

SOCIAL REALITY AND THE ADOPTION OF IMPROVED SHEA BUTTER PROCESSING TECHNOLOGIES AMONG SHEA BUTTER PROCESSORS IN OYO STATE

ZAKA, KAFAYAT OLUWATOYIN
Nigerian Stored Products Research Institute,
Olatunjiraji90@gmail.com
Ibadan, Oyo State.

Abstract

Shea butter is one of the most versatile agricultural produce. It is utilised for various purposes ranging from medicinal to cosmetic purposes. Due to its versatility, developments have taken place in terms of optimum processing technologies. However, studies have uncovered an apparent low adoption of these Improved Shea Butter Processing Technologies (ISBPT), particularly in developing nations. Although, studies have traced this event to factors such as financial constraint, complexity of ISBPT, and the influence of cultural traditions. However, the precise manner through which shea butter processors are influenced by cultural traditions in terms of the conception of social reality has not been comprehensively studied. The study therefore investigated the relationship between social reality and the adoption of ISBPT among shea butter processors in Oyo State. Social bond theory was used as an explanatory framework in this study. A quantitative design was adopted in this study. A sample size of four hundred respondents was drawn from the study area through a multistage sampling procedure. The obtained data was subjected to a Pearson Product-Moment Correlation Test. The first hypothesis revealed a negative correlation between processors' perception of ISBPT being against internalized values and the level of adoption of ISBPT in Oyo State. The second hypothesis also revealed a negative correlation between processors' objectivation of traditional shea butter processing technology and the level of adoption of ISBPT in Oyo State. Based on these, the study recommended that extension agents seeking to introduce ISBPT should seek the support of respected members of the community.

Key words: Social Reality/ Shea Butter Processing/ Improved Shea Butter Processing Technologies/ Social Bond/ Oyo State

Introduction

Over the years, shea butter has been established to be an agricultural produce with multiple usages across various sectors. From the cosmetics to medicinal sector, shea butter is largely recognized as a key component. Due to this, advances have naturally been made to ensure that shea butter is processed via efficient and healthy means that meet international standards. These advances have resulted in a widespread call for the adoption of Improved Shea Butter Processing Technologies (ISBPT). However, it becomes relevant to note that the adoption of ISBPT has not been met with complete acceptance all over the world. Certain studies have uncovered a reluctance to adopt ISBPT by some processors who are often located in rural areas. Evidently, research interest has been piqued in ascertaining causal factors behind this scenario. Rural areas are germane to the development of Nigeria. It is in rural areas that the bounty of resources in Nigeria's possession can be found. Rural areas are the food basket of the nation. With this in mind, it becomes sensible to ensure that available resources are properly exploited. Nigeria as a nation is highly monocultural in nature. The overbearing dependence on the proceeds from crude oil exploitation is evident in the country's GDP earnings. With apparent plunges in the price of crude oil in the international market, steps have to be taken to diversify the nation's economy. One of the readily available wealth in need of exploitation is shea. However, the technology employed in processing it is quite archaic. As a consequence of this, Nigeria's stock of shea butter has largely failed to penetrate the international market.

Shea butter provides raw material for indigenous and foreign industries. The high allantoin content of shea butter makes it a beneficial base for the manufactured products of industries. The cosmetic industry uses of

about 10% of shea butter with the residual 90% engrossed by the food industry (Rousseau, Gautier & Wardell, 2015). Nigeria is one of the nations with an abundance of shea trees, predominantly found in Oyo state. Food and Agriculture Organisation of United Nation Statistic FAO (2013) acknowledged Nigeria to be the world's foremost manufacturer of shea nuts. This provides Nigeria the capacity to improve its economic status by taking to shea butter export. It is momentous to note that shea butter has more financial value than shea nuts and its quality rests principally on the processing technologies used (Shea Tech Certification, 2012). However, shea butter in Nigeria is predominantly processed using traditional methods which are riddled with challenges and defects. Some of the challenges include the loss of shea butter, production of sub-standard shea butter, drudgery of operation, resource wastage, and so on.

It is vital to note that the adoption of agricultural innovations in Africa has generally been challenging. The low adoption of innovations in agriculture represents a highly documented causative factor behind low productivity in sub-Saharan Africa (Headey & Jayne, 2014). Though productivity in the agricultural sector has witnessed a global rise over the years, an element of stagnancy can be perceived in Africa (Jayne & Muyanga, 2012). Additionally, gaps in regards to the yields of smallholder farmers in Africa are one the steepest in the world (Tittonell & Giller, 2013) with only a restricted success being witnessed in fostering an apparent African Green Revolution (Otsuka & Kijima, 2010).

In regards to shea butter processing, Tulashie, Appiah, Akpari, and Saabome (2020) noted the high adoption of the traditional shea processing in countries such as Nigeria, Burkina Faso, Mali, Togo, and Ghana. This often entailed obtaining the aged nuts from the field, then cleaning, removing the husks, crushing, boiling, and skimming off the discharged oil. This processing method largely resulted in low level of yields and led to the plummeting of the shea butters' quality. The traditional techniques have also been associated with dangers such as burns occasioned by the roasting of shea nuts in open flames as well as the charring of nuts.

Certain studies have linked the adoption of agricultural innovations to financial factors, revealing that people interested in such innovations are not financially stable to acquire such. This was evident in the work of Verkaart, Mausch, Claessens and Giller (2019) who also advocated for the introduction of agricultural innovations as a means of poverty reduction among farmers. This view mirrored that of Glover et al (2016) who studied how innovations in agriculture can guarantee the financial stability of farmers. Conversely, studies have linked people's culture to the adoption of agricultural innovations as well. This is particularly reminiscent in the work of Ekong (2010) who expressed that people tend to reject innovation when it is perceived to be in opposition to their way of life.

Improved shea butter processing technologies are available to ameliorate these challenges. Neighbouring countries such as Ghana, Mali, and Burkina Faso have started reaping the advantages of improved shea butter processing technologies. Nigerian shea butter processors however stick to the traditional method despite extensive studies on the ease of operation and economic gain in the use of the improved technologies (Obayelu, 2014). This is the reason for only a fraction of the processed shea butter being found in the foreign market with more than two-third consumed and traded locally (Okon, 2017).

Despite the availability of research works that have investigated the causal factors behind the low adoption of ISBPT, there is a significant lack of studies with an interest shea butter processors' conception of social reality being a factor determining the adoption of ISBPT. This is particularly absent in Nigeria. Consequently, this study was geared towards filling this gap.

Conceptual Clarification

Improved Shea Butter Processing Technologies

Over the years, shea butter processors have made use of varying techniques in their trade. This section provides a background knowledge of some Improved Shea Butter Processing Technologies (ISBPT) that have been associated to the extraction of Shea butter in West Africa.

1. The Centrifuge Method

This entails the extraction of shea with a centrifuge machine. The extraction process consisted of isolating the oil, water and shea nut cake from a pre-arranged water-glue emulsion. The extraction machine enveloped

a versatile unit driven by an engine/motor. A pole driven by the engine toward one side was furnished with a turning drum at the opposite end (Coulibaly et al., 2012). The drum built with about 10 kg kernel stacking capacity had a rakish frequency of 1,000 rpm. The detachment substances (water, oil and cake) happened in layers and as per their mass. The oil which was floating because it was light was released into 2 safeguarding devices fitted in the drum. The procedure was repetitive until clear oil was acquired. Be that as it may, the efficiency of the extraction was not the same as the traditional and mechanical press strategies (Coulibaly et al., 2012).

2. The Chemical Extraction Processes

With this technology, the dried pieces are first smashed into glue and bolstered into the Soxhlet extractor. A short time later, an organic solvent like n-hexane or ether is included. The blend is left to represent some number of h for the oil to be isolated which is emptied and permitted to set (Abdul-Mumeen, Beauty & Abdulai, 2019). The kinds of the solvents utilized in the extraction have some effect on the quality of shea butter produced, particularly the peroxide content of the butter. In an investigation directed by (Gyedu-Akoto, Amon-Amah & Yabani, 2017) on the best solvent for shea butter extraction, n-hexane, benzene, and chloroform were utilized. Hexane extraction gave the most astounding measure of fat from the portion.

Social Reality

Social reality varies from individual cognitive reality or biological reality as it is fostered via social interaction and consequently supersedes personal actions and motives (MacKinnon & Heise, 2010). As a creation of human discourse, social reality may be considered to entail a community's established social tenets, thereby involving moderately stable social representations and laws (Ireke, 1995).

The two stages of social reality adopted in this study are examined below:

1. Objectivation

According to Mustafai (2019), through objectivation, human interaction attains some level of independence as a reality that goes beyond their consciousness. Essentially, acts of objectivation become culture (the people's way of life). This entails everything from language and tools to social symbols and the society itself. In this regard, culture being man's creation attains a life of its own, thereby acting on members of the society. This is often expressed in terms of social control and imposition as reality via objectivation (Mustafai, 2020).

2. Internalization

This refers to the procedure through which the objective facticity of the social world transitions into a subjective facticity. As internalization takes place as a result of the interaction with others, it is often tagged as socialization. Internalization indicates the act of assuming the ideologies and norms of the society (Macionis, 2013). Through internalization, cultural and social continuity is achieved. Internalization takes place when people are taught the values, attitudes and actions deemed to be appropriate to their specific culture (Levine & Hoffner, 2006).

Empirical Review

This section is concerned with a review of previous empirical studies that have been carried out in relation to social reality and adoption of improved shea butter processing technologies.

Munshi (2003) conducted a study to uncover the cause of community members' rejection of innovative farming technology. The findings reveal members' rejection of such innovations on the grounds of cultural heterogeneity. In essence, members of the community felt that such innovations were not derived from their culture, and could not necessarily be of great benefit. Furthermore, the farmers did not hold the recorded success of such technology in other communities to be a factor that could sway adoption levels. The work of Munshi (2003) was corroborated by Romani (2004) whose research indicated that cultural variation exerted a significant influence on farmers' adoption of innovative technologies. However, the findings as well showcased the tendency of farmers to adopt such technologies if introduced by indigenous members of the community.

Conley and Udry (2010) investigated what determines the adoption of modern technology amongst pineapple farmers in Ghana. The study was conducted over a two-year period with the findings indicating the influence of socialisation on adoption levels. Socialisation takes place through interaction which can be

likened to Berger's concept of internalisation. Maertens (2010) uncovered in a study that farmers' adoption of innovation can be determined by the level of social pressures experienced. Specifically, the finding showcased that farmers who rejected those innovations had conversed within their community network, and had been cautioned against such a decision. Hence, the farmers strongly believed in the harmfulness of the technology and were resolute in their stance.

Theoretical Framework

Social Bond Theory

Social bond theory, according to Bartol and Bartol (2011) can be fundamentally traced to the postulations of Travis Hirschi. The theory is also referred to as the social control theory. Hirschi rejected the tenets of the strain and differential association theories that deviant behaviour was either triggered or learned by incidents in one's surroundings (Pratt, Gau and Franklin, 2011). In the view of Bartol and Bartol (2011), social bond theory champions the idea that delinquency takes place when a person's bond to the mundane standards are feeble or principally non-existent. The theory cites that everyone, from birth, typically has deviant tendencies which must be curtailed by laws, norms, and mores in a bid to ensure order in the society. The theory goes further to uphold that people with a weak bond to the society largely engage in deviant behaviours.

According to Hirschi, four forms of bonds exist whose strength define if deviant acts will be engaged in. The bonds comprise of attachment, commitment, involvement and belief. Attachment denotes the extent of mental warmth one has for certain institutions or others. Commitment cedes to the significance of the relationships that people cherish, which is not to be endangered by engaging in deviance. Involvement relates to the opportunity costs related with how individuals fill their time. It refers to the common saying that "idle hands are the devil's workshop". Belief refers to the extent to which holds values that are in line with accepted behaviours. The belief bond emphasizes that the more vital people's values are, relative to a certain deviant act, the less likely the possibility of deviance taking place.

Application of Social Bond Theory

In applying the social bond theory to this study, one merely needs to see the adoption of ISBPT as a deviant act. In line with this, the use of traditional means of processing shea butter represents the norm; an established way of acting in regards to processing shea butter. Hence, attachment entails the level of affection the shea butter processors have for the traditional technology. In essence, the greater the sense of affection for the traditional way, the less likely the possibility of developing affection towards the improved shea butter processing technologies.

Commitment entails the importance accorded to the traditional ways of processing shea butter. The failure of shea butter processors in adopting modern technologies indicates a high level of commitment. Therefore, the greater the sense of commitment, the less likely the possibility of shea butter processors adopting ISBPT. As to involvement, it spells for the severity in which the shea butter processors make use of the traditional technologies. Just as an idle hand is the devil's workshop, a shea butter processor not really making use of the traditional ways of processing is more likely to adopt ISBPT. Basically, the greater the sense of involvement, the less likely the shea butter processor is to adopt ISBPT. Belief entails the values held by the shea butter processor regarding ISBPT, which is perceived to be a deviant act. The stronger the belief, the less likely the individual is to make use of ISBPT. With the combination of attachment, commitment, involvement and belief, the possibility of an individual in engaging in deviance (adoption of ISBPT) is depicted.

Methodology

A quantitative design was employed in this study due to its advantages. The quantitative data was obtained through the use of questionnaire. The study was conducted in Oyo state, Nigeria. Oyo state is located in South-West of Nigeria and is one of the 36 states that make up the Federal Republic of Nigeria, with its capital being Ibadan. The study population comprised of the entire indigenous shea butter processors that can be found in Oyo State. The state comprises of five broad groups of people: Ibadans, Ibarapas,

Ogbomosos, Oke-Oguns, and Oyos. These five groups belong to the Yoruba family and speak the same Yoruba language.

The sample size was determined using the formula given by Yamane (1967):

$n = \frac{N}{1 + N(e)^2}$, where n= sample size, N=Population size, e= confidence level.

$n = \frac{882738}{1 + 882738(0.05)^2}$

n= 399.8, which is approximately 400.

A multi-stage sampling method was used to select 400 respondents for the study. This procedure involved four stages. The first stage entailed the use of purposive sampling to select three out of four ADP zones based on engagement in shea butter processing. Shea butter processing is predominantly limited to this three ADP zones within Oyo State. Following this, purposive sampling was again be used to select the specific local governments where shea butter processors are predominantly found, leading to the selection of six local governments. Then, quota sampling was employed to select respondents to be consulted, with the quota based each local government’s population. The breakdown can be found in Table 1.

The total population for the ADP zones involved in shea butter processing is 882,738. Below is the breakdown of the statistics:

Oyo Zone

Itesiwaju LG= 128652

Saki Zone

Saki West LG= 278,002; Atisbo LG= 110,792; Saki East= 110,223; Oorelope= 104,441

Ogbomoso zone

Orire LG= 150,628

Table 1: Respondents Selection Plan (Use of Quota Sampling):

Oyo Zone
Itesiwaju LG= 128652/882738 X400= 58 respondents
Saki Zone
Saki West= 278002/882738 X400= 126 respondents
Atisbo LG= 110792/882738 X400= 50 respondents
Saki East= 110223/ 882738 X400= 50 respondents
Oorelope= 104441/882738 X400= 48 respondents
Ogbomoso Zone
Orire LG= 150628/ 882738 X400= 68 respondents

Findings

This section entails a presentation of the study’s findings. Of the 400 respondents selected through multistage sampling for this study, 386 of the distributed 400 copies of questionnaire were found to be valid. The response rate was consequently pegged at 97 per cent. According to Babbie and Moutun (2001), a return rate of at least 50% is adequate for a research, 60% is good, and a return rate of 70% is excellent.

Test of Hypothesis between Perception of ISBPT being against Internalized Values and Level of Adoption of ISBPT in Oyo State

H₀: There is no significant relationship between shea butter processors’ perception of ISBPT being against internalized values and the level of adoption of ISBPT in Oyo State.

H₁: There is a significant relationship between shea butter processors’ perception of ISBPT being against internalized values and the level of adoption of ISBPT in Oyo State.

Table 2: Correlation of ISBPT being against Customs and Level of Adoption of ISBPT in Oyo State

		Perception of ISBPT being against Processors' Internalised Values	Adoption level of ISBPT
Perception of ISBPT being against Processors' Internalised Values	Pearson Correlation	1	-.662**
	Sig. (2-tailed)		.000
	N	386	386
Level of Adoption	Pearson Correlation	-.662**	1
	Sig. (2-tailed)	.000	
	N	386	386

** . Correlation is significant at the 0.01 level (2-tailed).

Source: Researcher's Survey, 2020

Table 2 showcases the correlation between shea butter processors' perception of ISBPT being against internalized values and the level of adoption of ISBPT in Oyo State.

Expressed in an equation, the strength of relationship between the two variables indicates that $r(386) = -.662, p < 0.01$. This connotes a negative correlation between shea butter processors' perception of ISBPT being against internalized values and the level of adoption of ISBPT in Oyo State. In other words, the finding expressed in Table 2 communicates that the higher the shea butter processors' perception of ISBPT being against internalized values is, the lower the level of adoption of ISBPT in Oyo State. Hence, the alternate hypothesis is accepted while the null is rejected. Consequently, a significant relationship exists between shea butter processors' perception of ISBPT being against internalized values and the level of adoption of ISBPT in Oyo State.

Test of Hypothesis between Processors' Objectivation of Traditional Shea Butter Processing Technology and Level of Adoption of ISBPT

H₀: There is no significant relationship between processors' objectivation of traditional shea butter processing technology and the level of adoption of ISBPT in Oyo State.

H₁: There is a significant relationship between processors' objectivation of traditional shea butter processing technology and the level of adoption of ISBPT in Oyo State.

Table 3: Correlation between Processors' Objectivation of Traditional Shea Butter Processing Technology and Level of Adoption of ISBPT

		Processors' Objectivation of Traditional Shea Butter Processing Technology	Adoption level of ISBPT
Processors' Objectivation of Traditional Shea Butter Processing Technology	Pearson Correlation	1	-.806**
	Sig. (2-tailed)		.000
	N	386	386
Adoption level of ISBPT	Pearson Correlation	-.806**	1
	Sig. (2-tailed)	.000	
	N	386	386

** . Correlation is significant at the 0.01 level (2-tailed).

Source: Researcher's Survey, 2020

Table 3 showcases the correlation between shea butter processors' objectivation of traditional shea butter processing technology and the level of adoption of ISBPT in Oyo State.

Expressed in an equation, the strength of relationship between the two variables indicates that $r(386) = -.806, p < 0.01$. This connotes a negative correlation between shea butter processors' objectivation of traditional shea butter processing technology and the level of adoption of ISBPT in Oyo State. In other words, the finding expressed in Table 3 communicates that the higher the shea butter processors' objectivation of traditional shea butter processing technology is, the lower the level of adoption of ISBPT in Oyo State. Objectivation was measured by a belief in the supremacy of traditionally processed shea in the commodity market. Hence, the alternate hypothesis is accepted while the null is rejected. Consequently, a significant relationship exists between processors' objectivation of traditional shea butter processing technology and the level of adoption of ISBPT in Oyo State. This means that the more that processors believe in traditional processing technologies eliciting high grade shea butter to be commodified, the lesser the adoption level of ISBPT.

Discussion of Findings

The two hypotheses tested in this study revealed the existence of a significant relationship between the related variables. Hypothesis one showcased a significant relationship between shea butter processors' perception of ISBPT being against internalized values and the level of adoption of ISBPT in Oyo State. This result corroborates the work of Ekong (2010) which states that culture is a determinant of community members' adoption of innovation. The work hypothesised that when a particular innovation is in line with the culture of a particular people, such innovation is likely to be adopted by them. On a similar note, the finding as well reflects the work of Munshi (2003) who also tipped the tendency for farmers to reject contemporary innovations due to a perception of cultural heterogeneity. However, the finding of this study varies from that of Tulashie, Appiah, Akpari, and Saabome (2020) who made known that traditional shea butter processors often opted against ISBPT due to issues relating to the expensiveness and complexity of modern shea processing technologies.

Conversely, the second hypothesis revealed the existence of a significant relationship between processors' objectivation of traditional shea butter processing technology and the level of adoption of ISBPT in Oyo State. By adopting a correlation technique, the strength of relationship was as well revealed to be $r(386) = -.806, p < 0.01$. This finding is in line with that of Romani (2004) whose work indicated that farmers believed the produce derived from culturally prescribed tools are superior to modern technology. Conversely, this finding is against the work of Kabiru (2018) whose finding indicated the more critical role played by shea butter processors' awareness levels and the adoption of ISBPT. Kabiru (2018) further revealed the influence exerted by processors' age, years of experience, and the expensiveness of ISBPT, largely not recognising the role of culture in determining the adoption of ISBPT.

Conclusion and Recommendations

The study examined the nature of relationship between shea butter processors' conception of social reality and the adoption of ISBPT. This was in an attempt to comprehend and address the low level of adoption of ISBPT among traditional processors. In terms of social reality, the study focused on Berger's conceptualization of objectivation and internalization. By adopting a correlation technique of data analysis, the study was also able to depict the strength of relationship between the variables. Based on the findings of the study, the following recommendations are made:

1. Extension agents seeking to introduce ISBPT should seek the support of influential and respected members of the community. This would prove to be relevant if ISBPT is to be properly introduced and adopted. Once the respected and influential members of the community can be convinced of the benefits associated with adopting ISBPT, those individuals would in return serve as a liaison to socialise other farmers of the benefits. This has been proven by research to be a great way of introducing innovation to rural areas, as people are more likely to trust their own kin.
2. Parties seeking to introduce ISBPT to rural communities could make use of extension agents with ties to the community. This could be through marriage or any other form of kinship. This could reduce the probability of the innovation being rejected on the grounds of culture, as community/family members could make a strong and convincing case against this.

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