness is not always judged as an abstract nutritional ideal, but as something interpreted within the limits of what is financially realistic. This implies that perceived healthiness is partly socially and economically constructed: products may be considered healthy not only because of what they contain, but because they occupy a premium position associated with quality, trust, and relative scarcity. The South African contribution of the present study therefore lies in showing that price is not merely one cue among others. It acts simultaneously as a heuristic signal, a material barrier, and a marker of inequality within the food system. Recognising this helps explain why price-related judgments in this study diverge from some prior findings in the literature and underscores the importance of interpreting food healthiness perceptions within their specific socioeconomic context.

#### *Processing level as an indicator of processed food healthiness*

Perceptions of processing level were mentioned as a factor in healthiness assessments, although their relevance varied across product categories. Less processed products were often viewed as healthier, with natural and raw ingredients described as more favourable. Some participants expressed the belief that processing removes natural nutrients and adds unwanted chemicals. Water was often described as the healthiest beverage option because of minimal processing, while products perceived as heavily processed were sometimes viewed critically. However, processing-related evaluations were sometimes based on visual cues rather than detailed knowledge of processing methods. References to processing were largely absent in the crisps focus group, where participants focused more on ingredients, packaging, and brand-related cues. The tendency to associate minimally processed foods with higher healthiness is consistent with international research trends. Monteiro et al. (2019) documented global shifts toward whole food preferences, while Poti et al. (2015) found processing-health associations in the US that were consistent with international studies from Canada and Brazil. The focus on natural processing echoes findings from Australian research (Evans et al., 2010), which showed that consumers rated chemically processed foods as less natural than physically

processed alternatives. This preference for less processed forms is further supported by research showing that even the physical state of foods influences health perceptions. Mechanically processed foods (such as smoothies) have been found to be perceived as less healthy than their whole counterparts (Szocs and Lefebvre, 2016).

#### *Labelling as an indicator of processed food healthiness*

Labelling was mentioned as a factor in some product categories, with participants showing varying levels of trust in health claims. At least two participants referred to labels such as “high protein” or “vegan” when explaining their evaluations. However, scepticism towards such claims was also expressed, with at least one participant explicitly questioning “free-from” claims (e.g., sugar-free or gluten-free) due to the potential use of additives or substitutes. Some participants noted concerns about gluten-free and no sugar labels, suspecting that these claims might mask other unhealthy ingredients or processing methods. Simple, clear labels were generally described as more favourable than complex health claims, with participants describing products that highlighted basic, understandable benefits as more favourable. The mixed response to health claims aligns with international research on label scepticism. Stuthridge et al. (2022) documented similar patterns in New Zealand, where consumers expressed mistrust and scepticism toward nutrition and health claims, viewing them primarily as marketing tools. However, they also found that participants with specific dietary requirements did find claims helpful, suggesting that the utility of health claims may depend on individual consumer needs. The scepticism toward sugar-free and gluten-free claims aligns with research showing that nutrient content claims may inflate perceived healthfulness of nutritionally poor foods (Iles et al., 2017).

#### *Study limitations*

This study provides valuable insights into consumer health perceptions across three product categories in South Africa, yet several limitations should be acknowledged. The focus group methodology, while allowing for rich qualitative data, limits generalizability to the broader South African population. Even though there were differences between urban and rural populations in our focus group discussions, all participants were from Durban (KwaZulu-Natal), representing only one of South Africa's nine provinces. This geographical limitation is particularly significant given that South Africa exhibits substantial interprovincial variations in lifestyle patterns and corresponding dietary behaviours (Mchiza et al., 2015). Research conducted by Mchiza and colleagues reveals considerable disparities in nutrient consumption and food diversity indices across South Africa's different geographical territories, with pronounced variations observable not merely between urban and rural contexts but also across provincial boundaries. These findings highlight the necessity of acknowledging wider regional variations in eating behaviours that extend beyond our study sample and their health implications for developing effective and targeted nutritional intervention strategies, leading researchers to advocate for “a national nutrition monitoring system to identify dietary deficiencies in specific population groups” (Mchiza et al., 2015, p. 8228).

While the qualitative design and focus group methodology provide rich, in-depth insights into consumer perceptions, the study's sample composition limits the transferability of the findings. All participants were recruited from a single university in Durban, representing a relatively specific subgroup of young, educated consumers. As such, the findings should be interpreted as context-bound and may not be directly generalizable to the broader South African population, which is characterized by substantial socioeconomic, cultural, and regional diversity. However, consistent with qualitative research principles, the aim of this study is not statistical generalization but analytical insight into how consumers construct healthiness perceptions. The relatively homogeneous sample enabled a focused exploration of shared evaluation patterns within a relevant consumer segment, particularly Generation Z

students who frequently engage with processed food products. Future research should extend this work by including more diverse population groups across different regions and socioeconomic contexts in South Africa to enhance the transferability of findings.

The study sample consisted exclusively of university students, representing a demographic with higher educational attainment compared to the general South African population. Research indicates that education provides individuals with the tools to access and comprehend dietary information and its health impacts, thereby shaping food-related attitudes and decision-making processes (Tam et al., 2016). Therefore, the participants' advanced educational status may have influenced their familiarity with nutritional terminology and health concepts, potentially affecting how they evaluated and articulated their perceptions of food healthiness. This effect was particularly pronounced given that eight participants were enrolled in food science or related academic programs, which likely provided them with specialized knowledge of nutrition principles, food composition, and health-related product attributes that may not be representative of typical consumer understanding. This could have influenced the depth and nature of discussions, particularly regarding nutritional aspects of product evaluation. As a result, the findings may partially reflect more informed perspectives than those of the broader Gen-Z population. At the same time, this diversity in knowledge levels also provided analytical value, as it allowed for the observation of differences between more and less nutrition-informed participants. Notably, even among participants with relevant academic backgrounds, reliance on heuristic cues such as packaging, brand, and price remained prominent, reinforcing the robustness of the identified patterns. Nevertheless, future research should more explicitly control for nutritional expertise to further isolate typical consumer perspectives.

Focus group dynamics may have introduced social desirability bias, with participants potentially providing responses they believed were socially acceptable rather than their authentic views, particularly given that power differentials between participants can influence group responses (Bergen and Labonté, 2019). The paired comparison method, while useful for direct contrasts, may have artificially forced consumers to choose between products that they might otherwise evaluate differently in natural shopping environments (O'Mahony and Wichchukit, 2017). This also raises limitations regarding ecological validity, as participants evaluated a limited set of pre-selected products within a structured focus group setting rather than under real-world purchasing conditions. In everyday contexts, food choices are shaped by additional factors such as time pressure, budget constraints, habitual behaviour, and in-store environmental cues, which are not fully captured in a discussion-based setting. Consequently, the findings reflect articulated perceptions and evaluative reasoning rather than directly observed consumer behaviour, and should therefore be interpreted as indicative of how healthiness judgments are constructed under reflective conditions.

Furthermore, methodological inconsistencies existed across the three focus group sessions. Not all sessions employed identical procedures for final product ranking, and the sequence of product comparisons varied between sessions. The varying need for translation support across groups may have influenced discussion dynamics and depth of responses. Different moderators may have contributed to varying discussion styles and emphasis on different product attributes. These procedural differences, while reflecting the exploratory nature of the research, limit direct comparability of findings across the three product categories (Smithson, 2000). While all sessions followed a common moderation guide, differences in product comparison sequences and the use of different moderators may have influenced the dynamics and emphasis of discussions. These variations limit the strict comparability of findings across product categories and should be considered when interpreting cross-category patterns. Consequently, the study does not aim to provide a controlled comparison of product categories but rather to identify indicative patterns in consumer reasoning that emerge across different contexts. The recurrence of key themes across independently conducted

focus groups nevertheless suggests that the observed patterns reflect consistent tendencies, even if their relative strength across categories cannot be precisely quantified. Future research using more standardized procedures would be valuable to further validate and refine these comparative insights.

Additionally, the limited number of products examined within each category (four products per category) may not accurately represent the full range of options available to consumers. Findings could also have been influenced by the selection of products used during the focus group discussion, as the choice of stimulus material can direct participants' attention while potentially limiting the range of attributes discussed or emphasizing certain product characteristics over others.

#### Future research

Building on the findings and limitations of this study, several avenues for future research emerge. To enhance generalizability, future studies should extend beyond single geographical locations to include participants from multiple South African provinces, particularly incorporating perspectives from rural communities and different socioeconomic backgrounds to capture the full spectrum of dietary diversity patterns identified across the country (Mchiza et al., 2015). Research involving more diverse educational backgrounds and age groups would provide insights into health perceptions among consumers with varying levels of nutritional knowledge. To address methodological limitations, future investigations could employ standardized protocols across all focus group sessions, including consistent moderation approaches, uniform product presentation sequences, and systematic ranking procedures to enhance comparability across product categories (Smithson, 2000). Additionally, researchers should consider incorporating alternative methodological approaches that reduce the forced-choice limitations identified in paired comparison methods (O'Mahony and Wichchukit, 2017). Expanding the range of products examined within each category and including additional processed food categories would provide a more comprehensive understanding of health perception drivers across the broader food landscape.

#### Conclusion

This study set out to explore how Generation Z student consumers in South Africa perceive and evaluate the healthiness of processed food products across different categories. The findings show that perceived healthiness is not derived from objective nutritional assessment alone, but is constructed through the interpretation of both intrinsic and extrinsic product cues. Across the sample, participants relied heavily on easily accessible and interpretable signals—such as packaging design, brand familiarity, and price—while engaging less consistently with detailed nutritional information.

Importantly, the results indicate that these evaluation processes are not uniform and appear to vary across product categories. While ingredient-related cues, particularly sugar content, were more salient in the evaluation of beverages, visual and brand-related cues appeared to play a more prominent role in categories such as crisps and snack bars. This suggests that healthiness perceptions appear to be shaped by a context-dependent hierarchy of cues, reflecting both the characteristics of the product category and the cognitive strategies employed by consumers. These findings should be interpreted as context-specific and exploratory, reflecting the perspectives of the participating student sample rather than being directly generalizable to the broader population.

From a theoretical perspective, this study contributes to the literature on consumer food perception by providing a more differentiated understanding of how perceived healthiness is constructed. By integrating cue utilization theory with heuristic-systematic processing models, the findings suggest that cue usage follows a hierarchical and context-dependent structure, with extrinsic cues often dominating due to their accessibility and ease of interpretation. In doing so, the study extends existing research by showing that heuristic processing is not only prevalent but varies systematically across product categories and consumption contexts, thereby offering a more nuanced account of consumer healthiness evaluations.

From a practical perspective, the findings highlight the importance of visual and easily interpretable cues in shaping consumer perceptions of food healthiness. For marketers, this highlights the role of packaging design, branding, and simplified front-of-pack communication in guiding consumer judgments. For policymakers and public health stakeholders, the results suggest that interventions aimed at improving dietary choices should focus not only on providing detailed nutritional information but also on the design and regulation of front-of-pack cues that consumers are more likely to use in real-world decision-making situations.

Future research should build on these insights by examining more diverse population groups across different socioeconomic and cultural contexts, as well as by combining qualitative and quantitative approaches to further validate and refine the observed patterns of consumer evaluation.

#### Declaration of generative AI-assisted technologies in the writing process

During the preparation of this article, the authors used Scribbr in order to format and generate the reference list and ChatGPT for proof-reading and grammar correction. After using this tools/services, the authors reviewed and edited the content as needed and take full responsibility for the content of the publication.

#### CRediT authorship contribution statement

**Stephan G.H. Meyerding:** Writing – review & editing, Writing – original draft, Supervision, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Conceptualization. **Lucia V. Horstmann:** Writing – original draft, Visualization, Validation, Investigation, Formal analysis, Data curation. **Heleen Grobbelaar:** Supervision, Project administration, Methodology, Funding acquisition, Conceptualization.

#### Declaration of competing interest

All authors have participated in (a) conception and design, or analysis and interpretation of the data; (b) drafting the article or revising it critically for important intellectual content; and (c) approval of the final version.

YES

This manuscript has not been submitted to, nor is under review at, another journal or other publishing venue.

YES, it has not.

The authors have no affiliation with any organization with a direct or indirect financial interest in the subject matter discussed in the manuscript.

NO, we have not.

## Appendix

**Table 5**  
Moderation Guideline.

Topic	Details and Questions to Ask	Method
Welcoming	Moderator welcomes everyone Introduces research team and university affiliation	
Explanation of the rules and process	Purpose of the study explained No right/wrong answers emphasized Recording and confidentiality explained Option to leave anytime Sign consent forms	Distribute consent forms
Definition of healthy products	What are healthy products for you? How can you tell if a product is healthy?	
Purchase priorities (in snack bar and crisps focus group discussion)	What matters most when buying a product: Taste Nutrients Convenience Price Packaging	Hand raising exercise
Preferences	Do you have a favorite snack bar/beverage/crisp? Why is it your favorite?	
Product familiarity	Present all sample products Who knows these products? Who has eaten these products?	Showing all products together Hand raising for recognition
Comparison round 1	Which product is healthier? Comparison between two products	Showing the two product examples
Comparison round 2	Which product is healthier? Comparison between two products	Showing the two product examples
Comparison round 3	Which product is healthier? Comparison between two products	Showing the two product examples
Comparison round 4	Which product is healthier? Comparison between two products	Showing the two product examples
Final ranking	Which is healthiest overall? / Which is least healthy?	Showing all products together
Closing	Thank participants	Distribute small gifts

**Table 6**  
Main Findings by Topic for Snack Bars.

Topic	Subtopic	Main Findings	Example Quote
<b>Ingredients and Ingredient List</b>	Specific ingredients	Consumers associate certain ingredients as unhealthy (Chocolate is perceived as unhealthy ingredient) Consumers associate certain ingredients as healthy (nuts, fruits and oats are perceived as unhealthy ingredient)	"You don't associate chocolate with healthiness" "Jungle Oats is healthier because Bar One has chocolate" "Is it made with meat, is it made with fruits, or whatever?" "Basically meat (...) grass fed." "And if I wanted something healthier, I'll probably buy a bar with nuts or roasted nuts." "Fruits" "And it has oats, which is healthy." "But what matters is which specific ingredients are in there. Like the amounts of antioxidants or whatever beneficial ingredients."
	Ingredient quality	Consumers prioritize specific beneficial ingredients (like antioxidants) rather than just the total number of ingredients when evaluating a product's healthiness	"I'll buy products with natural ingredients rather than preservatives and chemicals"
	Natural ingredients	Natural ingredients are preferred over artificial preservatives and chemicals, as they are perceived as healthier	"But I'll choose that one because at least there, I know that I'm eating sugar and no sugar substitutes." "I'd rather buy something that is made with the ingredients, I know, no matter how unhealthy they are, than buying something that doesn't have those ingredients."
	Known ingredients / sugar substitutes	Consumers prefer products with familiar, clearly stated ingredients over alternatives with unknown substitutes	"A shorter ingredient list is healthier, depending on what the ingredients actually are." "But the shorter the list, the healthier it is." "The amount of ingredients doesn't really matter." "You have to check the macros [...] and just check what's in there." "I'll go back to the macros, that will tell you everything that's in the product. They'll tell you how much fat is in there, how much carbs are in there, how much protein is in there." "Just because its high protein." "Protein is the selling point for these two bars" "And then sometimes you can actually look at what the actual ingredients are to see what type of protein it is. You know, is it milk based protein? Is it veggie protein?" "I would choose Future Life because I saw it as more healthy option compared to Jungle Oats because Future Life has more protein"
<b>Nutritional Value</b>	Ingredient list length	Some consumers prefer a short ingredient list, while others are less concerned with its length.	
	Macronutrients	Consumers rely on macronutrient information (fat, carbohydrates, protein) as primary indicators to evaluate a product's healthiness	
	Macronutrients (protein content)	Consumers view protein content as a key health indicator and differentiate between protein sources when evaluating product healthiness	

(continued on next page)

Table 6 (continued)

Topic	Subtopic	Main Findings	Example Quote
Packaging Design	Macronutrients (fat content)	Consumers associate lower fat content with healthier products	"Low fat is better."
	Sugar alternatives	Consumers are skeptical of low-sugar products due to concerns about artificial substitutes added to maintain taste	"It depends on what's added to replace the sugar. When sugar is reduced, something else must be added for the product to still taste good."
	Calorie content	Consumers associate lower calorie content with healthier products	"And it has less calories what makes it healthier."
	Vitamins and supplements	Consumers associate the presence of vitamins and supplements as an indicator of healthier snack bar options.	"When vitamins are added to products or supplements are used in general."
	Visual packaging simplicity	Clean, simple packaging designs are associated with healthier products	"A cleaner design is better when it comes to health"
	Packaging quality	High-quality packaging design is perceived as an indicator of product quality and healthiness	"[...] the packaging shows this quality." "I choose the vegan bar because the packaging [...]"
	Packaging color	Consumers use packaging colors as visual cues to evaluate a product's healthiness Natural colors in packaging suggest healthier products Red packaging triggers negative health associations and is perceived as a warning sign for unhealthy products	"I would say color indicates if its healthy." "Yellow packaging seems more natural" "The bar one looks unhealthy because it's red, which screams for danger."
	Visual ingredient presentation	Product imagery serves as a visual cue for consumers to evaluate a product's healthiness Depictions of perceived healthy ingredients (such as oats and yogurt) on packaging positively influence healthiness perception	"The images indicate how healthy a product could be." "This one shows the oats and yoghurt or something, it looks healthy."
	Packaging design influence	Attractive packaging design can mislead consumers into purchasing less healthy products by overshadowing nutritional considerations Packaging design and brand names can attract consumers who are open to trying new products	"Sometimes the packaging will sway your decisions on buying an item. I feel like sometimes the actual design might negatively impact [...] you actually buy the bar that isn't so good." "I choose the vegan bar because the packaging and name show quality, and I like trying new things"
	Brand Familiarity/ Reputation	Brand familiarity and trust	Long-term brand familiarity and previous experience with a brand's products build trust and influence purchasing decisions
Price		Consumers prefer familiar brands over unknown ones due to perceived risk in trying new products Some consumer associate higher price with higher quality	"I'm not going to risk something I don't know. I'd rather take something that is well known. "
Processing Level	Price influence	For some consumer, price is not a reliable indicator of healthfulness	"Because quality products tend to be more expensive. High quality ingredients cost more to produce. So when a product has better quality, it will typically have a higher price." "When you buy products, the price difference isn't necessarily related to health content. It can be influenced by many factors." "I think that sometimes the price might blindside a person [...]"
	Label	Consumers associate more processed snacks with lower nutritional value and poorer health. Consumer associate a cleaner label with a healthier product Skepticism towards "free-from" claims due to perceived artificial substitutes	"The more processed it is, the more nutrients you lose. More processed, more unhealthy, and also the diet that you take." "The cleaner the labeling, the healthier it is." "When things are saying gluten free or especially no sugar, I feel like I'm less reliable, reluctant to buy it because when there's no sugar in something, it means that they added something else to make it flavorful and then chemicals, additives"
Others	"Free-from" label		"When it comes to buying, I don't check at the back. I only focus on the front."
	Front-of-pack information	Some consumers only consider front-of-pack information	"You need to check sometimes the actual thing might be having a bad effect on your body, not other people, but your body."
	Individual health and fitness goals	Consumers prioritize personal health impacts over general recommendations. Consumers view food healthiness as highly personalized and goal-dependent.	"I think it's more relative to the person [...] it depends on who you are and what your goals are."

Table 7  
Main Findings by Topic for Beverages.

Topic	Subtopic	Main Findings	Example Quote
Ingredients and Ingredient List	Specific ingredients	Fruits are perceived as being healthy A bigger variety of fruits is perceived as being healthy Lime and ginger are perceived as being healthier than fruits	"I think this one is healthy [Iced Tea] because of the fruits [...] inside [...]" " [...] She is also saying that Liqui-Fruit has more fruits. Like a bigger variety of fruits." " [...] I think that they [lime and ginger] are the healthier ingredients compared to Liqui-Fruit."
	Carbonation	Carbonated drinks are perceived as less healthy	" [...] because it's carbonated because of the acid and when you drink it, you feel like you have to burp. It makes it unhealthy. It's kind of like the body wants it out of your body, in a way."
	Added preservatives Artificial colours	Added preservatives are associated with products being less healthy Artificial colours are associated with products being less healthy	" [...] Now here since it's Iced tea and saying it doesn't have any added preservatives I'm thinking it's healthier than the juice." " [...] more healthy because it has no color, artificial color."

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Table 7 (continued)

Topic	Subtopic	Main Findings	Example Quote
Nutritional Value	Ingredient list length	Few ingredients are associated with being healthy	"I still say that sparkling water is healthier [...] I think that it has less ingredients." "I believe that if the number of ingredients is greater it is unhealthy."
	Variety of ingredients	Beverages with variety of fruits perceived as healthier	"She is also saying that Liqui-Fruit has more fruits. Like a bigger variety of fruits."
	Energy content	Low energy content is associated with being healthier	"I'd say this one [Iced Tea] is healthier [...] It's the energy I'm looking at. And this one [Iced tea] has less energy." "[...] the other [Speaker 6] says the Iced Tea is healthier because it's low in energy." "[...] the body needs a lot of energy to function so he says its unhealthy because it's low in energy [...]"
	Sugar content	Low sugar content is associated with being healthier	"I would say maybe the Iced Tea is more healthy in compar-ison to the Coke [...] Like too much sugar and I'm assum-ing that the Iced Tea has less sugar than Coke." "This one [points to the Flavoured Water] is higher in sugar and I know that sugar is not healthy." "I think that sparkling water [Flavoured Water] is unhealthy due to the fact that it has a high sugar content. " "I think this one is healthy [Iced Tea] because of the fruits on the packaging [...]" "I'd say that the Liqui-Fruit packaging is better. There's something healthy about it because you would give it to a baby. But you can never give a can to a baby." "For me it's also good that you can see what's inside the bottle."
Packaging Design	Images on packaging	Fruits on the packaging are associated with a healthy product	"I think this one is healthy [Iced Tea] because of the fruits on the packaging [...]"
	Material	Baby friendly materials are associated with being healthier	"I'd say that the Liqui-Fruit packaging is better. There's something healthy about it because you would give it to a baby. But you can never give a can to a baby."
	Transparent packaging	Visual access to bottle contents enhances perceived healthiness and trustworthiness of beverages.	"For me it's also good that you can see what's inside the bottle."
Brand Familiarity/ Reputation	Brand reputation	General mistrust towards a brand makes people believe a product is less healthy	"[...] there's a lot of stories going around about Coke how it's unhealthy. [...]"
	Product reputation	"Public opinions" about a product group being healthy influence people to view a specific product as healthy	"[...] There's that whole aesthetic about being healthier than any other beverages. [...] as long as it's water it feels healthier than anything else."
	Shop reputation	Products from a store with a strong reputation for quality are perceived as being healthy	"[...] this one is a Woolworth brand, it's healthier and we associate Woolworth with quality. The Liqui-Fruit you can even get it at Shoptrite where they have products of inferior quality and that are unhealthy." "[...] The more expensive, the more likely it is to be healthier."
Price	Price level	Higher prices are associated with healthier products Lower prices are associated with fewer ingredients and therefore being more natural and healthier	"[...] because it has fewer ingredients and natural ingredi-ents, that is what makes it cheaper and more healthy at the same time. [...]"
Processing Level	Processing level	Natural/little or not processed products are perceived as being healthy Products that are believed to have undergone a purifying process are perceived as healthier	"[...] I think when you process something that's where you take away most of its natural nutrients. So less of them means less healthy." "[...] And since water is natural, I think the sparkling water went through a process to purify it as well."
Others	Origin	Beverages from natural sources as healthier compared to those from artificial or processed sources	"[...] The drink from a natural source would be the more healthy."
	State of consumption	Products are perceived as less healthy when served in a way that differs from their traditional form	"[...] He doesn't think cold tea is healthier than how it's supposed to be which is hot."
	Preservation possibility	Products that can be resealed are perceived as healthier	"[...] since the water is in a bottle und you can drink it in so many days it means, that it's healthier for you. Somehow you divide the unhealthiness over several days."
	Colour perception and purity	Clear, transparent beverage appearance signals purity and healthiness to consumers.	"The colour of the beverage. It's clear and pure."

Table 8  
Main Findings by Topic for Crisps.





Topic	Subtopic	Main Findings	Example Quote
Ingredients and Ingredient List	Vegetables	Vegetables are strongly associated with healthiness	"Because it has vegetables in it. And vegetables are healthy. And they come with different nutrients. You know, different vegetables come with different nutrients."
	Additives	Products with less additives are perceived as more healthy	"I try to avoid additives or at least check if there are additives." "NikNaks have no additives I think... For me they are healthier."
Nutritional Value	Ingredient understanding	Some consumers research unfamiliar ingredients online	"Yeah sometimes. If I don't understand it, I check it online sometimes."
	Ingredient list length	Shorter ingredient lists are perceived as healthier	"I like it when it's simple, I think the shorter the list, the healthier the food."
	Calories	Consumers sometimes view higher calorie content positively, perceiving it as beneficial energy	"It also has higher calories, I think it's healthier." "Because higher calories gives you energy and yeah you need energy for your body and health. If a product gives you high energy it is good for you."
	Macronutrients (protein content)	Higher protein content associated with healthier products	"No, I think the lentils. They have more protein."
	Macronutrients (fat content)	Lower fat content is associated with healthier products	"It has lower fat content, so it is more healthy." "It also has 40% less fat"
	Cholesterol content	Lower cholesterol content associated with healthier products	"Because it has zero cholesterol and high fiber."
	Fiber content	Higher fiber content associated with healthier products	"Because it has zero cholesterol and high fiber."

(continued on next page)

Table 8 (continued)

Topic	Subtopic	Main Findings	Example Quote
Packaging Design	Sodium content	Lower sodium content is associated with healthier products	"Lays have less sodium compared to NikNaks."
	Packaging color	Green color is associated with healthier products  Red-orange colors are associated with less healthy products Bright colors (orange, red, yellow) are associated with artificial additives Color cues signal ingredient naturalness to consumers, influencing health perceptions.	"[...] the green color is more healthy. " "[...] and green color, which is more natural." "Lays' packaging shows freshness because of green colour and labelling. " "The colors of the veggie chips seem kind of cheap. these red-orange colors are more likely on products that are either cheap or strongly flavored things." "The colors of the Veg mix crisps have orange, red and yellow colors, which make me think, that there are spices added." "Lays indicates more natural ingredients due to its colour ."
	Material quality (shiny vs. matte)	Less shiny packaging is associated with premium products and healthiness	"The Lays bag seems to be of a higher quality, because it is less shiny. Look, it has a shiny part and here it is not shiny and the texture is different... "NikNaks looks cheap [...] Because of the colors and it is so shiny. "
	Product image	Fresh vegetables on packaging suggest healthier products	"There is also fresh vegetable on the packaging of Lays. I don't know what it is, but it seems healthy." [Lays] "The one with spring onion on it, because it's vegetable." (Lays)
Price	Product packaging design	Clean, simple packaging designs are associated with healthier products	"Veggie chips are healthier due to clean packaging and appearance."
	Price as quality indicator	Higher prices are associated with better quality ingredients and healthier products	"For me a higher price perceived as an indicator of excellent quality" "Lays has a higher price, because they are using better ingredients. Like ingredients of higher quality." "Lentils are healthier because of the higher price. Higher price equals higher quality." "I think it has a higher price, because it is high quality."
Brand Familiarity/ Reputation Label	Price perception and target audience	Vegetables and lentils are strongly associated with healthiness	"And the price is also lower. That is because it's for kids, you know, kids can't afford expensive snacks."
	Brand association with quality Label attention	Consumers associate premium retailers with healthier products Most consumers notice front-of-package labels but give them limited consideration in purchase decisions	"The Veggie crisps because they are from Woolworth" "Woolworth is a brand that I associate with organic food products." "I notice labels, but they don't change my decision much." / "I don't really look at those labels."

Table 9  
South African Snack Bars used in the Focus Group Discussion (Complete).





Attributes	Product 1	Product 2	Product 3	Product 4
Brand and name	Jungle Oats	Future Life	NPL	Nestlé Bar One
Product category and flavour	Energy Bar (yoghurt)	High protein lite bar (chocolate crunch)	Vegan bar (almond berry)	Chocolate bar (chocolate)
Product size	40 g	40 g	45 g	52 g
Product design				
Product material and colour	Yellow metallized plastic film/wrapper	green, white, blue and brown metallized plastic film/wrapper" "multilayer packaging material	Green metallized plastic film/wrapper	PP (Polypropylene) Black plastic wrapper material
Nutrition table	Per 100 g / Per 40 g serving Energy (kJ): 1900 / 760 Protein (g): 5.9 / 2.4 Glycaemic carbohydrate (g): 61 / 24 Of which total sugar (g): 23.1 / 9.2 Total fat (g): 20.5 / 8.2 Of which saturated fat (g): 9.3 / 3.7 Dietary fibre (g): 10.7 / 4.3 Sodium (mg): 70 / 28	Per 100 g / Per 40 g serving Energy (kJ): 1144 / 458 Protein (g): 23 / 9.2 Glycaemic carbohydrate (g): 20 / 8 Of which total sugar (g): 15.4 / 6.2 Total fat (g): 10.4 / 4.2 Of which saturated fat (g): 7.1 / 2.8 Dietary fibre (g): 3.5 / 1.4 Sodium (mg): 290 / 116	Per 100 g / Per 45 g serving Energy (kJ): 1491 / 671 Protein (g): 23 / 10.4 Glycaemic carbohydrate (g): 17 / 8 Of which total sugar: 7 / 3.2 Total fat (g): 16.1 / 7.2 Of which saturated fat: 7.3 / 3.3 Dietary fibre (g): 19 / 8.6 Sodium (mg): 260 / 117	Per 100 g / Per 52 g serving Energy (kJ): 1939 / 1008 Protein (g): 4.9 / 2.5 Glycaemic carbohydrate (g): 66 / 34 Total fat (g): 19.3 / 10.1 Of which total sugar: 63.8 / 33.2 Of which saturated fat: 13.1 / 6.8 Dietary fibre (g): 1.4 / 0.7 Sodium (mg): 95 / 49
Ingredient list	Bar 80% (oats mix 53% (oats (gluten), sugar, golden syrup, vegetable oil (palm fruit), salt), glucose syrup, non hydrogenated vegetable fat (palm fruit), water, sunflower seeds, invert sugar, sesame seed, sorbitol, yoghurt powder 0.1% (skimmed milk (cow's milk), yoghurt cultures), flavouring, salt, emulsifier (E322 (soya))) white chocolate 20% (sugar, dried whole milk (cow's milk), cocoa butter, non-	SmartProtein3D™ blend (whey protein concentrate (cow's milk), soy protein isolate (soy), milk protein isolate (cow's milk)), glucose syrup, milk chocolate coating (sugar, hydrogenated vegetable oil (palm kernel), full cream milk powder (cow's milk), buttermilk (cow's milk), emulsifier (E472), soy lecithin (E322), flavouring), maltitol syrup, invert syrup, vegetable fat, soy protein nuggets (isolated soy protein,	Pea protein, peanuts, chicory fibre syrup, dark coating (palm oil, xylitol, maltitol, cocoa powder, tapioca prebiotic fibre, flavouring, emulsifier, sunflower lecithin), tapioca fibre syrup, oats, sorbitol, invert syrup, cocoa powder, flavouring, stevia (non-nutritive sweetener).	Milk chocolate (40%), nougat (34%), caramel (26%) ingredients: cane sugar, glucose syrup, sweetened condensed milk (full cream milk, cane sugar), vegetable fats (palm fruit, shea nut, illipe seed), full cream milk powder, cocoa mass, invert sugar syrup, whey powder, cocoa butter, cocoa powder, barley malt extract (gluten), egg white, emulsifiers [soya lecithin (E322),

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Table 9 (continued)

Attributes	Product 1	Product 2	Product 3	Product 4
	hydrogenated vegetable fat (palm fruit and shea seeds), emulsifiers (E322 (soya), E476), flavouring).	rice flour, soy flour, salt, skimmed milk powder (cow's milk), buttermilk powder (cow's milk), golden syrup, alkalized cocoa powder, sorbitol syrup, soy lecithin (E322), flavouring, salt, VITAMINS: [B1, B2, B3, B5, B6, B9, B12, vitamin C, vitamin D, vitamin E, vitamin H]. Sources of protein: whey protein concentrate, milk protein isolate, buttermilk, soy protein isolate, soy protein nuggets.		E476], salt, flavouring, sodium bicarbonate [E500(ii)].
Recommended portion size	40 g	40 g	45 g	52 g
Price in R/ product size	R16.99	R23.99	R29.99	R14.99
Price converted in €/product size	0.89€	1.26€	1.57€	0.76€
Price in R/kg	R424.75	R599.75	R666.44	R288.27
Additional information at the front	High in energy  High in fibre	High protein (23% protein per bar)  19 amino acids with BCAAs Lite (*25% less sugar than FUTURELIFE high protein bar) With SmartProtein3D	100% plant-based nutrition, 10 g protein, 7 g carbs, 8 g fibre, 8 g fats  100% plant based Made with oats	100% sustainably sourced cocoa
Additional information at the sides	/	/	Sweetened with stevia /	/
Additional information at the back	"Tiger brand" logo  Recycling symbols	Manufacturing information, including facility address	Description of NPL GoGreen series  Information about plant-based nutrition	Recycling symbols with material codes (PP)
Labels	"High in energy" label "High in fibre" label	High protein (23% protein per bar) "25% less sugar" label  "23% protein per bar" Label "19 amino acids with BCAAs" label "SmartProtein3D" label	"Vegan" label "100% plant-based nutrition" label  "Stevia 100% natural" label	"Energy for a 25-hour day" label "100% sustainably sourced cocoa" label "Cocoa plan" label (Nestlé)
Allergens	Contains gluten (oats, wheat), cows milk and soya. May contain peanuts and tree nuts	Cow's milk, soy. Product is made in a facility that processes milk, soy, egg, tree nuts, peanuts, gluten and sesame seeds.	Peanuts, oats (gluten). Made in a factory that also uses eggs, tree nuts, peanuts, gluten (wheat, barley, oats), sesame seeds.	Gluten, cow's milk, egg and soya. Made in a factory which uses tree nuts and peanuts.

Table 10  
South African Beverages used in the Focus Group Discussion (Complete).





Attributes	Product 1	Product 2	Product 3	Product 4
Brand and name	Coca-Cola	Woolworth Foods	Liqui Fruit	Simple Truth
Product category and flavour	Zero sugar soft drink	Brewed iced tea (mixed berry)	Cranberry cooler	Flavoured sparkling drink (lime and ginger)
Product size	300ml	500ml	200ml	500ml
Product design				
Product material and colour	Red aluminum can	Purple/Pink PET bottle	Green aseptic carton package	Transparent PET bottle
Nutrition table	Per 100 ml / Per 100 ml serving  Energy (kJ): 0.0 / 0.0 Protein (g): 0.0 / 0.0 Glycaemic carbohydrate (g): 0.0 / 0.0  Of which total sugar (g): 0.0 / 0.0	Per 100 ml / Per 125 ml serving  Energy (kJ): 94 / 117.5 Protein (g): <0.1 / <0.125 Glycaemic carbohydrate (g): 6 / 7.5  Of which total sugar (g): 5.5 / 6.875	Per 100 ml / Per 200 ml serving  Energy (kJ): 200 / 400 Protein (g): <0.5 / <1.0 Glycaemic carbohydrate (g): 11 / 22 Of which total sugar (g): 10.5 / 21	Per 100 ml / Per 250 ml serving  Energy (kJ): <1 / <2.5 Protein (g): <0.3 / <0.75 Glycaemic carbohydrate (g): <3 / <7.5 Of which total sugar (g): 0.5 / 1.25

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Table 10 (continued)

Attributes	Product 1	Product 2	Product 3	Product 4
	Total fat (g): 0.0 / 0.0 Of which saturated fat (g): 0.0 / 0.0	Total fat (g): <0.2 / <0.25 Of which saturated fat (g): 0.0 / 0.0	Total fat (g): 0.1 / 0.2 Of which saturated fat (g): <0.1 / <0.2	Total fat (g): <0.1 / <0.25 Of which saturated fat (g): <0.1 / <0.25
	Dietary fibre (g): 0.0 / 0.0	Dietary fibre (g): <0.2 / <0.25	Dietary fibre (g): <0.1 / <0.2	Dietary fibre (g): <0.5 / <1.25
	Sodium (mg): 11 / 11	Sodium (mg): 4 / 5	Sodium (mg): 2 / 4 Vitamin C (mg): 2.5 / 5	Sodium (mg): 6 / 15
<b>Ingredient list</b>	Carbonated water, colourant (caramel), acidulants (phosphoric acid, trisodium citrate), non-nutritive sweeteners (aspartame*, acesulfame-K), preservative (sodium benzoate, potassium sorbate), flavouring, caffeine *Contains phenylalanine	Brewed rooibos tea (water, rooibos), sugar, apple concentrate, strawberry concentrate, blackcurrant concentrate, acidity regulators, flavouring	Apple juice, grape or pear juice, cranberry juice, citric acid, flavouring, vitamin C	Carbonated spring water, flavouring
<b>Recommended portion size</b>	100ml	125ml	200ml	250ml
<b>Price in R/product size</b>	R14.99	R19.99	R12.00	R9.99
<b>Price converted in €/product size</b>	0.78 €	1.04 €	0.62 €	0.52 €
<b>Price in R/l</b>	R49.97	R39.98	R60.00	R19.98
<b>Additional information at the front</b>	Low kilojoule soft drink	No added preservatives	100% fruit juice blend	Blend with natural spring water
	/	Locally made	/	Preservative free
	/	Brewed with rooibos leaves	/	No artificial colors or flavours
<b>Additional information at the sides</b>	/	Keep refrigerated	/	
	/	/	No added preservatives 1 Fruit portion per 200 ml - Enjoy in moderation Store in a cool, dry place. Refrigerate after opening and enjoy in 3 days.	Product of South Africa Store in a cool, dry area away from direct sunlight. Serve chilled, once opened consume within 2 days.
<b>Additional information at the back</b>	/	Keep refrigerated and drink within 1 day of opening Bottle made from a minimum 50% recycled plastic Produced in the republic of South Africa	/	/
<b>Labels</b>	/	South African National Halaal Authority	National Independent Halaal Trust	/
<b>Allergens</b>	/	/	/	/

Table 11  
South African Crisps used in the Focus Group Discussion (Complete).

Attributes	Product 1	Product 2	Product 3	Product 4
<b>Brand and name</b>	Simba NikNaks	Woolworths Foods	Woolworths Food	Lay's
<b>Product category and flavour</b>	Maize snack (original cheese)	Lentil chips (sour cream and chives)	Veggie crisps (sea salted)	Potato chips (spring onion and cheese)
<b>Product size</b>	135 g	100 g	100 g	120 g
<b>Product design</b>				
<b>Product material and colour</b>	Shiny yellow plastic bag	Matte white/light green plastic bag with textured finish	Matte white/light blue plastic bag with textured finish	Glossy bright green plastic bag
<b>Nutrition table</b>	Per 100 g / Per 20 g serving Energy (kJ): 2198 / 440 Protein (g): 5.3 / 1.1 Glycaemic carbohydrate (g): 57 / 11  Of which total sugar (g): 0.9 / 0.2  Total fat (g): 31 / 6.2 Of which saturated fat (g): 13 / 6.2 Dietary fibre (g): 3.4 / 0.7 Sodium (mg): 650 / 130	Per 100 g / Per 40 g serving Energy (kJ): 1954 / 782 Protein (g): 9.8 / 3.9 Glycaemic carbohydrate (g): 54 / 22  Of which total sugar (g): 3.4 / 1.4  Total fat (g): 23.9 / 9.6 Of which saturated fat (g): 8.6 / 3.4 Dietary fibre (g): 5.7 / 2.3 Sodium (mg): 992 / 397	Per 100 g / Per 36 g serving Energy (kJ): 1783 / 642 Protein (g): 6.3 / 2.3 Glycaemic carbohydrate (g): 58 / 21  Of which total sugar (g): 29.4 / 10.6  Total fat (g): 17 / 6.1 Of which saturated fat (g): 1.9 / 0.7 Dietary fibre (g): 6.7 / 2.4 Sodium (mg): 421 / 152	Per 100 g / Per 36 g serving Energy (kJ): 2203 / 793 Protein (g): 7.4 / 2.7 Glycaemic carbohydrate (g): 46 g / 17  Of which total sugar (g): 0.7 / 0.3  Total fat (g): 35 / 12.6 Of which saturated fat (g): 13.6 / 4.9 Dietary fibre (g): 4.8 / 1.7 Sodium (mg): 433 7 156

(continued on next page)

Table 11 (continued)

Attributes	Product 1	Product 2	Product 3	Product 4
<b>Ingredient list</b>	Maize, vegetable oil (palm fruit and/or maize germ or sunflower seed) with antioxidant (TBHQ), salt, cheese powder [maltodextrin, whey powder, vegetable fat (palm fruit: antioxidant (BHA), flavourings] (cow's milk), dextrose, potassium chloride (E508), MSG [flavour enhancer (E621)], acidity regulators (E262, E270, E260), flavourings (cow's milk), hydrolysed vegetable protein (soya), anticaking agents [E551, E341(C)], colourants (E110, E124), flavour enhancers (E631, E627), extracts of spices [E160(C)]	Lentil chip (lentil flour (37%), chickpea flour (37%), potato starch, potato fibre, salt, potassium chloride), vegetable oil (palm fruit, maize germ, antioxidant: TBHQ), sour cream and chives seasoning (creamer (contains: maltodextrin, vegetable oil (palm fruit, antioxidant: TBHQ), sodium caseinate, stabilisers, emulsifiers, anti-caking agent, colourants (carotenes, riboflavin)), sugar, salt, vegetable powder (garlic, onion), acidity regulators (citric acid, sodium acetate, lactic acid, malic acid), milk solids (buttermilk powder), herb (parsley), flavour enhancer (nucleotides), flavouring	Vegetables (sweet potato, carrot, butternut, beetroot), vegetable oil blend (canola oil, maize germ (maize oil)) anti-oxidant (tertiarybutyl hydroquinone (TBHQ)), salt, rice flour	Potatoes, vegetable oil (palm fruit and/or maize germ or sunflower seed) with antioxidant (TBHQ), maltodextrin, salt, vegetable powders (onion, garlic) (irradiated), whey powder (cow's milk), sugar, potassium chloride (E508), flavourings, flavour enhancers (E631, E624), anticaking agent (E551), acidity regulators (E327, E575), modified starch (E1450), colourant [E160(C)]
<b>Recommended portion size</b>	20 g	40 g	36 g	36 g
<b>Price in R/ product size</b>	R14.99	R34.99	R22.99	R19.99
<b>Price converted in €/product size</b>	0.76€	1.86€	1.22€	0.60€
<b>Price in R/kg</b>	R111.04	R349.90	R229.90	R166.58
<b>Additional information at the front</b>	/	Natural free from gluten	Baked & flash fried	/
	/	37% lentil & chickpea	40% less fat than woolworths regular	/
	/	Source of fibre	Potato crisps	/
	/	No added MSG	High in fibre	/
<b>Additional information at the sides</b>	/	/	/	/
<b>Additional information at the back</b>	Contains genetically modified ingredients	This product contains potassium salts. People with kidney disorders or who are receiving medication for diabetes, heart or kidney disorders should consult their doctor before using this product.	At least 40% less fat than Woolworths ridged cut potato crisps fruit chutney flavoured This product % fat = 13.9% and Woolworths ridged cut potato crisps fruit chutney = 30.8%	No added MSG No preservatives
<b>Labels</b>	/	/	Vegetarian	/
<b>Allergens</b>	Halaal Contains cow's milk, soya	Halaal Vegetarian with cow's milk Made in a factory that uses soya	Halaal This product is made in a factory that uses cow's milk, gluten and soya	Halaal Contains cow's milk May contain soya

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