



From Indigenous Crops to Healthy Choices: Creating Food Environments for Better Nutrition

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Overview of presentation

- Introduction and Background
- **Nutrition Transition** in South Africa linked to obesity and NCDs
- Study: Perceptions, consumption patterns and **accessibility of underutilised foods** (indigenous food crops)
- Conclusion and the way forward



Introduction

The **global population is projected to reach 9.7 billion by 2050, with 6 billion people expected to be urban dwellers. Convenient foods are becoming a preferred choice.** The transition of the global food system is leading to change from a family farm, local producers to an “**industrialized commodity production (mass production/globalised trade)**”^(FAO,2022). This, in turn, produces an obesogenic environment through overconsumption, thereby increasing the risk of non-communicable diseases (NCDs)^(Swinburn et al., 2019).



The nutrition transition in SA linked obesity and NCDs

South Africa is urbanising rapidly and is growing larger and younger. The United Nations estimates that **71.3% of South Africa's population will live in urban areas** by 2030.

South Africa has experienced a **nutrition transition**, characterised by a **shift from traditional and indigenous diets towards more Westernised diets**, including greater consumption of processed, energy-dense foods. **This changing food environment and dietary pattern is associated with increased risk of diet-related non-communicable diseases.** NCDs, including cardiovascular diseases, stroke, cancers, diabetes, and chronic respiratory diseases, are a major health and development burden in South Africa (Kesa et al., 2024; WHO, 2025).



Introduction of South African Indigenous Foods

Indigenous foods (IFs) represent foods that have their **origin in a region, are culturally acceptable and adapted to the local climatic conditions and which have been consumed traditionally by the inhabitants** as opposed to exotic foods which have been introduced from other regions of the world. **They are rich and inexpensive sources of proteins, carbohydrates, dietary fibre, minerals and vitamins** to millions of people in developed and developing countries, and are some of the basic foods of the indigenous populations of Africa (Mbhenyane, 2017).

The shift from South African indigenous foods to Eurocentric foods has **historical, cultural, and socio-economic implications**. Understanding this shift is important for recognizing the value of indigenous foods and promoting inclusivity in South African food systems.



Introduction

The introduction of **Eurocentric foods in South Africa is linked to colonialism**, where European powers brought their culinary traditions, crops, and cooking techniques. **This often-displaced indigenous food systems, leading to the devaluation of our native food cultures.** Over time, traditional knowledge surrounding indigenous foods has been eroded. However, embracing these indigenous foods can enhance culinary diversity and creativity, offering unique flavours and textures to enrich the food landscape

(Maseko, Mabapa, & Modise, 2022).



Research Study:

Perceptions, consumption patterns and accessibility of indigenous foods in the Gauteng Province

Background

South Africa has a **high rate of malnutrition**, and **NCDs are among the leading causes of death in South Africa** (Van Dorrington & Bradshaw, 2017). By obtaining information from urban and rural residents in Gauteng, indigenous foods acquisition and consumption patterns could be identified. With South Africa being faced with widespread malnutrition and food insecurity, an **increased focus on the consumption of indigenous foods could aid in combatting the problem of malnutrition and NCDs** (Kasimba, et al., 2018).



Objectives

- The **consumption of indigenous foods** in the population of Gauteng.
- The **availability and accessibility of indigenous foods** in Gauteng.



Methodology

Survey instrument was developed and pilot tested.

- Gauteng province
- Quantitative descriptive cross-sectional study
- The participants were **randomly approached** in public areas from the selected areas using a systematic approach.
- **n=780** completed surveys



Results

Demographic data (n=780)

Females made up the majority of the sample, at **60.1%**, while **males accounted for 39.9%**.

In terms of **race**, Black participants were the largest group at 30.1%, followed by White at 24.4%, Colored at 22.6%, and Indian at 20.6%. Asian participants accounted for 2.1% of the sample.

By **age**, the largest proportion of participants was between **18 and 25 years old**, representing **28.6%** of the sample, followed by those aged **26 to 35 years** at **24.5%**. The remaining participants were distributed across the older age groups, with 18.5% aged 36 to 45, 16.7% aged 46 to 55, 8.1% aged 56 to 65, and 3.7% aged 66 and above.

Overall, the sample was predominantly female and relatively young, with almost half of the participants being under 36 years of age



Results

Demographic data (n=780)

Variable		Frequency	Percentage
Education level	Grade 0-7	12	1.5
	Grade 8-12	284	36.4
	Tertiary Education	484	62.1
People living in the household	1-2	121	15.5
	3-5	430	55.1
	6 or more	229	29.4
Residence area	Peri-urban	185	23.7
	Rural	41	5.3
	Urban	554	71.0



Results: Consumption of indigenous foods n=780

The top three consumed **grain crops** were grain **sorghum 19.3% (n=144)**, pearl millet 12.3% (n=92) and cowpea 11.4% (n=85).

The top three consumed **vegetable crops** were ***amadumbe* 12.3% (n=92)**, *amaranth* 8.7% (n=65), and *cleome* 8.3% (n=62).

The top three consumed **fruits** were ***marula* 18.9 (n=141)**, Kei apple 7.8% (n= 58) and *mobola* plum 6.7% (n=50).



Responses on how indigenous foods can be more accessible

- **Marketing (Advertising/Branding/Price)**

“There should be public promotions about indigenous foods”

‘Higher availability in mainstream stores as well as for marketing (e.g., featured in cooking shows, in-store recipes, local recipe books or web pages) would help create awareness.

- **Home gardens**

“We should be thought how to grow them”

“Must be grown more in informal or even formal areas”

- **Farms/land**

“If farmers can produce more of it and transport them to Supermarkets in cities (JHB) then the residents could have access to the foods”



Responses on how indigenous foods can be more accessible in Gauteng

- Supermarkets, grocery stores, local shops, street vendors, food markets

“I believe by making indigenous foods more available in such stores would make indigenous foods more readily accessible”.

“Many of us south Africans are not educated on these indigenous foods and if these foods can be sold at Supermarkets or grocery stores or even get Vendors to sell them to us at our doorsteps”

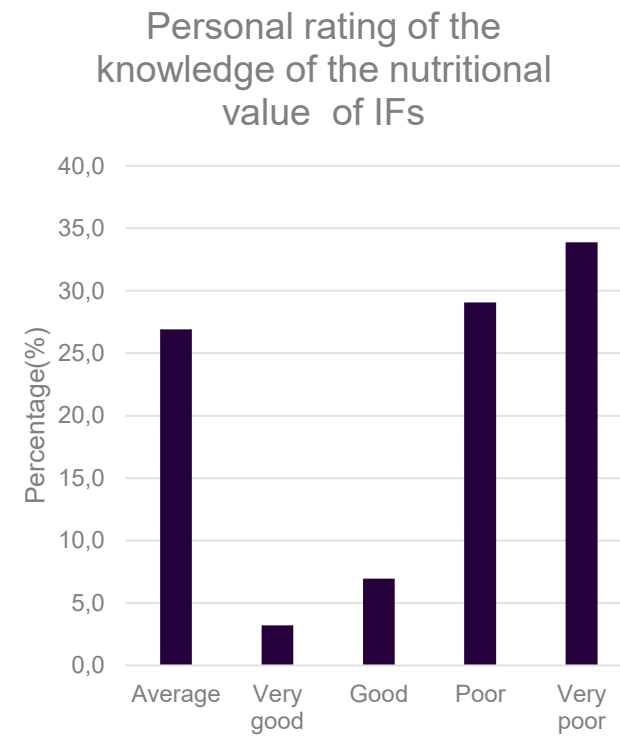
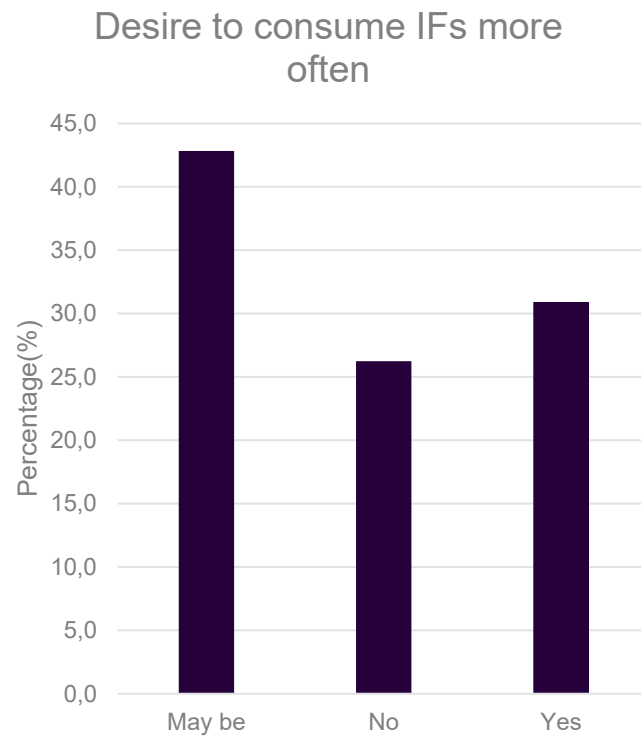
- Education and Awareness

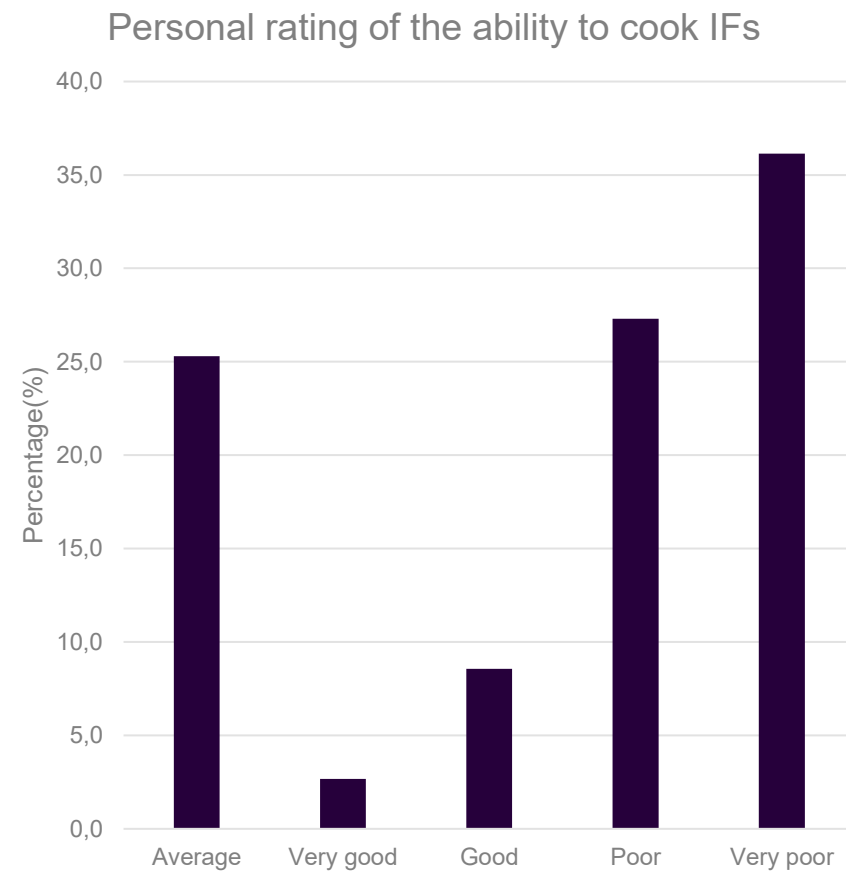
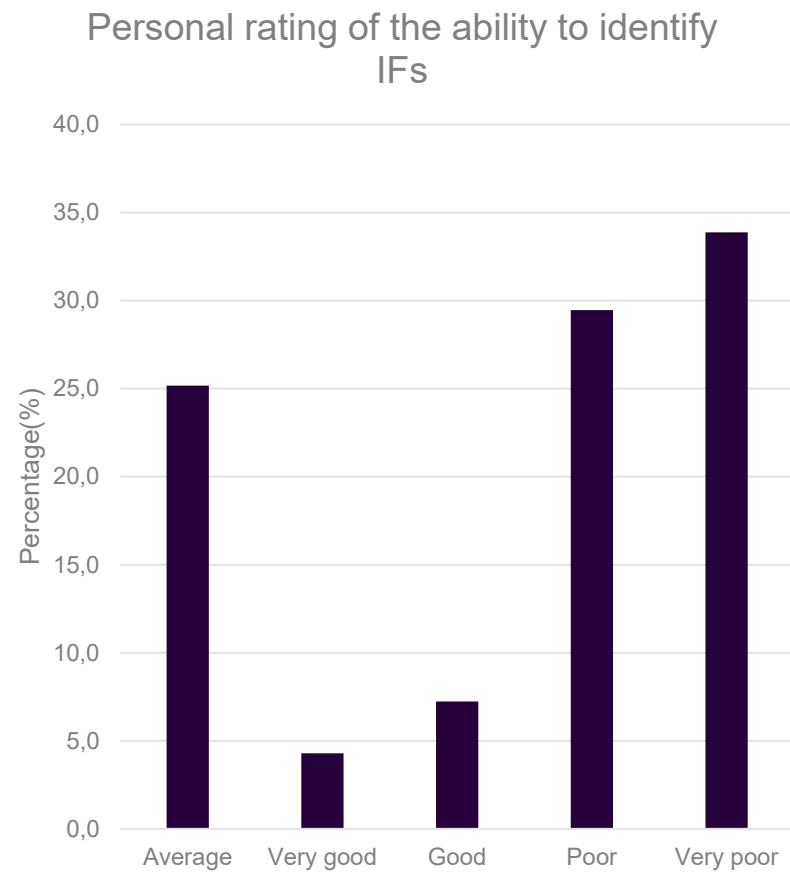
“Educate more people about indigenous foods”

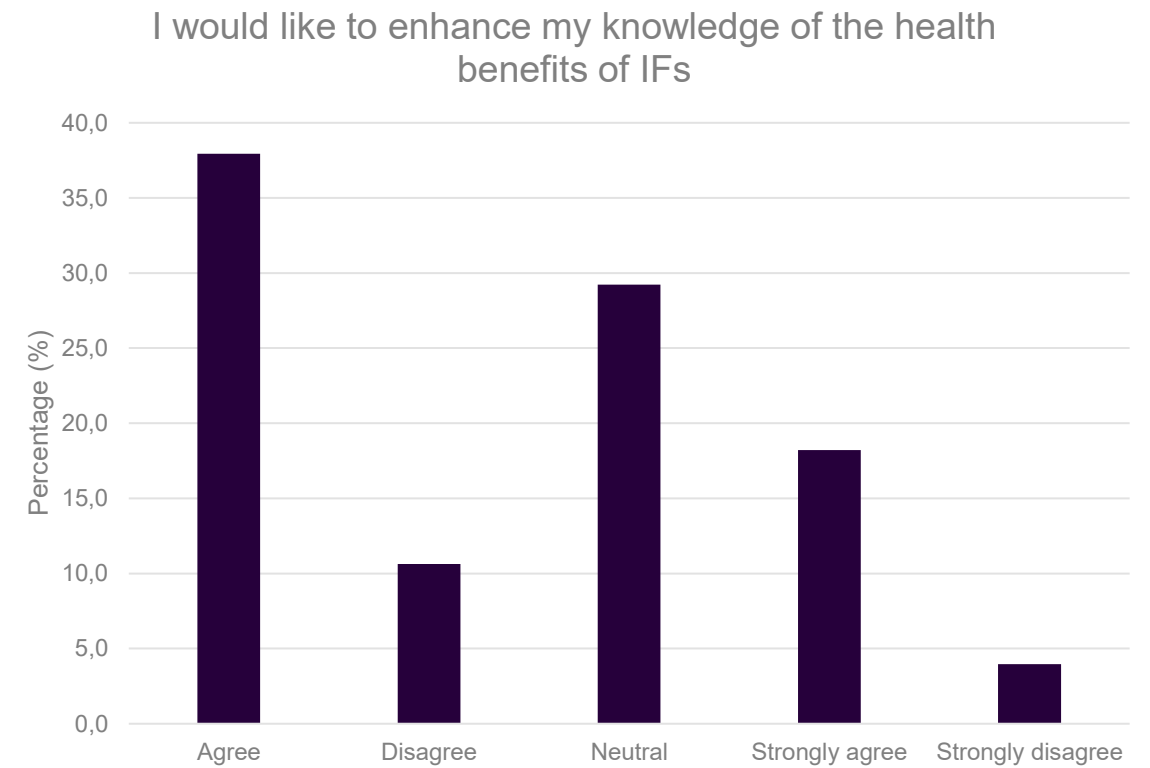
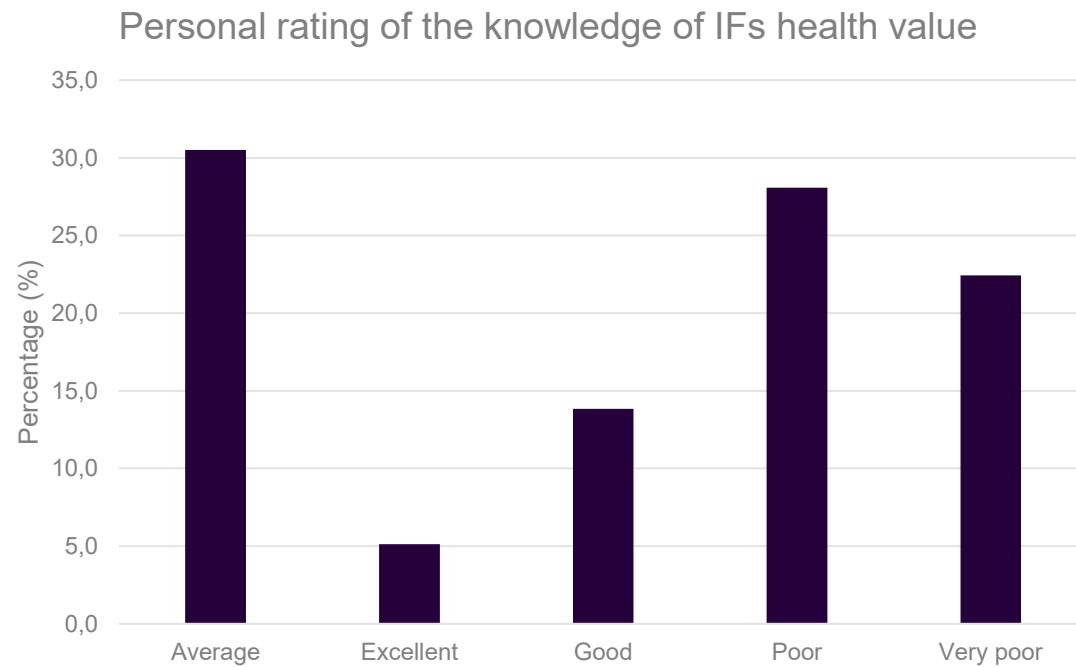
“Educate people and show them how to cook it”

“Educate people more on these foods and their benefits”

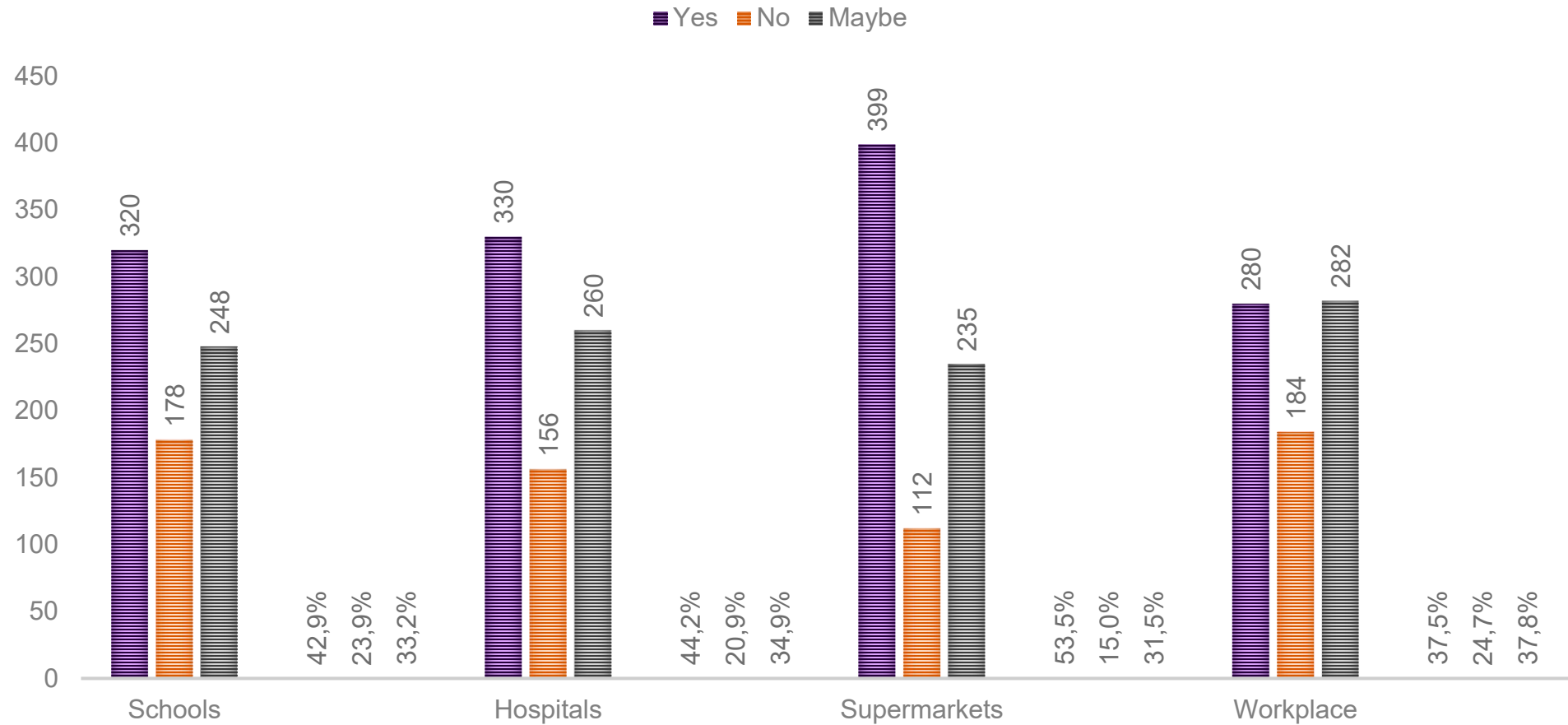








INCREASED AVAILABILITY OF INDIGENOUS FOODS IN THE FOLLOWING AREAS



Section II: Awareness about the Health Benefits of Indigenous Crops



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Awareness and consumption of indigenous foods for health benefits in Gauteng, South Africa

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Introduction

- **Non-communicable diseases (NCDs) accounted for 51% of total deaths in South Africa, particularly from cardiovascular diseases, cancers, diabetes, and chronic respiratory diseases (WHO, 2018 and World Bank Group, 2020).**
- **South African indigenous foods, such as grain crops, vegetables, and fruits, have been acknowledged for their nutritional and health benefits that are effective against NCDs (Takaidza, 2023). But currently, data on public awareness and consumption of these foods remains scarce (Kesa et al., 2023).**
- **This study evaluated the awareness of South Africans, particularly among urban populations, regarding the health benefits of their indigenous foods, as well as the extent to which these foods are incorporated into their diets for health reasons.**



Table 1: Knowledge and consumption for health reasons

	Crop	Knowledge (%)	Consumption (%)	Consumption for Health (%)
Grain crop	Pearl millet	22.3	15.1	2.6
	Grain sorghum	30.4	21.0	3.5
	Cowpea	17.2	10.8	0.9
	Bambara groundnuts	14.4	8.5	1.5
	Mungbean	11.5	7.2	1.0
Vegetable crop	Cleome	11.4	7.7	1.2
	Amaranth	12.1	7.8	1.5
	Blackjack	15.3	8.1	0.5
	Jews mallow	9.1	6.0	1.4
	Cassava	11.9	6.3	1.2
	Amadumbe	19.0	13.5	1.4
Fruits	Marula	30.8	16.4	1.0
	Red milkwood	7.2	3.2	0.6
	Mobola plum	7.6	3.5	0.5
	Wild medlar	6.4	3.2	0.5
	Num_num	8.3	5.4	0.8
	Kei apple	9.0	5.5	1.0
	Monkey orange	9.6	5.9	1.0

Less than 5%



Table 2: Consumption level of IFs associated with personal or household member NCD status

Group			Number of IFs consumed for health purposes		
			0-6	7-12	13-18
Personally affected by an NCD	No	Frequency	664	5	2
		Percentage	99.0%	0.7%	0.3%
	Yes	Frequency	109	0	0
		Percentage	100%	0.0%	0.0%
Somebody in the household affected by an NCD	No	Frequency	588	4	2
		Percentage	99.0%	0.7%	0.3%
	Yes	Frequency	185	1	0
		Percentage	99.5%	0.5%	0.0%

No significant difference !!!



Awareness about IFs health benefits

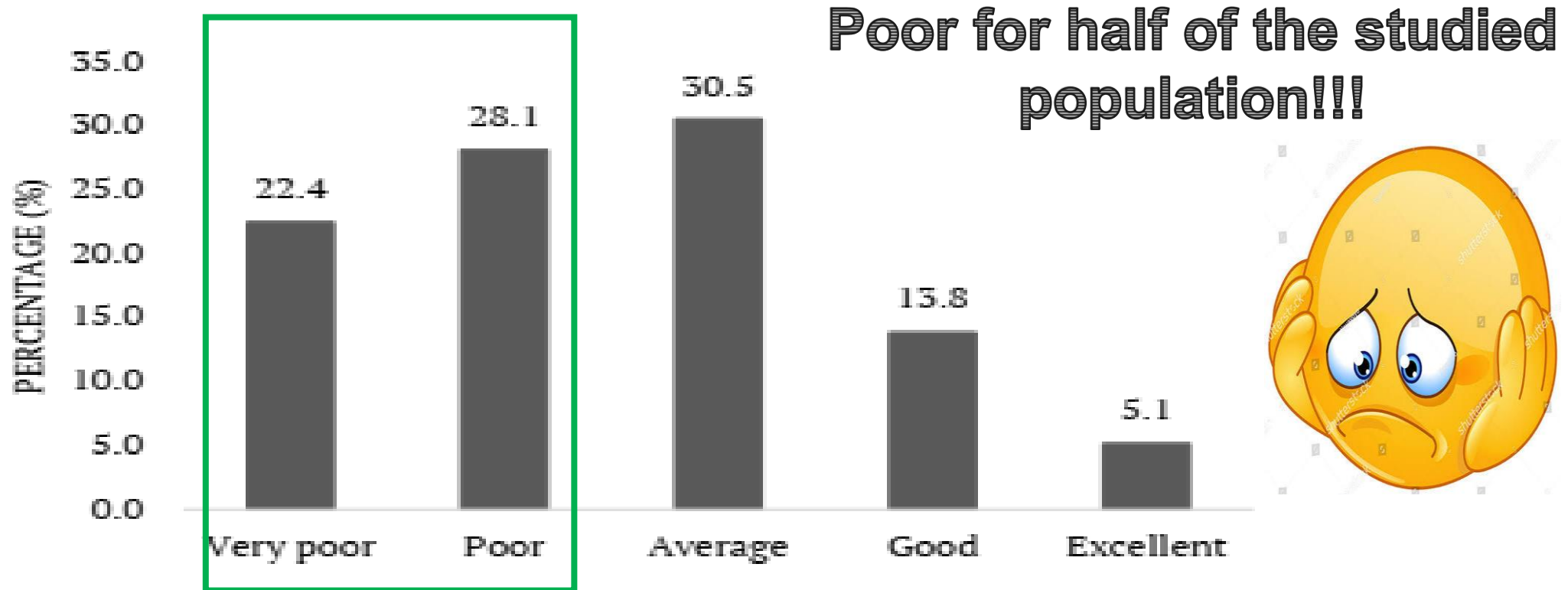


Figure 1. Self-rating of the knowledge of indigenous foods' health value by respondents (N=780)

Interest to IFs health benefits

High interest of more than half of the studied population!!!

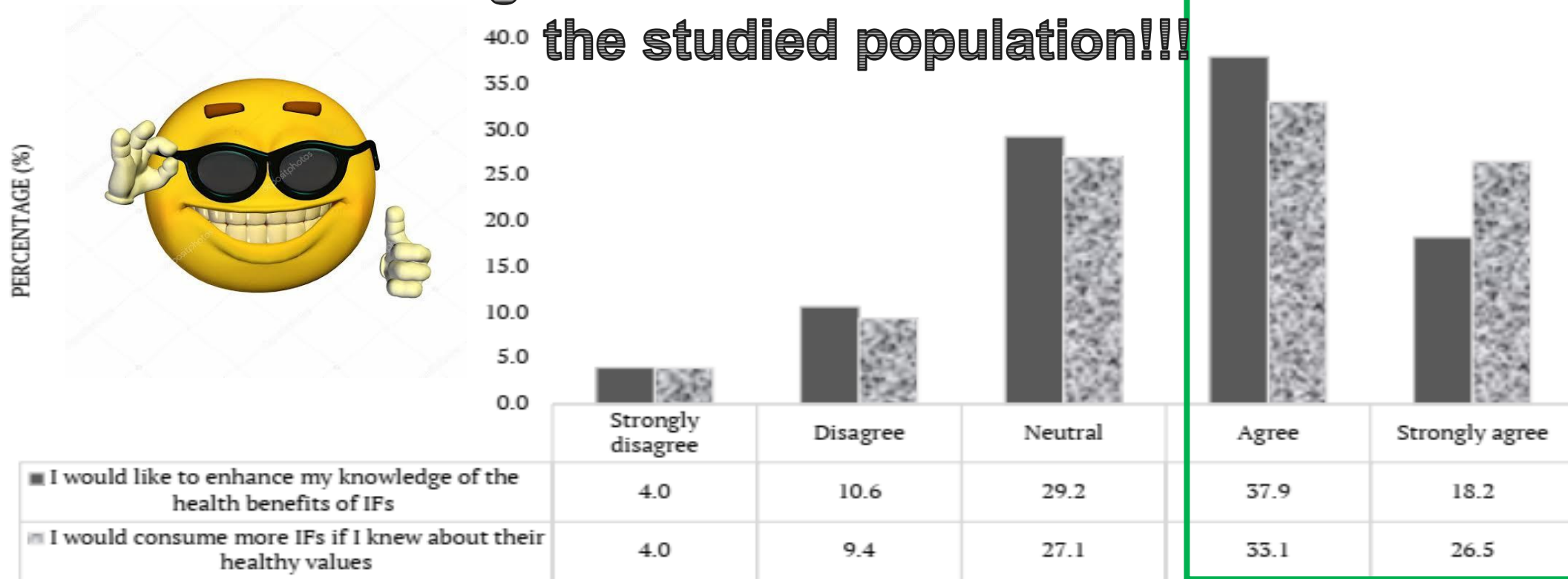


Figure 2. Willingness of participants to enhance their knowledge of indigenous foods health properties and its potential impact on their consumption (N=780)



Reported Health benefits of the most reported known South African IFs against NCDs



Sorghum



Pearl millet



Amadumbe



Amaranth



Marula



Kei apple

Reported Health benefits of the most reported known South African IFs against NCDs

Indigenous food	Major bioactive compounds	Reported health benefits against NCDs
Sorghum (<i>Sorghum bicolor</i>)	Phenolic acids, flavonoids, tannins, anthocyanins, dietary fibre, resistant starch	Improves glycaemic control by reducing postprandial blood glucose, lowers LDL cholesterol, promotes satiety and weight management, and exhibits antioxidant, anti-inflammatory and potential anticancer activities (Awika & Rooney, 2004; Taylor et al., 2006; Dykes & Rooney, 2007; Girard & Awika, 2018).
Pearl millet (<i>Pennisetum glaucum</i>)	Polyphenols, flavonoids, dietary fibre, resistant starch, magnesium, phytosterols	Improves insulin sensitivity, lowers blood glucose and serum cholesterol, reduces hypertension risk, and supports cardiovascular health through its low glycaemic index and antioxidant properties (Saleh et al., 2013; Chhikara et al., 2018; Anitha et al., 2021).
Amadumbe (<i>Colocasia esculenta</i>)	Resistant starch, dietary fibre, mucilage, polyphenols, vitamins C and E, potassium	Improves glycaemic control, lowers cholesterol, promotes digestive health, enhances satiety, and may reduce obesity and cardiovascular disease risk (Alcantara et al., 2013; Kaushal et al., 2015; Temesgen & Retta, 2015).
Amaranth (<i>Amaranthus</i> spp.)	High-quality protein, dietary fibre, squalene, flavonoids, rutin, quercetin, tocopherols	Improves lipid profile, reduces hypertension and diabetes risk, exhibits anti-inflammatory and antioxidant activities, and may assist in obesity management (Mlakar et al., 2009; Rastogi & Shukla, 2013; Venskutonis & Kraujalis, 2013).
Marula (<i>Sclerocarya birrea</i>)	Vitamin C, catechins, gallic acid, flavonoids, tannins, unsaturated fatty acids	Exhibits antidiabetic, antioxidant and anti-inflammatory activities, improves lipid metabolism, and may reduce the risk of cardiovascular diseases and metabolic syndrome (Braca et al., 2003; Ojewole, 2004; Mariod & Abdelwahab, 2012).
Kei apple (<i>Dovyalis caffra</i>)	Vitamin C, carotenoids, phenolic compounds, flavonoids, dietary fibre	Possesses strong antioxidant and anti-inflammatory properties, supports cardiovascular health, and may contribute to diabetes and obesity prevention (van Wyk, 2011; Takaidza et al., 2024).



Conclusion

Integration of these crops into the mainstream food system holds promise for enhancing biodiversity, supporting small-scale farmers, and mitigating reliance on resource-intensive agricultural practices. Moreover, valuing indigenous foods fosters cultural preservation and empowers local communities, contributing to a more sustainable and inclusive food system in South Africa

Giving an added-value to IFs can be a way to promote their reintegration in population eating habits

The rise of NCDs linked to obesity will have long term consequences for future growth in South African and globally. Policies must be accompanied with sustainable infrastructure to ensure tangible benefits for the population in order to achieve the goal of a “**long and healthy life for all South Africans**”. A multi-sectoral approach with civil society, health professionals, academics and government is needed for that.



Thank you !!!

