Affordable, accessible, healthy

Urban consumer knowledge and the use of indigenous food

By Nokuthula Vilakazi

For many residents in peri-urban areas, the price of essential healthy food items in supermarkets is unaffordable. At the same time, the more affordable informal markets tend to offer highly processed foods with low nutritional value. Indigenous foods are recognised for their potential to improve food and nutrition security, reduce malnutrition and enhance health and well-being, yet their use in urban areas is limited. In this article NOKUTHULA VILAKAZI explores the gap in urban consumers' knowledge about the availability, production, preparation and use of indigenous foods in the City of Durban, eThekwini Municipality, with a specific focus on cowpeas.

Introduction

Studies investigating food availability in urban areas have revealed that the urban food environments may not always offer affordable and nutritious food, particularly for low-income urban residents (Mudau & Mahlatsi, 2022). With an estimated 50% of the global population living in urban areas, and expected to rise to 70% (6.3 billion people) by 2050 (The World Bank Group, 2020), a complete overhaul of the global food system is needed to achieve optimal food security and reverse agro-food system damage (UNEP, FAO, & UNDP. 2023).

With more than half of the population in developing countries living in urban areas (United Nations Department of Economic and Social Affairs, Population Division, 2022), the impact of urbanisation on the food available to urban consumers is a cause for concern (Cockx *et al*., 2019). Rapid urbanisation has been accompanied by the expansion of supermarkets that drive the high acquisition of packaged, sugar-sweetened beverages and ultra-processed foods (Cockx *et al*, 2019). These supermarkets also offer healthier food options, which can cost up to 110% more in food energy compared to unhealthier options (Temple *et al*., 2011). The cost of basic healthy food items sold in supermarkets is unaffordable for low-income consumers (Vermeulen, Meyer & Schönfeldt, 2023).

High intake of ultra-processed and nutrient-deficient foods contributes significantly to the alarmingly high rates of non-communicable disease globally (Astrup & Bügel, 2019). Informal markets in urban areas typically provide affordable highly processed food to low-income urban residents (Battersby & McLachlan, 2013). Diversifying the urban food system by incorporating locally sourced, indigenous and seasonal foods can help tackle the challenge of providing affordable and healthier options (FAO, 2018).

Indigenous foods are primarily cultivated or sourced naturally in the geographic location of their origin (Mabhaudhi *et al*., 2017). The focus on indigenous foods also includes traditional foods as they have adapted to local conditions ending up confined to ecological niche areas (Kuhnlein & Receveur, 1996). Indigenous foods such as Amaranth leaves rank high in essential micronutrients such as vitamin A, vitamin B6, vitamin C, riboflavin and folate (Venskutonis & Kraujalis, 2013). As such, they are ideal for addressing food and nutrition security in their geographic locations of origin, particularly in rural areas (Mabhaudhi *et al*., 2017). The use of indigenous food in urban areas is under-reported (Slade, Baldwin & Budge, 2016).

South Africa's urban food environment is unique as it reflects the country's historic past, which saw the strategic placement of Africans on the outskirts of highly developed urban areas (Nenguda & Scholes, 2022). The urban food environment was primarily designed to cater for the elite with a desire for refined diets. While these changes have managed to meet the food demands, they have also brought undesirable changes in the food's nutritional quality.

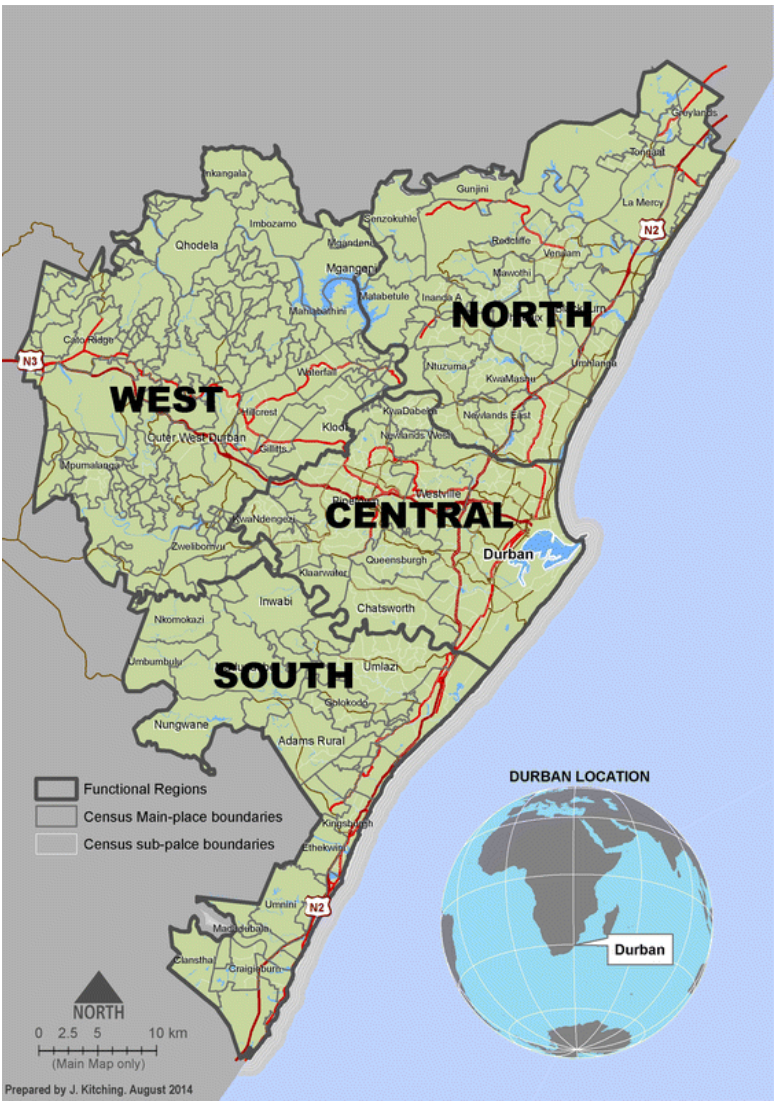
Several indigenous foods were recognised with green leafy vegetables being the most popular. The participants identified mixed dishes such as *Isijingi* (cooked pumpkin mixed with maize meal), *isigwamba* (a mixture of green leafy vegetables and maize meal), *isithwalaphishi* (boiled beans mixed with maize meal) and *isigwaqane* (a dish made of cowpeas and maize meal). Younger participants showed limited knowledge of cowpeas and indicated that they would use cowpeas as a last option. Older participants maintained consumption to satisfy the craving for the indigenous foods that reminded them of their rural upbringing and culture and reported that availability and consumption of cowpeas has declined over the years.

Research methodology

Sample selection

The study was conducted in the city of Durban, eThekwini Municipality, South Africa. The target locations were north, west, south and central Durban (Figure 1) (eThekwini Municipality, 2022). The target was males and females older than 18 years, who are responsible for choosing and preparing food for themselves and/or other people based on their living circumstances.

Figure 1: The eThekwini Municipality functional regions



Source: eThekwini Municipality, 2022

The study employed a qualitative research approach using Focus Group Discussions (FGDs) to explore urban consumer experiences, knowledge and use of indigenous food.

The qualitative research approach was used to gain insight from urban consumers and inform the design of a survey questionnaire (Morgan, 1997). The empirical data generated by focus groups (FGs) can yield a wealth of information and vocabulary on a topic for developing a quantitative questionnaire (McNeill, Sanders & Civille, 2000).

Convenient sampling was used to select the participants. Research assistants approached individuals at the market, near supermarkets and taxi stations at strategic locations around Durban central to invite them to participate in the study. Individuals who accepted the invitation were asked screening questions to ascertain their eligibility for participating in the study. The ultimate objective for participant selection was to create an adequately diverse sample in terms of sex, age and place of residence (Table 1). Sampling was aimed at achieving socio-demographic and ideological diversity among respondents, to gain representation of multiple perspectives and experiences. Based on the eligible participant's preferred language, participants were handed information sheets in *isi*Zulu or English. Additionally, on the day of the FGD, the researcher read the information sheet and signed consent was obtained from participants before the start of each FGD. Each FG was organised according to gender and age groups.

A review of studies by Hennink & Kaiser (2022) concluded that the sample sizes for saturation when using FGs is between four to eight FGDs. Guest, Namey & McKenna (2017) suggested that two to three FGs can lead to 80% discovery of themes and 90% discovery is achieved in three to six FGs. Data saturation for this study was reached in the third FG. A total of five FGDs were conducted for the study.

Table 1: Demographic characteristics of the focus group participants

Characteristic	*N (26)*	*%*
Age		
Under 35 years	*12*	*46.1*
Over 35 Year	*14*	*53.4*
Gender		
Male	*15*	*57.7*
Female	*11*	*42.3*

The domains included knowledge, availability, accessibility, local names of indigenous dishes, knowledge of cowpeas, availability and accessibility of cowpeas, and local names of cowpea dishes. The questions were open-ended to minimise the use of leading questions and prevent participants from giving only yes or no answers.

Data collection

FGDs make it possible to collect information within a limited time frame and sample size (Morgan, 1996). A semi-structured interview guide with open-ended questions was used to maximise the pool of information gathered (Schlebusch, 2002). The structure provides flexibility with questioning according to topics raised and the level of participation

(Neumark-Sztainer *et al*., 1999). The semi-structured discussion guide was used to ensure consistency in questions asked across the groups and also flexibility with topics raised.

FG questions

FGD questions included in the discussion guide (Table 2) were developed by the research team through the process of identifying research objectives, selecting themes with specific questions, developing the guide and pilot testing. The study's overall objective was to determine urban consumers' knowledge and use of indigenous foods in the city of Durban, eThekwini Municipality. A literature review was conducted to establish a broad category of themes, from which specific questions that align with the study objectives were established. This led to the development of open-ended questions for each domain to encourage detailed responses and allow participants to freely share their experiences, opinions and perspectives. Probing questions were included to engage participants in greater depth and to ensure the flow of the conversation. The questions were organised in a logical sequence, progressing from broad topics to more specific concepts. The discussion guide was reviewed for content and readability by indigenous food experts, and modifications were made based on their suggestions. The discussion guide was pilot-tested with a small group of service staff (cleaners) and students in the Department of Consumer Science Food and Nutrition at the Durban University of Technology (DUT) that was similar to the study sample to identify any issues with the questions or flow. Feedback from the pilot test was used to revise the guide and further refine it accordingly.

A moderator led the conversation using a FGD guide with open-ended, semi-structured questions (Table 2). For quality assurance, an experienced moderator conducted the discussions in both *isi*Zulu and English, based on the initial screening of the participants during recruitment. Most of the participants responded in *isi*Zulu hence most of the group discussions were conducted in *isi*Zulu. The moderator was a well-trained professional with extensive training and experience in conducting FGDs in *isi*Zulu and English. The moderator worked from a predetermined set of discussion topics developed through an extensive literature review and consultation with indigenous food experts (researchers, farmers and government officials).

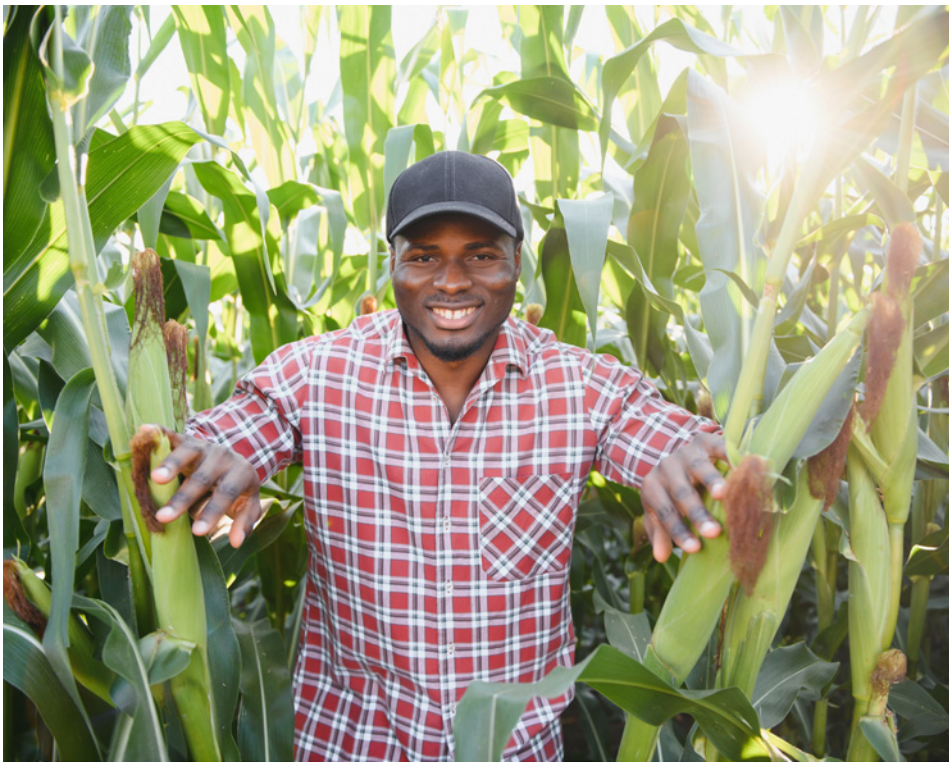
Table 2: Focus group discussion guide

1. *Describe the availability and use of indigenous and traditional foods in your area.*
2. *Are these the most commonly available indigenous and traditional foods in the area?*

(Show cowpea pictures – pass them around)

Now, let us talk about cowpeas. Please share your thoughts and experiences with cowpeas.

3. *Are cowpeas a common food in your area?*
4. *How do your past experiences with cowpeas influence the way you accept and consume cowpeas?*
5. *Are there cultural beliefs and symbolic values that you know about related to cowpeas?*
6. *Do you have any experience preparing dishes using cowpeas?*
7. *List recipes/dishes made using cowpeas that you are familiar with and know how to prepare.*



FDGs were conducted in the Department of Consumer Science's boardroom at DUT. During the discussions, an assistant took notes to ensure that all points in the guide were covered adequately as outlined in the Practical Guide to Focus-Group Research (Rosanna, 2006). Each FGD lasted a maximum of one (1) hour. The number of participants per FGD ranged between four and eight participants per session.

Data analysis

Audio recordings in *isi*Zulu were transcribed verbatim and translated into English. To ensure quality control, before translating to English the moderator and the assistant independently reviewed the transcripts against the audio recording and notes for potential discrepancies or incomplete data. The English transcripts were also cross-referenced with notes taken during the interviews.

Data was analysed thematically, codes were created, and inductive coding was used to gather themes inherent in the data. The data was evaluated using an inductive theme approach, as outlined by Braun & Clarke (2006). The inductive analysis allows themes to emerge from the data. Pre-defined domains from the discussion guide were used for the initial coding by two independent researchers and then jointly by the two researchers until a consensus was reached on the most appropriate codes. Transcripts were carefully examined, with representative similar quotes assigned the same codes.

Ethical clearance

Permission was provided by the Institutional Research Ethics Committee (IREC) at DUT (Ethical Clearance number IREC 024/23).

Results & discussion

Knowledge of indigenous foods

All participants were able to name indigenous foods that are used in their communities. Green leafy vegetables (*imfino*) were recognised as a popular indigenous food item by most participants in all five FGs.

> *Respondent 5: "In my area, indigenous food is easily available, especially umfino (green leafy vegetables)."*

> *Respondent 1: "In my area, we have maize, umfino (green leafy vegetables) and izinkobe (mixture of beans and maize)."*

> *Respondent 2: "We have imbuia (Amaranth) which is a type of green leafy vegetable that grows on its own, and is very nutritious."*

Indigenous food species are found in many geographic regions and are used for food and medicinal purposes (Demi, 2014). In the rainy seasons, edible indigenous and naturalised plant species are collected from the wild, fields where they grow naturally or backyard gardens where they are grown for subsistence (Nyembe, 2015). When in abundance, they are sold by street vendors to urban residents (Qwabe & Pittawaty, 2023).

Availability and accessibility of indigenous foods

The participants reported that they maintained personal connections to rural communities which made it easier to access indigenous foods that are not available in the urban area. The participants reported that most indigenous vegetables are collected from the maize fields in summer. They also mentioned that various beans, such as cowpeas, were cultivated alongside the maize crop. Edible indigenous species such as Amaranth have been reported to grow naturally in the wild, in fallow land with minimal inputs (Hart, 2010). Amaranth has also been domesticated and is grown in backyard gardens and small plots (DAFF, 2014).

The participants indicated that some local supermarkets, markets and vendors sold traditional or indigenous foods, but this was not always guaranteed. A study among Gauteng consumers found that lack of consistency in availability was one of the reasons for the low consumption of indigenous foods (Kesa *et al*., 2023).

> *Respondent 4: "Here in the city it is sold by vendors at the market."*

Seasonality was identified as a potential reason indigenous products were not always available. Poor agriculture practices and seasonality were recognised as factors affecting availability by some participants.

> *Respondent 1: "Most crops are seasonal, for example … beans and green leafy vegetables."*

> *Respondent 2: "Most vegetables are available in summer … beans, pumpkins and corn. Green leafy vegetables in my area are available throughout the year."*

Although seasonality is an important factor that affects fruit and vegetable consumption in general, people living in urban areas have an even lower intake than rural consumers (Stadlmayr *et al*., 2023). The findings from the review justify the FG findings.

Local names of indigenous dishes

Several dishes were identified as commonly prepared traditionally. Most of these are mixed with maize, which is the most commonly consumed cereal not indigenous to South Africa. Even though it is not indigenous, maize is an important cereal (Scheltema *et al*., 2015). Per capita maize consumption in South Africa is among the highest in Southern Africa, together with Lesotho, Malawi and Zambia, each exceeding averages of 100 kg/capita/year (FAO, 2021).

> *Respondent 2: "Isijingi (cooked pumpkin mixed with maize meal) and isigwamba (a mixture of green leafy vegetables and maize meal) are the most common indigenous foods in my area since it is easier to get the ingredients needed to prepare them."*
>
> *"We also have isikhuluphathi (boiled beans mixed with finely crushed mealies)"*
>
> *Respondent 8: "Phuthu (crumbly maize porridge) and (eaten with) green leafy vegetables."*
>
> *Respondent 5: "We have isigwaqane (boiled beans mixed with finely crushed mealies)"*
>
> *"We also have cornbread (fresh finely crushed mealies made into a steamed bread). When making this bread no rising agents are used, you simply crush the mealies and use their leaves to wrap the crushed mealies and bring to boil until well done."*
>
> *Respondent 1: "We have thwalaphishi (boiled beans mixed with maize meal), ubhomubhomu (white kidney beans) which is prepared differently from other beans."*

Some dishes with similar ingredients listed by the participants were given different names. For example "*isikhuluphathi*", "*isigwaqane*", and "*isithwalaphishi*" are composites of boiled beans and crushed maize or maize meal. Mkhize *et al*. (2023) also identified *"ingqumukazana"* (legumes mixed with fresh maize) as a traditional dish from KwaZulu Natal. Bambara and cowpeas *"imbumba"* were mentioned by a few participants

Easy access to modern ingredients driven by urbanisation has reduced the use of indigenous ingredients (Modi, 2009). Modern influences are seen through the modification of traditional preparation methods. Mixing traditional ingredients with modern ingredients has played a role in transforming traditional dishes across different communities (Mkhize *et al*., 2023). The use of modern ingredients was raised in all five discussions. Some of the participants recognised the modernisation of traditional dishes.

> *Respondent 3: "isiGwamba (green leafy vegetables cooked with finely crushed mealies) even though how we prepare it now is slightly different from how we used to prepare it back then."*

Plant breeding programmes specialising in researching and breeding indigenous vegetable food crops have succeeded in developing strains with different traits to the parent to address food and nutrition security (Mabuza, Mavengahama & Mokolobate, 2022). More research, however, is required to prove the speculations made by the participants regarding access to seeds and the use of fertiliser.

Knowledge of cowpeas

Despite the contribution to food security, consumption of cowpea (*Vigna unguiculata*) has declined over the years (Gerrano, Lubinga & Bairu, 2022). Knowledge transfer to the younger generation on the value of indigenous practices could help maintain their use (Dweba & Mearns, 2011). About half of the under 35-year-old participants did not know about cowpeas.

> *Respondent 3: "I don't know it…."*
>
> *Respondent 1: "It is my first time seeing it."*

Cowpeas face challenges related to soil quality and drought that limit their growth and availability (Bolarinwa *et al*., 2021). Factors implicated in the limited production of cowpeas in South Africa include climatic conditions, low productivity of genotypes, water stress, lack of improved cultivars, pests and diseases and poor storage (Bolarinwa *et al*., 2022). Some participants identified similar factors causing a decline in cowpea production in their areas.

> *Respondent 2: "We experience a lot of droughts in my area … it grows better in the summer seasons as we experience rains."*
>
> *Respondent 1: "It is not easily available as the soil conditions in my area is not favourable for its growth."*
>
> *Respondent 4: "Compared to few years ago, it is very little, we only have around 5 litres now."*

Availability and accessibility of cowpea

Cowpeas are found mainly at the Durban Fresh Produce Market (DFPM) and surrounding rural communities (Mkhize *et al*., 2023). Farmers specialising in indigenous crops such as cowpeas have a dedicated market space accessed by marketers and street traders.

> *Respondent 3: "There's the brown one … which is found mostly in the markets."*
>
> *Respondent 4: "The black-eyed are easily available … it can go for R13 ($0.69) per kilo."*
>
> *Respondent 1: "It is sold in buckets by some ladies in the market."*

Smallholder farmers are critical for the production of underutilised species. Indigenous species are produced mostly for subsistence purposes with the excess sold in informal markets (Masuku & Bhengu, 2021).

Most participants indicated that they did not use cowpeas as frequently as they had done growing up. On average, cowpeas were consumed at least once a week by the participants.

> *Respondent 2: "I love it … but I prepare it on days where I am not busy as it takes longer to cook through."*

Respondent 3: "I have it at least once a week … it is the type of traditional food that one misses regularly."

Respondent 1: "I eat it once a week, on other days I eat cabbage."

Respondent 2: "If cowpeas are not available, I replace it with red speckled beans … or we eat homegrown chicken."

Cowpeas were desired due to nostalgia for memories of their rural upbringing.

Respondent 1: "I am very fond of it … my mother cooks it really well back home."

Respondent 3: "I have very good memories of it … I only consume it only when I am home … I am afraid that if I cook it myself, I may not do so well."

Respondent 6: "Growing up, we went to events just to get it and other traditional foods … it reminds [me] of the old times."

Other reasons for consuming cowpeas were the awareness of their nutritional value, filling properties and versatility.

Respondent 4: "I consume it because it is filling … a small portion but increases … when cooked."

Respondent 2: "I consume it as a substitute … it is as nutritious as meat."

Respondent 1: "I love cowpeas, I love beans so I usually eat them … it has the same nutrition as meat."

Respondent 3: "I consume it because it is easily available and also very affordable."

Local names of cowpea dishes

Underutilised food species have a role in the traditional practices of many Africans (Lewu & Mavengahama, 2011). They remain part of the culture of African societies. Although participants identified several indigenous names, the common name for cowpea known to most participants was *"imbumba"*.

Respondent 3: "I know of Umzumbe (brown beans); uphizi (black eyed peas) … izindlubu (Bambara beans)."

Respondent 1: "I only know three varieties which are Umzumbe (red beans), imbumba (cowpeas) and Bhomubomu (kidney beans)."

Respondent 4: "Umzumbe (brown beans), ubhomubhomu (big white kidney beans), izindlubu (Bambara beans), udali (dhal), nophizi (black eyed peas). "

Participants also used colours to identify and differentiate varieties.

Respondent 3: "we name them based on their colours … we have red beans, white beans, black beans, etc."

The participants identified different preparation methods for common cowpea dishes.

> *Respondent 4: "making isigwaqane, you wash the cowpeas and boil them until well done … add maize meal and mix until well mixed."*

> *Respondent 4: "Growing up at home they used to boil potatoes and cowpeas separately. Once cooked they would mix it together and we would have it as a meal."*

> *Respondent 1: "I wash it, boil and add salt and then it is ready to be served."*

Some participant's descriptions included a modern twist to the preparation.

> *Respondent 4: "If I am preparing isigwaqane, once my beans are well cooked, I add a bit of margarine to make it smoother."*

> *Respondent 2: "I consume it … prepared as curry or isigwaqane"*

> *Respondent 5: "…when making curry, you boil [cowpeas] and on the side sauté your onion and add spices before adding your boiled cowpeas."*

> *Respondent 3:"When cooking isithwalaphishi/isigwaqane, I pick my beans, wash and boil …. Once well-cooked I add enough maize meal and stir until the maize meal is also cooked".*

Motives behind the rejection of cowpeas

Past experiences with a food can influence one's subsequent eating behaviour (Piqueras-Fiszman & Jaeger, 2016). Poor associations with foods such as cowpeas have been investigated by other researchers (Kesa *et al*., 2023). Past experiences were also given as reasons for rejecting cowpeas by some participants.

> *Respondent 6: "We consumed too much of it while growing up as we were financially not stable at home, so now I don't enjoy consuming it as it brings back those bad memories."*

> *Respondent 6: "When my great-grandmother ate it, she would get heartburn."*

> *Respondent 4: "I have heard that traditional healers are not supposed to consume cowpeas as it hinders with their gift of seeing things, so they end up lying to people."*

Legumes are known to cause flatulence and bloating which has been identified as a barrier to consuming legumes such as cowpeas (Akissoé *et al*., 2022). Legumes contain non-digestible oligosaccharides with potential side effects including gas, bloating and stomach cramps. Consumers often avoid including legumes in their diet because they do not know how to reduce the negative effects.

Discussion

The participants had an acceptable knowledge of the most common indigenous species in KwaZulu-Natal. Green leafy vegetables were reportedly known by most of the participants. Cowpeas were not as popular and appeared to be typically popular among older participants. According to the participants, lack of availability resulting from limited access to urban areas was the cause for low consumption. Furthermore,

... basic healthy food items sold in supermarkets unaffordable for low-income consumers.

seasonality makes it difficult to meet the demand for regular consumers of the indigenous species in rural and urban areas (Weinberger & Msuya, 2004).

Even though indigenous foods are seen as an affordable option compared to cash crops, the high cost of electricity in South Africa increases the processing cost. Factors such as the long cooking time limit the consumption of some indigenous foods in urban areas because of the high energy cost (electricity) involved in preparing the dishes. The long cooking time associated with preparing cowpeas has proven to be a major barrier (Chopera *et a*l, 2022). Time scarcity cited by urban consumers drives them to food that requires little or no preparation time (Jabs & Devine, 2006). In addition to the high cost of electricity, South Africa can also face serious problems with the irregular supply of electricity, which is among the leading contributors to the rising levels of food insecurity in the country (Comins, 2023).

Having a rural contact helped urban consumers maintain a supply of indigenous foods (Matenge *et al*., 2011). Some participants expressed concern about not being able to consume indigenous foods but most of the younger participants were not interested in indigenous food species. The lack of interest in foods regarded as traditional or rural among younger generation urban consumers has been reported by other researchers (Cloete & Idsardi, 2013). Reflections from a young Asian American echoed the low acceptance of traditional foods in industrialised communities (Magpayo, 2023). The smell and taste of indigenous foods have been cited as unacceptable by young people. Younger consumers choose foods regarded as acceptable by the society they identify with, which are highly processed foods. The taste of indigenous species is seen as inferior compared to processed foods (Weinberger & Msuya, 2004).

For young people, food choices are driven by the desire for convenience (Kuhns & Saksena, 2017). Lack of knowledge transfer of indigenous species from the older generation to young people compromises the sustainability of indigenous species. A study among younger consumers in the North West province of South Africa found limited knowledge of indigenous food (Matenge *et al*., 2011).

Conclusions

Several factors need to be considered to fully understand the use of indigenous food in urban areas. Seasonality, coupled with the impact of climate change, has been found to negatively affect the sustainability of indigenous food species and subsequent use by consumers. Having a rural background was found to positively influence the use of indigenous foods in urban areas. Barriers were found to be lack of time to prepare indigenous foods that need long cooking such as cowpeas, and the inferior smell and taste due to unfamiliarity. More research and strategies are required to overcome the identified perceived barriers. The strategies need to also consider additional factors such as the high cost of electricity, which is putting more pressure on the country's food security. Deliberate efforts targeted at educating urban consumers about the importance

of indigenous foods through supportive policies, strategies and programmes, such as the production and distribution of indigenous recipe books, and giving support to food service establishments that promote indigenous foods must be considered. NA94

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