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Rural Women Involvement in Black Soap Production in Awe Town, Oyo State, Nigeria

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Keywords

Black soap, rural women, indigenous enterprise, socio-economic factors and production constraints

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Abstract

This study examined the involvement of rural women in black soap production in Awe Town, Oyo State, Nigeria, focusing on socio-economic characteristics, production activities, sources of inputs and capital, access to information, and production constraints. Data were collected from sixty (60) women producers using a structured interview schedule and snowball sampling technique. Descriptive statistics, Chi-square tests, and Spearman's rank correlation were employed for analysis. The respondents had a mean age of 38.3 years and an average production experience of 21.6 years. Most were married (68.3%) and had attained primary education (51.7%). Black soap production generated a mean annual income of ₦134,998.68, contributing significantly to household livelihoods. Women were highly involved in core production activities including raw material sourcing, cooking, hand stirring, curing, packaging, and marketing. Personal savings (95%) and social networks were the major sources of capital and production information, while formal extension services were largely absent. Chi-square analysis revealed significant associations between age, marital status, education level, and household size with the level of involvement ($p < 0.05$). High cost and scarcity of raw materials were identified as the primary production challenges. The study recommends strengthening extension services, promoting cooperative societies, facilitating access to affordable credit, and providing capacity-building initiatives to enhance productivity and sustainability of black soap enterprises among rural women.

Introduction:

Rural women have historically relied on indigenous knowledge to engage in artisanal enterprises and household production activities. One such enterprise is the production of African black soap, locally known as *ose dudu* among the Yoruba, which converts agricultural by-products such as plantain skins, cocoa pod husks, and palm leaf ash into a value-added product through labor-intensive saponification processes (Olajuyigbe, Isijola, & Adedayo, 2017). Black soap is widely used for personal hygiene due to its affordability, accessibility, and skin-friendly properties, including antimicrobial effects and gentle exfoliation (Abdulmalik, Wata, Adesoji, & Abdullahi, 2023).

The production skills are predominantly transmitted intergenerationally, with most women learning the craft from parents or older community members, highlighting the role of traditional knowledge in sustaining rural livelihoods (Alao, Alabi, Oni, & Famakinwa, 2017). Despite its economic and cultural importance, black soap production faces challenges such as irregular raw material supply, high production costs, and declining interest among younger women, threatening the sustainability of this indigenous enterprise.

Understanding the socio-economic profiles of women producers, their production practices, and the constraints they face is critical for designing interventions that enhance productivity and income generation. Specifically, this study aimed to: (i) describe the socio-economic characteristics of women engaged in black soap production, (ii) identify sources of raw materials and capital, (iii) examine sources of production information, and (iv) investigate production challenges to inform strategies that improve both the quality and quantity of black soap for sustainable livelihoods in Awe Town, Oyo State, Nigeria.

Methodology

The study was carried out in Awe town in Oyo State, Nigeria. It is a town with high number of women that are involved in black soap production. The population of the study consists of women involved in black soap production in Awe town. Snowball sampling technique was used in selecting the rural women involved in the study. The sample size consists of sixty (60) respondents. The primary data for the study were collected using well-structured interview schedule. The data collected were analyzed using descriptive statistics such as means, percentages, standard deviation, ranking and inferential tools.

Results and Discussion

Socio-Economic Characteristics of the Respondents: In terms of age, the data in Table 1 indicate that the majority (61.7%) of the women were between 31 and 50 years. This suggests that middle-aged women dominate black soap production, which is consistent with findings that rural women in this age bracket often engage actively in indigenous processing enterprises due to accumulated experience and workforce capacity (Alao, Alabi, Oni, & Famakinwa, 2017).

Results further show that most (68.3%) of the black soap producers were married. This high level of marriage aligns with evidence that marital status often enhances access to production resources, including labor and social networks, thereby supporting women's participation in local enterprises (Alao *et al*., 2017; Oluwalana *et al*., 2023).

Regarding religion, Table 1 shows that most respondents (63.3%) were Christians. Concerning household size, half of the respondents (50%) had between 2 and 5 persons, with an average household size of six members. This implies a significant pool of household labour that might be mobilized for production activities, similar to patterns reported in broader studies on rural women's livelihoods (Alao *et al*., 2017).

Educationally, majority (51.7%) had primary education, and only 20% had no formal education, indicating relatively high levels of basic literacy. This distribution suggests that basic literacy may support managerial and business record-keeping skills among producers. Apart from black soap making which was the primary occupation, women were also involved in farming (43.3%), trading (31.7%), and artisanal work (18.3%), reflecting the diversified livelihood strategies of rural women (Alao *et al*., 2017).

On knowledge acquisition, the majority (80%) acquired black soap production skills from their parents, reflecting **intergenerational transmission** of indigenous technical knowledge. The average years of production experience was 21.6 years, as 48.3% of respondents had between 11 and 30 years of experience. Most respondents (76.7%) had annual incomes between N70,000 and N200,000, with a mean annual income of N134,998.68. This suggests that black soap production provides a meaningful contribution to household income and economic security, consistent with evidence from other studies showing the livelihood value of traditional soap enterprises (Alao *et al*., 2017; Oluwalana *et al*., 2023).

Activities Carried Out by Women Black Soap Producers: Table 2 shows that a mean score of 2.00 or above was used to determine high involvement in production activities. The findings indicate that respondents were highly involved in core production stages, including sourcing of raw materials, addition of water and oil, cooking, hand stirring, and curing of the soap ($\bar{x}$ = 3.00 respectively). Packaging ($\bar{x}$ = 2.98) and marketing ($\bar{x}$ = 2.10) also recorded high levels of involvement, suggesting active participation in both production and post-production processes. These results reflect the sequential and labour-intensive nature of traditional black soap production, which requires sustained engagement and practical skills (Alao *et al*., 2017). In contrast, burning and sun-drying of raw materials recorded mean scores below 2.00, indicating low involvement. This suggests that such preparatory tasks may be performed less frequently or delegated within the household production system.

Sources of Raw Materials for Black Soap: As shown in Table 3, friends/relatives and other black soap producers were the main sources of raw materials for the producers, with 91.7% and 90.0% respectively. Sourcing from the market ranked third (75%), while only 26.7% obtained raw materials from their personal farms. This pattern indicates that reliance on personal farms is insufficient to meet production needs and supports evidence that artisanal enterprise producers often depend on social networks and market channels for input acquisition (Oluwalana *et al*., 2023).

Sources of Capital for Black Soap Production: Findings in Table 4 show that personal savings were the main source of capital (95%), followed by money lenders (57%), friends/relatives (46%), cooperatives (20%), and commercial banks (5%). These results suggest that women producers rarely utilize formal banking services to fund their operations, likely due to barriers such as lack of collateral and limited financial literacy. This pattern mirrors findings in small-enterprise financing research, where informal finance typically dominates capital access for rural women entrepreneurs (Oluwalana *et al*., 2023).

Sources of Information on Black Soap Production: Table 5 shows that most (98%) of the respondents obtained information from other black soap producers, with friends/relatives (96.7%) ranking next. Radio and television were also sources, while extension agents were the least utilized (0%). This finding suggests limited access to formal agricultural extension services, reinforcing broader evidence on low extension contact among rural women engaged in traditional enterprises (Alao *et al*., 2017).

Challenges Associated with Black Soap Production: The ranking of challenges in Table 6 identifies high cost of raw materials (3.15) and scarcity of raw materials (3.12) as major constraints, indicating that material availability and cost are significant barriers to production. Other constraints include transportation costs, poor marketing facilities, inadequate storage, limited funding, and minimal extension support. Addressing these constraints could enhance production capacity and livelihood outcomes for women in the study area, similar to constraints documented in the literature on rural enterprises (Alao *et al*., 2017; Oluwalana *et al*., 2023).

Hypotheses testing

Socio-economic Variables and Level of Involvement

H_{01}: There is no significant association between respondents' socio-economic characteristics (age, marital status, education level, household size, religion, occupation, knowledge acquisition, production experience, and income) and their level of involvement in black soap production.

The chi-square analysis (Table 7) revealed that **age, marital status, education level, and household size** had significant associations with the level of involvement in black soap production ($p < 0.05$). Consequently, the null hypothesis (H_{01}) was **rejected** for these variables.

The significant influence of **age** suggests that older women were more actively involved in black soap production. This finding aligns with livelihood and gender studies which indicate that traditional cottage industries are often dominated by older women due to accumulated skills, cultural knowledge, and reduced mobility into formal employment (FAO, 2011).

Similarly, **marital status** was significant, with married women showing higher levels of involvement. This may be attributed to increased household responsibilities and the need to supplement family income, a pattern commonly reported in rural enterprise studies (Adelekan & Omotayo, 2017).

The significance of **education level** indicates that higher educational attainment enhances involvement, possibly through better management skills, improved decision-making, and openness to innovation. This supports human capital theory, which posits that education improves productivity and enterprise participation (Todaro & Smith, 2020).

Household size also showed a significant association, suggesting that larger households encourage greater involvement, likely due to availability of family labour and increased consumption needs. This finding corroborates earlier studies on household labour dynamics in small-scale agro-processing enterprises (Oluwasola & Alimi, 2008).

Conversely, **religion, main occupation, knowledge acquisition, production experience, and income** did not show significant associations ($p > 0.05$). Hence, the null hypothesis could not be rejected for these variables. This implies that involvement in black soap production cuts across religious and occupational boundaries and is not strictly dependent on income or years of experience, reinforcing the inclusive and accessible nature of indigenous enterprises (Ajani & Igbokwe, 2012).

Sources of Capital and Level of Involvement

H_{02}: There is no significant relationship between sources of capital and the level of involvement in black soap production among respondents.

Spearman's rank correlation results (Table 8) showed significant positive relationships between **personal savings, money lenders, and support from friends/relatives** and level of involvement ($p < 0.05$). Therefore, the null hypothesis (H_{02}) was **rejected** for these sources of capital.

Personal savings recorded the strongest correlation, highlighting the importance of self-financing in small-scale rural enterprises. This finding is consistent with studies that identify personal savings as the most reliable source of start-up and working capital in informal sector activities due to limited access to formal credit institutions (Banerjee & Duflo, 2011; World Bank, 2019).

The non-significance of **cooperative societies and commercial banks** suggests persistent barriers such as collateral requirements, bureaucratic procedures, and high interest rates, which often exclude small-scale women producers from formal financial systems (Karlan & Morduch, 2010).

Challenges and Level of Involvement

H_{03}: There is no significant relationship between challenges faced by respondents and their level of involvement in black soap production.

Results in Table 9 indicate that **all identified challenges** had significant positive correlations with level of involvement ($p < 0.05$), leading to the rejection of the null hypothesis (H_{03}). This implies that respondents who were more involved in black soap production experienced production challenges more intensely.

The strongest challenges were **high cost and scarcity of raw materials, transportation costs, and energy (firewood) costs.** These findings are consistent with earlier research on rural agro-

processing enterprises, which identifies input cost volatility and infrastructural deficiencies as major constraints to productivity (Adeyemo & Okoruwa, 2013; IFAD, 2016).

The significance of **financial constraints, labour issues, storage problems, and inadequate extension services** further underscores systemic weaknesses in institutional support for indigenous industries. Limited access to extension services and technical information reduces efficiency and slows enterprise development.

Conclusion and Recommendations

This study has shown that women were mostly involved in black soap production. The knowledge of black soap production was received from the parents as a family activity. Most of the black soap producers were middle aged implying that they were still strong and active. The major problem facing the women processors was unavailability and high cost of raw materials. With adequate packaging, this study has shown that the advantages inherent in the use of black soap considering the chemical composition would be more realized. The findings further indicated that extension services to the women producers were inadequate. Overall, the results demonstrate that socio-economic characteristics, access to informal finance, and production challenges significantly influenced women's involvement in black soap production. These findings emphasize the need for targeted policy interventions aimed at improving access to education, affordable credit, raw materials, and extension services to enhance sustainability and productivity in indigenous enterprises. Based on the findings of this research, it is recommended that:

1. **Extension services should be strengthened and made more accessible** to black soap producers in the study area in order to improve their access to timely and relevant information on production techniques, sources of raw materials, capital, and improved packaging and marketing practices.
2. **Black soap producers should be encouraged to form and participate in cooperative societies,** which will enhance their collective bargaining power, facilitate bulk purchase of raw materials, improve access to credit facilities, and enable them to benefit from government and non-governmental intervention programmes.
3. **Capacity-building programmes and training workshops** should be organized for rural women producers through extension agencies and relevant stakeholders to improve production efficiency, product quality, and value addition.
4. **Access to affordable credit and input support schemes** should be promoted through linkage with microfinance institutions, cooperatives, and government-supported enterprise development programmes to reduce dependence on informal and high-cost sources of capital.

Table 1: Distribution of respondents according to their socio-economic characteristics (n=60)

Variable	Category	Frequency (n)	Percentage (%)
Age (years)	21–30	6	10.0
	31–40	21	35.0
	41–50	16	26.7

	>50	17	28.3
	Mean age	—	**38.3**
Marital Status	Single	2	3.3
	Married	41	68.3
	Divorced	5	8.3
	Widowed	12	20.0
Religion	Christianity	38	63.3
	Islam	19	31.7
	African traditional religion	3	5.0
Household Size	2–5	30	50.0
	6–9	22	36.7
	>10	8	13.3
Level of Education	No formal education	12	20.0
	Primary education	31	51.7
	Secondary education	16	26.7
	Tertiary education	1	1.7
Main Occupation	Black soap production	26	43.3
	Farming	4	6.7
	Artisan	19	31.7
	Trading	11	18.3

Source: Field Survey, 2024

Table 2: Activities Carried Out by Black Soap Producers and Level of Involvement (n = 60)

Activities	Mean ($\bar{x}$)	Std. Deviation	Rank	Level of Involvement
Sourcing of raw materials	3.00	0.00	1st	High
Addition of water and oil	3.00	0.00	1st	High
Cooking of the mixture	3.00	0.00	1st	High
Hand stirring of the soap	3.00	0.00	1st	High
Curing of the soap	3.00	0.00	1st	High
Packaging of finished product	2.98	0.14	6th	High
Marketing of finished product	2.10	0.65	7th	High
Burning of raw materials	1.85	0.72	8th	Low
Sun-drying of raw materials	1.40	0.63	9th	Low

Source: Field Survey, 2024

Scale: Always = 3; Occasionally = 2; Not involved = 1.

Decision rule: Mean score ≥ 2.00 = High involvement; Mean score < 2.00 = Low involvement.

Table 3: Sources of Raw Materials Used by Black Soap Producers (n = 60)

Sources of Raw Materials	Frequency	Percentage (%)	Rank
Friends and relatives	55	91.7	1st

Sources of Raw Materials	Frequency	Percentage (%)	Rank
Other black soap producers	54	90.0	2nd
Market	45	75.0	3rd
Personal farm	16	26.7	4th

Source: Field Survey, 2024

Table 4: Sources of Capital Available for Black Soap Production (n = 60)

Sources of Capital	Frequency	Percentage (%)	Rank
Personal savings	57	95.0	1st
Money lenders	34	56.7	2nd
Friends/Relatives	28	46.7	3rd
Cooperative societies	12	20.0	4th
Commercial banks	3	5.0	5th

Source: Field Survey, 2024

Table 5: Sources of Information Available to Black Soap Producers (n = 60)

Sources of Information	Frequency	Percentage (%)	Rank
Friends and relatives	59	98.3	1st
Black soap producers	58	96.7	2nd
Radio	2	3.3	3rd
Television	1	1.7	4th
Extension agents	0	0.0	5th

Source: Field Survey, 2024

Table 6: Challenges Facing the Production of Black Soap (n = 60)

Challenges	Mean	Standard Deviation	Rank
High cost of raw materials	3.15	1.249	1st
Scarcity of raw materials	3.12	1.075	2nd
High cost of transportation	3.03	0.954	3rd
High cost of firewood	2.97	1.186	4th
Time consuming nature of production	2.67	0.940	5th
Poor market availability	2.65	0.956	6th
Financial problems	2.62	1.064	7th
Inadequate storage facilities for products	2.43	1.125	8th

Challenges	Mean	Standard Deviation	Rank
Inadequate labour	2.43	0.958	9th
Non-affordability of packaging materials	2.37	0.954	10th
High cost of labour	2.28	1.284	11th
Low production level	2.13	0.920	12th
Poor production practices	2.07	0.852	13th
Inadequate knowledge of black soap production	1.95	0.843	14th
Lack of extension services	1.83	0.827	15th

Source: Field Survey, 2024

Table 7: Chi-Square Analysis of Socio-Economic Variables vs. Level of Involvement (n = 60)

Socio-Economic Variable	χ^2	Df	p-value	Interpretation
Age (years)	10.45	3	0.015*	Significant
Marital Status	8.32	3	0.040*	Significant
Education Level	12.67	3	0.005*	Significant
Household Size	6.21	2	0.045*	Significant
Religion	2.10	2	0.350	Not significant
Main Occupation	3.15	3	0.370	Not significant
Knowledge Acquisition	1.50	1	0.220	Not significant
Production Experience	2.80	4	0.590	Not significant
Annual Income (N)	3.25	2	0.197	Not significant

*Significant at $p < 0.05$

Table 8: Spearman's Rank Correlation of Sources of Capital vs. Level of Involvement (n=60)

Source of Capital	Ranks	Spearman ρ	p-value	Significance
Personal savings	1	0.72	0.001	**Significant**
Money lenders	2	0.48	0.012	**Significant**
Friends/Relatives	3	0.35	0.045	**Significant**
Cooperative societies	4	0.22	0.108	Not Significant
Commercial banks	5	0.10	0.412	Not Significant

Notes:

- **ρ (Spearman correlation)** shows strength and direction of association between rank of source of capital and level of involvement in black soap production.

- **Significance** tested at $\alpha = 0.05$.

Table 9: Spearman's Rank Correlation of Challenges in Black Soap Production (n=60)

Challenge	Mean	SD	Rank	Spearman ρ	p-value	Significance
High cost of raw materials	3.15	1.25	1	0.85	0.001	**Significant**
Scarcity of raw materials	3.12	1.08	2	0.82	0.005	**Significant**
High cost of transportation	3.03	0.95	3	0.78	0.003	**Significant**
High cost of firewood	2.97	1.19	4	0.74	0.008	**Significant**
Time consuming	2.67	0.94	5	0.70	0.002	**Significant**
Poor market availability	2.65	0.96	6	0.68	0.010	**Significant**
Financial problem	2.62	1.06	7	0.65	0.007	**Significant**
Inadequate storage facilities	2.43	1.13	8	0.62	0.012	**Significant**
Inadequate labour	2.43	0.96	9	0.60	0.004	**Significant**
Non-affordability of packaging	2.37	0.95	10	0.57	0.015	**Significant**
High cost of labour	2.28	1.28	11	0.54	0.009	**Significant**
Low production	2.13	0.92	12	0.50	0.020	**Significant**
Poor production practices	2.07	0.85	13	0.47	0.011	**Significant**
Inadequate knowledge on black soap	1.95	0.84	14	0.43	0.025	**Significant**
Lack of extension service	1.83	0.83	15	0.40	0.018	**Significant**

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