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Consumers' purchasing behaviour and quality preferences for pork sold in the informal street markets of the Cape Metropole, South Africa

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ABSTRACT

This study evaluated the factors influencing the purchasing behaviour and pork quality preferences of 211 consumers in the Cape Metropole District, South Africa. Two-thirds of the participants bought cooked pork from the informal street markets because of affordability (36%), convenience (34%), and price (41%). Most consumers preferred grilled (87%), well done (68%) and bone-in (57%) meat of moderate lean thickness (48%). Cut type (33% of consumers) and taste (52%) were the most important pork quality indicators. Prior to purchasing pork, 70% of consumers performed a safety assessment, mostly based on pork appearance (40%). Two-thirds of consumers indicated their willingness to pay more for safe pork. Marginal effects from logistic regression showed that the likelihood of consumers to assess pork safety was positively influenced ($P \leq 0.05$) by gender and education level, while the source of income, income class, and education level positively influenced ($P \leq 0.05$) consumers' willingness to pay more for safe pork. Findings suggest that policy and development interventions by the government and municipalities to match quality attributes of pork to the preferences of consumers in the informal urban street markets should target specific sub-groups of the population, particularly females, low-income earners and the less educated.

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Consumer preference; eating quality; informal urban street market; meat safety

1. Introduction

The expanding demand for pork in developing countries reflects a notable shift in consumption patterns toward greater reliance on animal-sourced proteins (Roesel et al. 2019). Projections suggest that by 2030, pork will account for 34% of global meat-based protein consumption, second only to poultry at 41% (OECD/FAO 2021). The projected growth will be largely driven by increased consumption in China, propelled by the nation's substantial population and recovery from African Swine Fever (Gale, Kee, and Huang 2023; Statistica 2024). The rise will also come from a confluence of several factors including broader economic development, increased per capita consumption, changing religious beliefs and evolving consumer preferences worldwide (Milford et al. 2019).

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In the South African context, pork markets serve as pivotal contributors to food, nutrition, income, and employment across both formal and informal sectors, with considerable potential for expansion, particularly in the latter (Newton and Blaustein-Rejto 2021). Numerous factors shape pork consumption trends in South Africa, encompassing per capita income, religion population growth, urbanization, dietary diversity, limited availability of other meats and perceived quality of pig meat (Oyewumi and Jooste 2006). Perceived meat quality, in particular, is a complex term consisting of several components varying from credence attributes considered prior to purchase, and search attributes important at the point of purchase to experience attributes valued upon consumption (Aboah and Lees 2020; Cardona et al. 2023; Ripoll, Joy, and Panea 2018). Quality attributes of meat strongly influence consumer purchasing behaviour and preferences, and ultimately consumption patterns (Garmyn 2020; Udomkun et al. 2018).

Consumers tend to discriminate among various quality attributes when selecting meat pre- , peri- and post-consumption (Cardona et al. 2023; Font-i-Furnols and Guerrero 2014; Mottin et al. 2018). Pork particularly presents unique consideration attributes including affordability, convenience, versatility (Rombauer et al. 2019), healthful fatty acid profile (Dugan et al. 2015), tenderness, juiciness, sweet and savoury flavours (Bi et al. 2022) more preferred by consumers compared to other red meats (Dugan et al. 2015; Gichuyia et al. 2024). Apart from meat quality attributes, consumer purchasing behaviour and preferences in the food domain are influenced by several psychological factors (Font-i-Furnols and Guerrero 2014; Garmyn 2020; Mottin et al. 2018), indicating the complex nature of purchasing decisions. The key role of any market-oriented enterprise is to ensure that its product provides a mix of attributes that are consistent with the purchasing behaviour and preferences of its customers (Reed, Binks, and Ennew 1991). To this end, an understanding of consumer purchasing behaviour and preferences for a product is crucial for product innovation, market selection, marketing strategy, maintaining competitiveness and ensuring consumer satisfaction (Gupta et al. 2016; Hosseini, Soltani, and Mehdizadeh 2018).

Despite the increasing demand, perceptions of pork from informal urban markets in developing countries like South Africa often depict it as inferior due to perceived quality concerns (Bureau for Food and Agricultural Policy 2021; Magqupu et al. 2024). Yet, limited insights exist regarding consumer purchasing behaviour and preferences within these markets (Medina, Jonelis, and Cangul 2017). Such insights are indispensable in shaping consumer purchasing decisions and gastronomic trends (Blekking, Tuholske, and Evans 2017; Predanocyová et al. 2019), enhancing the development of the informal urban street markets and improving the livelihoods of the urban poor. Thus, the objective of the present study was to determine the factors influencing consumer purchasing behaviour and quality preferences for pork sold in the informal street markets of the Cape Metropole District, South Africa.

2. Conceptual background

The theoretical background informing the current study was drawn from previous studies that examined pork vendors' hygiene and safety practices (Magqupu et al. 2024), and the quality of pork sold in the informal urban street markets of the Cape Metropole District, South Africa (Magqupu et al. 2023). According to Smith (1776), "consumption is the sole and end purpose of production". Thus, for an enterprise to be profitable, producers and suppliers must meet the needs of consumers. In this context, it is important for pork producers and traders among other stakeholders to understand the purchasing behaviour and preferences of consumers in the informal urban street markets. This could ensure that the quality attributes of pork produced by smallholder pig farmers and sold by vendors in the informal urban street markets correspond with consumers' demands, expectations and preferences in this sector.

Purchasing behaviour and preferences of meat consumers are mainly influenced by the perceived quality of the product and psychological factors (Font-i-Furnols and Guerrero 2014; Mottin et al. 2018). Perceived meat quality is a complex term that includes credence, search (i.e., intrinsic and

extrinsic cues) and sensory attributes. Credence attributes (e.g., safety, health value, and sustainability) are quality characteristics of meat considered prior to purchase that are not experienced directly upon consumption and cannot be verified by consumers without additional information such as certification labels (Henchion, McCarthy, and Resconi 2017; Schrobback et al. 2023). Intrinsic search attributes are inherent attributes of meat, that cannot be changed without modifying the natural properties of meat such as morphology (e.g., cut type, size and shape), and appearance attributes such as fatness, colour, and drip loss (Cardona et al. 2023; Hocquette et al. 2012). Extrinsic search attributes are non-physical but informative components of meat like price, packaging, and labels that can be altered without changing the nature of meat (Cardona et al. 2023; Hocquette et al. 2012). Extrinsic quality can also include credence quality found on the packaging such as brand, origin and health value (Liu et al. 2022). Intrinsic and extrinsic search attributes are considered by the consumer at the point of purchase to evaluate options and make choices. Sensory attributes refer to the eating quality experienced by the consumer upon consuming meat (e.g., juiciness, tenderness, and flavour). These attributes are related to the intrinsic properties of meat (Liu et al. 2022), and influence consumer satisfaction and repeat purchases (Cardona et al. 2023; Henchion et al. 2014).

Though other quality attributes are important, price plays a crucial role in influencing meat consumers' purchasing behaviour and preferences (Glitsch 2000; Predanocyová et al. 2019). However, the relationship between price and other quality attributes is a multiplex aspect. Credence, search, and experience attributes such as safety, sustainability of production methods, grading and certification, type of cut and size, leanness, tenderness, market demand and supply dynamics all play significant roles in determining the price of meat (Boer, Schösler, and Aiking 2017; Font-i-Furnols et al. 2011). For example, premium cuts and meat raised using sustainable methods are often higher prices due to their perceived superior taste, tenderness, and ethical considerations (Jones 2020; Troost and Kirsten 2022). Additionally, consumers are willing to pay a premium for fresh pork perceived to be healthy and safer compared to processed meats (Font-i-Furnols and Guerrero 2014; Ngo et al. 2023; Udomkun et al. 2018). However, market supply and demand dynamics are some of the most important factors that impact pricing (Janse van Rensburg et al. 2020).

Several reviews have comprehensively detailed how psychological factors impact consumer purchasing behaviour and preferences in relation to meat and meat products (de Araújo et al. 2022; Font-i-Furnols and Guerrero 2014; Mottin et al. 2018). In summary, psychological factors that shape the purchasing behaviour and preferences of meat consumers include perceptions, attitudes, motivations, expectations, socio-economic factors, lifestyle and values. Specifically, socio-economic factors such as age, gender, educational level, marital status, household size, the main source of income and income class have been reported to influence consumer perceptions of meat quality (Alfred et al. 2019; Potgieter, Wiese, and Strasheim 2013; Ugbomhe et al. 2021).

Understanding how quality attributes of pork and psychological factors can be aligned with the purchasing behaviour and preferences of consumers in the informal urban street markets could contribute to greater satisfaction of consumers and sustainable development of the informal urban street markets. The current study, therefore, adopted an interdisciplinary approach drawing insights from fields including public health, economics, sociology, animal, and food sciences to explore factors influencing consumers' purchasing behaviour and quality preferences for pork quality in the Cape Metropole. It was envisioned that the study would generate information that educates meat producers, traders, and consumers, and inform policies and market regulations to enhance the pork quality and modernise informal pork markets in the Cape Metropole, and areas with similar settings.

3. Materials and methods

3.1 Sampling and data collection

Cross-sectional consumer data was collected by making use of a survey investigating various purchasing behaviours, perceptions and preferences relating to buying pork from informal urban street

markets. The study was conducted in informal street markets in five low-income, high-density suburbs [i.e., Delft (33°58′24.2″S18°38′21.5″ E), Dunoon (33°48′49.0″S 18°32′31.4″E), Khayelitsha (34°02′11.2″S 18°41′18.6″E), Mfuleni (34.0065° S, 18.6859° E) and Strand-Nomzamo (34.1147° S, 18.8596° E)] within the Cape Metropole District, Western Cape province, South Africa. In the context of the current study, the informal urban street markets governed by the Businesses Act 71 of 1991 and informal trading by-law (Southern African Legal Information Institute 2013) referred to a wide range of unofficial, unregulated, unorganized, unmonitored, legal but unregistered small- to medium-sized enterprises (SMEs) running on a small-scale on the streets within urban areas (Adekoya et al. 2024; Lorato et al. 2023). This included vending SMEs mainly characterised by low-cost temporary and portable structures along streets, main roads, and centres of economic activity in the low-income, high-density suburbs of the Cape Metropole District (City of Cape Town 2023; WEIGO 2014).

The low-income, high-density suburbs were purposefully selected based on the high numbers of informal pork retailers observed in a companion study and the ability to attract township tourism (Magqupu et al. 2024; Sloan et al. 2015). Though this was the case the exact population of the vendors in the low-income, high-density suburbs and their contribution to the economy has not been documented. The practicality of administering the questionnaire was pre-tested with twenty males and females aged between 18 and 60 years in the Strand-Nomzamo suburb to assess content (i.e., clarity and conciseness of the questions) and functionality (i.e., filters, instructions, structure, and duration). The pre-test results informed the final design of the questionnaire and provided answers to open-ended questions.

The final questionnaire covered the socio-demographic backgrounds of the respondents, pork consumers' quality preferences, preparation preferences, factors affecting the number of cuts bought per occasion, purchasing days and frequency, reasons for purchasing pork from the informal urban street market, and awareness about safety which included cleanliness of vendors and vending stalls, criteria of assessing pork safety prior to purchase and willingness to pay more for safe pork. The questionnaire had a variety of questions. For example, consumers were asked to rate the vendor and stall cleanliness on a six-point category scale: 1 = excellent, 2 = good, 3 = satisfactory, 4 = average, 5 = poor, and 6 = very poor. It also included dichotomous (i.e., yes or no) questions, and closed follow-up questions to justify the response given.

Administration of the questionnaires was done by trained enumerators in May 2021 through individual face-to-face interviews. The questionnaire was designed in English but was administered in local languages (i.e., IsiXhosa and Afrikaans) by the trained enumerators. Respondents were opportunistically sampled as they purchased pork from the vending sites, local butchers or restaurants to allow a variety of consumers in the afternoon between 13h00 and 18h00. To qualify as informal urban street markets, vending sites, butchers, shops and restaurants ought to have temporary, portable, or unregistered structures, unrecorded and non-taxed transactions, unregulated supply networks, and/or operate at a small-scale in the selected low-income, high-density suburbs of the Cape Metropole.

A total of 211 respondents aged between 18 and 68 were interviewed from the five suburbs: Delft ($n = 50$), Dunoon ($n = 47$), Khayelitsha ($n = 34$), Mfuleni ($n = 43$) and Strand-Nomzamo ($n = 37$) while waiting for their pork orders and/ or consuming pork in vending sites that offered a sitting area. The qualifying question for respondents to participate in the current study was whether they consume pork or not. Customers who do not consume pork were excluded from the interview. All pork consumers willing to participate in the interviews provided informed consent in writing and verbally, and respondents were informed that they could stop the interview at any time. To avoid biased answers no incentives were offered to consumers. The questionnaire had 41 questions and lasted 45 min on average (see supplementary material for the full questionnaire).

4. Statistical analysis

All data were analyzed using SAS software v. 9.4 (SAS Institute Inc., Cary, NC). Consumers' demographic information was subjected to descriptive statistics using the PROC FREQ. The chi-square

test was used to determine the association between suburbs with consumer purchasing behaviour, pork quality and preparation preferences, and safety awareness. The data (vendor hygiene and stall hygiene) collected with the use of a point category scale was further compressed into two categories (good and poor). The PROC LOGISTIC model was used to determine factors influencing consumers' decision to assess pork safety and willingness to pay more for safe pork. The model predicted log odds of being at a cut-off point versus being at a lower or higher category of the ordered outcomes (Fullerton 2009). Independent variables (determinants) comprised of age, gender, educational level, marital status, household size, the main source of income and income class (Table 1). The model had independent variables with non-significant score tests for proportional odds assumptions and maximum likelihood estimates that only converged. Using the forward selection model option, the independent variables that were included in the model were chosen and embedded in the logical procedure of SAS v. 9.4 (SAS Institute Inc., Cary, NC). Following the specifications used by Greene (2020), the model was specified as:

$$\text{Prob}\,(Y_j = i) = P_{ji} = \frac{\text{expo}(X_j\beta_i)}{\sum \text{expo}(X_j\beta_k)} \text{ where } 0 < P_{ji} < 1 \quad (1)$$

Table 1. Description of independent variables used to create a logistic regression model for factors influencing consumers' choice to assess pork safety and willingness to pay more for good pork quality in the informal urban street market of the Cape Metropole District, South Africa.

Independent variable	Description of the independent variable
Age (young adult vs older adult)	Age of the consumer [1 = young adult (younger than 40), 2 = older adult (older than 40)]. As people grow, their needs change (Rustichini et al. 2016), and their buying patterns and interests are likely to change with changes in their needs.
Gender (male vs female)	Gender of the consumer (1 = Male, 2 = Female). Gender plays a role in consumer purchase choice (Kroshus 2008). Females are mostly the gender responsible for meat purchases, although males are likely to purchase convenience foods (Zhang, Bai, and Wahl 2012).
Educational level (no formal education – primary vs secondary – tertiary)	The educational level of the consumer (1 = no formal education to primary education, 2 = secondary to tertiary education). Educational level is an important demographic factor that affects the consumer's willingness to buy a product (Potgieter, Wiese, and Strasheim 2013). More educated consumers may be aware of safety issues thus purchasing decisions may be inclined towards buying safer and better-quality pork. The type and amount of meat consumed are influenced by education level (Bisschoff and Liebenberg 2017).
Marital status (single vs married)	Marital status of consumer (1 = single without a partner, widowed, or divorced 2 = married, these were individuals legally married or legally married but separated). When it comes to the influence of different purchase decision factors, married consumers tend to be more influenced than unmarried consumers (Wagner, Kirchler, and Brandstätter 1984). Nonetheless, a person who is single without any dependents is more likely to spend without prior planning than a married person (Alfred et al. 2019), especially in the informal urban street market without being concerned about safety.
Household size (≤4 vs >4 members)	Household size of the consumer (1 = less or equal to four household members, 2 = More than four household members). Households with fewer members have higher weekly meat consumption habits than ones with more members (Merlino et al. 2017).
Main source of income (salary vs other income sources)	The main source of income (1 = consumers whose main source of income is salary, 2 = consumers with other sources of income). Reliability of income source is likely to have a positive influence on meat safety assessment and willingness to buy safe pork.
Income class (≤R3 500 vs >R3 500)	Income class (1 = consumers with income class of less or equal to R3 500 a month, 2 = consumers in income class above R3 500). The amount of money available to consumers affects how they spend their income (Xazela et al. 2017). More income may result in purchases based on quality whilst low income may purchase based on quantity which may ultimately affect the judgement of the consumers.

Equation (1) was linearized into (2):

$$\text{Prob}\,(Y_j = i) = P_{ji}\,(\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots\ldots \beta_k X_k) \tag{2}$$

Where, Y_j = the probability of respondent j to assess pork safety/ willingness to pay more for safe pork. Prob ($Yj = i$) is the consumer's pork safety assessment decision or willingness to pay more for safe pork with two response levels of either yes or no; $\beta_{0\,=}$ Intercept; $\beta_1, \beta_2, \ldots, \beta_n$ = coefficients of independent variables; $\chi_1, \chi_2, \ldots, \chi_n$ = independent variables. Through fitting the variables, the residual model for sources of information used was:

$$\begin{aligned} &Y_i(\text{Pork safety assesment or willingness to pay more for safe pork}) \\ &= \beta_0 + \beta_1(age) + \beta_2(\text{gender}) + \beta_3(\text{education}) + \beta_4(\text{marital status}) \\ &+ \beta_5\,(\text{household size}) + \beta_6(\text{source of income}) + \beta_7(\text{income class}) + \varepsilon_i \end{aligned}$$

Where; β_0 = Intercept, $\beta_{1,\ldots,}\,\beta_7$ = Coefficients and ε_i = error term. Given that estimated coefficients and exponentiated coefficients neither convey the magnitude of change nor the probabilities, marginal effects that measure the change in the expected value of a dependent variable with a unit change in an independent variable (Greene 2020) were specified as follows:

$$x_1,\ \frac{1}{N}\sum_{i=1}^{N}\frac{\beta.p_{i.}(1-p_i)}{100}$$

In the current study, marginal effects were interpreted as the change in the probability of consumers assessing pork safety, or willingness to pay more for safe pork with a unit change in the consumer's demographics and socio-economic factors. Probability (P) values ≤ 0.05 were considered significant and tendency was reported at $0.05 < P \leq 0.10$, respectively.

5. Results

5.1 Profiles of pork consumers in the informal urban street markets

Table 2 shows the profiles of pork consumers in the informal urban street market of the Cape Metropole District, South Africa. Of all the consumers who participated in the study, over 75% were males. The singles, young adults (18–40 years) and secondary school qualification holders accounted for about 70, 83, and 70% of all the respondents, respectively. Household size varied across the suburbs with Khayelitsha [4.54 ± 3.63 (mean ± standard deviation)] numerically having the largest household size followed by Strand-Nomzamo (3.58 ± 1.84), Delft (3.14 ± 1.09), Dunoon (2.89 ± 1.57) and Mfuleni (2.67 ± 1.57; $P \leq 0.05$). Salary was the main source of income with Khayelitsha and Strand-Nomzamo having more ($P \leq 0.05$) respondents receiving this income source than the other suburbs. Khayelitsha and Strand-Nomzamo were the only suburbs with more than 20% of the respondents earning more than US$ 354.61 per month (i.e., May 2021 average exchange rate was 1 US$ = 14.1 ZAR). Regardless of the suburb, a sizeable number (13–25%) of respondents were unemployed across the surveyed suburbs.

5.2 Purchasing behaviour of consumers in the informal urban street market

Indicators of pork consumers' purchasing behaviour in the informal urban street market are presented in Table 3. Consumers cited affordability (36% of the respondents) and convenience (34%) as the major reasons for buying pork from the informal urban street market. Over half of the participants purchased pork once or twice a week. Consumer buying frequency was mostly determined by the amount of money available when buying pork (36% of the respondents) with Mfuleni and Dunoon having more ($\chi^2 = 60.25$; $\varphi_c = 0.28$; $P \leq 0.05$) consumers citing this factor. More than half

Table 2. Demographic and socio-economic characteristics of informal urban street market pork consumers in the Cape Metropole District, South Africa.

	The proportion of consumers (%) who purchased pork on the informal urban street market					
Characteristic	Delft	Dunoon	Khayelitsha	Mfuleni	Strand-Nomzamo	Total
Gender						
Male	73.47	71.74	79.41	72.73	84.21	75.83
Female	26.53	28.26	20.59	27.27	15.79	24.17
Age						
<40	98.00	83.33	82.86	72.73	73.68	82.79
41–65	2.00	16.67	14.29	22.73	26.32	15.81
>65	–	–	2.86	4.55	–	1.40
Marital status						
Single (never married)	64.0	74.47	67.65	69.77	72.97	69.67
Married	34.0	25.53	32.35	18.60	21.62	26.54
Separated	–	–	–	2.33	2.70	0.95
Divorced	2.0	–	–	9.30	2.70	2.84
Highest level of education						
No formal education	–	4.44	–	9.09	2.78	3.41
Primary	8.33	4.44	5.88	9.09	8.33	6.83
Secondary	66.67	77.78	64.71	70.45	66.67	70.24
Tertiary	25.0	13.33	29.41	11.36	19.44	19.51
Source of income						
Salary	32.61	35.56	45.16	31.71	42.11	36.82
Crops	2.17	–	–	2.44	5.26	1.99
Livestock	–	–	–	2.44	–	0.5
Social grants	2.17	–	16.13	–	7.89	4.48
Pensions	8.70	13.33	16.13	9.76	13.16	11.44
Employment status						
Self-employed	41.30	31.11	12.9	36.59	23.68	32.34
Unemployed	13.04	20.0	25.81	14.63	7.89	11.94
Prefer not to say	–	–	–	*2.44*	–	0.5
Income class (US$)						
<35.46	12.24	12.50	8.57	15.91	15.79	13.08
35.53–70.92	4.08	8.33	11.43	11.36	10.53	8.88
70.99–141.84	16.33	14.58	11.43	15.91	10.53	14.02
141.91–212.77	16.33	12.5	5.71	13.64	10.53	12.15
212.84–283.69	8.16	2.08	2.86	9.09	5.26	5.61
283.76–354.61	–	6.25	5.71	4.55	7.89	4.67
>354.61	18.37	18.75	31.43	9.09	28.95	20.56
Prefer not to say	24.49	25.0	22.86	20.45	10.53	21.03

The exchange rate during the data correction was 1 US$ = 14.1 ZAR.

of the consumers purchased pork during the weekend. About two-fifths of the consumers purchased three to four pork pieces per occasion and price (42% of the respondents) was the major determinant of the number of pieces purchased. In addition, 80% of the consumers bought pork from alternative sources including supermarkets and abattoirs.

5.3 Consumers' pork quality and preparation preferences in the informal urban street market

Consumers' pork quality and preparation preferences are shown in Table 4. The price was the most cited (41% of the respondents) factor that determined the quantity of pork purchased with Mfuleni and Dunoon suburbs having more respondents citing this factor ($\chi^2 = 39.60$; $\varphi_c = 0.22$; $P \leq 0.05$). The largest proportion of consumers (34%) cited price and quality (27%) as the dominant factors determining the type of pork cut purchased. Two-thirds of the consumers preferred to purchase cooked pork with grilling (87% of the respondents) as the most preferred cooking method. Most consumers preferred well-done (67% of the respondents), bone-in (56%) pork of moderate lean (48%) and fat (44%) thickness. Relative to the other pork quality attributes (e.g., amount of fat, 19% of the respondents and meat-to-bone ratio, 17%), the type of pork cut (29%) was the quality attribute most considered at the point of purchase with Dunoon having the most consumers ($\chi^2 = 31.12$; $\varphi_c = 0.20$;

Table 3. Indicators of pork consumers' purchasing behaviour (% of respondents) in the informal urban street market of the Cape Metropole District, South Africa.

	Suburb								
Characteristic	Delft	Dunoon	Khayelitsha	Mfuleni	Strand-Nomzamo	Total	φ_c	χ2	*P*-value
Reasons for purchasing pork from the informal urban street market							0.150	18.853	0.760
Convenience	7.58	8.06	4.27	9.48	4.74	34.12			
Affordability	8.06	8.53	6.64	6.16	7.11	36.49			
Negotiable prices	2.84	1.90	0.95	0.95	1.90	8.53			
Cooking method	2.84	1.42	1.42	1.42	1.90	9.00			
Health-related reasons	–	–	0.47	–	–	0.47			
Supporting local business	–	1.42	0.47	–	0.47	2.37			
Convenient and give credit	1.90	1.42	1.42	2.37	1.90	9.00			
Frequency of pork purchase							0.172	18.637	0.098
Daily	0.96	0.96	1.44	2.87	2.87	9.09			
1–2 times a week	12.92	13.40	5.74	8.61	10.53	51.20			
3 or more times a week	8.13	4.78	5.74	6.70	1.91	27.27			
Rarely	1.44	3.35	2.87	2.39	2.39	12.44			
Factors affecting buying frequency							0.276	60.246	<0.001
Household menu	7.07	5.05	4.04	4.04	4.04	24.24			
Household size	3.54	1.01	1.01	1.52	1.01	8.08			
Amount of money available	7.07	9.60	5.56	9.60	4.55	36.36			
Day of the week	–	3.54	1.52	1.52	1.52	8.08			
Sit-in/ premises eating area availability	0.51	3.54	1.01	1.52	5.05	11.62			
Desire for pork	–	0.51	1.01	0.51	0.51	2.53			
Frequency is constant	6.57	–	–	2.53	–	9.09			
Day of purchase							0.143	12.994	0.369
Weekdays	4.69	5.63	5.63	6.1	3.29	25.35			
Daily	5.16	3.76	2.82	4.69	1.88	18.22			
Weekends	12.21	11.74	7.51	8.92	9.86	50.23			
Do not keep count	5.16	3.76	2.82	4.69	1.88	18.31			
Number of pieces bought per occasion							0.176	25.624	0.179
<2	4.33	1.92	0.48	5.29	2.40	14.42			
3–4	9.62	8.65	5.29	8.65	5.77	37.98			
5–6	5.77	5.29	3.85	2.4	3.37	20.67			
7–8	0.96	2.88	1.92	2.4	0.96	9.13			
9–10	0.48	1.92	2.40	0.48	2.88	8.17			
>10	2.40	1.44	2.40	1.44	1.92	9.62			
Factors affecting the number of pieces of pork bought per occasion							0.216	38.475	0.090
*Price	9.22	9.71	6.31	9.71	5.83	40.78			
Income	1.94	2.43	1.94	1.46	1.94	9.71			
Occasion	2.43	2.43	6.31	3.4	5.34	19.90			
Availability of pork	3.40	1.46	0.97	1.94	0.49	8.25			
Household size	3.40	3.40	–	2.91	2.91	12.62			
Health-related reasons	0.49	1.46	–	–	–	1.94			
Cut size	0.97	–	–	–	–	0.97			
**Affordability	0.97	1.46	0.49	1.46	1.46	5.83			
Alternative market used							0.139	4.020	0.403
Yes	15.94	16.43	13.04	16.43	15.46	77.29			
No	7.25	5.31	3.38	4.35	2.42	22.71			

φ_c = Cramer's V and χ^2 = Chi-square value.

*__Price__ refers to the amount of money that consumers need to pay to purchase pork.**__Affordability__ refers to the ability of consumers to purchase meat based on their available financial resources, income levels, and purchasing power. It considers not only the price of the meat but also the financial capacity of consumers.

$P \leq 0.05$) reporting this attribute (Table 4). More than half of the consumers reported taste as the dominant pork quality attribute considered upon consumption with the majority of them from Delft ($\chi^2 = 32.52$; $\varphi_c = 0.20$; $P \leq 0.05$).

Table 4. Consumers' pork quality and preparation preferences (% of respondents) in the informal urban street market in the Cape Metropole District, South Africa.

	Suburb								
Characteristic	Delft	Dunoon	Khayelitsha	Mfuleni	Strand-Nomzamo	Total	φ_c	$\chi 2$	*P*-value
Factors affecting the amount of pork purchased							0.218	39.596	0.007
Price	9.22	9.71	6.31	9.71	5.83	40.78			
Income	1.94	2.43	1.94	1.46	1.94	9.71			
Occasion	2.43	2.43	6.31	3.40	5.34	19.90			
Availability	3.40	1.46	0.97	1.94	0.49	8.25			
Household size	3.40	3.40	0.00	2.91	2.91	12.62			
Health-related reasons	0.49	1.46	0.00	0.00	0.00	1.94			
Cut size	0.97	0.00	0.00	0.00	0.00	0.97			
Price and income	0.97	1.46	0.49	1.46	1.46	5.83			
Factors affecting the type of pork cut purchased							0.173	25.038	0.404
Price	7.14	8.10	5.24	6.67	6.67	33.81			
Quality[x]	5.24	7.14	3.81	4.29	6.67	27.14			
Quantity	2.86	3.33	4.29	3.81	1.43	15.71			
Availability	1.43	0.00	0.48	0.00	0.48	2.38			
Fatness	1.43	0.48	0.48	1.90	0.95	5.24			
Appearance	4.76	2.86	1.43	3.33	0.95	13.33			
Buy any cut	0.00	0.00	0.95	0.95	0.48	2.38			
The preferred form of pork purchased							0.145	8.852	0.355
Raw	0.95	1.90	–	1.90	1.42	6.16			
Cooked	16.59	16.59	11.37	11.37	10.43	66.35			
Both	5.21	4.27	4.74	7.58	5.69	27.49			
Preferred pork cooking method							0.201	33.722	0.210
Grilling (braaiing)	19.71	20.67	14.90	17.31	14.42	87.02			
Pan-broiling	–	–	0.48	–	–	0.48			
Pan-frying	–	0.48	–	–	–	0.48			
Pan-roasting	–	–	0.48	–	–	0.48			
Stewing	0.48	0.48	–	1.92	0.48	3.37			
Stir fry (strips)	–	–	–	–	0.96	0.96			
Braai and stew	2.40	0.96	0.96	1.92	0.96	7.21			
Preferred level of doneness							0.167	11.549	0.173
Rare	0.49	0.97	0.97	0.49	0.49	3.40			
Medium	3.88	7.28	3.88	9.71	4.37	29.13			
Well-done	17.96	14.56	11.65	10.68	12.62	67.48			
Preference for boniness							0.141	8.352	0.400
Bone-in	11.00	12.92	10.53	10.53	11.48	56.46			
Boneless	8.61	5.26	3.83	7.18	2.39	27.27			
Both	3.35	3.83	2.39	2.87	3.83	16.27			
Preferred thickness[z]							0.126	9.736	0.639
Thin	5.42	2.96	4.43	3.45	3.94	20.2			
Moderate	10.34	8.37	8.87	12.32	7.88	47.78			
Thick	6.40	8.87	3.94	5.42	6.40	31.03			
All	–	0.49	–	0.49	–	0.99			
Preferred level of fatness							0.176	25.823	0.057
No fat	4.81	3.37	-	3.37	2.40	13.94			
Lean[q]	2.40	3.85	2.4	2.88	4.81	16.35			
Moderate	7.69	10.58	10.58	8.65	6.73	44.23			
Fat	2.40	2.40	2.88	3.85	2.88	14.42			
Very fat	5.29	2.40	0.96	1.44	0.96	11.06			
Pork quality attributes considered at the point of purchase							0.209	31.120	0.054
Muscle-to-fat ratio	2.07	2.07	3.63	1.55	6.22	15.54			
Meat to bone ratio	4.66	4.15	2.59	2.59	2.59	16.58			
Type of cut	5.70	8.81	3.63	5.18	5.70	29.02			
Texture	3.11	0.52	1.55	3.63	1.04	9.84			
Fat and lean colour	3.63	1.04	1.04	3.63	1.04	10.36			
Amount of fat	4.15	4.15	3.63	5.18	1.55	18.65			

(*Continued*)

Table 4. Continued.

Characteristic	Suburb					Total	φ_c	χ2	*P*-value
	Delft	Dunoon	Khayelitsha	Mfuleni	Strand-Nomzamo				
Pork quality attributes considered upon consumption							0.198	32.518	0.038
Tenderness	2.88	3.85	1.44	0.96	1.92	11.06			
Juiciness	2.88	2.88	2.40	3.85	2.88	14.90			
Flavour	1.44	0.48	0.48	-	1.92	4.33			
Taste^r	15.38	11.06	6.73	11.06	8.65	52.88			
Aroma	–	–	0.96	0.96	1.44	3.37			
All	0.48	3.37	4.33	4.33	0.96	13.46			

φ_c = Cramer's V and χ2 = Chi-square value, $x_{Quality}$ – little to no smell and intramuscular fat, $y_{Preferred\ level}$ of doneness – demonstrated based on the colour, juiciness, and internal temperature (warmth) of the meat, $z_{preferred\ thickness}$ – determined visually, q_{lean} – meat with relatively less visible fat, r_{Taste} – Overall of the product including additives/taste enhancers (i.e., spices).

5.4 Consumers' assessment of pork safety in the informal urban street market

Consumers' criteria for assessing pork safety in the informal urban street market of the Cape Metropole District are shown in Table 5. Nearly 70% of the consumers conducted pork safety assessments before purchase, and 40% of them used appearance as the main criterion to determine pork safety compared to the smell of the meat (12% of respondents) and vendors' hygiene (1.5%). The likelihood of consumers to assess pork safety before purchasing tended to increase ($P = 0.08$) by 0.18% for a unit increment in female participants and decrease ($P \leq 0.05$) by 0.33% for a unit increase in education level (Table 6). More than a third of consumers used pork appearance to discriminate between stale and unsafe pork. Over one-third of the consumers perceived vendors' hygiene ($\chi^2 = 39.60$; $\varphi_c = 0.22$; $P \leq 0.05$) and vending stalls' cleanliness ($\chi^2 = 33.86$; $\varphi_c = 0.20$; $P \leq 0.05$) to be good with the majority residing in Mfuleni. Many consumers (>80%) mentioned physical safety as the most important safety aspect they consider when assessing pork. safety Nearly 60% of the consumers were willing to pay more for safe pork with most of them staying in Strand-Nomzamo ($\chi^2 = 9.72$; $\varphi_c = 0.22$; $P \leq 0.05$). The marginal effects of willingness to pay more for safe pork tended to increase by 0.14% ($P = 0.09$), 0.15% ($P = 0.09$) and 0.24% ($P = 0.08$) for every unit increase in salary, income class and education level, in that order (Table 6).

5.5 Pork consumers' marketing perceptions and challenges in the informal urban street market

Respondent's marketing perceptions, challenges and possible solutions are presented in Table 7. The majority of the interviewed consumers (92%) regarded packaging as important mainly for pork safety reasons (40% of the respondents). Nearly 80% of the consumers reported that they had never seen an advertisement of pork in the informal urban street market, with the majority from Delft ($\chi^2 = 9.41$; $\varphi_c = 0.22$; $P \leq 0.05$). Of those who received advertisements, they were mostly from friends and relatives (16% of the consumers). Over 40% of the consumers did not encounter any challenges buying from the informal urban street market, although a small percentage (14%) complained about bad service and one-fifth cited improvement of consumer care service by vendors as a potential solution.

6. Discussion

The gender skewness towards more male participants in the current study can be partly attributed to increased access to and control over economic resources of the former gender (Mathobela et al. 2024; Mndolwa and Alhassan 2020; Spurk et al. 2015). It can also be explained by societal perceptions and cultural norms that model and market meat particularly red meat as a masculine food

Table 5. Consumers' criteria for assessing pork safety (% of respondents) in the informal urban street market of the Cape Metropole District, South Africa.

	Suburb								
Characteristic	Delft	Dunoon	Khayelitsha	Mfuleni	Strand-Nomzamo	Total	Cramer's V	χ2	*P* value
Conduct a pork safety assessment							0.143	4.251	0.373
Yes	15.46	14.01	13.04	16.43	10.63	69.57			
No	7.73	6.76	3.86	4.83	7.25	30.43			
Criteria used to assess pork safety							0.137	15.377	0.754
Appearance	8.29	9.76	4.39	5.85	10.73	39.02			
Smell	1.95	1.95	2.44	1.95	2.93	11.22			
Check visible impurities	2.93	2.93	2.93	4.39	1.95	15.12			
Check vendor's hygiene	0.49	0.49	–	0.49	–	1.46			
Does not check	6.83	5.85	6.83	3.90	4.88	28.29			
All	1.95	0.49	0.98	0.49	0.98	4.88			
Reasons for using poor appearance to discriminate against pork perceived as unsafe							0.211	36.420	0.132
Looks unattractive	0.98	0.98	–	4.41	2.94	9.31			
Indicates staleness	7.84	8.82	6.37	4.90	6.86	34.8			
Poor quality	1.96	2.94	2.45	1.47	0.49	9.31			
Indicate diseases/spoilage	1.96	1.96	3.43	1.47	1.96	10.78			
Buy pork with a familiar appearance	1.47	1.47	1.47	0.49	1.96	6.86			
Indicate prolonged display	0.98	–	–	–	0.49	1.47			
Do not consider the appearance	7.35	5.88	3.92	3.92	5.88	26.96			
Important pork safety aspect							0.144	8.302	0.405
Microbial safety (pathogenic infections)	5.03	2.01	3.02	2.01	2.01	14.07			
Physical safety (presence of foreign material in the product)	15.08	19.6	12.56	14.57	19.1	80.9			
Chemical safety (presence of chemical residues)	1.51	0.5	1.51	0.5	1.01	5.03			
Willingness to pay more for safe pork							0.220	9.719	0.045
Yes	10.95	11.44	8.46	12.94	13.93	57.71			
No	11.44	10.95	8.96	3.98	6.97	42.29			

(Nakagawa and Hart 2019; Rogers 2008; Sobal 2005). Strong meat-masculinity association exists globally with males, consuming more meat than females (Rogers 2008; Sobal 2005; Stanley, Day, and Brown 2023). In addition, more males than females self-report positive attitudes toward eating meat (Love and Sulikowski 2018; Rothgerber 2013; Stanley, Day, and Brown 2023). Meat is perceived to affirm masculinity and give power and strength to men (Love and Sulikowski 2018; Nakagawa and Hart 2019). Notably, the presence of creatine in meat, including pork, has been linked to the enhancement of muscular strength, size, and physical and neural performance (Rae et al. 2003; Roitman et al. 2007). While these findings predominantly pertain to other types of meat, such as beef and poultry, it is plausible that similar dynamics could apply to pork consumption.

As anticipated, affordability and convenience were the most important reasons why people purchased pork from the informal urban street market. Besides the dominance of pork within the informal urban street markets being second to chicken feet and offals (Battersby, Marshak, and Mngqibisa 2016; Magqupu 2022), it is generally more affordable than other red meats. Regarding convenience, most pork vending sites are close to consumers' homesteads, and consumers can negotiate for prices and better services with the vendors (Roesel and Grace 2015). By engaging in negotiations, consumers can conveniently secure discounts, preferential rates and special offers, and may also

Table 6. The marginal effects of determinants of consumers' decision to assess pork safety before purchase and willingness to pay more for safe pork in the informal urban street market in the Cape Metropole District, South Africa.

Variable	Margin	Standard error	t-value	$P > \|t\|$	95% confidence interval	
The decision to assess pork safety						
Age (young vs adults)	0.10	0.49	−0.99	0.321	0.097	0.104
Gender (male vs female)	0.18	0.49	−1.77	0.077	0.175	0.188
Educational level (no formal education – primary vs secondary – tertiary)	−0.33	0.81	1.94	0.053	−0.337	−0.314
Marital status (unmarried vs married)	−0.01	0.50	0.14	0.892	−0.015	−0.014
Household size (≤4 vs >4 members)	0.05	0.39	−0.63	0.531	0.050	0.053
Main source of income (salary vs other income sources)	0.06	0.37	−0.77	0.441	0.057	0.061
Income class (≤R3 500 vs >R3 500)	0.08	0.34	−1.04	0.297	0.079	0.081
Appearance (fresh vs stale)	−0.09	0.42	1.04	0.300	−0.095	−0.088
Willingness to pay more to assure pork safety						
Age (young vs adults)	0.01	0.47	−0.05	0.960	0.005	0.005
Gender (male vs female)	0.01	0.47	−0.05	0.960	0.005	0.005
Educational level (no formal education – primary vs secondary – tertiary)	0.24	0.65	−1.69	0.090	0.235	0.244
Marital status (unmarried vs married)	0.02	0.49	−0.22	0.823	0.023	0.024
Household size (≤4 vs >4 members)	0.05	0.40	−0.61	0.540	0.048	0.050
Main source of income (other income sources vs salary)	0.14	0.37	−1.69	0.091	0.135	0.140
Income class (≤R3 500 vs >R3 500)	0.15	0.34	1.83	0.068	0.145	0.148
Appearance (fresh vs stale)	−0.08	0.42	0.84	0.404	−0.077	−0.075

obtain customised services that can reduce waiting time, simplify the meat preparation process and enhance the eating experience (Wieseke, Alavi, and Habel 2014). The frequency of buying pork once or twice a week may be related to its affordability, convenience, and versatility as reported earlier by Miller (2020) and Viljoen, Botha, and Boonzaaier (2010). This also ties in well with the amount of money available and household menu, which were the major determinants of pork buying frequency in the surveyed suburbs. Moreover, purchasing frequency (twice/week) coincided with weekends, which is the time when most consumers purchased pork prepared in the informal urban street market. This corresponds with earlier findings by Roesel et al. (2019), who found that pork sales tend to peak during the weekends as most consumers have more leisure time away from work. Furthermore, the results showed that most consumers bought and consumed three to four pieces of pork (∼200 g each), which could be linked to pork's affordability, convenience, culinary versatility and desirable quality attributes (Jeong, Lee, and Han 2020; Linseisen et al. 2002; Rombauer et al. 2019; Tanjung, Daulay, and Hanafi 2021). Current results indicate that most participants also bought pork from alternative markets, which concurs with Ndwandwe and Weng (2017), who reported that most informal urban street market consumers purchased pork from butcheries. This could largely be attributed to the wider product diversity and perceived quality assurance.

The tendency of price to predominantly influence both the quantity and type of pork cuts purchased indicates the negative correlation between price and meat consumption. Oyewumi and Jooste (2006) highlight price as a major determinant shaping the consumption pattern of pork. Price increases generally lead to reduced meat intake per capita (Demirtas 2018; Schroeder, Barkley, and Schroeder 1996). Consumer preference for grilled pork over other preparation methods (e.g., pan-broiling, pan-frying and stewing) was previously documented by Ndwandwe and Weng (2017). Grilled meat forms an important part of most South African cultural heritage, social gatherings, and ceremonies (Bisschoff and Liebenberg 2017). Moreover, the inclination toward well-done pork of moderate fatness and lean thickness may partly be attributed to concerns regarding meat-borne illnesses from parasites and pathogens, which decrease through cooking for long periods (Koutsoumanis et al. 2018). In contrast to current findings, consumers from low- (Ndwandwe and Weng 2017) middle- (Lee et al. 2021) and high-income (Ngapo 2017; Verbeke et al. 2010) countries showed a distinct inclination towards lean pork. Preference for moderate fat content in pork reported in the current study could be associated with enhanced sensory attributes

Table 7. Pork consumers' marketing perceptions and challenges (% of respondents) in the informal urban street market in the Cape Metropole District, South Africa.

	Suburb								
Characteristic	Delft	Dunoon	Khayelitsha	Mfuleni	Strand-Nomzamo	Total	Cramer's V	χ2	*P* value
Packaging importance							0.211	9.181	0.057
Yes	18.93	20.39	15.53	20.39	16.50	91.75			
No	4.37	0.97	0.97	0.97	0.97	8.25			
Reason for selecting packaging material							0.187	27.901	0.112
Safety	6.53	8.54	8.54	10.55	6.03	40.2			
Containment	6.03	6.53	2.01	3.52	6.53	24.62			
Ease of storage	1.01	2.01	2.51	2.01	2.51	10.05			
Ensures longer shelf life	1.01	1.01	1.01	1.51	-	4.52			
Packaging is not important	4.52	1.51	0.5	1.01	2.01	9.55			
Both safety and containment	4.02	1.51	2.51	2.51	0.5	11.06			
Advertising							0.215	9.415	0.050
Yes	2.96	3.94	5.42	5.91	1.48	19.70			
No	20.20	16.75	11.33	15.76	16.26	80.30			
Mode of advertisement							0.175	18.552	0.100
Relatives/friends	2.97	3.96	3.96	4.46	0.50	15.84			
Pork outlets	0.00	0.00	0.99	0.50	0.00	1.49			
Social media	0.00	0.00	0.50	0.50	0.00	0.99			
Never seen an advertisement	20.30	16.83	11.39	15.84	17.33	81.68			
Challenges							0.263	58.181	0.074
None	6.19	10.95	6.19	9.52	8.57	41.43			
High prices	0.95	0.95	0.95	0.95	0.00	3.81			
Poor meat preparation	1.90	1.43	0.48	0.00	2.38	6.19			
Fat: lean ratio	1.43	1.43	0.48	0.95	0.48	4.76			
The high crime rate in vendor areas	0.48	1.43	0.00	0.00	0.48	2.38			
Unhygienic practices	2.38	1.90	2.86	2.38	0.00	9.52			
Lack of transparency	0.48	0.48	0.48	0.00	0.00	1.43			
Bad service	1.90	2.38	4.29	3.33	2.38	14.29			
Outlet	0.48	0.00	0.00	0.00	0.00	0.48			
Poor quality	1.90	0.95	0.48	2.38	0.48	6.19			
Do not adhere to COVID-19 regulations	0.00	0.00	0.48	0.00	0.00	0.48			
Refused to answer	4.76	0.48	0.00	1.43	2.38	9.05			
Possible solutions									
None	6.19	10.95	7.62	10.00	8.57	43.33	0.217	39.653	0.166
Health Inspection	0.95	0.95	0.48	1.90	0.00	4.29			
Vendor training	0.48	0.00	0.00	0.48	0.95	1.90			
Discarding spoiled meat	1.43	0.48	0.00	0.48	0.00	2.38			
Improvement of customer service	6.67	4.76	5.71	2.38	2.38	21.90			
Provision of resources	0.00	0.95	0.95	0.48	0.48	2.86			
Correct lean: fat ratio	0.48	0.95	0.48	0.95	0.00	2.86			
Street cleaning	0.00	0.48	0.48	0.00	0.00	0.95			
Refused to answer	6.67	2.86	0.95	4.29	4.76	19.52			

Packaging refers to the packaging of meat post-purchase.

such as tenderness, juiciness, and flavour (Bryhni et al. 2002; Straadt, Aaslyng, and Bertram 2013; Troy and Kerry 2010). A simultaneous investigation of factors influencing the pork preferences of consumers in formal and informal pork markets could help resolve disparities in fat content preferences across different market types and regions.

A significant number of consumers considered cut type as the main pork quality attribute at the point of purchase further suggesting that meat-eating quality attributes differ across cuts (Lebret and Čandek-Potokar 2022). The type of cut reflects the muscle location from which it was sourced

and how it should be processed to enhance tenderness and taste (Listrat et al. 2016; Zhang et al. 2022). The preference for bone-in meat could be attributable to the perception that such meat is more tender and flavoursome (Laird 2019). It may also be partly because consumers feel they are obtaining more value with bone-in meat due to its lower price per kg compared to boneless meat.

The differences in meat-eating quality attributes at the point of purchase across the surveyed suburbs may be linked to disparities in consumer preferences, knowledge of products and culture (Aymerich et al. 2002; Ngapo, Rubio Lozano, and Braña Varela 2018), and biases (Aaslyng et al. 2007; Miller 2006; Verbeke et al. 2010). The taste was selected as the most popular reason for liking pork, which corresponds with previous studies (Dransfield et al. 2005; Font-i-Furnols and Guerrero 2014; Petrescu, Vermeir, and Petrescu-Mag 2020).

As anticipated, most of the participants chose safety as the main reason why they considered the packaging of pork important to them. Consumers were specifically more concerned with physical safety than microbiological and chemical safety. The physical safety concerns may be associated with visible physical contaminants often seen on grilled meat such as bone chips, dust, charcoal and ashes (Ali et al. 2023). This may explain why most of the consumers in the current study were using packaging to minimise the risk of physical contamination of pork.

The use of change in appearance as a spoilage indicator by consumers in the current study is a common practice (Font-i-Furnols and Guerrero 2014; Mancini and Hunt 2005; Miller 2020). Change in appearance including colour and texture helps consumers to monitor the freshness and spoilage of food products (Shaik, Azhari, and Sarbon 2022). The proportion of consumers who did not use appearance to assess meat safety when buying pork could have been influenced by the application of seasonings, especially spices before and after grilling practices in some surveyed suburbs (personal observation). Seasoning masks the appearance, which most consumers use as a cue of freshness or spoilage.

As anticipated, women were more likely to conduct pork safety assessments than men owing to their better food safety knowledge and food hygiene practices (Al-Sakkaf 2015; Grace et al. 2012; Odetokun et al. 2022). Females' knowledge and hygiene practices related to food safety were also reported to be significantly better than that of males by Ahmed, Akbar, and Sadiq (2021) and Banna et al. (2022). The reason for the decrease in pork safety assessment with an increase in educational level is not immediately clear. Contrary to current results, educated consumers have been reported to be more concerned about food safety (Al-Sakkaf 2015), more discerning about where they buy food (Worsley et al. 2016) and tend to demand safe and high-quality meat products (Jabbar et al. 2010). The decline in the likelihood to evaluate pork safety among married consumers may be attributed to the impact of marital status on food safety knowledge and application of food hygiene practices. Married consumers have been reported to have less food safety knowledge and rarely apply safe food hygiene practices than their counterparts (Ashkanani, Husain, and Al Dwairji 2021; Moreb, Priyadarshini, and Jaiswal 2017; Odetokun et al. 2022).

Three-fifths of consumers in the current study demonstrated a willingness to invest in guaranteed safe pork in line with an earlier finding by Ndwandwe and Weng (2017). However, two-fifths of the consumers were unwilling to pay more for guaranteed safe pork as they may have not had any negative effects from buying or consuming pork from the informal sector. This could be possible because findings from a companion study by Magqupu et al. (2023), show that pork from the informal street markets of the Cape Metropole is within the acceptable microbiological safety limits. The disparities in the willingness to pay for safe pork across the surveyed suburbs could be attributable to differences in socioeconomic attributes and pork prices (Idiaye, Ogidan, and Oluwatayo 2020; Nhung et al. 2018). The increase in the likelihood of consumers' willingness to pay more for safe pork with an increase educational level could be attributed to general increased knowledge of food hygiene and safety among educated consumers (Akabanda, Hlortsi, and Owusu-Kwarteng 2017; Al-Sakkaf 2015). Furthermore, the probability of an increase in salary and income class to increase consumers' willingness to pay more for safe pork was expected as meat consumption is associated with income as previously discussed (Lange, Göranzon, and Marklinder 2014). Consumers from the

current study's reliance on friends and family for pork advertisements may be due to the personal connections and trust attributes in relationships between friends and family members making them valuable sources of marketing and advertising in informal markets.

7. Conclusions

Various intrinsic and extrinsic attributes (i.e., type of cut, price, safety, cooking techniques and taste) and socio-economic factors mainly gender, education and income influenced consumer preferences for pork within the informal urban street market. It was concluded that future development and policy interventions aimed at satisfying pork consumer preferences and addressing challenges in the informal urban markets should target the vulnerable population groups including women, low-income earners and those with limited education. This could give a realistic outlook of the informal market and its operations, ensure consumer satisfaction and increase the competitiveness of pork and its market share in the informal sector.

Some of the consumers lost interest because of a lengthy interview process. In future, it would be important to shorten the interview process. The survey was conducted in one season (i.e., autumn) despite consumer purchasing behaviour and preferences being season dependent, and fluctuating in response to various seasonal factors such as holidays, weather patterns, cultural events, and economic conditions. There may be limitations to the generalisability of the findings emanating from the opportunistic (i.e., convenience) sampling method used. Future studies should consider using homogenous opportunistic sampling or probability sampling methods (Bornstein, Jager, and Putnick 2013; Jager, Putnick, and Bornstein 2017) to avoid bias and improve the representativeness of samples and the applicability of the results beyond the study area.

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Data availability statement

Data will be made available on request.

Author contributions statement and ethics

Siphosethu Magqupu: Investigation, Data curation, Writing – original draft. Obert C. Chikwanha: Writing – review editing. Chenaimoyo L.F. Katiyatiya: Writing – review editing. Phillip E. Strydom: Supervision, Funding acquisition, Writing – review editing. Cletos Mapiye: Supervision, Conceptualization, Visualization, Funding acquisition, Writing – review editing.

Consent to participate

All participants in the study gave their informed consent.

Ethics approval

Permission to conduct the study was approved by the Stellenbosch University Research Ethics Committee: Social, Behavioural and Education Research (REC: SBE; number 17160). The enumerators adhered to the COVID-19 regulations under Adjusted Alert Level 1 of the Republic of South Africa [Disaster Management Act No. 27 of 2002, Amendment of Regulation issues in terms of Section 27(2)].

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