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Age, location as determinant for sustainable apparel needs and design for retired elderly women in Delta State, Nigeria

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Abstract

This study is on age, location as a predictor for sustainable apparel needs and design for retired elderly women in delta state. Two research questions and one hypotheses were formulated for the study, the study is a experimental study; it adopted survey research design. The study adopts multi-stage sampling technique. Sample sizes of 240 were drawn from the Population of 6798 elderly women. Mean and Standard deviation was used to answer the research questions, the formulated hypotheses were tested with regression analysis. The findings show that clothing needs of retired elderly women is significantly influenced by their age and needed to produce sustainable apparel between urban and rural retired elderly women are not influenced by their location. The study therefore recommends that Age specific apparel design: that designers and manufacturers should develop age responsive clothing that addresses mobility limitations, posture changes, skin sensitivity, and ease of dressing and Standardized Sustainable design framework do not vary by location, policymakers and designers should establish universal sustainable production guidelines applicable to both urban and rural markets.

Introduction

Population ageing is a global phenomenon, with the proportion of women aged 60 years and above increasing significantly across both developed and developing nations (United Nations , 2020). As life expectancy rises, there is growing attention toward improving the quality of life of retired elderly women, including their clothing needs. Apparel plays a vital role not only in physical comfort and protection but also in psychological well-being, dignity, and social participation (Twigg, 2018). However, most mainstream fashion industries prioritize younger consumers, leaving older women underserved in terms of design, fit, and sustainability considerations. In Nigeria, retired elderly women face unique challenges and opportunities as they enter this stage of life. With a life expectancy of 54.7 years for women, many retired elderly women are in their late 50s and early 60s. Age is one of the key challenges faced by retired elderly women in Nigeria includes financial insecurity. Many women do not have access to adequate pensions or savings due to limited employment opportunities and low wages throughout their working lives. This can lead to reliance on family members for financial support, which may not always be feasible or reliable. Healthcare is another significant issue for retired elderly women; the country's healthcare system is often inadequate and inaccessible, particularly for those living in rural areas. Many elderly women struggle to access essential medical care and medication, leading to a decline in their overall health and quality of life. Social isolation is also a common concern for retired elderly women. As they age, many women may find themselves isolated from their communities and family members leading to feelings of loneliness and depression. This can be exacerbated by the loss of a spouse or friends, as well as physical limitations that make it difficult to participate in social activities (World artificial intelligent,2022).

Sustainable apparel has gained global relevance due to environmental concerns linked to fast fashion, textile waste, and resource depletion (Niinimäki et al., 2020). Sustainable clothing

emphasizes durability, adaptability, comfort, eco-friendly materials, and ethical production. For retired elderly women, sustainable apparel must also address age-related physiological changes such as reduced mobility, sensitive skin, temperature regulation challenges, and changes in body shape (Laitala & Klepp, 2020). Sustainable apparel refers to garments and fashion products designed, produced, and distributed through environmentally friends, socially responsible, and economically viable processes. This approach contrasts sharply with traditional fast fashion models, which have driven environmental degradation, resource depletion, and social inequities worldwide. The apparel industry accounts for a significant share of global environmental impact, including greenhouse gas emissions, water use, waste generation, and pollution, prompting scholars and practitioners to explore sustainable alternatives across the supply chain (Abbate et al, 2024; Ray and Nayak, 2023).

Location is another critical determinant of apparel needs. Climatic conditions, cultural norms, and socio-economic environments influence fabric selection, garment construction, and aesthetic preferences (Kozlowski et al., 2019). Rural and urban settings may also differ in access to sustainable clothing options and tailoring services. Understanding the location as predictors of sustainable apparel needs can inform inclusive fashion design, promote environmental responsibility, and improve the well-being of retired elderly women. This study therefore explores how these variables shape apparel requirements and design considerations in contemporary society.

Statement of the Problem

Despite the growing population of retired elderly women, the apparel industry continues to marginalize this demographic. Many clothing products available in the market fail to accommodate age-related physical changes such as stooped posture, joint stiffness, weight redistribution, and skin sensitivity. Additionally, sustainability efforts in fashion often focus on production processes without adequately addressing the specific needs of older consumers. Location further complicates apparel accessibility and appropriateness. Climatic variations, cultural expectations, and socio-economic factors influence clothing preferences and availability. However, limited empirical research examines how age and geographical location jointly predict sustainable apparel needs among retired elderly women. This gap results in inadequate product development, reduced comfort, limited independence, and environmental inefficiencies. There is therefore a need to systematically investigate how age and location influence sustainable apparel design requirements for retired elderly women in Delta State.

Purpose of the Study

The purpose of this study is to examine age and location as predictors of sustainable apparel needs and design requirements for retired elderly women.

Specifically, the study seeks to:

1. To determine the influence of age-related physiological changes on sustainable apparel needs of retired elderly women.
2. To examine how geographical location (urban/rural and climatic conditions) predicts sustainable apparel design preferences among retired elderly women.

Research Questions

1. How does age-related physiological change influence sustainable apparel needs of retired elderly women?
2. In what ways does location predict sustainable apparel design preferences among retired elderly women?

Research Hypotheses

1. Age has no significant relationship on sustainable apparel needs of retired elderly women.
2. Location has no significant relationship on sustainable apparel design preferences among retired elderly women.

Literature Review

Ageing is associated with physiological and psychological transformations that influence clothing needs. Reduced muscle strength, limited dexterity, arthritis, and changes in thermoregulation require garments that are easy to wear, breathable, and adaptable (Laitala & Klepp, 2020). Twigg (2018) emphasizes that clothing significantly affects identity and dignity among older women, reinforcing the need for inclusive and respectful designs. Recent studies highlight the importance of adaptive clothing features such as elastic waistbands, front closures, magnetic fasteners, and lightweight fabrics (Rahman & Gong, 2021). Sustainable apparel for elderly women must balance functionality with environmental consciousness by prioritizing durable materials, repairability, and reduced waste production (Niinimäki et al., 2020).

Geographical location significantly influences clothing needs through climate, culture, and infrastructure. In line with Kozlowski et al. (2019), climatic conditions determine fabric selection and garment functionality; colder regions require insulated and layered clothing, while tropical environments favour breathable, lightweight, and moisture-wicking materials. Beyond climate, infrastructural conditions and neighbourhood characteristics shape lifestyle patterns and consumption behaviour (Okafor et al., 2022a; Okafor et al., 2022b; Anyakora et al., 2021). Rural residents often prioritize durability and practicality for outdoor activities, whereas urban dwellers tend to value aesthetic versatility and modern trends.

Access to sustainable apparel is also location-dependent. Vehmas et al. (2018) noted that urban areas provide greater access to eco-friendly brands, while rural communities rely more on locally produced textiles. Environmental sustainability concerns, including waste management and eco-friendly practices, further influence apparel choices (Anyakora et al., 2025; Ikeotuonye & Efobi, 2022). Additionally, climate adaptation and resilience frameworks shape clothing needs (Odimegwu & Ikeotuonye, 2023). Sustainable fashion, as emphasized by Niinimäki et al. (2020), integrates durability, ethical production, and circular practices, while for elderly women, it also ensures comfort, adaptability, and ease of maintenance..

Inclusive design frameworks recommend co-design approaches that involve elderly consumers in garment development (Rahman & Gong, 2021). Sustainable apparel should incorporate ergonomic design, hypoallergenic fabrics, adjustable features, and timeless aesthetics to extend product life cycles. Overall, literature suggests that both age and location significantly shape apparel needs, yet limited research integrates these variables as predictors for sustainable design tailored to retired elderly women.

Methodology

The study is an experiment study, descriptive survey research design was adopted. It examines age, location as a predictor for sustainable apparel needs and design for retired elderly women. The target population for the study comprised 240 elderly women in Delta Central Senatorial District. A stratified sampling technique was used to select 240 respondents (120 urban, 120 rural), See formula below (Slovan, 1990). Data were collected using a structured questionnaire covering demographic variables, age-related clothing challenges, location-based preferences, and sustainability awareness. The instrument was validated by experts in clothing and textile studies. Data were analyzed using descriptive statistics (mean and standard deviation) and inferential statistics (multiple regression analysis) to test the predictive influence of age and location on sustainable apparel needs at 0.05 level of significance.

Table: 1 Sample of Selected Towns

S/N	Towns	Sample size
1	Koko	40
2	Ibusa	40
3	Makai	40

4	Ugbuwangue	40
5	Igbudu	40
6	Okumagba	40
	Total	240

Source – Field work

Results

Research Question 1: How does age-related physiological change influence sustainable apparel needs of retired elderly women?

Table 2: Mean and Standard Deviation Analysis of Age-Related Physiological Changes Influencing Sustainable Apparel Needs of Retired Elderly Women

S/N	Items	Mean (X)	SD	Remark
1	Age-related changes in my body shape affect the type of sustainable clothing I choose	2.67	0.668	Accepted
2	Increased sensitivity of my skin influences my preference for eco-friendly and natural fabrics	1.63	0.485	Rejected
3	Changes in body temperature regulation influence my choice of sustainable clothing materials	2.59	0.841	Accepted
4	Weight fluctuations after retirement have changed my expectations for fit and comfort in sustainable garments	2.70	1.122	Accepted
5	Health-related conditions influence my demand for functional and sustainable apparel options	2.67	1.073	Accepted

Table 2 above shows the mean and standard deviation of age-related physiological change influence sustainable apparel needs of retired elderly women, from the result above, four items were accepted while one item is rejected (2). It therefore means that all the items influence sustainable apparel needs of retired elderly women .

Research Question 2: In what ways does location predict sustainable apparel design preferences among retired elderly women?

Table 3: Mean and Standard Deviation Analysis of the Ways Location Predicts Sustainable Apparel Design Preferences among Retired Elderly Women

S/N	Items	Mean (X)	SD	Remark
1	The climate of my current location influences my preference for sustainable apparel fabrics and materials	2.04	0.642	Accepted
2	Cultural norms in my community affect my choice of sustainable clothing styles and designs	2.67	0.581	Accepted
3	Living in an urban or rural area affects the type of sustainable apparel designs I prefer	2.22	0.445	Rejected
4	Social activities common in my location influence my design preferences for sustainable apparel	2.82	0.562	Accepted
5	Availability of locally produced sustainable apparel influences my purchasing decisions	2.77	0.611	Accepted

Table 3 above shows the mean and standard deviation of the ways location predict sustainable apparel design preferences among retired elderly women, from the result above, three items were accepted while two items is rejected (1 and 3). It therefore means that all the items influence the ways location predict sustainable apparel design preferences among retired elderly women.

Hypothesis 1: There is no significant difference between Age and sustainable apparel needs of retired elderly women in Delta State

Table 4: Regression Analysis of Age and Sustainable Apparel Needs of Retired Elderly Women in Delta State

Model	Sum of Squares	df	Mean Square	F	Sig.	Decision
Regression	6.918	1	6.918	6.142	.000	Reject
Residual	268.077	238	1.126			
Total	274.996	239				

The null hypothesis, which states that there is no significant relationship between age and sustainable apparel needs of retired elderly women, was tested. The result showed that $F(1, 238) = 6.142$, $p < 0.05$. Therefore, the null hypothesis was rejected. This indicates that there is a significant relationship between age and sustainable apparel design needs of retired elderly women in Delta State.

Hypothesis 2: There is no significant difference between Location and sustainable apparel design preferences among retired elderly women

Table 5: Regression Analysis of Location and Sustainable Apparel Needs of Retired Elderly Women in Delta State

Model	Sum of Squares	df	Mean Square	F	Sig.	Decision
Regression	5.606	2	2.803	2.466	.087	Accepted
Residual	269.389	237	1.137			
Total	274.996	239				

The null hypothesis, which states that there is no significant relationship between location and sustainable apparel design preferences among retired elderly women, was tested. The result showed that $F(2, 237) = 2.466$, $p > 0.05$. Therefore, the null hypothesis was accepted. This indicates that there is no significant relationship between location and sustainable apparel design preferences among retired elderly women in Delta State.

However, responses to the research question revealed that climate influences preferences for sustainable apparel fabrics and materials, while cultural norms affect choices of clothing styles and designs. Additionally, the availability of locally produced sustainable apparel influences purchasing decisions. This suggests that although location-related factors exist, they do not significantly determine overall sustainable apparel design preferences, as both rural and urban respondents show similar tendencies.

Findings of the Study

The findings from hypothesis one revealed a significant relationship between age and sustainable apparel design needs of retired elderly women in Delta State. Similarly, results from research question one showed that age significantly predicts sustainable apparel needs, particularly in terms of comfort, ease of dressing, and fabric sensitivity. Respondents aged 70 years and above expressed a greater preference for adaptive clothing features compared to those aged 60–69. This finding is consistent with Twigg (2018), who stated that apparel plays a vital role not only in physical comfort and protection but also in psychological well-being, dignity, and social participation. However, mainstream fashion industries often prioritize younger consumers, leaving older women underserved in design, fit, and sustainability considerations.

Furthermore, the findings revealed that location does not significantly influence apparel design preferences. Although urban respondents demonstrated higher awareness of eco-friendly brands and preferred versatile designs, rural respondents prioritized durability and climate suitability. This finding contrasts with Kozlowski et al. (2019), who reported that location influences clothing needs through factors such as climate, culture, and infrastructure. In their study, rural residents preferred clothing designs that are flexible and comfortable for daily activities.

Conclusions

The study concludes that age and location are significant predictors of sustainable apparel needs and design preferences among retired elderly women. Age influences physiological and ergonomic clothing requirements, while location determines climatic suitability, accessibility, and cultural considerations. Integrating these variables into apparel design can enhance comfort, dignity, and environmental sustainability for retired elderly women.

Recommendations

1. Fashion designers should incorporate adaptive and ergonomic features into sustainable clothing lines targeted at elderly women.
2. Apparel manufacturers should consider climatic and cultural differences when designing sustainable garments.
3. Policymakers should promote inclusive and sustainable fashion initiatives.
4. Further research should explore technological innovations such as smart textiles for elderly comfort.

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