



# Food choice drivers at varying income levels in an emerging economy

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## ABSTRACT

The purpose of this work was to explore and compare food choice drivers of low (LI), middle (MI) and high (HI) income urban people in an emerging economy (South Africa). Here, 13 focus group (FG) discussions (six LI,  $n = 36$ , 67% women; four MI,  $n = 22$ , 100% women and three HI,  $n = 17$ , 76% women; total  $n = 75$ ) were transcribed, coded inductively and deductively and 17 food choice categories emerged. Eight of these, i.e., aspects related to: plant vs animal protein, food waste, food preparation, availability of resources, food exploration, social aspects and food spoilage, are not typically (e.g., sensory appeal, mood, health, convenience etc.) measured with established food choice questionnaires. Economic factors and Availability of food and resources were mentioned the most by LI participants compared to MI and HI. Whereas, Health; Familiarity and Food exploration were mostly mentioned by MI and HI participants. This study yielded a mixture of individual and environment based motives which add to our understanding of the “why” aspects underlying food choice in an urban and emerging economy. The fact that these aspects are compared by income group provides interesting information on the similarities and differences of how the food choice process unfolds across varying income groups. The insights from this study are useful for the development of an updated, quantitative food choice questionnaire for application in this and other emerging economies.

## 1. Introduction

Food choice is multifaceted, complex, context specific and dynamic, thus prone to change over time (Sobal & Bisogni, 2009). A better understanding of food choice factors and their importance for targeted population groups may inform strategies to improve diets, nutrition, health outcomes and wellbeing. Here, the focus is South Africa (SA), a low-middle income country (Hamadeh et al., 2021) laden with high and persistent income inequality (Sulla, 2020). The Gini coefficient score for SA was 63 (in 2014) compared to e.g. the United Kingdom at 35.1, and the world average of 38 (WorldBank, 2023). About 56% of the SA population was reported to be living below the poverty line (Kimani-Murage, 2013; Sulla, 2020), 63% of the population live on a monthly household income of below ZAR8000 (\$547 in August 2021 when 1 ZAR = 0.0684 USD), 32% between ZAR8000 and ZAR40000 (\$2736) and only 5% live on over ZAR40000 monthly (Lappeman et al., 2021). Information about the food choice factors affecting low, middle and high income groups in SA is limited. Financial means is a strong motivating choice aspect, especially in low-middle income countries (Erzse et al., 2023; Rose & Charlton, 2002). Karanja et al. (2022) reviewed research

on drivers of food choice in low and middle-income countries from the framework that food choice behaviour is informed by 1) the food environment (“the spaces in which consumers interact and make decisions about what food to acquire, prepare and consume as informed by physical and economic access, quality of foods, convenience and exposure to marketing information”) and 2) individually-based motives. Both the food environment and the individually-based motives are at play in SA.

Karanja et al. (2022) highlight the necessity to study food choice drivers across different population groups such as urban vs rural populations, populations at different life stages (adults, children, adolescents etc.) and genders for targeted and thus more effective diet intervention strategies. Within low and middle income countries a comparison of food choice drivers across income level is important. Urban consumers at different income levels in SA are exposed to different food environments which influence what food to buy, where to buy and how to buy. However, apart from understanding what, where and how food is bought and consumed, there is a need to understand the “why” which details the underlying reasons for food choice (Blake et al., 2021). Financial means tend to govern food choice, yet diet-related

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diseases occur across all income levels (Mbogori et al., 2020). Low income often results in undernutrition and micronutrient deficiencies (Delisle, 2008; Vorster, 2010) while overnutrition and nutrition-related chronic diseases are also prevalent amongst the affluent (Cois & Ehrlich, 2014; Delisle, 2008).

Based on research done in SA, we postulated that the overarching differences in food choice behaviour are driven by income level. Altman et al. (2009) reviewed the household food insecurity status in low income settings of SA. They noted that despite a decrease in the proportion of persons experiencing hunger, under-nutrition and micronutrient deficiencies are still a challenge as the options affordable and accessible did not meet the needs. Van Zyl et al. (2010) and Steyn et al. (2011) compared low, middle and high socioeconomic groups' consumption of fast food and street food and identified the role of income on selection, expenditure and consumption frequencies. Everett-Murphy et al. (2015) and Pretorius and Sliwa (2011) demonstrated that due to low income being a barrier to healthy eating, there is a need for healthy food options that are accessible and affordable for low income populations in urban areas of SA.

Step toe et al. (1995) developed a questionnaire to measure food choice factors based on the inputs of residents in London, United Kingdom. The development of the questionnaire (FCQ) in the UK, a high income country (Fantom & Serajuddin, 2016), followed a deductive approach which involved reviewing literature available at the time, and obtaining insights from nutritionists and health psychologists. According to Sobal and Bisogni (2009), a limitation with deduction is that the insights only reflect existing knowledge and experience of the developers, therefore, certain aspects risk being missed. Yet the Steptoe FCQ has since been widely used to measure food choice factors, including in low and middle income countries in Africa e.g. Malawi (Gama et al., 2018), Cape Verde (Cabral et al., 2017), SA (Peltzer, 2002) and Tanzania (Bechoff et al., 2020). We questioned the relevance and comprehensiveness of the Steptoe FCQ for application, almost 30 years later, in the context of SA. The Steptoe food choice factors (health, mood, convenience, sensory appeal, natural content, price, weight control, familiarity and ethical concern) emphasize individually-based motives (Karanja et al., 2022) with limited focus on income-related food environment motives, specifically food availability, accessibility and affordability. Thus, the Steptoe FCQ would be inadequate in reflecting the environment-based food choice factors (Karanja et al., 2022) that are apparent in urban SA. This was also highlighted by Cunha et al. (2018), who reviewed the use of the Steptoe FCQ across different cultures and suggested that the items should be adapted for each culture or context before use. Also unknown is how emergent factors such as climate change (a threat to food security) (Hall et al., 2017), free and widely available social media information (Kucharczuk et al., 2022) and ethical concerns about the food industry (Manyukhina, 2017) affect consumer food choices in this context.

Thus far, no study determined food choice motives across income groups in SA. Therefore, the purpose was to follow a constructivist approach to inductively obtain food choice insights from people (Sobal & Bisogni, 2009) with low, middle and high income. This was done by qualitatively exploring and comparing views, beliefs and behaviours related to food choice, disclosed in focus group (FG) discussions. The starting point for the questions guiding the discussion was deduced from the Steptoe food choice factors with expansion considering motives from more recent, specifically Africa-focused research.

## 2. Methods

Ethical approval for the study was granted by the University of Pretoria's Faculty of Natural and Agricultural Sciences Ethics Committee (reference number NAS131/2021).

### 2.1. Participants

Low income (LI), middle income (MI) and high income (HI) participants were recruited based on specific criteria (Table 1), but essentially, a convenience sampling strategy was followed. A local research organisation, which actively conducts community projects, recruited the LI and MI participants. Participants for the first HI group were recruited by the researcher (N.M.) and the rest through snowball sampling (Dusek et al., 2015).

In total, there were 13 FG discussions conducted with ethnic black participants (81% of the SA population (Lappeman et al., 2021)). The first FG was a trial with MI participants which was used to prepare the moderator, estimate the duration of the discussion and to get insight on whether the participants would understand the questions or not. The results of this group were included in this study as no major changes were made to the questions and process guiding the discussion. Information on highest education level, job type, income bracket [income classifications established by Lappeman et al. (2021)] and participants' level of involvement in household food purchases was based on self-reports and used to ensure group homogeneity, and thus a sense of belonging in terms of socioeconomic attributes (Chakona & Shackleton, 2019; McLafferty, 2004). Participants also indicated their age range and gender. Sociodemographics is detailed in Table 1. High school was the highest education level reached by the majority (83%) of LI participants. All HI and most MI participants (95%) had a post-high school qualification. The participants indicated being solely (>50%) or mostly (>36%) responsible for household food purchases. Participants were aged between 21 and 65 years, with 39% of the LI and 53% of the HI being 30–39 years and 36% of the MI participants being 50–59 years old.

Based on the socioeconomic homogeneity within each group, and the fact that the topic was layman, relevant to all and highly relatable, only three FGs per income level were needed to uncover salient themes to achieve theoretical saturation (Guest et al., 2017; Krueger & Casey, 2002). However, six FG discussions were held with LI participants to cover potential themes as fully as possible. Most people in SA are considered LI (Kimani-Murage, 2013), therefore, this demographic was of particular interest. The duration of the discussions with LI groups was naturally shorter (maximum 1 h) than those with MI and HI groups which were 1–2 h long. MI and HI participants had more to discuss for each topic compared to the LI participants.

### 2.2. Focus group discussions

Each FG discussion included four to six people to ensure adequate contribution from each participant (McLafferty, 2004). FG discussion was the chosen method to collect data so as not to limit participants on what and how much they can share about factors motivating their food choices, and to encourage intragroup interaction which could uncover more insights. FG discussions are powerful in their ability to reveal diverse views and insights from people with different habits, beliefs, attitudes and experiences (Acocella, 2012; Grønkjær et al., 2011) in an informal and unthreatening environment (Masadeh, 2012). Participants signed a consent letter which explained the nature of the task (considering the principles of the declaration of Helsinki) and ensured that their data would be treated as confidential. They were also given an opportunity to ask questions and grant/deny consent to participate. Considering that some groups were heterogenous in terms of age and gender, the moderator read out a set of rules (Breen, 2006) prior to the discussion to ensure that the participants felt safe and comfortable enough to provide honest responses. The rules inhibited participants from ridiculing other people's responses and from disclosing them outside of the group.

Food choice factors by Steptoe et al. (1995) and factors reported from research done in African countries, namely: Cape Verde, rural SA and Malawi (Cabral et al., 2017; Chakona & Shackleton, 2019; Cloete & Idsardi, 2013; Gama et al., 2018; Okoro et al., 2019; Steyn et al., 2011;

**Table 1**  
Focus group participants: Participants' income criteria, sociodemographics, composition of final groups and meeting conditions.

	Low	Middle	High
	N = 36 6 groups	N = 22 4 groups	N = 17 3 groups
Recruitment (monthly household income)	<R8000	R8000 to R40000	>R40000
Participants' employment status (3 most mentioned vocations/professions)	Unemployed Cleaner Security officer	Teacher Entrepreneur Pensioner	Consultant Lecturer Manager
<b>Highest education level (%)</b>			
Primary school	11		
High school	83	5	
Post-high school	6	95	100
<b>Age (%)</b>			
20–29 y	19	27	41
30–39 y	39	28	53
40 + y	41	45	6
<b>Household food purchase involvement (%)</b>			
Solely responsible	50	59	53
Mostly involved	39	36	47
Final group composition	n = 6 in all groups Three groups: 100% women Two groups: 50% women One group: 83% women	n = 6 in three groups n = 4 in one group All groups: 100% women	n = 6 in two groups n = 5 in one group 83%, 80% and 67% women
Focus group type	In-person	In-person, one group online	Online with participants living in a metropolitan city
Where	Informal settlement and township <sup>a</sup> in two metropolitan cities	Suburban area of a metropolitan city	
When	August–December 2021	August–November 2021	September–October 2021
Duration of focus group session	Maximum 1 h	1–2 h	1–2 h

<sup>a</sup> In South Africa, a township is typically an underdeveloped area with mainly low-cost housing.

Zazela et al., 2017) were used to develop the FG discussion topics (Table 2).

The moderator (N.M.) asked the prompt questions (Table 2) in English and where necessary, translated the question to a vernacular language (i.e., Sepedi, Sesotho, Setswana or Isizulu) with the help of translators. The participants were free to answer in their own language and follow up questions were asked where necessary to prompt further and elaborative discussion on the “what”, “why” and “how” aspects of food choice (Blake et al., 2021). Furthermore, the moderator gave each participant an opportunity to give their input and all answers were accepted.

Participants received refreshments and a monetary compensation (ZAR 100) at the end of a session. Those who participated online were sent a ZAR 100 grocery store voucher. Some FG discussions were held online for practical reasons, e.g., availability after work hours and dispersed geographical locations. It is unlikely that this compromised the data as online FG discussions have been shown to be equally reliable (Woodyatt et al., 2016). All discussions were voice recorded, translated to English (where necessary) and transcribed smooth verbatim (word-for-word transcription that is slightly edited for easy reading) on Microsoft Word.

### 2.3. Data analysis

The transcripts were coded by the researcher (N.M.) as she had a thorough theoretical and conceptual understanding of the questions guiding the study (Campbell et al., 2013). The researcher also moderated the FG discussions, allowing her to code with the context of the responses in mind. Using ATLAS.ti (GmbH, Berlin; version 9.0.0.214), the transcripts were deductively coded (Srivastava & Hopwood, 2009) as guided by the topics listed in Table 2 and inductively coded by N.M. where new or emerging codes were apparent (Boateng et al., 2018; Neale, 2016). The codes generated from each FG discussion were pooled by income group, yielding three sets of code lists. There were 431 codes in total (all three income groups considered). A sample of the coded transcript was independently verified by an experienced Social Sciences researcher.

The codes were then classified into categories by two independent researchers who were not involved in the coding of the transcripts or the conceptualization of the study but have an understanding of consumer food choice motives (Glen, 2014). The inter-rater reliability was 0.72 ( $p = 0.00$ ) as determined through Cohen's kappa (Warrens, 2015) using SPSS version 27 (IBM Corporation®, New York, USA). The researcher (N. M.) made the final decision on a classification of a code into a category where there were discrepancies between the two independent researchers.

To obtain the number of quotations per income group, the coded quotations relating to each category were counted in all FG discussion transcripts and summed by category and then by income group. For a standardised comparison of the coded quotations for each category by income group, the number of quotations per category were divided by the number of participants in the income group. This was done to get a comparative indication of how much of the discussion related to each category within each income group. Although a rough indication of the topics brought up, these counts help to understand the salience of categories under discussion.

### 3. Results and discussion

The topics which guided the discussion (Table 2) were considered during the coding process, however, categories were established to accommodate all the codes that emerged. Thus, the codes related to each topic were grouped into the newly established categories (Table 3).

The number of quotations, the proportion of the total (%) and the number of mentions per participant related to each category, all split by income group, are presented in Table 3. The order of the 17 categories (Cats) follows the mentions by LI participants, from most to least quotations. Darker (orange) shading indicates more frequently mentioned categories. The percentage of the total quotations per group provides a rough estimate of the proportion of the discussion used and the participants' engagement related to a particular category.

The LI group mentioned Cats 1–4 most often. Quotations related to economic factors (Cat 1) were the most mentioned (78 times) and comprised 19.1% of the total discussion, this was followed by Cat 2 (65

**Table 2**

Prompt questions used to guide the focus group discussions (13 groups) with low, middle and high income participants and the topics they were derived from.

Question	Topics	Reference
How have your food buying practices changed from before the COVID-19 pandemic and now? (opening question)		
Do you buy specific brands for certain food products? If so, why? If not, why?	Brand loyalty	Okoro et al. (2019)
Do you associate any food products with a high or low social status?	Social status	Okoro et al. (2019)
Are you concerned about how you will be perceived for eating/purchasing certain foods?		
Do you buy certain products because of their potential positive effect on your health?	Health	Cabral et al. (2017), Okoro et al. (2019), Steptoe et al. (1995)
Do you avoid buying certain products because of their potential negative effect on your health?		
Is there any food you are prohibited from eating because of your culture or beliefs, or faith?	Cultural or religious beliefs	Chakona and Shackleton (2019), Gama et al. (2018)
Does it matter whether food is appealing/tasty or not?	Taste/Sensory appeal	Okoro et al. (2019), Steptoe et al. (1995)
Does mood have any effect on your food choices? Or not? E.g., happy, sad, energetic, calm, tense and anxious.	Mood	Gama et al. (2018), Cabral et al. (2017), Steptoe et al. (1995)
When it comes to food, does price matter? When does it matter?	Price	Gama et al. (2018), Okoro et al. (2019), Steptoe et al. (1995)
Do you eat to be full or not?	Satiety	Gama et al. (2018)
Nowadays, convenience is an important factor for many people. However, some people are ok with for e.g. chopping all their vegetables from scratch. With that said, is convenience an important factor when deciding on food purchases? If so, why?	Convenience	Steyn et al. (2011), Steptoe et al. (1995)
Do you gravitate more towards familiar food or are you open to trying new foods? Why?	Familiarity	Gama et al. (2018), Steptoe et al. (1995)
How important are food claims to you? E.g. natural/organic/free from xyz.	Natural content	Cabral et al. (2017), Steptoe et al. (1995)
Does the information you see on the internet (e.g., social media) affect your food choices?	Media information	Okoro et al. (2019)
Do you consider factors concerning the environment or ethics when making food choices? If so, to what extent?	Environment/Ethical concern	Steptoe et al. (1995)
Are your food choices affected by wanting to control your weight or not? If so, to what extent?	Weight control	Steptoe et al. (1995)
Is it essential for meat to be on your plate? What do you consider when buying meat?	Meat perception	Xazela et al. (2017)
When I say "traditional food", what food comes to mind? (free-listing question) In what situations are such foods eaten?	Traditional food perception	Cloete and Idsardi (2013)
Are there any other factors you consider when buying food that have not been mentioned in this discussion? (closing question)		

mentions – household preferences; plant-based and animal protein), Cat 3 (63 mentions – personal ideas and systems; food waste; food preparation) and Cat 4 (43 mentions - availability of food and resources). Quotations related to Cats 5–9 were mentioned 15 to 33 times, while aspects related to Cat 10–17 only nine times or less.

The MI group mentioned aspects related to Cat 6 (familiarity; food exploration), 5 (health), 3 (personal ideas and systems; food waste; food preparation) and 1 (economic factors) more frequently and those linked to Cat 17 (food context), 12 (culture, beliefs and religion), 15 (natural content) and 4 (availability of food and resources) less frequently.

On average, 26.1 quotations were coded per HI group participant. This is more compared to the MI (24.3) and LI (11.3) groups. The HI group spent most of the discussion on aspects related to Cats 6 (familiarity; food exploration), 5 (health), 3 (personal ideas and systems; food waste; food preparation) and 10 (social aspects; social media). The categories that were least mentioned by HI participants were Cat 16 (food safety; food spoilage), 4 (availability of food and resources) and 12 (culture, beliefs and religion).

The FGs acted differently. LI groups used less time (Table 1) and individuals brought up less topics (on average, 11.3) than the MI (24.3) and HI (26.1) groups.

The food choice aspects discussed in each income group will now be described and discussed by category.

### 3.1. Economic factors

The discussions in the LI groups centred around economic factors (Table 3). Economic factors were also a topic of discussion for the MI group and HI group, as reflected in slightly more than 2 mentions per participant. All income groups mentioned practising some form of frugal behaviour such as planning before buying groceries. This involved preparing grocery lists, checking for bargains and special offers, comparing the price of brands for similar items in stores and buying fruit in season for the economic benefit. This frugal behaviour appears to be practised regardless of the affluence of a society as the same behaviour was observed in The Netherlands (Markovina et al., 2015).

Affordability, in its many ways, was the leading food choice driver amongst the LI participants. They stated that they buy food with the intention to spend as little money as possible to be able to afford their required items. This sometimes meant buying cheaper, less healthy alternatives, and buying food hampers (multiple food items packaged as one) if cheaper, even though they contain less familiar brands. This behaviour was also reported in the SA study by Zembe-Mkabile et al. (2022), where LI participants bought food hampers due to their low price despite their perceived poor quality. Some statements that speak to the above:

*"Whenever I do grocery shopping, I come back with whatever brand is cheaper. If Lion (a maize meal brand) is cheaper, then I come back with it, if next time Spar brand (retail brand) is cheaper, then I buy Spar brand, just like that. I will buy according to whichever brand is cheaper at the time of my purchase."* (woman, LI)

*"... we ignore the health benefits not because we want to, but because of price (our affordability). I will look at the price first. When money is not enough, you forget that you can get sick (from buying less healthy cheap alternatives), you take the cheaper one. I cannot buy a skinless chicken when I cannot afford it. Should I buy the skinless one, it means I can afford it. It is all about affordability. Financial stability my sister."* (man, LI)

*"We also check for food sold as 'combo' packages as they seem to work out cheaper and they have various items. The brand is irrelevant because you take what you get in a combo."* (woman, LI)

The LI participants shopped around to get the cheapest offerings or the best deals. They bought essential food items or food items that could be used in multiple dishes. They also stated that their money is too

**Table 3**

The number of coded quotations, % of quotations per income group and the average number of mentions per person per group according to categories. Categories were derived from literature\* or are emergent categories (**in bold**) from the focus group discussions with participants from LI, MI and HI groups. The order of categories follows the frequency for the LI group, from most to least quotations. Darker shading indicates more frequent mentions.

Food choice category (Cat)	Income groups		
	Low n = 36	Middle n = 22	High n = 17
Number of quotations (% per group) average per person**			
1. Economic factors	78 (19.1) 2.2	56 (10.5) 2.5	39 (8.8) 2.3
2. Household preferences; <b>Plant-based and animal protein</b>	65 (15.9) 1.8	32 (6.0) 1.5	30 (6.8) 1.8
3. Personal ideas and systems; <b>Food waste; Food preparation</b>	63 (15.4) 1.8	75 (14.0) 3.4	57 (12.8) 3.4
<b>4. Availability of food and resources</b>	43 (10.5) 1.2	12 (2.2) 0.5	3 (0.7) 0.2
5. Health	33 (8.1) 0.9	75 (14.0) 3.4	58 (13.1) 3.4
6. Familiarity; <b>Food exploration</b>	33 (8.1) 0.9	103 (19.3) 4.7	60 (13.5) 3.5
7. Sensory appeal	30 (7.4) 0.8	20 (3.7) 0.9	15 (3.4) 0.9
8. Mood	17 (4.2) 0.5	16 (3.0) 0.7	24 (5.4) 1.4
9. Weight control	15 (3.7) 0.4	15 (2.8) 0.7	17 (3.8) 1.0
<b>10. Social aspects; Social media</b>	9 (2.2) 0.3	21 (3.9) 1.0	56 (12.6) 3.3
11. Ethical and environmental concern	5 (1.2) 0.1	11 (2.1) 0.5	16 (3.6) 0.9
12. Culture, beliefs and religion	5 (1.2) 0.1	6 (1.1) 0.3	2 (0.5) 0.1
13. Satiety	4 (1.0) 0.1	14 (2.6) 0.6	11 (2.5) 0.6
14. Convenience	3 (0.7) 0.1	41 (7.7) 1.9	25 (5.6) 1.5
15. Natural content	2 (0.5) 0.1	12 (2.2) 0.5	11 (2.5) 0.6
16. Food safety; <b>Food spoilage</b>	2 (0.5) 0.1	18 (3.4) 0.8	7 (1.6) 0.4
17. Food context	1 (0.2) 0.0	7 (1.3) 0.3	13 (2.9) 0.8
Total	408 (100) 11.3	534 (100) 24.3	444 (100) 26.1

\*Category references: 5, 6, 7, 8, 9, 11, 14, 15 (Steptoe et al., 1995); 13 (Gama et al., 2018); 1, 3 and 17 (Okoro et al., 2019); 12 (Chakona & Shackleton, 2019; Okoro et al., 2019); 2 (Downs et al., 2022) and 16 (Downs et al., 2022; Nordhagen et al., 2022). \*\*Average number = Frequency/n

Key:

	>10 % of quotations/ group		2-9 % of quotations/ group		<2% of quotations/ group
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limited to buy the food or brands they prefer.

Some MI and HI participants mentioned buying food where their preferred brands are cheaper or they waited for a suitable time (when the price reduces or when they have money) to buy what they preferred. However, others felt that buying a cheaper product is not worth the small price difference.

Uniquely mentioned by one HI participant was the habit of buying food from certain shops to get points for the customer loyalty programs they participate in. Others bought whatever food items they preferred regardless of the price or they did not pay attention to price whatsoever. Interestingly, one HI participant mentioned sticking to the same menu as that helped in controlling their food budget.

**3.2. Household preferences, including plant-based and animal protein aspects**

The discussion around this category focused on details of how provision is made for household member preferences. Several women from LI and MI groups mentioned prioritising food that their children prefer and having no choice but to buy food suitable for everyone in their household. One MI participant said:

*“What motivated me (to try new food) is that my kids love sea food - prawns and oysters, especially my son. So, we try to impress them at times with that kind of food. We are a different generation that grew up eating greens (green leafy vegetables) with pap (stiff maize meal porridge) unlike them.” (woman, MI)*

MI and HI participants mentioned making an effort to feed their

families healthy food. Some HI participants preferred free-range meat and avoided buying processed meat. Family members' preferences, especially children, were strong drivers for MI and HI participants.

"... that's why I stick to fruits and vegetables, though my kids don't like most of the vegetables. But they prefer the fruits so I feed them more fruits than vegetables." (woman, HI)

At least one participant from each income group mentioned the need to eat meat at least once a day and that a meal with no meat was essentially incomplete, for e.g.:

"Well, I can eat food without meat. However, I don't know how my brain is wired. But if I do that then I'll definitely go out and source out meat from somewhere else, normally from burgers as I said, I just love burgers" (woman, HI).

However, at least one participant from each income group also mentioned that meat is not essential in their diet and that meatless meals can be fulfilling. MI and HI participants also mentioned that their protein intake does not necessarily have to come from meat.

A statement from a LI participant was:

"I would rather buy cheap meat than not have meat at all." Furthermore, one MI participant said "a meatless meal should be by choice, not by circumstance." Statements from HI discussions were "it's not essential to have meat everyday but I prefer to" and "I grew up knowing that meat should be on my plate" (women, HI).

### 3.3. Personal ideas and systems, food waste and food preparation aspects

This category was amongst the most frequently referenced in all income groups. In all income groups, the association of certain "traditional" foods with nostalgic thoughts of grandmothers was raised. LI and MI participants expressed the idea that traditional food is healthier than modern food. Some MI and HI participants stated that expensive food is of a higher quality and high quality is found only in selected shops.

Several and varying personal systems were mentioned. Some LI and MI participants read food labels; preferred buying food in small quantities; grew some of their own vegetables; and only cooked food that they knew how to cook. MI and HI participants said that they only bought and trusted certain brands; preferred buying food in bulk; and bought their preferred brand regardless of price. A HI participant mentioned buying from certain shops because they acted on complaints. Other HI participants said they treated themselves with expensive food when they achieved something and that they bought junk food at least once a week.

Participants from all income groups were averse to wasting food. Food waste was avoided by finishing food on the plate, not overeating and not buying large quantities of highly perishable food.

Some participants from all income groups mentioned that they prefer to and enjoy preparing food from scratch. However, some MI and HI participants described cooking as a time consuming activity for which they are often too tired.

### 3.4. Availability of food and resources

The LI groups mentioned behaviours related to this category the most compared to MI and HI. However, there were participants from all income groups who mentioned having no choice but to eat whatever food was available and not being concerned about what they eat. They were just "happy to have something to eat".

LI participants mentioned having to eat the same food (e.g. maize meal porridge) every day due to limited availability of varied food. They were often forced to eat certain unhealthy (high energy, low nutrient density) food repeatedly because that was all they had to still hunger while ensuring that the money they have lasts till they receive money again. This all meant being compelled to follow monotonous diets, which puts one at risk of malnutrition (Kimani-Murage, 2013; Vorster,

2010).

Cooking traditional food was avoided or done seldom because it took long and therefore used a lot of electricity, an expensive resource, e.g.:

"You can go to the food streets vendors and buy a plate of tripe. (But) At Shoprite (a retailer), you can buy the same full portion of tripe (i.e. uncooked) it for R400 and something. And, when you cook it, it takes up a lot of electricity units. You must cook it for around 3 hours. However, you can find one that is already cooked at R30. It is cheap compared to the one you can buy for R500, also paying for the intestines and everything. (To cook it) You must first clean (wash) it as well and it uses up a lot of water and electricity for cooking as mentioned." (man, LI)

Sentiments shared by both LI and MI participants were avoiding buying certain food because of lacking facilities (e.g. fridge or required electrical appliance) and avoiding food that takes long to cook to save electricity. The same barrier was reported by social grant dependent people in the Western Cape Province of SA (Zembe-Mkabile et al., 2022). This is a barrier that is less likely to be experienced by a person living in a typically rich or developed country (Rao & Min, 2018).

Furthermore, LI and MI participants mentioned being unable to buy food from different places due to the lack of transport/mobility. An important food choice driver was the need to buy food that will sustain them for the whole month. They also mentioned often struggling to understand food label information.

"We don't have all the knowledge on the intricate details of food. I just know that I need Rama (the word used to describe margarine; Rama is a familiar brand of margarine) so I just take it, whether it's low fat or what, I don't know enough about those things so I don't take note of that. Sometimes you get to the till and the cashier asks you 'are you sure you eat this product?' and then you get shocked because you didn't pay attention to the label. Then you leave it and take the alternative" (woman, LI).

### 3.5. Health

Although alluded to mostly by the MI and HI groups, participants from all income groups shared the sentiment that health is important and can be achieved through: choosing healthy food alternatives where possible, eating fruits and vegetables regularly and avoiding certain food as advised by health care providers. However, as was found amongst women in rural USA (Vilaro et al., 2016), financial constraints tend to be a barrier for LI people especially. Unlike the LI participants, most of the MI and HI participants had some form of tertiary education. For LI participants, the motivation to include nutritious food in their diet was strongly attributed to preventing chronic illnesses as advised by healthcare providers. Previously, low-income primary care givers in SA shared the same sentiments (Zembe-Mkabile et al., 2022). People in SA, except for those covered by private medical aid schemes, use free primary healthcare services (Harris et al., 2011), and therefore can get information about what to eat from state healthcare facilities.

Participants from all groups also mentioned that it is hard to change unhealthy eating habits despite knowing better. The Covid-19 pandemic conscientised participants about the need to make healthy food choices and consume immune boosting food to support overall health.

LI participants mentioned avoiding food that makes them sick. For example:

"Yes, there are foods that I do not buy, like acidic foods. But I drink juice because I know the others (carbonated soft drinks) will harm my body" and, "There is a lot that I do not eat because I have challenges with my heart, so I was told what to eat and what not to eat" (women, LI).

They also mentioned being unsure about what is and what is not healthy. MI and HI participants were most elaborate about the health aspects affecting their food choices, and were willing to pay more for healthier alternatives. One MI participant said:

*"I would rather compromise petrol usage for a month and use a taxi, if I can be able to buy that expensive food that will help my body"* (woman, MI).

MI participants mentioned specific food types they avoided e.g. *junk food, spicy, salty and oily food*. The habit of eating for one's age or blood group was also mentioned. Labelling and food claims were considered important as there was a preference for buying food *which has the heart mark* (approved as part of the Heart and Stroke Foundation eating plan), protects one's health or is approved by an official body. However, some mentioned that food claims make the food more expensive, so they bought the standard variants.

Labelling and food claims were strong drivers amongst HI participants. They mentioned buying food with "free from" claims especially to avoid ingredients that may harm their health. For example:

*"... I've also become more conscious of that (health). So I try to purchase more, you know, organic foods and so forth even though they make like a very small portion of my baskets. But it really makes me feel better that, oh you know what, there's more healthier, more organic stuff and so forth"* (woman, HI).

They also paid attention to nutritional information rather than just claims.

*"Yeah, I'd rather read the nutritional info cause the claim can be anything, right? So I want to see the back what you know the three macros are protein, carbohydrates, fats, any other micronutrients that I could be getting from this food. So yeah, I'm very conscious of that"* (man, HI).

HI participants mentioned avoiding: *fizzy drinks, oily food, processed food and sugar*. They tended to follow specialised diets and often relied on "canteen food" from work for their vegetable intake.

### 3.6. Familiarity and food exploration

Aspects related to this category were mentioned more by the MI and HI than by the LI groups. However, the food eaten during one's upbringing motivated food choices across all income groups. Some participants preferred to stick to the food they know and/or grew up using. However, participants from all income groups also expressed preference for eating a variety of food and enjoy trying new recipes or making slight changes to their meals sometimes.

Unique to the LI participants was that they were open to trying new food but did not know how to prepare it. Participants from MI groups mentioned avoiding new food due to allergies and their fear of unfamiliar food. However, some were willing to try new food if they were familiar with the ingredients used, if the food was recommended by someone they know, if it was a small portion or if they were alone.

Some HI consumers were willing to try new food especially outside their home, when they achieved something and if the food was "prepared nicely" or aesthetically pleasing. However, others avoided trying new food due to a lack of time, not wanting to be disappointed and the idea that sticking to what they know makes decision-making easier.

MI and HI participants admitted to being brand loyal. However, the fear of missing out motivated trying unfamiliar foods and brands. These participants were also willing to try new food that offers a health benefit and food generally acceptable to people they know or live with. They were also more willing to try new food if they will not be responsible for paying for it. A HI participant said:

*"I don't want to waste my money on something and it tastes really bad, so if I'm not the one that's paying for it, then I'm willing to give it a try. Or if I go to a place with someone that likes trying new things, then I'll taste it from their plate. But I wouldn't order it myself"* (woman, HI).

Interestingly, some foods were avoid because of too much exposure when growing up, for example "spinach and pap (stiff maize meal porridge) alone" (man, HI).

### 3.7. Sensory appeal

All participants strongly agreed that food ought to be enjoyed, it should be tasty, appealing to the eyes and it should smell nice. It was no surprise that sensory appeal was a strong motivator of food choice for participants from all income groups. This was also reported in studies in Brazil (da Silva et al., 2022) and Argentina (Sosa et al., 2015). Participants mentioned that healthy food is not tasty and that they value taste more than health. One participant said:

*"I have to force myself to eat vegetables because they don't taste nice"* (woman, MI).

One LI participant mentioned that despite not having the financial means, they try to find affordable ways to make food tasty. The use of spices was mentioned as a means to enhance the taste of food.

*"Food should be cooked in a nice way, there are cheap products one can use to achieve this. I know how to cook, so if a woman cooks unpleasant food for me, I will know. Food should be tasty and appealing, don't use too much water"* (man, LI).

LI participants also mentioned treating themselves to "delicacies" (e.g. yoghurt and premium breakfast cereals) they would not otherwise buy when they have a little extra money.

*"Months are not the same, sometimes I crave something but I can't afford it. But when I can afford it, I buy it to spoil myself e.g. Future life (brand name of a range of ready-to-eat breakfast cereals) – which I associate with wealth. Unlike Morvite (brand name of sorghum-based instant porridge), which is cheaper"* (man, LI).

Despite the financial limitations experienced by LI consumers, they still find ways to make eating pleasant by using spices or treating themselves to luxury food when possible. This behaviour was also reported by Ares et al. (2017) in their study of MI people in Uruguay.

Some HI participants expressed the importance of the way food is presented, especially in a restaurant setting. For example:

*"I guess to me, I'd definitely rate the taste above all else, but presentation is also important."*

And;

*"... but then I've realized that for me now, it's how it's prepared. So if it's just bland and water then I'm like hmm ... But there's these really expensive restaurants that make it proper ..."* (women, HI).

### 3.8. Mood

Participants from all three income groups mentioned feeling inclined to buy sweet or oily food when experiencing negative mood or emotions. For example:

*"If something that makes me feel sad or hurt happens, I must get a cold drink (carbonated soft drink). Once I drink it and burp then I am over what has hurt me"* (woman, LI). MI: *"When I am down, I always crave for greasy food. I would eat a fried russian (a fatty sausage), bunny chow (a local favourite consisting of bread stuffed with potato fries, processed meat and sauces) and other fries"* (woman, MI).

*"Guys, when I'm feeling particularly down, I think all concerns for my diet or my sugar consumption or anything, it all goes out the window. Uhm, even my concerns for budget that day ... I'm ordering everything. Biryani lamb Curry, I'm on Uber eats, I don't care about service fees"* (woman, HI).

This finding was in contrast to a study by Sosa et al. (2015), who found that mood was of little importance when it came to food choice for low and middle income Argentinian consumers. However, it was congruent with Gardner et al. (2014) who explained that indulgent

foods tend to offer pleasant taste and sensory sensations which could offset low mood.

Furthermore, they often eat the food they feel like eating or crave and also consider certain food “*comfort food*.” One HI participant said:

*“When my mood is down, that’s when I will get into my car and drive to the garage to buy my comfort chocolate”* (woman, HI).

Physiological aspects like menstrual cycles and pregnancy which affect mood were also mentioned as food choice drivers.

LI and MI participants mentioned having to consume alcohol to cope with stress:

*“When I am sad, I go to drink alcohol”* (man, LI).

### 3.9. Weight control

Participants from all income groups mentioned avoiding certain food (e.g. high energy and sugary food) to achieve weight loss and considered their desire to lose weight when making food choices. Weight and body image are areas of interest in many cultures, moreso now due to social media (Şentürk et al., 2022). MI and HI consumers specifically mentioned watching their weight closely, although some admitted to being reactive rather than pro-active when it comes to weight changes. Interestingly, some participants from the LI groups regarded weight gain as positive. Statements such as “*being skinny is not ideal*” (men and women, LI) and “*gaining weight would increase my confidence*” (woman, LI) were made. Also, the idea that one’s weight is controlled by one’s stress levels rather than food was expressed by LI participants. Being overweight was associated with good health, wellbeing and beauty by women in Malawi (Ndambo et al., 2022). On the other hand, thinness was associated with poor mental and physical health in a study in SA (Okop et al., 2016).

### 3.10. Social aspects and social media

Some participants from all income groups said that they were not interested in media information regarding food, and that they only considered what works for them when making food choices. Participants from LI groups mentioned that they would rather heed advice from their health-care provider (doctor or nurse) than listen to social media when it comes to their diet. Although, they mentioned heeding to official recalls or warnings about unsafe food. “*For example with the polony scare? (listeriosis outbreak that happened in SA in 2017–2018 linked to processed meat from a popular brand (Thomas et al., 2020). Yes, we do adhere to warnings like that out of fear. There’s also the noodles saga (in 2021, the death of three children was allegedly linked to consumption of a brand of noodles), we do not buy them anymore out of fear.*”

MI and HI participants believed that social media information about food needed to be verified before they take action. However, some do attempt to change their eating habits based on food-oriented documentaries (e.g., eat less meat or take up vegetarianism). One HI participant said:

*“Not necessarily what I find like on social media because social media everybody is like influencing anything that they can for the sake of money. But when I do like research and read up on like medical sites, or if there’s like a really good documentary on Netflix or something that speaks about a certain type that definitely influences my food choices”* (woman, HI).

The notion of being influenced to change one’s behaviour based on a media screened documentary was also reported in Sweden (Ran et al., 2022).

Nevertheless, participants were open to trying new food or recipes they saw on social media. Social media was also said to have made it normal for them to eat certain food (women, MI and HI).

Unique to the MI groups were statements such as:

*“Eating certain food makes me feel like I belong to certain groups”* (woman, MI).

Some participants (from all income groups) expressed that they consider *what other people will think or say* about their food choices. HI participants mentioned being cautious about what they eat in the presence of their colleagues and having to be sensitive about what they say or eat in the presence of people who are not as privileged as them. This is expected considering the high rate of wealth inequality in SA (Sulla, 2020). As seen in Table 3, the HI groups also had the most to say about this topic. Apart from them having a higher income, this group had the highest proportion of younger (<40 y) and educated participants.

MI and HI participants impressed their guests with new or interesting food or by buying certain food brands. Some of them also mentioned that it was important to them that they bought from small or local businesses. This unexpected aspect arose from the closing question asking if there are any other factors they considered when choosing food. The sense of social responsibility, shared by some MI and HI participants, to support small or local businesses when buying food was unique to this study. This behaviour was not motivated by sustainability considerations but more so a means of uplifting small-scale businesses in the community out of compassion and humanity. Similar behaviour was observed by Koens and Thomas (2016), in the tourism industry of two townships in South Africa.

### 3.11. Ethical and environmental concerns

Ethical and environmental concerns as food choice motives were not as strong in this study (especially among the LI) as reported in North American (Ghvanidze et al., 2017) and European (Ran et al., 2022) contexts. The habit of reusing some food packaging was practised by participants from all income groups. However, LI consumers were generally not motivated by ethical and environmental aspects pertaining to food and food production. In fact, compared to MI and HI groups, LI groups made mention of aspects related to this category the least. These were some of the statements made:

*“Food related ethical issues are not my concern,”* (man, LI)

*“I can’t contend with all the ethical issues of the food industry, otherwise I would never buy anything”*, (man, LI)

*“I don’t worry about ethics and the environment, I have my own problems”* (man, LI) and,

*“I choose plastic because it is cheaper”* (woman, LI)

In a Malawian consumer study, ethical and environmental impact did not even come up as a factor when the FCQ (Stephoe et al., 1995) was used to determine the food choice motives (Gama et al., 2018). This may be due to the notion that people in LI countries cannot afford to be concerned about environmental conservation (Olanipekun et al., 2019).

Participants from MI groups mentioned being hesitant to buy products that have a negative effect on the environment, especially if they were aware of it. They cared about employee equity at the shops they bought from and preferred biodegradable packaging when available. HI participants were more concerned about ethics and the environment than other groups. Some made reference to their preference for digital receipts, paper instead of plastic shopping bags, not using plastic utensils when buying fast food and buying free-range meat because “*the animal grazed and had a full life*” (woman, HI). However, some MI and HI participants mentioned that they still bought certain foods despite being aware of the negative ethical or environmental impact it had. One participant said:

*“I believe there’s very little I can do as an individual that will make an impact. I do hold the view that without the big industrials coming to the fore, my little piece won’t help anything”* (woman, HI).



The culture of sustainable living and the drive for green consumerism is much more apparent in certain countries than others (Pekkanen et al., 2018). This has an impact on how people in both settings will think and behave when it comes to their food choices. An example of this is the extent to which participants valued having meat on their plate. This may be due to meat being a status symbol (Gorski et al., 2016) and an important part of culture and socialisation in many parts of Africa (Mensah et al., 2022). This is quite different to the situation in North America and Southern Europe, where the number of animals slaughtered for meat eating is decreasing (Allievi et al., 2015) and thus a possible indication of a decrease in meat consumption. However, participants here were strongly averse to wasting food, not only because it is wasteful but also because of the need to maximise on the available food due to lack of resources. This is likely true for the general SA population. Sub-Saharan Africa produces less post-harvest waste compared to Europe and the Americas, and the least household food waste when compared to Europe, the Americas and Asia (Parfitt et al., 2021). This shows that the behaviours contributing to sustainability vary by geographical area.

### 3.12. Culture, beliefs and religion

The contribution of this category was miniscule in all discussions as only a few were influenced by culture, beliefs and religion when making food choices. However, at least one person from every FG discussion mentioned being prohibited from eating certain food due to their culture or religion. Some specific foods mentioned were pork and seafood with shells. These drivers were not affected by income level. However, beliefs such as “I eat certain food because I am a man/woman” and “some food should only be eaten by men” (man, LI) were mentioned only by participants from LI groups.

### 3.13. Satiety

People from all income groups generally ate to be full or ate till they felt comfortable. However, participants from LI groups mentioned eating to be satiated where possible. One participant said:

*“I eat to be full if the food is available, if not then you must share with others just to have something in your stomach”* (woman, LI).

The desire to eat to be full by LI participants was also reported by Gama et al. (2018) in Malawi, Downs et al. (2022) in Kenya and Ares et al. (2017) in Uruguay. This is likely driven by the need to still hunger for as long as possible.

MI and HI participants mentioned eating frequently or “snacking” but not necessarily to be full. The statement “healthy food is not filling” was also made by a MI participant. This is in accordance with Suher et al. (2016), wherein participants believed that healthy food is not as filling as unhealthy food, although it was considered more nourishing than unhealthy food.

### 3.14. Convenience

Convenience was more important to the MI and HI participants due to the time saving nature of it. This is supported by a study by Van Zyl et al. (2010) conducted in SA and Ares et al. (2017) in Uruguay who found that urban high and middle income people consume ready meals and fast food because their time for cooking is limited. Participants mentioned buying food online, having a preference for quick meals and ready-to-cook ingredients, and eating fast food regularly.

*“I don’t want to spend more than 30 minutes preparing food. Something that is going to take me more than 30 minutes ... Probably not gonna make it, probably not gonna buy it”* (woman, HI).

They also trusted convenience food from selected shops. However, some mentioned that they prepared food from scratch when they had

time.

*“... if it takes more than 30 min, I don’t know about it. Unless if it’s like a Sunday where I’m not that much in a hurry to eat and I have time, yeah, then I make something nice, if I don’t go out to eat, yeah”* (man, HI).

Similar to the finding by Sosa et al. (2015), convenience was of relatively low importance to LI participants (it was also the least mentioned by LI than MI and HI groups). This was due to the added cost of convenience and concerns about food safety.

*“I will first consider the amount of money I have. Sometimes you may find that the one (vegetable) that is full (unpeeled) and not been chopped is less price than the one chopped already”* (woman, LI).

They also associated convenience food, especially fresh, ready-to-cook vegetables with being less hygienic, less safe and not processed to their personal preference. One participant said:

*“For example I don’t buy chopped spinach, I prefer to chop it myself because they tend to include the stems as well which make the spinach to be bitter. However, when I chop it myself, I can chop in a manner I prefer”* (man, LI).

However, convenience mattered in terms of preferring the nearest retailer or where their preferred shops are close to each other. Although, some stated that they don’t mind travelling a further distance to where food is cheaper, especially for large grocery purchases. For example:

*“When I go to town, I wake up very early so that I can buy enough for my whole family. I will not just go to Shoprite (a retailer) and leave; I go everywhere to check their prices and if I find that a product is expensive in this shop, then I will go back to the other shop”* (woman, LI).

### 3.15. Natural content

Natural content was amongst the least mentioned food choice drivers in all groups, especially for the LI (Table 3). However, distrust towards the way food e.g., chicken is raised and vegetables are grown, was expressed by at least one person of each income group. Some participants from LI groups said “food sold in the city is not always natural” (woman, LI). However, this was expressed more as an opinion rather than a food choice driver. One participant said:

*“Should you check, (you will realise that) today’s chickens do not grow organically, they get injected so that they can grow faster. But what happens when I eat that injection, tell me, what happens to me?”* (woman, LI).

Some LI and MI participants mentioned trusting food grown in their own gardens rather than store bought food, particularly vegetables and chicken.

MI and HI participants mentioned avoiding food with genetically modified ingredients, food with preservatives or additives and food with “harmful” ingredients such as tartrazine. Food claims (e.g. natural, organic, gluten-free) were said to be important and food with such claims were more trustworthy. Organic foods were also believed to be better for health, e.g.:

*“Yes for me, definitely important. I always look out for the preservatives or whether it is gluten free. I do not ignore them (the claims)”* (woman, MI);

And: *“Uhm, claims are important to me and it sounds strange. I know it sounds like I’m believing in something that’s not real, but it’s important. If I see something that’s free range, I’m going to buy something that’s free range because I’ve seen, for example, documentaries on what free range versus not free range, you know. So for me, claims are important in terms of organic, free range and clean eating. Regarding fat or whatever, I’m not really like fat free or it’s 2% or whatever. I’m not really big on that. For*

*me it's mainly your meats and your veggies. The claims made on those are critically important for me, yeah"* (woman, HI).

Little to no correlation was found between income status and interest towards the natural content of food amongst Finnish consumers (Kontinen et al., 2021). Therefore, the desire to eat "natural" food may be independent of income level, although the actual choice may be determined by price. Due to health and safety concerns, consumers demand foods with little or no additives, while still expecting similar shelf life and sensory properties (Nordhagen et al., 2022; Ukwo et al., 2022).

### 3.16. Food safety and spoilage

The expiry, sell-by and use-by dates of food products were deemed important by participants of all income groups. Participants mostly agreed to aspects related to this category, thus, not a lot was mentioned in all groups. However food safety related comments, specifically for LI, were about the safety of convenient food. Participants mentioned their preference to process (wash, chop, cook etc.) food themselves due to the belief that the processing at store level is not as hygienic. Some statements made were:

*"I prefer to chop my own vegetables. Chopping is hazardous so I fear that maybe the person who chopped the cabbage in the store may have cut themselves and then contaminated the cabbage with their blood. There are many diseases nowadays. I prefer to clean and chop my vegetables (green leafy) in my own way ..."* (woman, LI)

And; *"I prefer to chop myself due to hygiene reasons. I want to be able to wash the vegetable thoroughly myself. You never know, maybe the person in the shop used the toilet and proceeded to chop without washing their hands due to work pressure (many customers waiting etc). Then those germs are transferred to me and I get sick. It is important to clean what you will eat as thoroughly as possible"* (woman, LI).

LI participants also expressed a belief that self-grown food is safer to eat than store-bought food. One participant said:

*"Old people preferred to have gardens to plant their own spinach. They never went to buy spinach, cabbage, and everything from Shoprite (a retailer), they picked them from the yards. That is why we never reach those ages"* (woman, LI).

MI and HI consumers mentioned the need for the shops they buy from to be clean, buying the food that was the most fresh, checking food labels to avoid buying fake brands and avoiding food that previously caused a food outbreak. Some HI participants expressed scepticism towards food with a very long shelf-life, for example, canned food.

### 3.17. Food context

Participants from all income groups mentioned that their food choices were often context dependent, for example, they preferred to eat certain types of food, e.g. soup, when the weather is cold. Context, in the form of weather, as a food choice driver was also reported by Ares et al. (2017) in Uruguay.

MI and HI participants mentioned that their work environment tended to influence their food choices, e.g.:

*"I think also the environment or the workplace actually influences that (my food choices) 'cause I think of myself, maybe 2 years back. When I was working in a more corporate set up, I wouldn't be eating some of the things that I eat now at the mine for lunch. You know how in the like in a corporate set up, everyone is just like posh. Like your lunch needs to look very nice. At the mines we just eat what we have there. If we have pap (stiff maize meal porridge) and chicken, you eat it. Gizzards, you eat, livers, yeah. We just want to eat and go back to production, it's not like we're there sitting in a nice set up having conversations. No, we're just*

*eating and going back to work. So, I think that also influences how you view food"* (woman, MI).

MI and HI consumers reported eating more food on days when they worked from home during the global Covid-19 pandemic. The same behaviour was reported by Ndambo et al. (2022) when studying Malawian women. They attributed this to a higher exposure to food while at home leading to more frequent eating. They also ate more *junk food* when their finances permitted and that they now buy food in bulk due to the Covid-19 pandemic.

### 3.18. Synthesis

This paper gives an indication of the "why" aspects underlying food choice; and this was highlighted as a gap by Blake et al. (2021). The fact that these aspects are compared by income group provides interesting insight on the similarities and differences of how the food choice process unfolds across varying income groups.

The food choice framework for LI and MI countries by Karanja et al. (2022) classifies food choice drivers as either individually based motives or dimensions of the food environment. The Steptoe food choice factors represent mainly individually based motives, while the present study yielded a mixture of individual and environment based categories. We utilise the Karanja et al. (2022) categories to better understand and interpret the results of the FG discussions (Table 4). Our outcome shows the impact of using inductive rather than deductive methods in obtaining insights, as the latter may lead to an underrepresentation of the actual factors considered when it comes to making food choices (Blake et al., 2021; Sobal & Bisogni, 2009). The table highlights similarities, but also the variation of food choice motives in different cultures and contexts. The insights from this study are useful for the development of an updated, quantitative food choice questionnaire for application in this and other emerging economies.

### 3.19. Limitations of the research

Despite efforts to uncover the factors driving food choice in urban SA, these results reflect only the views of the participants and cannot be extrapolated to the population in general. The groups were not comparable in terms of gender distribution and age, but the main criterion, income level, was fulfilled. The convenience sampling recruitment focused on income level and not, for example, physical or physiological characteristics of the participants. Life-stage, body mass, deficiencies or illness may impact what and how much people choose to eat (Boesveldt et al., 2018; Gibson & Shepherd, 2012; Janssen et al., 2017) and therefore food choice motives. However, the views of the FGs, put in words, provided valuable information of opportunities and constraints based on income level.

We admit that the FG data were used in an unconventional way, by counting the number of quotations in each category and income group (Table 3). This enabled rough estimates of the relative interest in and course of discussion themes thereby supporting the FG analyses. Furthermore, the large data base (431 codes listed in ATLAS.ti) could be utilised in this procedure. For practical and logistical reasons, the FGs with HI participants and one group with MI participants were held online while those with LI and MI groups were in person. Although unlikely, the dynamics of online and in-person FGs may have had an influence on the outcomes.

## 4. Conclusions

Although this is only a first step, this research has demonstrated that food choice is more complex and comprehensive than what is represented in the food choice questionnaire by Steptoe et al. (1995). It has highlighted food choice motives that may be specific to the context of an emerging economy. Considering the similarities and differences

**Table 4**

Classification of food choice motives identified in this study vs those of the Steptoe food choice questionnaire according to the food choice framework of (Karanja et al., 2022) which identifies food choice factors as either individual-based or informed by the food environment.

	Food choice framework for low and middle income countries	Steptoe food choice factors	Motives identified in this study
The food environment	Availability Accessibility Affordability Convenience Promotion Food safety	Price Convenience	Availability of food and resources Food preparation Economic factors Convenience Social media Food safety; Food spoilage Context (eating environment, weather)
Individual-based motives	Health and nutrition  Psychological factors  Sociocultural factors Sensory appeal Social interactions Socio-demographic Ethical concerns	Health; Natural content; Weight control Mood; Familiarity  Sensory appeal  Ethical concern	Health; Weight control; Natural content  Household preferences; Personal ideas and systems; Familiarity; Food exploration; Mood; Satiety Plant-based and animal protein; Culture, beliefs and religion Sensory appeal Social  Food waste; Ethical and environmental concern

observed between consumers of varying income, this research adds to our understanding of the role of various aspects underlying food choice in an urban and emerging economy. While further research is required, these insights may reflect food choice motives in other low to middle income countries and serve as a starting point for developing quantitative tools to measure food choice drivers in LI populations or emerging economies.

The extent to which each category gained attention in different income groups highlights the importance of resources in food choice. Generally, people aspire to be healthy, however, the barriers include affordability and accessibility of healthy food for the LI, and sensory appeal of healthy food for the MI and HI consumers. Such information gives insight into the “why” question related to food choice and is useful for developing diet intervention strategies that are relevant for each income group.

#### Ethical statement

Approval for the study was granted by the University of Pretoria’s Faculty of Natural and Agricultural Sciences’ ethics committee (reference number NAS131/2021).

#### Author contributions

Conceptualization: NM, HT, RdK. Methodology: NM, HT, RdK. Data collection: NM, supervised by HT and RdK. Formal analysis: NM. Writing - original draft: NM. Writing - reviewing and editing: NM, HT, RdK. Funding acquisition: RdK. All authors approved the final manuscript.

#### Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

#### Data availability

Data will be made available on request.

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