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Involvement of Rural Women in Shea Butter Processing in Kwara State, Nigeria

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Abstract

The study assessed women's involvement in shea butter processing in Kwara State, Nigeria. A multi-stage sampling procedure was used to select 250 women. Data were collected using a structured interview schedule and analyzed using percentages, mean, standard deviation and Pearson's Product Moment Correlation. Results showed that the women had an annual income of ₦220,148.00 and an average of 30.51 years of processing experience. About 26.4% had non-formal education, and 63.6% relied on family labour. Their knowledge level of shea butter processing was medium. They were actively involved in most processing activities, including cleaning and boiling ($\bar{x}$=3.00). The major benefit of shea butter to rural women identified by the women was better skin and hair care ($\bar{x}$= 4.66) and market access ($\bar{x}$ = 4.65). However, Challenges faced were limited access to modern technology ($\bar{x}$= 2.75) and physical health risks ($\bar{x}$=2.75). There is a significant correlation between rural women's knowledge level and their involvement in shea butter processing (r = 0.786). Rural women are highly involved in shea butter processing but face challenges that limit production. Government should provide mechanized shea butter processing equipment to reduce labor and training of women processors on improved hygiene, quality control, and mechanical extraction techniques.

Key words: Rural women, Involvement, Shea butter Processing

Introduction

Shea butter is a natural moisturizer extracted from the nut of the African shea tree (*Vitellaria paradoxa*). It is a cornerstone of rural livelihoods across the African shea belt, where an estimated 16 million women depend on collecting and processing shea nuts for income (Tijani et al., 2025).

Products include cosmetic items such as skin creams and moisturisers, soaps, hair creams, and lip balms; pharmaceutical products such as wound care products, skin ointments, and anti-inflammatory creams; and food products such as cooking oil, baking products, and chocolate products. (Nwachi *et al.,* 2022). Other products from Shea butter are candles. Shea kernel is obtained by processing fresh Shea fruits and is further processed into Shea butter. Manual and semi-mechanised methods are used to process shea kernel into butter. Shea butter processing in Nigeria is mostly done traditionally by women in rural areas (Yabi et al., 2021). The procedure is tedious and

time-consuming, from collecting shea fruits to producing the end products (Mojisola et al., 2022). Shea butter production and its associated processing activities have directly or indirectly supported over 15 million African women, who remain the primary actors in the collection and processing of shea nuts (Ayelazuno & Yaro, 2024).

Women are becoming the sole producers of food for the maintenance of the family; this shows that women play a major role in income-generating agro-based enterprises such as subsistence food production, food processing, home crafts, market trade, etc. (Kayode et al., 2024). Women's involvement in agricultural processing contributes to rural development and poverty reduction (Bin Duwa Bin Khoja, 2021).

Processing agricultural produce refers to transforming raw agricultural produce into forms that are safer, more palatable, and easier to transport, store, or market (Olakunle et al., 2024). Processing agricultural produce can add value to raw products, increase shelf life, create new market opportunities, and help reduce post-harvest losses, improve food safety, and enhance the overall efficiency of agricultural production (FAO, 2024). The processing of shea butter serves as a path way to economic empowerment and household income, builds on indigenous knowledge passed through families, and directly targets rural poverty reduction while preserving cultural heritage (Naah et al., 2021; Zakaria et al., (2021). Women should therefore be actively engaged in shea butter processing because it serves as a pathway to economic empowerment and household income. According to Duodu et al. (2024), traditional shea butter processing is tedious, and men tend to be involved in some aspects of the process as skilled or unskilled labour, which makes processing unprofitable for rural women. Several authors have accessed women involvement in Cassava processing in Kwara State (Awoyemi et al., 2020; Ocheni et al., 2024), Rice processing in Niger State (Dauda et al., 2024), Palm Oil processing in Oyo State (Okanlawon & Adelakun, 2026) and Shea butter processing in Niger State, and Oyo State (Sani & Masud, 2022; Zaka et al., 2025) But none have looked into shea butter processing in Kwara State. Thus, need for this study.

The specific objectives of the study were to: ascertain the knowledge level of rural women in Shea butter processing; identify the perceived benefits derived from the rural women’s involvement in shea butter processing; determine the level of rural women involvement in shea butter processing activities; and identify constraints affecting rural women in shea butter processing.

$H0_1$: determine relationship between knowledge of rural women and their involvement in shea butter processing activities.

Methodology

The study was conducted in Baruten and Kaima Local Government Areas, Kwara State, Nigeria. Baruten borders the Republic of Benin. Kosubosu serves as its administrative headquarters. The four districts that make up Baruten LGA are Yashikira, Gwanara, Ilesha Baruba, and Okuta. It has a population of 3,551,000 by city population (National Bureau of Statistics, 2022) and covers 9,749 km2. With a 9,749 km2 territory, Baruten Local Government Area is the largest in Kwara State by area. Kaima Local Government was created in 1984. It shares a boundary with Oyo State in

the south and Niger State in the North. It has 10 Wards. It covers an area of 6,971 km2 and had a population of 124,164 at the 2006 census. Its major towns are Kaima, Bani, Kemanji, Kanikoro, Adena, Aboki, Woro, and Kugiji. Bokobaru, Hausa,

The study population comprised all rural women involved in Shea butter processing in Kwara State, Nigeria.

A multistage sampling procedure was used to select the respondents. Stage one involved purposively selecting Kaiama and Baruten LGAs, due to the dominance of African shea tree farmers in the area. The second stage also involved purposively selecting 6 communities from Baruten LGA and 5 communities from Kaiama LGA based on their involvement in shea butter processing, for a total of 11 communities. Stage three involved proportionate sampling of 20% of processors from each selected community in Kaiama and Baruten Local Government Areas, resulting in a sample size of 250 rural women.

Summary of Sampling Procedure and Sample Size

Stage 1: Purposive selection of LGA	Stage 2: Purposive selection of communities that process shea butter	Stage 3: Proportionate Random Sampling of 20% from the entire population	
		Total Shea butter Rural Women Processors	**Sampling Size**
Kaiama	Bani	83	17
	Gwana	96	19
	Wajibe	110	22
	Venra	120	24
	Kaiama	150	30
Baruten	Gwassoro	95	19
	Shiya	112	22
	Yashikira	115	22
	Gaa Awaye	115	23
	Okuta	120	24
	Kosubosu	140	28
	Total	**1251**	**250**

Source: ADP, Kwara State.

Data from the study were collected using a structured interview schedule and were analysed using the mean, percentages, standard deviation and Pearson's Product Moment Correlation to test the hypotheses of the study.
Knowledge of rural women on Shea butter processing was measured on Yes (1) No (0). Respondents were required to respond carefully to the options (yes or no) to indicate their knowledge of Shea butter processing on 25 knowledge statements.
To classify the knowledge level of the farmers, the knowledge index of each respondent was computed using the following formula

Knowledge index= Respondents' total score x100
Total possible score (25)

Based on the knowledge index score, the Shea butter processors were categorized into

Low knowledge ----------<50
Medium knowledge -------- 50-69
High knowledge ---------- 70 and above

Perceived Benefits derived from their involvement in processing: The respondents were asked to indicate the perceived benefits they derived from involvement in shea butter processing. It was measured on a 5-point Likert scale: (5) strongly agree, (4) agree, (3) undecided, (2) disagree, (1) strongly disagree.

The cut-off point was 3.0(5+4+3+2+1 =15/5 = 3). This implies that any item whose variables had a mean equal to or greater than 3.0 was considered highly beneficial, whereas variables with a mean less than 3.0 were considered less beneficial, but any mean that is lower than 3 was considered as minor benefits'

Challenges the respondents faced in the involvement of Shea butter processing were measured on a 3-point rating scale of very severe (3), severe (2), not severe (1)

The benchmark was 2.0 (3+2+1/3 = 6/3 = 2). Any challenge with a mean equal to or greater than 2.0 was considered a severe challenge, whereas any challenge with a mean less than 2.0 was considered a minor challenge

On the involvement of rural women in shea butter processing, the respondents were asked to indicate their involvement in processing activities, which were measured on a 3-point rating scale: not involved (1), somewhat involved (2), very involved (3). The benchmark is 2.0 (1+2+3/3 = 6/3 =2); any activity with a mean equal to or greater than 2.0 was considered a 'main activity', whereas any activity with a mean lower than 2 were considered a minor activity.

Results and Discussion

Knowledge of Rural Women about Shea Butter Processing Activities

Table 2 shows an overwhelmingly positive and high level of correct responses by the rural women Shea butter processors. Some Shea butter processing practices with high scores are "Shea nuts must be sorted and cleaned before processing" (99.6%) and "Mechanical extraction is a common method of extracting Shea butter" (100%), among others. This implies that the rural women are knowledgeable about Shea butter processing. This may be because Shea nut processing is often a skill passed down through family lines, with women learning the craft from their mothers or other female relatives. This result agrees with the findings of Kareem et al. (2024) that shea processors have knowledge of processing steps and medicinal uses in the study area.

Table 2: Knowledge of Rural Women in shea butter Processing activities

Knowledge statements	%
Shea nuts must be sorted and cleaned before processing	99.6
Mechanical extraction is a common method of extracting Shea butter	100.0
Shea processing is a complex process	66.4
Shea butter can be extracted from Shea nut using the cold pressing method	74.0
Shea butter is rich in Vitamins A, E, and F, which are beneficial for skin health	66.4
Shea processing involves only one step	10.0
Modern Shea butter processing techniques increase the butter's shelf life and maintain its nutritional properties	97.2
Shea butter processing supports sustainable agricultural practices by promoting the growth of Shea trees	76.8
The traditional handcrafting method of making Shea butter empowers local women in many African countries	100.0
Shea trees are drought-tolerant and can thrive in challenging environmental conditions	71.6
The best time to harvest Shea nuts is during the dry season	0.4
The optimal time for harvesting Shea nut is when the fruits is fully ripe	74.8
Shea nut can be harvested at any time of the year	3.6
Drying shea nuts is an essential step in the processing of Shea butter	100.0
Drying shea nuts can damage the nuts and reduce their quality	0.0
Shea butter extraction involves grinding the Shea nut into a fine paste	0.8
The quality of the Shea butter is not affected by the quality of the Shea nuts	0.0
Visual inspection can be used to check the quality of Shea nuts	100.0
Moisture content has no impact on quality of Shea nuts	0.4
Kneaders can be used to mix and blend Shea butter with other ingredients	98.8)
Kneaders can introduce air into the Shea butter and cause it to become rancid	0.4
Shea butter extractors are not effective at extracting Shea butter	20.8
Shea butter processing can provide economic benefits for rural communities particularly, women	99.6
Shea butter processing can have environmental concerns such as deforestation and water pollution	0.8
Shea butter is a versatile ingredient used in a variety of products, including skin care products, food and cosmetics	100.0

Source: Field Survey, 2025

Knowledge Level of Rural Women about Shea Butter Processing Activities

Table 3 shows that the respondents have medium knowledge. This may be because rural women still use more indigenous methods to process their Shea nuts. Therefore, the quality of the Shea butter may not be as refined as that processed with modern technology and machines. Studies have reported that processors use traditional methods because of inadequate knowledge (Bai-Tachia et al., 2024). Therefore, Arabomen (2024) found that access to training programs can significantly improve efficiency, product quality, and the ability to engage in more profitable market activities.

Table 3: Knowledge Level of Respondents

Score	Frequency	Percentage	Remarks
<50	61	24.4	Low
50-70	187	74.8	Medium
>70	2	0.8	High

Source: Field Survey 2025

Involvement of Rural Women in Shea Butter Processing Activities

Table 3 depicts the level of involvement of rural women in Shea butter processing. The result shows that rural women were involved in the following shea butter processing activities: cleaning and boiling of nuts ($\bar{x}$=3.00; SD=0.13), sorting ($\bar{x}$=2.98; SD=0.18), filtering ($\bar{x}$=2.98; SD=0.18), kneading and packaging ($\bar{x}$=2.98; SD=0.18) and ($\bar{x}$=2.98; SD=1.8) shared the third position respectively. The results indicate that high involvement of rural women across all shea processing stages. These are operations that don't require much energy and, as such, can be easily undertaken by women. Also, these operations have few technical requirements, as they can be done by unskilled rural women. This result agrees with Kareem et al. (2022). Nevertheless, turning ($\bar{x}$=2.60 SD=0.8), crushing ($\bar{x}$=2.57; SD=0.8), roasting ($\bar{x}$=2.56 SD=0.8), are training needs areas, explaining why these recorded the lowest means. The implication is that women are fully involved, but mechanization and targeted training are needed to convert high labour involvement into higher productivity and value (Arabomen, 2024).

Table 4: Rural women's involvement in shea butter processing

Processing activities	Mean	SD
Collection of Shea nuts	2.99	**0.12**
Sorting	2.98	**0.17**
Cleaning	3.00	**0.00**
Boiling	3.00	**0.00**
Drying	2.91	**0.41**
Roasting	2.56	**0.83**
Crushing	2.57	**0.81**
Separation	2.62	**0.77**
Grinding	2.61	**0.78**
Turning	2.60	**0.80**
Extraction	2.97	**0.21**
Filtering	2.98	**0.17**
Kneading	2.98	**0.17**
Packaging	2.98	**0.17**

Source: Field Survey 2025 mean cutoff point=2.

Perceived Benefits Derived by the Respondents in Involvement in Shea Butter Processing Activities

Results in Table 4 showed the benefits derived from Shea butter processing by the women. The results show an overwhelmingly positive response to the listed benefits. Some of these benefits are the fact that Shea butter is useful to having "Better Skin and hair care" ($\bar{x}$=4.66; SD =0.37) "market access", ($\bar{x}$=4.65; SD =0.36) "income generation" ($\bar{x}$=4.58; SD =0.35) among others. This implies that Shea butter processing have benefitted the respondents directly and indirectly. The result corroborates the findings of Kareem et al. (2024) that Shea butter provides economic, social and health benefits to rural women who process it. Moreover, kabir and Adeola (2024) confirm that Shea butter is a source of income to rural women involved in its processing.

Table 5: Perceived benefits derived from involvement in shea butter processing by rural women

Benefits	Mean	SD
Better Skin and hair care	4.66	0.37
Market access	4.65	0.36
Income generation	4.58	0.35
Skill development	4.58	0.35
Financial independence	4.55	0.34
Improved livelihood	4.57	0.33
Cultural preservation	4.54	0.33
Job creation	4.46	0.32
Community development	4.03	0.30

Source: Field Survey 2025

Constraints Affecting Rural Women Involvement in Shea Butter Processing Activities

The result in Table 5 shows "There was limited access to modern technology" ($\bar{x}$ = 2.75; SD = 0.47); this may result from inadequate funds for rural women to acquire modern equipment to process Shea butter. This aligns with Ahmed et al. (2022), who found that while modern technologies, such as mechanical nut crushers and automated processing machines, can significantly improve efficiency and product quality, rural women often lack access to these technologies due to high initial costs and limited access to training. Also, Tijani & Sanusi (2023) reported that Shea butter processors had low access to modern technologies. Another significant factor, "physical health risk" ($\bar{x}$ = 2.75; SD= 0.47), means that rural women are faced with physical health risks like musculoskeletal injuries from manual handling of heavy loads

and repetitive tasks. They are exposed to burns and scalds from handling hot equipment or water during shea nut processing. They face vision problems from prolonged exposure to smoke. This is in line with Abdel-Rasek et al (2023), who found that traditional shea butter processing exposes workers, especially women, to several physical health risks because much of the work is manual and carried out under poor occupational safety conditions. They also identified limited access to packaging materials among many others ($\bar{x} = 2.72$; SD = 0.46). This may be because the jars and bottles are not readily available in the community. Proper packaging makes shea butter easier to handle and transport.

Table 6: Constraints affecting rural women's involvement in shea butter processing

Constraints	Mean	SD
Limited access to modern processing technologies	2.75	0.47
Physical health risks	2.75	0.47
Limited access to packaging materials	2.72	0.46
Deforestation	2.67	0.45
Inadequate access to education and information on modern processing activities	2.64	0.44
Limited financial resources	2.64	0.44
Labor intensive processing methods	2.64	0.44
Limited decision-making power	2.56	0.42
Seasonality and resources availability	2.06	0.41
Limited market access and marketing challenges	1.90	0.40
Inadequate access to Shea nut	1.79	0.39

Source: Field Survey 2025

Relationship between Knowledge Level of Rural Women and their Involvement in Shea Butter Processing

According to Table 7, a significant correlation exists between the knowledge level of rural women and their involvement in Shea butter processing (r=0.786). The positive correlation coefficient (r=0.786) implies that higher knowledge levels increase participation in Shea butter processing. A higher knowledge level will enable processors to use modern methods and improved technology. Their knowledge will influence their participation because they understand the profitability and other benefits of Shea butter. This result corroborates Falola et al. (2022), who found that the intergenerational transmission of knowledge not only ensures the continuity of the practice but also reinforces women's involvement and efficiency in Shea butter processing.

Table 7: Result of the correlation analysis between level of knowledge of rural women and their involvement in shea butter processing

	Level of Knowledge	Level of Involvement
Level of Knowledge	1	0.786**
Level of Involvement	0.786**	1

Source: Field survey, 2025. ** Correlation is significant at 0.05level (2-tailed)

Conclusion and Recommendations

This study concluded that the involvement of rural women in Shea butter processing was high and influenced by annual income, household size, educational level, processing experience, source of labour and contact with extension agents, and that a significant correlation exists between the knowledge level of rural women and their involvement in Shea butter processing in Kwara State.

Based on the findings and conclusion of the study, the following recommendations were made: Policy and supportive programs for training rural women should be encouraged to improve their knowledge of shea butter processing activities.

Government should improve access to resources by providing credit facilities and modern processing equipment to rural women to increase their involvement in Shea butter processing and improve the quality of Shea butter.

Research institutes should train extension agents and introduce labour-saving technologies to reduce drudgery and increase efficiency in Shea butter processing.

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