



Use of Spices in Culinary Service and the Health Benefits on Gashua People of Bade Local Government Area of Yobe State

Ogori Akama Friday^{1*} Vala Jackson² and Hafsat Umar Sabo³

*^{1,2,3}Department of Home Science and Management, Faculty of Agriculture, Federal University, Gashua, P.M.B.1005
Gashua, Yobe State, Nigeria*

Abstract. This study investigated the use of spices in culinary services and its impact on the health of the Gashua people in Yobe State, Nigeria. The research adopted a descriptive survey design, collecting quantitative data from a sample of 50 respondents selected via convenience sampling. The objectives were to identify the health potentials of selected spices and analyze their cost-benefit, processing, and utilization. Findings revealed a strong, culturally ingrained use of traditional spices, with garlic (58%) and cloves (32%) being the most prevalent. A significant majority (78%) preferred local spices over imported alternatives, demonstrating their cultural importance. The study identified a high awareness (68%) of the health benefits of spices, with digestive health (66%) being the most recognized. Furthermore, 72% of respondents actively used spices to manage specific health conditions like stomach upsets, inflammation, and hypertension. Economically, quality was the primary purchasing factor (44%), outweighing price (26%), though consumers showed a pragmatic, conditional willingness to pay more for assured quality. Processing was predominantly home-based (70%), involving grinding and drying, but storage practices and significant concerns about adulteration (68%) indicated gaps in optimal preservation and safety. The study concludes that spices in Gashua are vital components of cultural identity, preventive healthcare, and economic livelihood. Recommendations include promoting proper storage techniques, educating the public on broader health benefits, and implementing quality assurance and regulatory measures to ensure spice safety and build consumer trust.

Keywords: spices, culinary, Health , processing , Benefit

INTRODUCTION

Spices are recognized as functional foods ingredients that offer health-promoting effects beyond their basic nutritional value (Lobo et al., 2010). They exist in various forms, colors, and aromas, contributing significantly to the taste, appearance, and nutritional profile of meals (Mann, 2011). When properly used, spices enhance the sensory qualities of dishes without compromising their organoleptic appeal (Kaefer & Milner, 2011).

In the modern culinary sector, there is an increasing demand for food that is both flavorful and beneficial to health. As health consciousness grows among consumers, the focus has shifted towards natural ingredients that can satisfy taste preferences while supporting wellness. Spices, valued for centuries in traditional cooking, are now acknowledged not only as flavoring agents but also as sources of bioactive compounds with antioxidant, anti-inflammatory, and antimicrobial properties. Historical evidence shows that spices have been used by humans for thousands of years. Archaeological findings in the Swiss Jura mountains revealed fennel seeds from the Neolithic period (5000 B.C.), while chili peppers native to the Andes have been part of human diets for over 10,000 years (Raghavan, 2006). Beyond flavor, spices such as turmeric, ginger, cinnamon, and cloves have been used in traditional medicine for their therapeutic benefits (Alieozaman et al., 2024; Norris & Dahl, 2013).

Spices are vital not only for their ability to enhance taste but also for their potential to improve health outcomes. They can help reduce the use of unhealthy ingredients such as excessive salt, sugar, and artificial flavorings, thus aligning with healthy eating guidelines (Nilius & Appendino, 2013). Culturally, spices preserve and promote traditional culinary practices, fostering diversity in food systems and supporting the global appreciation of ethnobotanical heritage (Sugasini et al., 2018;

Raghavan, 2006). Economically, the increased use of spices can stimulate agricultural production and trade, benefiting local farmers. From a public health perspective, incorporating spices into everyday meals offers an affordable, sustainable approach to improving diet quality and preventing certain chronic diseases (Duranova et al., 2022; Şekeroğlu & Kaya, 2025).

However, despite increasing scientific validation of their health benefits, the respondent nutritional potential of spices remains underutilized, especially in commercial culinary practices in Gashua. This study seeks to explore the role of spices in culinary services, focusing on both their availability, processing utilization and health-promoting functions.

The contemporary food environment is dominated by processed products and artificial additives, often leading to reduced nutritional quality and increased health risks (Drewnowski, 2020). While spices have been used for centuries to enhance taste and preserve food naturally, their health benefits such as providing antioxidants, improving digestion, and reducing inflammation are frequently overlooked (Peter, 2006; Shan et al., 2005).

Furthermore, despite the availability of research supporting the medicinal and nutritional properties of spices, many culinary practitioners and consumers remain unaware of how to integrate them effectively for optimal health outcomes (Prasad & Bondy, 2020). This lack of awareness limits the adoption of spices as tools for healthier cooking and dietary improvement. Therefore, there is a need to examine the use of spices in culinary services, assess public awareness of their health benefits believed they have, ways spices used in food preparation by culinary service providers and consumers and promote strategies that enhance their application in food preparation.

METHODOLOGY

Research Design

This study a descriptive survey design using a quantitative approach was adopted to collect factual data on awareness, usage, and perceptions regarding spices in culinary services.

Area of the Study

The research was conducted among residents of Gashua and surrounding communities, where both traditional and modern cooking practices are common.

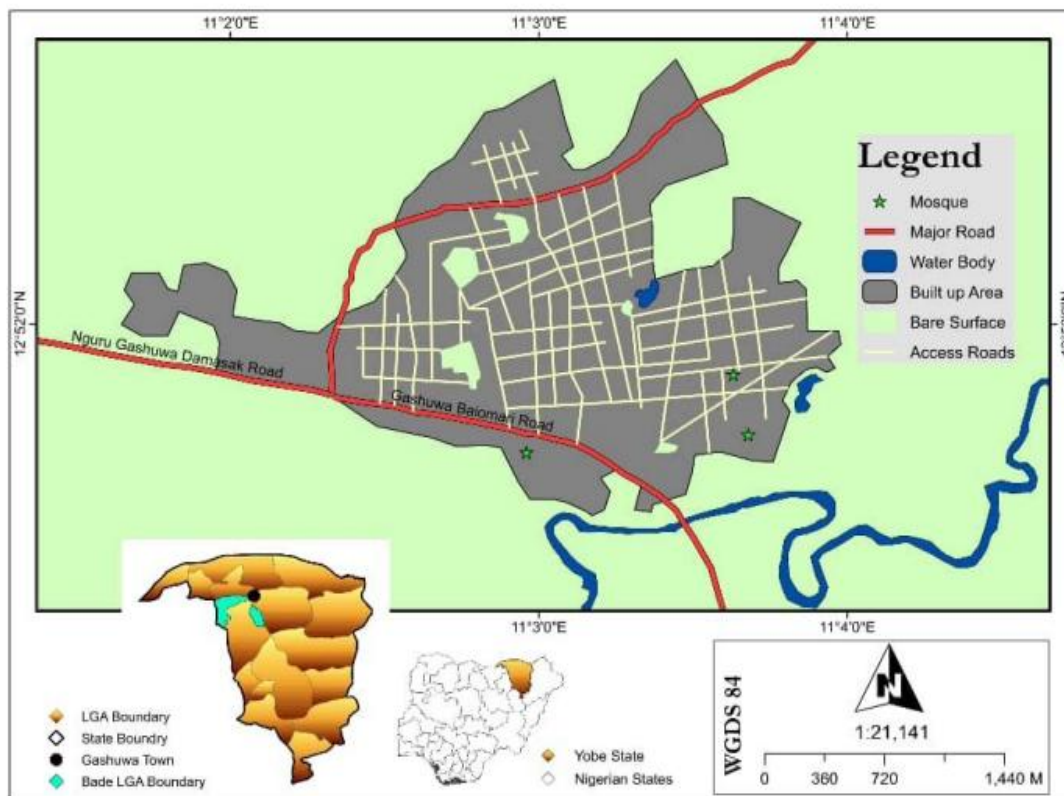


Figure 1: Map of the study area

Source: adopted and modifies from the political map of Yobe state

Population of the Study

The population consist of adult males and females aged 18 years and above involved in food preparation or consumption, including homemakers, students, food vendors, and culinary professionals.

Sample and Sampling Technique

A sample of 50 respondents was selected through a convenience sampling method, targeting households, markets, restaurants, and eateries.

Instrument for Data Collection

Data were collected through a structured questionnaire containing closed-ended questions, including Likert-scale and multiple-choice formats. the questionnaire instrument was validated before being distributed to the 50 respondents by Cronbach's Alpha reliability testing.

Method of Data Collection

Questionnaires will be distributed physically ensuring inclusion of respondents with different literacy levels.

Data Analysis

Collected data were analyzed using descriptive statistics frequencies, percentages, and means summarized in tables and charts for clarity, Chi- square was used to show the relationship between some variables.

RESULTS

The Socio Economic characteristics of respondents

The study was conducted to investigate the use, health benefits, and cost-benefit dynamics of spices within culinary services in the North East zone. It specifically sought to identify commonly used spices, examine their processing and utilization, assess their health potentials, and analyze their cost-effectiveness. Using a survey methodology, data were collected from 50 respondents predominantly engaged in culinary services. The Table 1 on demographic profile revealed that the sector is largely female-dominated (84%), with a majority of adults above 35 years (44%) who mostly attained secondary education (56%). Respondents included both experienced practitioners (38% with over four years of practice) and newcomers (38% with less than a year), primarily working as food vendors (36%) and home cooks (34%).

Table 1: Socio Economic characteristics of respondents

Characteristics	Frequenc y	Percentag e	Mean
Gender			
Male	8	16%	0.16
Female	42	84%	0.84
Age Group			
15–25	12	24%	0.24
26–35	16	32%	0.32
Above 35	22	44%	0.44
Education Level			
No formal education	0	0%	0.0
Primary	7	14%	0.14
Secondary	28	56%	0.56
Tertiary	15	30%	0.30
Role			
None	2	4%	0.4
Chef	6	12%	0.12
Cook	3	6%	0.6
Caterer	4	8%	0.8
Home cook	17	34%	0.34
Food vendor	18	36%	0.36
Total	50	100%	

The Uses of Spices among Gashua People

The findings on Table 2 showed that garlic (58%) and cloves (32%) were the most frequently used spices, with strong cultural attachment to traditional varieties (78%) and universal knowledge of their local Hausa names. Spices were commonly purchased in bulk on a monthly basis (42%), reflecting consumption consistency.

Table 2: Uses of Spices Among Gashua People

Experience	Frequency	Percentage	Mean
Less than 1 year	19	38%	0.38
1–3 years	12	24%	0.24
More than 4 years	19	38%	0.38
Spice			
Turmeric	6	12%	0.12
Cloves	16	32%	0.32
Garlic	29	58%	0.58
Lemon grass	11	22%	0.22
Class Preference			
Traditional spices	39	78%	0.78
Imported spices	11	22%	0.22
None	0	0%	0
Total	50	100%	
Spice Local Names (Hausa)			
Turmeric	Kurkum	50	1
Garlic	Tafarnuwa	50	1
Cloves	Kananfari	50	1
Lemon grass	Ciyawan shayi	50	1
Intake Preference			
Daily	6	12%	0.12
Weekly	15	30%	0.30
Monthly	21	42%	0.42
Rarely	8	16%	0.16
Classes of Spice			
Turmeric	7	14%	0.14
Cloves	16	32%	0.32
Lemon grass	8	16%	0.16
Garlic	19	38%	0.38
Total	50	100%	100

Factors That Affect Spices Purchased , Quality and Consumption

On cost-effectiveness, while 56% of respondents considered spices affordable, 62% acknowledged that they raised the overall cost of meals. This highlighted a dual perception of value where quality (44%) outweighed price (26%) as the key purchasing factor. Willingness to pay more for quality was conditional for 50% of respondents, often linked to trust in product authenticity. Finally, concerns about adulteration were significant, with 68% of respondents expressing worry over contamination and compromised safety, underlining the need for stronger quality assurance in the spice market.

Table 3: Factors That Affect Spices Purchased and Consumption

Characteristics	Frequency	Percentage	Mean
Price	13	26%	0.26
Quality	22	44%	0.44
Brand	9	18%	0.18
Packaging	6	12%	0.12
Others	0	0%	0.0
Total	50	100%	
Concern about spice quality			
Yes	28	56%	0.56
No	14	28%	0.28
Not sure	8	16%	0.16
Total	50	100%	
Cost Effectiveness of spices			
Increases cost	31	62%	0.62
Decreases cost	9	18%	0.18
No impact	10	20%	0.20
Total	50	100%	
Willingness to pay for quality spices			
Yes	17	34%	0.34
Depends	25	50%	0.50
No	8	16%	0.16
Total	50	100%	

The health benefit of using spices in Gashua

The health benefit of using spices in Gashua is shown Table 4. Awareness of the health benefits of spices was high (68%), with digestive benefits (66%) being the most recognized, followed by antioxidant (36%) and anti-inflammatory (24%) properties. Notably, 72% of respondents reported using spices to manage health issues, particularly indigestion (34%), inflammation (26%), cough (16%), and hypertension (12%), indicating the practical use of spices in home-based healthcare.

Table 4: The health benefit of using spices in Gashua

Characteristics	Frequency	Percentage	Mean
Yes	34	68%	0.68
No	12	24%	0.24
Not sure	4	8%	0.8
Health Benefit			
Anti-inflammatory	12	24%	0.24
Antioxidant	18	36%	0.36
Digestive benefits	33	66%	0.66
Others	0	0%	0.0
Uses of spice to alleviate health issues			
Yes	36	72%	0.72
No	14	28%	0.28
Health Issue			
Stomach upset	9		0.18
Toothache	11		0.22
High cholesterol	8		0.16
Weak immunity	8		0.16
Total	50	100%	

Processing and Utilization of Spices among Gashua people.

The Processing and Utilization of Spices among Gashua people is shown in table 5. Under the terms of processing, 70% of respondents prepared spices before use, mostly through grinding (36%) and drying (24%). While 40% stored spices in airtight containers, others relied on less optimal storage methods such as plastic bags (24%), which risk reducing quality and shelf life

Table 5: Processing and Utilization of Spices among Gashua people

Characteristics	Frequency	Percentage	Mean
Processing methods			
Grinding	18	36%	0.36
Drying	12	24%	0.24
Washing	8	16%	0.16
Sun-drying	7	14%	0.14
Others	5	10%	0.10
Storage of spices			
Airtight containers	20	40%	0.40
Plastic bags	12	24%	0.24
Bottles	10	20%	0.20
Open containers	5	10%	0.10
Others	3	6%	0.6
Total	50	100%	100

Table 6 show the relationship between observed process utilization and its implication on health of consumer in Gashua town. Result reveals that there exists significance relationship where process and utilization has effect on the health merit of spices.

Table 6: Relationship between Health Benefit of Using Spice and Process Utilization of Spices among Gashua people

Spice Type	Observed (Process Utilization)	Observed (Health Benefit)	Expected (Process Utilization)	Expected (Health Benefit)	$(O-E)^2/E$ (Process Utilization)	$(O-E)^2/E$ (Health Benefit)
Turmeric	6	12	8.93	9.07	0.96	0.95
Cloves	16	18	16.86	17.14	0.04	0.04
Garlic	29	33	30.74	31.26	0.10	0.09
Lemon grass	11	0	5.46	5.54	5.60	5.54
Total	62	63			6.70	6.62
Statistical Parameter					Value	
Calculated χ^2					13.32	
Degree of Freedom (df)					3	
Level of Significance (α)					0.05	

DISCUSSION

The study was conducted to investigate the use, health benefits, and cost-benefit dynamics of spices within culinary services in the North East zone. It specifically sought to identify commonly used spices, examine their processing and utilization, assess their health potentials, and analyze their cost-effectiveness. Using a survey methodology, data were collected from 50 respondents predominantly engaged in culinary services. The study's respondent profile reveals a predominantly female cohort, with women making up 84% of the sample, suggesting that culinary practices involving spices in Gashua are primarily female-driven. In terms of age, the respondents are a mature group, with the largest segment (44%) being over 35 years old, indicating that spice-related knowledge is likely held by more experienced individuals. The educational background is relatively high, as the majority have at least a secondary education (56%), with another 30% possessing tertiary education, which may influence their awareness and processing of information regarding spice use and health benefits. The professional roles further clarify the context, as the majority identify as "Home cooks" (34%) or "Food vendors" (36%), confirming that the data reflects practical, everyday use of spices in both domestic and small-scale commercial settings. The data on spice usage illustrates a well-established culture of consumption, with 76% of respondents having over one year of experience and 38% using spices for more than four years. When examining specific spices, garlic is the undisputed favorite, used by 58% of respondents, significantly outpacing cloves (32%) and lemon grass (22%). A striking 78% of respondents expressed a clear preference for traditional spices over imported ones, highlighting a strong cultural preservation in culinary habits. This traditional use is further evidenced by the universal recognition of the local Hausa names for all listed spices. The frequency of use is most commonly monthly (42%) or weekly (30%), suggesting that while spices are a regular part of the culinary cycle, they are not necessarily used in every single meal.

This table reveals the economic and decision-making factors behind spice consumption. Quality emerges as the single most important purchasing factor for 44% of respondents, nearly double the influence of price (26%), indicating that consumers are discerning and value the intrinsic properties of the spice. A majority (56%) are aware of price fluctuations, and most of those (62% of the total) believe these changes increase the cost, pointing to affordability as a tangible concern. When asked if they would pay more for quality, half of the respondents gave a conditional "yes," stating that it "depends," reflecting a pragmatic and price-sensitive approach to purchasing, where value is balanced against cost.

The perception of health benefits is a significant driver of spice consumption in Gashua. A strong majority (68%) believe that spices offer health benefits, and an even larger number (72%) actively use them for health reasons. Among the specific benefits, digestive health is the most widely recognized, cited by 66% of respondents, far exceeding awareness of antioxidant (36%) and anti-inflammatory (24%) properties. This points to a practical, experience-based understanding of spice functionality. The application of spices is targeted toward common ailments, with respondents reporting use for toothaches (22%), stomach upsets (18%), high cholesterol (16%), and weak immunity (16%), confirming their role in primary healthcare.

The findings on processing and storage depict a largely self-reliant and traditional system. A significant 70% of respondents process their spices at home, primarily through grinding (36%) and drying (24%). For storage, the most common method is airtight containers (40%), which is a good practice for preserving potency, though a substantial portion still uses less optimal methods like plastic bags (24%) and open containers (10%). While 68% are aware of potential health risks associated with spices, a notable 18% are unsure, indicating a gap in specific knowledge about food safety, contamination, and proper handling that could be addressed through public health education.

CONCLUSION

Based on the findings of this study, the following conclusions are drawn: The predominant use of traditional spices and universal knowledge of their local names underscore their cultural significance beyond mere flavoring agents. The high percentage of respondents who use spices to address specific health conditions demonstrates that the health benefits are not just theoretical but are actively leveraged within the community, particularly for gastrointestinal and inflammatory ailments. While processing practices like grinding and drying are common, storage methods and high concerns about adulteration indicate a gap in optimal preservation and a need for assured quality standards. The market is driven by quality-conscious consumers who recognize the added value of spices but are also pragmatic about cost. The conditional willingness to pay more for quality suggests that consumers make calculated decisions based on perceived tangible benefits and trust in the product's purity. In essence, spices in the North East zone are not merely culinary ingredients but are vital components of

cultural identity, preventive healthcare, and economic livelihood. The interplay between their health benefits, cost implications, and safety concerns defines their role in the culinary services sector. The promotion of proper storage techniques, public education on broader health benefits, and the implementation of quality assurance measures and regulations to ensure spice safety and build consumer trust.

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