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The Influence of Promotional Materials in Combating Bushmeat Consumption among Urban Dwellers in Lagos State, Nigeria

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ABSTRACT

Bushmeat consumption in Nigeria, particularly in urban areas like Lagos State, presents a growing challenge to biodiversity conservation, public health, and wildlife sustainability. Despite ongoing conservation efforts, the demand for bushmeat remains high, driven by cultural preferences, protein needs, and low awareness of ecological and health risks. The persistence of this practice highlights a critical gap in public education and communication. This study assessed the effectiveness of various promotional materials in influencing awareness and reducing bushmeat consumption among urban dwellers in Lagos. Using a descriptive cross-sectional survey of 203 residents across 20 Local Government Areas, the study assessed exposure to awareness campaigns and their impact on knowledge and behavioural change. Findings showed that 70.4% of respondents reported reduced bushmeat consumption, and 55.2% reported increased awareness due to campaign exposure. The study found significant associations between age, occupation, and exposure to the materials ($p < 0.05$), with younger individuals showing greater responsiveness. A critical insight from the study reveals that education and income levels did not significantly influence behavioural change, challenging the assumption that conservation awareness is limited to more educated or affluent groups. Notably, many respondents encountered the campaign during the COVID-19 pandemic, when global concern over zoonotic disease heightened public sensitivity to the issue. A substantial number expressed willingness to reduce consumption if alternative protein sources, such as plant-based options or frog meat, were available. Without such substitutes, public campaigns and appeals may struggle to achieve long-term impact. This suggests that properly crafted messaging, when both timely and culturally resonant, can shift attitudes toward wildlife exploitation and urban bushmeat demand.

Key words: Bushmeat, Zoonotic diseases, Awareness campaigns, Promotional materials.

INTRODUCTION

Bushmeat consumption, the practice of hunting and consuming wild animals, has long been an entrenched cultural tradition in Nigeria, particularly in Lagos State. It serves as a source of food, income, and cultural identity, especially among various ethnic groups who consider bushmeat a delicacy and incorporate it into festivals, ceremonies, and traditional gatherings (Ogunbile, 2023). The term “bushmeat” typically refers to meat derived from wild terrestrial animals, including antelopes, monkeys, snakes, and pangolins, many of which are endangered or threatened (Milner-Gulland & Bennett, 2003; Fa, Julia & Nasi, Robert. (2015). While bushmeat plays a significant cultural, nutritional, and economic role, its continued consumption in urban centres such as Lagos has become a growing concern due to its implications for biodiversity loss and public health. The consumption and illegal trade of bushmeat contribute directly to the depletion of Nigeria's wildlife population. Species such as the forest elephant, chimpanzee, and pangolin are increasingly threatened by excessive hunting pressure (Izah, Sylvester & Aigberua, Ayobami, & Nduka, Joseph, 2018). From a public health standpoint, bushmeat consumption has been linked to zoonotic disease outbreaks, including Ebola, Lassa fever, and potentially COVID-19, raising alarms about food safety and disease transmission (Akani *et al.,* 2020; WHO, 2020). Despite these risks, urban demand for bushmeat persists in Lagos. Factors driving this trend include deep-rooted cultural preferences, perceived nutritional benefits, food insecurity, and weak enforcement of wildlife protection laws

(Malik and Reuben, 2019; Ingram *et al.,* 2017).

Bushmeat markets in Lagos often operate with little regulatory oversight, further increasing the risk of disease transmission due to poor hygiene practices. In response to these threats, various governmental and non-governmental organisations have launched public awareness campaigns to educate the public about the dangers of consuming bushmeat. A wide array of promotional materials, such as posters, flyers, billboards, radio and TV jingles, school-based campaigns, and social media content, has been deployed across Lagos to highlight the environmental, legal, and health-related consequences of consuming bushmeat (Muhinda *et al.* 2025). Promotional campaigns using materials such as posters, billboards, documentaries, social media messages, and radio jingles have been widely used to reduce bushmeat demand. These efforts seek to influence consumer behaviour by highlighting the ecological, legal, and health-related consequences of bushmeat consumption. In Nigeria and across West Africa, bushmeat remains a significant protein source for both urban and rural populations. However, consumption varies widely, influenced by wildlife availability, cultural practices, economic status, and government regulations.

In some settings, bushmeat is a primary protein source because alternatives are unaffordable or unavailable. In others, it is consumed as a luxury or preference item (Ntiamoa-Baidu, 1997). Commonly consumed species include grasscutters, squirrels, giant rats, porcupines, and bats (Abernethy *et al.,* 2019). Adewunmi, Idowu, and Oyeniran (2018), along with Adesina, Oluwatosin & Oduntan, Oladapo (2020), estimated that farmers across Nigeria's three ecological zones harvested over 1.3 million metric tonnes of bushmeat in just six months. While bushmeat consumption is prevalent in rural areas, it is also popular among urban dwellers, often driven by cultural nostalgia, taste preferences, and social status. This urban demand contributes significantly to the illegal wildlife trade and exacerbates biodiversity loss. In Nigeria, the ongoing decline of species like pangolins and chimpanzees has been directly linked to bushmeat hunting (Izah, Sylvester, & Aigberua, Ayobami, & Nduka, Joseph, 2018). Despite laws prohibiting the hunting of certain species, enforcement is weak, and illegal bushmeat markets continue to operate with little oversight. Campaigns often highlight these health risks to deter consumption.

However, their effectiveness depends on several factors, including message clarity, cultural relevance, and the medium through which they are communicated. Campaign materials must be accessible, linguistically appropriate, and culturally sensitive. Research by Aruku *et al.* (2025) found that many campaign materials used in Nigeria failed to resonate with target audiences due to language barriers or a lack of cultural context. Omeje *et al.* (2023) emphasised the importance of multidimensional campaigns that combine visual, auditory, and educational components. While Lagos State has implemented various promotional strategies, including school-based programs, social media campaigns, and print media, the impact of these materials on actual behaviour change remains under-evaluated (Lagos State Ministry of Environment, 2022). Thus, this study aims to investigate and evaluate the effectiveness of promotional materials used in combating bushmeat consumption among urban dwellers in Lagos State. It seeks to assess the reach, reception, and impact of various media formats on knowledge, attitudes, and behavioural change related to bushmeat consumption.



Fig. 1. Billboard Awareness Campaigns against Extinction and Illegal Bushmeat Trade in Lagos, Nigeria. Source: Wild Africa.

MATERIALS AND METHODS

This study was conducted in Lagos State, South-Western Nigeria. Lagos is Nigeria's most populous state and one of the smallest by land area (National Bureau of Statistics [NBS], 2022). It shares boundaries with Ogun State to the northeast and the Republic of Benin to the west. Lagos lies between latitude 6°35′N and longitude 3°45′E and is characterised by a tropical wet-and-dry climate. The state receives an average annual rainfall of approximately 1500 mm and has a mean temperature of about 28°C (Nigerian Meteorological Agency [NiMet], 2021). Administratively, Lagos State is divided into five divisions and twenty Local Government Areas (LGAs). The study population consisted of urban residents across the 20 LGAs of Lagos State, including both high- and low-density communities where bushmeat consumption is known to occur, as shown in Fig. 2.

A descriptive cross-sectional survey design was adopted to assess public awareness, attitudes, and behaviours at a specific point in time. This approach enabled the evaluation of the effectiveness of various promotional materials used to discourage bushmeat consumption among urban dwellers in Lagos State. Data were collected through randomly distributed structured questionnaires across the study area, yielding 203 valid responses. The questionnaire captured socio-demographic characteristics, exposure to promotional materials, and their perceived effectiveness in influencing awareness and behaviour. The instrument's reliability was assessed using Cronbach's alpha, with a threshold of $\alpha \geq 0.7$ considered acceptable for internal consistency (Taber, 2018). Descriptive statistics were used to summarise the data, while Chi-square (χ^2) tests were employed to assess associations between socio-demographic variables and the effectiveness of promotional materials on awareness, attitude, and bushmeat consumption behaviour. All analyses were conducted using SPSS software.

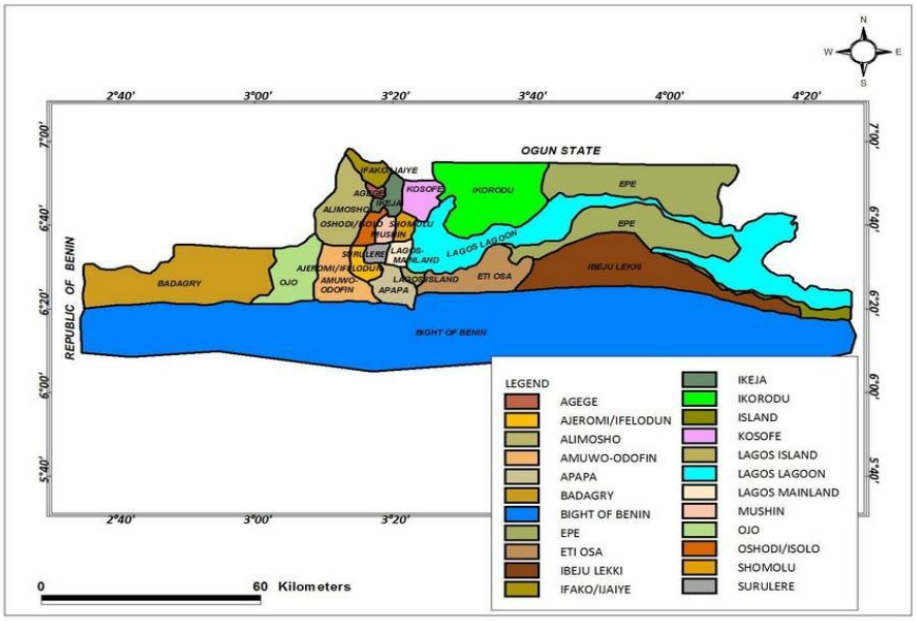


Fig. 2. Map of Lagos State showing the locations of the 20 Local Government Areas (LGAs)

RESULTS

The study involved 203 respondents across the 20 Local Government Areas of Lagos State, with an almost equal gender distribution (50.2% male and 49.8% female). Most participants were young adults, particularly those aged 18–24 (36.0%) and 25–34 (28.1%), reflecting Nigeria's youthful population structure. A large proportion of respondents were students (43.3%), followed by those who were employed (31.5%) and self-employed individuals (21.5%). Educationally, the majority had attained tertiary (74.3%) or postgraduate (21.8%) qualifications, indicating a well-educated sample. Nearly half (46.9%) reported monthly incomes below ₦50,000, suggesting modest economic status. Notably, 84.6% had lived in Lagos for over a decade, highlighting strong urban residency. Participants were well-distributed across LGAs, with higher concentrations in Ikorodu (17.7%), Alimosho (13.8%), and Shomolu (7.9%). Overall, the sample represents a youthful, educated, and urban-dwelling population, as shown in Table 1.

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Table 1: Demographic Characteristics of Respondents (n = 203)

Variable	Category	Frequency	Percentage (%)
Gender	Male	102	50.2%
	Female	101	49.8%
Age	18-24	73	36.0%
	25-34	57	28.1%
	35-44	50	24.6%
	45-54	20	9.9%
	55 and above	3	1.5%
Occupation	Student	88	43.3%
	Employed	64	31.5%
	Self-employed	43	21.5%
	Unemployed	6	3.0%
	Others	2	1.0%
Level of Education	Primary	1	0.5%
	Secondary	7	3.5%
	Tertiary	150	74.3%
	Postgraduate	44	21.8%
Level of Income	< ₦50,000	92	46.9%
	₦50,000 - ₦99,999	47	24.0%
	₦100,000 - ₦299,999	35	17.9%
	₦300,000 - ₦500,000	11	5.6%
	> ₦500,000	11	5.6%
Duration of Residence	Less than 1 year	2	1.0%
	1-5 years	18	9.0%
	6-10 years	11	5.5%
	More than 10 years	170	84.6%
Local Government Area	Agege	4	2.0%
	Ajeromi-Ifelodun	4	2.0%
	Alimosho	28	13.8%
	Amuwo-Odofin	3	1.5%
	Apapa	2	1.0%
	Badagry	3	1.5%
	Epe	5	2.5%
	Eti-Osa	4	2.0%
	Ibeju-Lekki	4	2.0%
	Ifako-Ijaiye	11	5.4%
	Ikeja	12	5.9%
	Ikorodu	36	17.7%
	Kosofe	7	3.4%
	Lagos Island	9	4.4%
	Lagos Mainland	16	7.9%
	Mushin	8	3.9%
	Ojo	4	2.0%
	Oshodi-Isolo	14	6.9%
	Shomolu	16	7.9%
	Surulere	13	6.4%

Exposure to Promotional Materials

Exposure to various promotional materials aimed at discouraging bushmeat consumption varied significantly across media platforms and locations. Billboards were among the most visible, with the

highest recognition reported in Oshodi-Isolo, where 71.9% of respondents recalled seeing Mayorkun's message on monkeypox prevention. Other locations, such as Surulere and Ikeja-Ogba, recorded 7.9% each. At the same time, areas like Ikoyi, Lekki, and Lagos Island had minimal visibility (1-2%), suggesting billboard campaigns had stronger reach in more densely populated or commuter-heavy zones.

Table 2: Respondents' Exposure to Promotional Materials (n = 203)

Variable	Exposure	Frequency (%)	Cumulative (%)
Billboards Sighted	Surulere (Stephanie Linus: "Fewer than 50 Lions left")	16 (7.9%)	7.9%
	Oshodi-Isolo (Mayorkun: "Help contain monkeypox outbreak")	146 (71.9%)	79.8%
	Wemco/Ikeja-Ogba (Davido: "Extinction sucks!")	16 (7.9%)	87.7%
	Ikorodu/Ojota-Maryland (Davido: "Stop the spread of monkeypox")	10 (4.9%)	92.6%
	VI - Ahmadu Bello (Emmanuella: "We can't allow pangolins to disappear")	4 (2.0%)	94.6%
	VI - Ozumba Mbadiwe (Davido: "Fewer than 50 lions left")	2 (1.0%)	95.6%
	Ikoyi - Awolowo Rd (Davido: "Save our pangolins")	2 (1.0%)	96.6%
	Ikoyi - Alfred Rewane (Davido: "Fewer than 50 lions left")	1 (0.5%)	97.0%
	Lekki (Josh2funny: "Fewer than 50 lions left")	2 (1.0%)	98.0%
	Lagos Island/Apongbon (Alex Iwobi: "Fewer than 50 lions left")	4 (2.0%)	100.0%
Movies/Series Seen	Dr. Mark's Animal Show (Silverbird TV)	16 (7.9%)	7.9%
	Go Wild Series (Arise News)	161 (79.3%)	87.2%
	Green Angle (TVC News)	14 (6.9%)	94.1%
	Environment Matters (NTA)	8 (3.9%)	98.0%
	(Unspecified additional viewership)	4 (2.0%)	100.0%
TV Jingles Seen	Davido: "Protect the roar of the Lion"	15 (7.4%)	7.4%
	Chief Obasanjo: "Preserve Pangolins – Say no to illegal bushmeat"	156 (76.8%)	84.2%
	Alex Iwobi: "Preserve Lions – Say no to illegal bushmeat"	20 (9.9%)	94.1%
	Stephanie Linus: "Preserve Pangolins – Say no to illegal bushmeat"	3 (1.5%)	95.6%
	Mayorkun: "Desist from poaching – Say no to illegal bushmeat"	4 (2.0%)	97.5%
	(Others)	5 (2.5%)	100.0%
Radio Adverts Heard	Wildlife Weekly on Yabatech Radio 89.3	Yes: 51 (25.1%)	100.0%
		No: 152 (74.9%)	74.9%
Articles Read	"Bill to protect endangered species passes first reading" (Premium Times)	14 (6.9%)	6.9%
	"Bill to tackle wildlife trafficking passes first reading" (EnviroNews Nigeria)	175 (86.2%)	93.1%
	(Others)	14 (6.9%)	100.0%

When it came to television programming, the Go Wild Series aired on Arise News had the broadest audience, with 79.3% of respondents viewing it. Other programs, such as Dr Mark's Animal Show (7.9%), Green Angle (6.9%), and Environment Matters (3.9%), were far less accessed, suggesting that content placement and broadcast frequency may have influenced exposure. TV jingles emerged as another powerful medium, particularly the one featuring Chief Olusegun Obasanjo, which reached 76.8% of respondents with his call to protect pangolins. Jingles by Davido, Alex Iwobi, Stephanie Linus, and Mayorkun reached smaller segments, indicating varying audience resonance despite celebrity involvement. Radio exposure was comparatively low, with only 25.1% reporting they had listened to Wildlife Weekly on Yabatech Radio. In contrast, print media performed exceptionally well—86.2% of respondents had read an article titled "Bill to tackle wildlife trafficking passes first reading" from EnviroNews Nigeria. Television and print media proved most effective in reaching the public, while billboard and radio exposure appeared more dependent on geographic and demographic factors.

Impact and Awareness

In Table 3 below, the frequency and perceived impact of anti-bushmeat promotional materials are summarized. A significant portion of respondents reported encountering the materials occasionally (37.9%), while a combined 21.2% encountered them frequently or very frequently, suggesting moderate to high visibility across platforms. In terms of cognitive influence, over half of the respondents (55.2%) acknowledged that the materials increased their awareness of the negative impacts of bushmeat consumption. The same proportion also indicated a shift in attitude, reflecting a positive change in mindset. Most notably, 70.4% of respondents stated they had reduced their consumption of bushmeat due to exposure to these campaigns, highlighting their potential behavioral influence. When further asked if the availability of alternative protein sources, such as frog meat or plant-based proteins, would influence their choices, many expressed a strong willingness to substitute bushmeat. This suggests that beyond awareness, providing culturally acceptable and accessible alternatives could reinforce and sustain the shift in behavior already initiated by these campaigns.

Table 3: Impact of Promotional Materials on Public Awareness, Attitude, and Bushmeat Consumption (n = 203)

Variable	Response Category	Frequency (%)	Cumulative (%)
Frequency of Sighting	Never	22 (10.8%)	10.8%
	Rarely	61 (30.0%)	40.9%
	Occasionally	77 (37.9%)	78.8%
	Frequently	31 (15.3%)	94.1%
	Very frequently	12 (5.9%)	100.0%
	Total	203 (100%)	
Increased Awareness	Yes	112 (55.2%)	56.3%
	No	42 (20.7%)	77.4%
	Maybe	49 (24.2%)	100.0%
	Total	203 (100%)	
Change in Attitude	Yes	112 (55.2%)	55.2%
	No	52 (25.6%)	80.8%
	Maybe	39 (19.2%)	100.0%
	Total	203 (100%)	
Reduction in Consumption as a result of the campaign and an alternate source of protein	Yes	143 (70.4%)	70.4%
	No	60 (29.6%)	100.0%
	Total	203 (100%)	

As shown in Table 4, chi-square analysis revealed that age was significantly associated with two behavioural outcomes: consumption reduction and reduction extent ($p < 0.05$). This indicates that respondents in different age categories did not respond uniformly to the promotional materials, and

that age may have influenced the likelihood and magnitude of behavioural change following exposure to anti-bushmeat campaigns. In practical terms, the findings suggest that promotional interventions may resonate differently across age groups, with some groups appearing more responsive than others. A statistically significant association was also observed between education level and reduction extent ($p = 0.023$). This suggests that while education did not significantly influence awareness, attitude, or simple reduction status, it may have affected the degree to which respondents adjusted their bushmeat consumption. This pattern implies that educational attainment may shape how strongly individuals translate conservation messaging into measurable behavioural change.

By contrast, gender, occupation, and income showed no statistically significant associations with any of the assessed outcomes ($p > 0.05$). This indicates that these socio-demographic variables did not appear to meaningfully influence exposure, awareness, attitude, or behavioural response within the study population. The absence of significance across these variables suggests that the effectiveness of the promotional materials may have been relatively broad-based rather than strongly dependent on sex, occupational category, or economic status. Overall, the findings highlight age as the most consistent socio-demographic factor associated with responsiveness to promotional materials, while education appears to play a more limited but still important role in shaping the extent of behavioural change. These results underscore the need for conservation campaigns to consider demographic variation, particularly age-related differences, when designing communication strategies aimed at reducing bushmeat consumption.

Table 4. Chi-square Test of Associations Between Socio-demographic Variables and Impact of Promotional Materials.

Variable	Response Type	Chi-square	df	p-value
Gender	Frequency of Exposure	5.74	4	0.220
	Awareness	0.11	2	0.946
	Attitude	3.44	2	0.179
	Attitude Change	0.30	2	0.861
	Consumption Reduction	1.40	1	0.237
	Reduction Extent	1.87	2	0.393
Age	Frequency of Exposure	11.21	16	0.798
	Awareness	9.99	8	0.266
	Attitude	9.57	8	0.296
	Attitude Change	10.92	8	0.206
	Consumption Reduction	12.85	4	0.012
	Reduction Extent	31.51	8	<0.001
Education	Frequency of Exposure	4.35	12	0.976
	Awareness	4.71	6	0.581
	Attitude	4.31	6	0.635
	Attitude Change	1.62	6	0.952
	Consumption Reduction	4.49	3	0.213
	Reduction Extent	14.69	6	0.023
Occupation	Frequency of Exposure	10.49	16	0.841
	Awareness	10.73	8	0.217
	Attitude	4.22	8	0.837
	Attitude Change	5.04	8	0.753
	Consumption Reduction	7.89	4	0.096
	Reduction Extent	8.42	8	0.393
Income	Frequency of Exposure	14.69	16	0.551
	Awareness	9.89	8	0.273
	Attitude	6.75	8	0.564
	Attitude Change	8.20	8	0.414
	Consumption Reduction	3.03	4	0.553

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DISCUSSION AND CONCLUSION

The effectiveness of multi-platform promotional materials, including billboards, TV jingles, movies, and print articles, helps shape public awareness of bushmeat consumption. Notably, respondents exposed to these messages were not only aware of their content but also reported substantive cognitive and behavioural responses. The widespread visibility of the billboards and televised materials, especially those endorsed by prominent public figures, underscores the influence of celebrity-driven, culturally tailored messaging. This echoes Veríssimo *et al.* (2018), who emphasised that conservation outcomes are more likely when messaging aligns with audience values and is delivered through trusted influencers.

Moreover, exposure translated into more than superficial awareness. A significant proportion of respondents indicated that these campaigns increased their understanding of the ecological and health risks associated with bushmeat consumption, with many acknowledging that their attitudes and consumption behaviours had shifted as a result. This is particularly significant given the traditionally persistent nature of bushmeat practices in Nigeria, often tied to cultural norms and food security. As Heberlein (2012) argues, changing behaviour requires more than information; it requires emotional and normative engagement, which these campaigns appear to have achieved. Importantly, the data suggest that these effects were not uniform across demographic groups. Age emerged as a key factor, significantly associated with both exposure frequency and the likelihood of reducing consumption. Younger respondents appeared more exposed and responsive, likely due to their higher engagement with media content and digital platforms. Similarly, occupation influenced exposure, suggesting that certain work environments or mobility patterns increase contact with awareness materials. These patterns affirm findings from Ogbu, Okoro & Chinweobo (2025), who reported that media visibility and message resonance vary by life stage and professional background.

In contrast, education level and income did not show statistically significant relationships with exposure or impact. This challenges common assumptions that conservation awareness is confined to educated or affluent demographics and reinforces the idea that mass-targeted media campaigns can cross social boundaries when designed inclusively. As Malik and Ruben (2019) suggest, bushmeat demand is not strictly a function of ignorance or poverty, but often of tradition, accessibility, and normalised behaviours.

While most media platforms performed well, radio stood out as an underperforming channel. The relatively low exposure rate to radio campaigns may reflect shifting media consumption trends, especially among younger urbanites increasingly disengaged from traditional audio platforms. Future campaigns might consider using podcasts, social audio, or integrating radio into community-based programming to increase reach and relevance.

Furthermore, when respondents were asked if the availability of alternative protein sources, such as frog meat or plant-based proteins, would further influence their decision to reduce bushmeat intake, many expressed a strong willingness to substitute. This highlights an essential ethical and practical dimension: you cannot ask people to stop consuming bushmeat without suggesting or providing accessible alternatives. Effective conservation does not merely point out a problem; it offers sustainable pathways forward. Tackling an issue holistically means addressing both the cultural and nutritional needs of the population. This study advocates for a paradigm shift in conservation policy, one that prioritises communication not as an afterthought, but as a central tool of engagement. Legal enforcement and regulation remain vital, but they are most effective when complemented by public understanding, community participation, and voluntary behaviour change. As urban populations grow and human-wildlife conflict intensifies, fostering a conservation ethic among the public supported by alternatives and strategic media becomes increasingly urgent and necessary.

RECOMMENDATION

Based on the findings of this study, the following recommendations are proposed:

1. Target Younger Populations Through Digital Media: Because age was significantly associated with both exposure and reduced bushmeat consumption, campaigns should prioritise younger audiences through social media, streaming platforms, and mobile-based messaging.

2. Develop Occupation-Specific Awareness Strategies: Given the strong link between occupation and exposure to promotional materials, tailor messaging to different occupational groups to improve campaign reach.
3. Strengthen Multi-Platform Campaign Approaches: Because television and print media proved highly effective, expand these channels while improving underperforming platforms such as radio.
4. Improve Accessibility of Campaign Messaging: Campaigns should be culturally relevant and available in local languages to enhance understanding across diverse populations.
5. Promote Alternative Protein Sources: Since many respondents expressed willingness to reduce bushmeat consumption when alternatives are available, government and stakeholders should support access to affordable protein substitutes.
6. Establish Continuous Monitoring Systems: Implement long-term evaluation of campaign effectiveness to track behavioural change over time.

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