Available on: https://jsshrs.ep-journals.org/ E-ISSN: 3051-3561, P-ISSN: 3051-3553

Journal of Social Science and Human Research Studies

Volume : 02 Issue : 09 September-2026

# A Study on Modern Clothing Care and Management Practices in the Tamale Metropolis of Ghana

**Stella Ama Nkrumah**
Department: Fashion Design and Textiles Education
Institution: USTED (University of skills training and entrepreneurial development) Kumasi, Ghana

**Dr Daniel Kwabena Danso**
Department: Fashion Design and Textiles Education
Institution: USTED (University of skills training and entrepreneurial development) Kumasi, Ghana

**Published Date: September 21, 2026** **Article DOI: 10.65150/EP-jsshrs/V2E9/2026-12**

**ABSTRACT :** Clothing care and management practice are supposed to be the deciding factors when consumers purchase clothing items (ftc.gov, 2014) but it seems that is the least thing consumers look for during their pre and post-handling of clothing. The main purpose of the study was to investigate the modern clothing care management practices amongst the people in the Northern Region of Ghana. Specifically, data was sought on modern clothing care management practices concerning the selection of clothes, care labels and laundering of clothes, storing of clothes, and clothes repair. The study employed purely quantitative approach to research and draws extensively on positivist philosophy. The research design adopted for this study is the cross-sectional survey design. The study population was made up of individuals from the Tamale Metropolitan area where the study was conducted. The sample size used for the study was 384. The sample was selected from the community in Tamale with the stratified sampling technique. The individuals from the communities were conveniently sampled for the study based on the availability or willingness to participate in the study at the time of meeting the persons. The instruments used for collecting data for the study were questionnaires. The study revealed that people in the study area care for their clothes in various ways such as washing, drying, storage and reading of care labels on their clothes before caring for them to make them last longer. The study also revealed that majority of the respondents were not aware of modern clothing care labels on clothes and do not adhere to it when caring for their clothes. The study recommends that industries or manufacturers should use clear care labels or standardized labels that can easily be the consumers without much difficulty. Consumers should take time to educate themselves about care labels and use them in caring for their clothes. There should be legislation to also ensure that traditional African clothing's procedures fix should be given care labels on their products.

**KEYWORDS:** Clothing care practices, Care labels, Clothing management, Laundering; Clothing storage, Garment repair, Consumer awareness, Tamale Metropolis (Ghana).

## CHAPTER ONE
## INTRODUCTION

### 1.1 Background to the Study

Clothing maintenance is necessary for keeping clothing and textiles functional and socially acceptable, but it has environmental consequences due to the use of energy, water and chemicals. Textiles surround us in our everyday lives in the form of clothes, bed linens, carpets, curtains and other household textiles used to warm, protect, dry, clean and decorate ourselves and our homes. Clothing maintenance is necessary for keeping clothing and textiles functional and socially acceptable (Shove, 2003, Klepp, 2007). The significance of clothing care and management has been discussed since several centuries ago, and a number of techniques and practices have been postulated for the selection, storing, laundering, and mending of clothes so as to ensure that fabrics are not affected by factors that deteriorate it, even before its expected functional lifespan (Jone, 1990). Yet, many consumers of clothes do not appreciate the unique properties of fabrics and, thus, are unable to care for their clothes as effectively as they should. For instance, many consumers do not know whether the best way to care for a garment is to hang it up or fold it, dry it flat or on a hanger, use the loops provided or hang it by the shoulders.

Clothing needs to be properly cared for to obtain the best from them and for them to last longer. According to Klepp (2003), deterioration of clothes results in so many clothes being discarded before their lifespan, despite the expensive nature of several clothing articles. Therefore, inquiries into clothing care and management practices help direct efforts to reduce mishandling of clothing fabrics, and increase the lifespan of clothing articles and eventual wealth of the consumers.

License: This is an open access article under the CC BY 4.0 license: https://creativecommons.org/licenses/by/4.0/

Clothing is one of the necessities of life after food. Clothing is anything worn on the body in order to protect it, adorn it or to communicate intention (Anyakoha & Eluwa, 2010). Clothes show people's status and the roles they play in society. Clothing influences the impression people have about you. It also affects one's self-confidence.

It is an important component of physical appearance. Marshall, Jackson, Stanley, Kefgan and Touchie-specht (2000) stated that clothing has a salient vocabulary that takes the form of symbols used by individuals as tools for social interaction. It constitutes visual communication, which gives varied impressions about the wearer.

Clothing includes clothes, accessories, hair-do, make-ups, shoes and others (Horn & Gurell, 1993). Clothes are dresses, gowns, shorts, blouses and related articles used for protection, adornment, modesty and social status, occupational and traditional identity (Jone, 1990).

Clothes play many functional and aesthetic roles which include protection from the environment, enhancement of personality, and role identification (Horn & Gurell, 1993). People have various reasons for wearing clothes. Some of the reasons are for protection, comfort and adornment while others are for psychological and social reasons such as self-confidence and expression of personality and identity. According to Cant (2006), the practical function of clothing is to protect the human body from physical dangers in the environment such as weather (i.e. strong sunlight, cold, heat, and perspiration), insects, noxious chemicals and contact with abrasive substances and other hazards. Thus, clothing can protect against many things that might injure the naked body (Horn & Gurell, 1993).

According to Bull (1987), clothing, just like food and shelter, is an important aspect of everyday living, and forms part of the family's budget. Bull further stated that the overall cost of a garment is very important, in that consumers ask questions like; is the price within my budget? How long might one wear it or how long might it last? Sadly, the clothes people buy may not last very long due to improper care habits of consumers (Bull, 1987).

Even though clothes give an enormous benefit to people, it receives little or no attention from the people it serves. When this happens, clothes start to deteriorate and lose their function (Travis, 2003).

Many consumers are unaware of fabric properties, and therefore do not care for their clothes as effectively as they could. Component failure has been reported as a common cause of deterioration of "dry-clean only" clothes, rather than the fabrics breaking down or being detrimentally affected by solvents (Mendelson, 2005). Deterioration of clothes results in so many clothes being discarded before their lifespan. However, clothing articles are expensive. They therefore need to be properly cared for to obtain the best from them and for them to last.

Clothing care activities include selection of clothes, laundering, storage and mending the clothes when they are torn or when they develop faults (Anyakoha & Eluwa, 2005). Proper care and storage of clothes help to keep them in good condition so that appearance of the wearer is enhanced. Foster, Hogan, Bettie and Giesenking-Williams (1994) stated that as you accept the responsibility for selecting and purchasing clothing, so must you also accept responsibility for its care management. They further stated that all clothes need to be cleaned but different types of garments require different types of cleaning. Proper care of clothes involves decision making (Anyakoha & Eluwa, 2007). Clothing care decisions include, among others, selections decisions, storage facilities, ways of storing specific items, factors that influence the procedures to adopt.

Clothing repair skills have been lost in recent years and people often lack confidence in their ability to mend or alter clothes. Most people can sew buttons on, but fewer are able to alter a hem or darn a hole. As a result, many people simply store or discard items in disrepair or in need of alteration (Woodward, 2006). Ohovoriole and Ugeru (2002) stated that the knowledge of proper care practices is very important. Improving care information within products and packaging is clearly therefore a way to increase longevity of clothes. In addition, wider educational measures, such as encouraging people to wash their clothes only when necessary and where possible, could also help (Mendelson, 2005).

Acquisition of specialized skills is paramount to all practical oriented skill such as clothing care (Okoro, 1999). Improper clothing care practices of individuals living in the community can lead to skin diseases, bad body odour, feeling of unwholesome attitude and poor adjustment to social groups (Marshal et al., 2000). A meaningful step in this direction is to determine their present clothing care practices as a basis for determining ways of helping them. This study, therefore, investigates modern clothing care practices of in the Northern Region of Ghana.

**1.2 Statement of the Problem**

Clothing care and management practices are supposed to be the deciding factors when consumers purchase clothing items (ftc.gov, 2014) but it seems that they are the least thing consumers consider in the purchasing of clothes items. Cooper (1985), as cited in El-Dessouki (2015), said the best rule is always to follow clothing care and management practices because these care instructions are for the best treatment of the garment. Before purchasing, the consumer should obtain adequate knowledge about the product and care labels, give information on how consumers can care for their clothing items in terms of washing, drying, ironing, bleaching, dry cleaning and the use of any other procedures (Gupta & Charankar, 2011).

Clothing care practices by people and management are found in garment and some household textile articles but the question is, are consumers aware of them? And if they do, do they do them to be important enough to pay attention to them and make use of the information provided on these cloths when caring for them? Only after a consumer becomes aware of a stimulus, pays attention to it and views it as important enough to be processed, can it be interpreted (Cant. *et al.*, 2006; Hoyer & MacInnis, 2008; Babin & Harris, 2009, as cited in Steyn, 2010). Consumers cause a lot of harm to clothing items while caring for them for the purpose of reuse and this may be due to incorrect practices in washing, bleaching, drying, and ironing when dealing with modern clothes (Das, 2010).

Universally, a number of scholars have written widely on how care and management practices are done on garment. In recent times, this development has been especially on care labels instructions on garments in the market. Africa is privileged to have a number of research works conducted in clothing care and management practices various countries. Kasomo and Naila (2013) investigated the phenomenon in Kenya; while Obeng-Mireku (2017), considered it on Nigeria and

Ghana. Others include: Hansen & Michael, (2002); Tanzania (Sivalon, 1995; Mhina,

2007). In Ghana, a number of scholars including Clemence (2019) and KorankyeGyamera (2012) have attempted to deal with the subject. Some of these studies were conducted within the context of care label instructions in clothing items (Cooper, 1985) and in the context of general studies on clothing care at the point of purchase and during washing (Clemence, 2019; and Korankye-Gyamera 2012).

License: This is an open access article under the CC BY 4.0 license: https://creativecommons.org/licenses/by/4.0/

Several people are unable to care for or manage their clothing items well, for them to last longer as expected. It thus, calls for a reassessment of clothing at different places in the global community. This has made it necessary to conduct this study. This study focuses on investigation of clothing care and management practices among the people of Tamale in the northern region of Ghana.

**1.3 Purpose of the Study**

The purpose of the study is to investigate the modern clothing care and management practices among the people of Tamale in the Northern Region of Ghana.

**1.4 Objectives of the Study**

The specific objectives for the study are to;

1. Determine the level of knowledge on care labels and modern clothing care practices of the people in the Tamale Metropolis of Ghana.
2. Determine special care and storage practices for clothes by the people in Tamale Metropolis of Ghana.
3. Find out the best means the people in the Tamale Metropolis can use to improve upon clothing care practices.

**1.5 Research Questions**

In order to address the above listed objectives, the study was guided by the following research questions:

1. What is the level of knowledge on care labels and modern clothing care practices of the people in the Tamale Metropolis of Ghana?
2. What special care and storage practices are used for clothes by the people in the Tamale Metropolis of Ghana?
3. What best practices can the people in the Tamale Metropolis use to improve upon their clothing care practices?

**1.6 Significance of the Study**

The rate at which poor clothing care practices are impacting negatively on environment and social aspects of sustainability, necessitates a research into practices that expand the life of existing clothes and the proper discarding of old clothes. The findings of this study would inform the people in the Tamale Metropolis of Ghana about the lapses associated with how they care for their clothes, and thereby, effect needed corrections for better handling of their clothes. The family budget can be highly exaggerated due to poor care and maintenance of clothing by not adhering to basic care principles (WRAP, 2012).

This study also facilitates understanding and knowledge of care label symbols and terms.

Finally, this research report is also serving as a reference material to students, teachers, and experts in Clothing and Textiles. Recommendations made in this study sets new agenda for further studies on modern clothing care and management practices.

**1.7 Delimitations**

The study is strictly conducted in the Tamale Metropolis of the Norther Region in Ghana and not in the whole Ghanaian community. Basically, clothes people wear for offices, daily work and social occasions or functions were considered in this study.

According to Anyakoha and Eluwa (2005), clothing includes clothes, accessories, hair-do, make-ups, shoes and others. However, this study was restricted to only garments. Accessories, hair, shoes and make-up, were not considered.

**1.8 Limitations**

The study is on modern clothing care management practices and more literature on this subject matter was very difficult to get to support the current study.

**1.9 Organisation of the Study**

This study was organized into five chapters. The first chapter discusses the Introduction, which emphasized background to the study, statement of the problem, purpose of the study, objectives, research questions, significance of the study, delimitations, limitations, and definitions of terms. Chapter Two reviews literature related to this study. A conceptual framework and an empirical model are also presented in the chapter two. Chapter Three considers the research methods, including the research design, study area, population, sampling procedure, data collection instruments, data collection procedure, and data processing and analysis techniques. In Chapter Four, the results are presented, analysed and discussed. Chapter Five, which is the final chapter, has the summary, conclusions, recommendations, and suggestions for further research.

**1.10 Definition of Terms**

**Care labels**: Care labels which are also sometimes referred to as laundry symbol is a pictogram which depicts a method of caring for clothing. Such symbols are written on labels and attached to clothing to indicate how a particular garment should be cleaned.

**Clothing**: Clothing is anything worn on the body in order to cover, protect and adorn it or to communicate intention.

**Clothing care:** Clothing care, also known as preventive conservation, is about ensuring clothes safety and functionality at all times.

**Clothing laundering**: Laundering is a process performed to get clothes clean

**Clothing selection**: Clothing selection refers to selecting a clothing item to buy, as in a store.

**Clothing storage**: Clothing storage refers to a number of activities that provide clothes protection from dust, dirt, insects, fungus and dye transfer (Marshal et al,
2000).

**Clothing repairs**: Clothing repairs refer to the practice of mending clothes.

## CHAPTER TWO
## REVIEW OF RELATED LITERATURE

**2.1 Introduction**

In this chapter, relevant literature was reviewed. The review was treated to cover the following; theoretical review of literature, conceptual and empirical review. Under the conceptual review, literature was reviewed on the following subtopics.

License: This is an open access article under the CC BY 4.0 license: https://creativecommons.org/licenses/by/4.0/

**2.2 Theoretical Review of Literature**

**2.2.1 Diffusion of Innovation Theory**

Roger's (2010) Diffusion of Innovation theory describes and explained the spread of a new idea or product over time and how it becomes popular in society. The process of innovation consists of several stages, including knowledge, persuasion, decision, implementation and confirmation. The conceptual framework of this study, which emphasizes the adoption of proper clothing care and management practices such as better selection of clothing items, knowledge of care labels, appropriate laundering, food storage, and mending can be effectively explained through Rogers' (2010) Diffusion of Innovation Theory. The four key components of this theory include social systems, time, communication channels and innovation (Lyytinen & Damsgaard, 2001). Roger noted that the consequences of innovation could create uncertainty: therefore, individuals must be informed about its benefits and drawbacks. In terms of fashion, this spreading may occur due to any of the diffusion theory mechanism such as trickle-down theory, which has been described by Veblen (1899) in his conspicuous consumption theory where the idea is adopted in the top strata of the society and then it starts to become accepted in the lower strata (Trigg, 2001), or trickle across theory, where fashion is moving horizontally within the same social class (King Jr, 1963), or even the trickle up theory, where the idea is spreading from the lower class and flows to the upper-income groups: this diffusion of new design styles and innovations is what we call 'fashion' in the garment industry. These practices are viewed as behavioral innovations that, when adopted, lead to the desired outcomes of longer-lasting garments and reduced clothing-related expenses. According to Rogers, the adoption of any innovation follows a five-stage process: knowledge, persuasion, decision, implementation, and confirmation. In the decision stage, decisions are made concerning the adoption of innovation as well as its implementation (Kaminski, 2011). In the context of clothing users, individuals first gain knowledge of better care practices through communication channels such as social media, educational campaigns, or local influencers. They are then persuaded by the perceived benefits economic savings and sustainability which influences their decision to adopt these practices. Once implemented, positive outcomes reinforce their continued use. The diffusion of these practices across the population can occur through different mechanisms, including trickle-down, trickle-up, or horizontal diffusion, depending on who adopts them first and how social influence operates within the community. (Alsharif, 2013) defines the diffusion process as the spreading of a new idea from its source to users. Furthermore, the likelihood of adoption is shaped by perceived value, risk, and compatibility with existing habits, all of which are central to Rogers' model.

Engage local influencers, such as community leaders or popular figures, to promote the adoption of modern clothing care practices. Their endorsement can increase acceptance among the population. There are several factors that influence the adoption of innovation by customers such as perceived risks, perceived costs, and perceived value (Ho and Ko, 2008), for instance, if the consumer perception is that the innovation is more valuable in contrast to the existing products. Innovations with perceived value are more likely to be adopted by the consumers. By applying this theory to the northern region consumer, if new fashions from the West are perceived as carrying risks of negative peer response or being considered challenging, they may not be adopted, while if they are perceived as of value, they are more likely to be adopted. Similarly, the technological innovations in promotion of a digital fashion show may be adopted due to the economic benefit, brand enhancement value and convenience, if potential risks are mitigated.

Therefore, this theoretical framework not only supports the proposed relationships in the conceptual model but also provides a robust foundation for understanding how and why users of clothing items might adopt new care practices over time. By applying the diffusion of innovation lens, this study aims to explore how clothing care behaviors spread within a social system and ultimately lead to costeffective, sustainable clothing usage.

**2.3 Conceptual Review of Literature**

**2.3.1 The Concept of Clothing**

Clothing is anything worn on the body in order to protect it, adorn it or to communicate intention (Anyakoha & Eluwa, 2010). It is an important component of physical appearance. It includes all the different garments, accessories or ornaments worn by people. Clothing, which is made from textiles, is one of the three basic necessities of mankind, alongside food and shelter (Adu-Akwaboa, 2010). Although, clothing is usually prioritized second to food, Agyemang (2001) posits that one can go unnoticed without food or shelter for a moment but without clothing, he or she may be perceived in a civilized world as demented or a delirious person.

Clothing is defined in its broadest sense as covering for the torso and limbs as well as covering for the hands (gloves), feet (socks, shoes, sandals, and boots) and head (hat, caps). Human beings, nearly universally, wear clothing, which is mostly referred to as dress, garment, attire or garment (Allwood, Bocken, Lausen, & Malvido de Rodriguez, 2006). Clothing has been seen as an intimate part of an individual. It is one of the most personal components of daily life, and at the same time, it is an expression of the social activities embedded in the cultural patterns within a particular era (Dzramedo, 2009).

**2.3.2 Making of garments**

Although modern consumers take clothing for granted, making the fabrics that go into clothing is not easy. One sign of this is that the textile industry was the first to be mechanized during the Industrial Revolution. Before the invention of the powered loom, textile production was a tedious and labour-intensive process. In the thousands of years that humans have spent constructing clothing, they have created an astonishing array of styles, many of which we can reconstruct from surviving garments, photos, paintings, mosaics, etc., as well as from written descriptions. There are different approaches to the making of fabrics. One approach simply involves draping the cloth. The Ghanaian "ntoma", Indian dhoti and saree, Scottish kilt, and Javanese sarong, are examples (Dzramedo, 2009). These clothes may simply be tied up, as is the case of the first two garments; or pins or belts hold the garments in place, as in the case of the latter two. With draping, the precious cloth remains uncut, and people of various sizes or the same person at different sizes can wear the garment (Marshall et al., 2000).

Another approach involves cutting and sewing the cloth, but using every bit of the cloth rectangle in constructing the clothing. The tailor may cut triangular pieces from one corner of the cloth, and then add them elsewhere as gussets. Traditional European patterns for men's shirts and women's chemises take this approach. Modern European fashion treats cloth much more prodigally, typically cutting in such a way as to leave various odd-shaped cloth remnants. Industrial sewing operations sell these as waste; home sewers may turn them into quilts.

License: This is an open access article under the CC BY 4.0 license: https://creativecommons.org/licenses/by/4.0/

**2.3.3 Origin and history of clothing**

Costume history serves as a source of inspiration to current fashion designers, as well as a topic of professional interest to costumers constructing for plays, films, television, and historical re-enactment. According to archaeologists and anthropologists, the earliest clothing probably consisted of fur, leather, leaves or grass, draped, wrapped or tied about the body for protection from the elements. Knowledge of the origin of clothing remains inferential, since clothing materials deteriorate quickly compared to stone, bone, shell and metal artefacts, but some information has been inferred by studying lice. The body louse specifically lives in human clothing and when it diverged from head lice it can be inferred that clothing existed at that time. One study estimated that this happened between 83,000 to 170,000 years ago (Kittler, Kayser, & Stoneking, 2003; Choi, 2011). Archaeologists have identified very early sewing needles of bone and ivory from about 30,000 BC, found near Kostenki, Russia in 1988 (Reed et al. 2004). Anthropologists, at the Max Planck Institute for Evolutionary Anthropology, conducted a genetic analysis of human body lice and indicated that they originated about 107,000 years ago. However, a second group of researchers used similar genetic methods and estimated that body lice originated about 540,000 years ago (Reed et al., 2004). Probably, clothing was discovered years ago. A discovery of a 500-year old male corpse on a glacier on the Austrian-Italian border revealed such. The body was clad in a fur cap, a leather cape, a loincloth, and leather shoes (Henderson, 2010). For now, the date of the origin of clothing remains unresolved. Some human cultures, such as the various peoples of the Arctic Circle, until recently made their clothing entirely of prepared and decorated furs and skins. Other cultures have supplemented or replaced leather and skins with cloth: woven, knitted, or twined from various animal and vegetable fibres.

**2.3.4 Purpose of wearing clothes**

Some scholars believe that clothing was needed merely because of protection of one‟s body from the threats in the environment. Others have argued stating that clothing was created to create sexual attraction or to display beauty of one‟s body (Henderson, 2010; Anyangwe, 2010; Fletcher, 2008). Clothing is an integral part of human life and has a number of functions, which includes adornment, status modesty and protection (Riungu, 2008).The primary role of clothing is to form a layer or layers of barriers that protect the body against unsuitable physical environments. People wear clothing for functional as well as for social reasons. Clothing protects the vulnerable nude human body from the extremes of weather, other features of the environment and for safety reasons (Riungu, 2008).

Ideally, the practical function of clothing is to protect the human body from dangers in the environment. Kaiser (1990) identifies such environment dangers as weather (strong sunlight, extreme heat or cold and precipitations), insects, noxious chemicals, weapons and contact with abrasive substances and other hazards. Clothing can protect against many things that might injure the naked human body.

Stone as cited in Marques (2011) posited that clothing is used to communicate the individual identity to the society, and it is considered one of the most important sources of information when meeting new people. Marques further indicated that people with a low level of self-esteem usually give more importance to clothing. Clothing is influenced by our culture and society. It defines one's origin, lifestyle, current moods, tastes, attitudes, opinion, interests, personality, and occupation. Marshall, Jackson; Stanley, Kefgan and Touchie-specht (2000) stated that clothing has a salient vocabulary that takes the form of symbols used by individuals as tools for social interaction. Our clothing behaviour speaks volumes of our „self-image" (the type of person we are) and the world around us. It is a form of non-verbal communication.

In many societies, people of high rank reserve special items of clothing or decoration for themselves as symbols of their social status. Recent scholars now state that clothing represents one's identity and communicates it nonverbally (Riungu, 2008; Marques, 2011). Clothing in some societies is as functional as language. It represents a person's age, gender, marital status, ethnicity, social status and occupation (Henderson, 2010). For example, uniform depicts one's occupation. They are most likely to be worn by police, students, army, and so forth. Sportswear is another clothing class worn by sportsmen and women in order to provide easy movement and protection during games such as soccer, basketball, cricket, etc. In ancient times, only Roman senators were permitted to wear garments dyed with tyrian purple. Also, only high-ranking Hawaiian chiefs were allowed to wear feather cloaks and palaoa or carved whale teeth. Under the Travancore kingdom of Kerala (India), lower caste women had to pay a tax for the right to cover their upper body. In China, before the establishment of the republic, only the emperor could wear yellow (Henderson, 2010). According to Gilbert (20004), in the ancient Asante kingdom, the kente cloth is worn mainly by the Ashanti royalty.

Clothing reveals some information about an individual's personality, and economic standing. If a woman is dressed in blue jeans and is wearing a frilly flowered top, she is probably trying to state that she wants to look more casual. On the other hand, a person wearing a T-shirt with a rock band's name on the shirt implies that the person is a rock band fan. In many cases throughout history, there have been elaborate systems of sumptuary laws regulating who could wear what. In other societies (including most modern societies) no laws prohibit lower-status people wearing high status garments, but the high cost of high-status garments effectively limits their purchase and display. Thus, the economy of one's society also inspires what one wears. Since senior members are people of high social and economic standing, they tend to wear high status garments.

**2.3.5 Clothing Selection Practices**

Since one purchase clothing for a definite purpose, it follows that the buying of clothes should be carefully executed in order to meet its purpose. Clothing will appear to wear longest when care is considered during purchase. Thus, the care of clothing should begin with the selection. Clothing selection can refer to either selecting a clothing item to buy (as in a store) or selecting an already acquired clothe to wear (as from one's wardrobe) (Cosbey, 2001). Everyone should seek to be an intelligent consumer of clothes and know how to choose the clothing s/he buys. Lloyd (1996) presents a list of aspects that should be taken into consideration in sustainable purchase decision:

1. Is it really a necessary purchase?
2. Does it have a long product life?
3. Can it be re-used?
4. Does it have minimum packaging?
5. Does it have minimum toxicity?

The first point is valid and usable for consumers who plan to acquire clothing in a sustainable way, but some of the other points such as long product life and minimum toxicity are more difficult in practice due to the lack of information. As a rule, buying garments of good quality, well-

License: This is an open access article under the CC BY 4.0 license: https://creativecommons.org/licenses/by/4.0/

shaped and well fitted may mean a larger initial expense, but it means that they will wear better than fabrics of inferior quality and illfitting garments that strain and pull, and they will not require cleaning and pressing so often (Cosbey, 2001).

Since clothing selection is the first step in clothing care and management, it should include information about its expected lifespan. And since this is not usually the case, consumers‟ evaluation of durability is mainly based on cues that do not directly reflect it, such as price or brand (Laitala & Klepp, 2013). Consumers also judge the quality of clothing by the brand of retailer or manufacturer and also by the feel of items, particularly the strength of seams (Fisher, Cooper, Woodward, Hiller, & Goworek, 2008). Designer brands are generally associated with good quality, although there are indications that a designer cachet was part of a rationalization for the higher price, identified as the 'originality' and 'distinctiveness' provided through a relatively small production run (Fisher et al., 2008).

Laitala and Klepp (2013) asserted that factors such as texture, length, size, colour contrast, fabric and the purpose for buying the cloth, should be considered in order to select quality clothes. Consumers should also make sure: (1) Costume fastens without showing the fastening agents; and (2) buttonholes are fully stitched and finished. Back and front linings should also be checked for flaws in the material such as drawn threads, cuts, soiled spots, among other things. One-way to help keep repair of clothing at a minimum is to check garments carefully before they are purchased. Therefore, the following have been suggested for clothing selection:

1. Pick types of garments best suited to your family’s needs and to the kind of care these clothes will get.
2. Check sizes and fit. Getting the right fit avoids strains that cause damaging rips and tears later.
3. Study style features and trimmings to see if they will hold up in use. Some, although satisfactory in dress clothes, are not practical in garments for work or play.
4. Look for flaws. Examine the workmanship of a garment, outside and inside; to make sure it is appropriate and serviceable for the material, style, and cut of the garment, as well as for the use and care it will get.

Time should be taken in order to pick the best garment, whether clothes are piled in a stack or hanging from a rack. All clothes of a kind, or even a size, are not of equally good quality (Heaton, 1996; Dedic, 1987). These steps in the long term will aid in the overall care and management of clothes.

**2.3.6 Factors affecting the choice of clothing**

Isika (2006) pointed out that, fashion is a dynamic collective process yet it influences individuals‟ lives in a distinctively personal way. According to Frings (1991), buying motives vary from consumer to consumer and from day to day. They include the desire to be fashionable, attractive, impress others, be accepted by friends, peer groups or colleagues and fulfil an emotional need. Bao et al. (2003) also stated that consumer decision-making styles vary across nations. With increasing globalization of world markets, such variations in consumer decision-making styles could be due to environmental variations among nations. Under the influences of different environmental characteristics, consumers‟ individual characteristics would vary and their perceptions of value and the significance of different product attributes may also be dissimilar (Frings, 1991). Internal factors refer to the product characteristics that cannot be manipulated without changing the product’s physical characteristics. Internal factors are considered to include consumers‟ individual characteristics and psychological aspects, such as demographics, lifestyle, personal values, self-concept, and product involvement (Schiffman, Bendnal, Cowley, O‟Cass, Watson & Kanuk, 2001). Self-concept are more closely related to individual values and belief systems, and tend to provide an explanation or reasoning for an individual’s perception of self as a social object. Piacentini and Mailer (2004) stated that clothing choices are closely tied to selfconcept and influences how people expressed themselves while making judgments about others.

Consumers‟ choice of clothing is often influenced by their perceptions of product attributes in terms of relative importance (Yan, 2009). Viswanathan, da Luz, Raposo, and Stanley (1999) asserted that the perception of product attributes is a basic element influencing consumers‟ decision-making. Consumers‟ perception of the importance of these attributes forms the selection criteria in making purchase decisions (Yan, 2009). Viswanathan et al. (1999) also asserted that the perception of product attributes is a basic element influencing consumers‟ decision-making. Different criteria may have varied importance in the individual consumer’s mind.

External factors, on the other hand, are the influences that come from the consumers‟ environment (Schiffman, et al., 2001). External factors comprised mainly of social grouping and socio-economic status. Social grouping consists of small groups, social roles and status. For example, peers influence fashion and clothing brands‟ choices, determining the ones that are acceptable by them. When deciding what fashion clothes should be acquired, commonly people prefer to share ideas with peers in advance. Thus, clothing selection is a concept vastly influenced by others (Solomon & Rabolt, 2004). Peers define expectations related to a clothing style and about the brands that should be used by the group members (Chaplin & John, 2007). For this reason, people tend to share ideas with their peers before doing a purchase with the intention to preserve group identity. Wife, husband and children have strong influences on a consumer and thus the family is the most vital consumer-buying organization in the society (Chaplin & John, 2007).

Socio-economic factors that influence clothing selection include fashion, social class, age, income, religion, educational level, occupation and price. Consumer economic situation has great influence on his/her buying behaviour. The smaller the consumer’s family size or dependents, the higher the income and savings of such consumer, which will in turn, influence the consumer to favour products that are more expensive. On the other hand, a person with low income and savings will purchase inexpensive products (Shah, 2010). Educational level also affects clothing consumption patterns.

Isika (2006) noted that educational level has a great significant influence on the clothing adoption behaviour as professional women with higher levels of education may have better taste in clothing choice. This is because increased education gradually results in cultural sophistication that makes one a more discriminating shopper out of the average consumer. Therefore, people with higher levels of education may have better taste in clothing selection (Isika, 2006).

License: This is an open access article under the CC BY 4.0 license: https://creativecommons.org/licenses/by/4.0/

**2.3.7 The Concept of Clothing Care Management**

Clothing suffers assault both from within and without. The human body sheds skin cells and body oils, and exudes sweat, urine, and faeces. From the outside, sun damage, moisture, abrasion and dirt assault garments. Fleas and lice can hide in seams. Worn clothing, if not cleaned and refurbished, itches, looks scruffy, and loses functionality. Clothes with dirt and stains or residuals of detergent many constitute both aesthetic and health problems. Dirt can spread infectious disease, and soap residue in clothing can cause allergic reactions. Clothing care which is also known as preventive conservation is about ensuring object safety at all times, on the basis that prevention is better than cure (Robinson & Pardoe, 2000). People wash their clothes to remove stains and to prevent them from smelling. Some people wash their clothes after wearing them once, whereas others wash them more infrequently.

Arild, Brusdal, Gunnarsen, Terpstra and Kessel (2003) contend that the way in which people care and manage their clothes could be explained by different factors. Some of them are measurable facts, such as how many clothes you have, whether you get dirty doing your work or sports, what machines and other equipment you have at home etc

(Arild et al., 2003).

The principles underlying all collection care activities and clothing care practices includes:

1. Respect. Having respect means providing an appropriate level of care to objects. For individual costumes/textiles, especially the finer specimens, it is easy to have respect. It is harder when the object looks like something that is of no use.
2. Check. Checking that all is well is an underlying principle of collection care. The most important regular checks to make are of: premises, facilities, containers and condition of the collection, as well as the checks normally described as monitoring of environment and for pests.
3. Protect. Protecting collections is another key principle. Typical threats are dust, dirt, air pollution and contact with harmful materials, light (especially ultra-violet light), pests, damp, sticky and careless fingers, accident and theft.

The appropriate level of protection must be judged according to the intended

1. use of individual items. Providing a clean, tidy and well-organized environment is a good start towards protecting collections.

4. Support. Every textile must be supported at all times to avoid the risk of it coming apart under its own weight. The basic principle is to give maximum support by laying objects out as close to horizontal as possible. The greatest challenge is providing support to an item of costume or textile so that it appears to hang naturally. Usually, the longer the period it needs to do so, the more support it will need. Good support must always be provided when moving objects such as clothes.
5. Avoid unnecessary touching, handling and moving. It is physical forces such as twisting, shaking, pulling, snagging and rubbing that cause materials, already weakened by age and wear; to suffer catastrophic damage.
6. Be wary of change. During any period of change, the level of risk increases. Ensure that the environment is stable at all times and minimize the effect of changes through careful planning. This is the final underlying principle of collection care. Lending to other people, setting up exhibitions and moving to new stores are circumstances where change brings risks (Chaplin& John, 2007).

According to Nickel and Dorsey (1960), the purpose of clothing management is to further the physical, social and psychological well-being of each member of the family in each state of the family's life. Clark (1978) stated that one must plan what he wants to buy in order to avoid waste and get the best value. Clothing is one of the family's expenditures which must be budgeted for carefully (Pollard, 1961). Pollard added that the amount spent for clothing, depends on the family situation, number of members and their needs. Gramodyog (1965) indicated that there is an important relationship between income and wardrobe content.

According to Nickell and Dorsey (1960), clothing management is primarily a psychological problem because the choice of clothing markedly affects the development and happiness of people, the clothing one wears plays an important part in one's adjustment to social group. Latzke (1968) stated that with wise planning, one can acquire the type of wardrobe needed. As the income increases, the amount spent on clothing increases. One must consider quality rather than number, while purchasing clothes. Craig and Rush (1954) stated that a two- or three-year clothing plan will save time, energy and money.

Wardrobe collection should not only be beautiful, fashionable and suitable for the body, but it should also be comfortable (Sreedhar, 1991). But people give more importance to fashion than comfort as observed by Ratnam (1991). Latzke (1963) listed the factors affecting clothing management as follows: family income, clothing needs, activities of family members, size of family, and where one lives. Lewis (1960) stated that the extent of students managing their clothes depends on their family income, their social activities and the personality. Thomas (1994) noticed that most parents are conscious of their children's dresses, so they spend a lot of money on children's clothing. Hence, parents are interested in dressing their children in good clothes.

**2.3.8 Clothing Care Methods**

Clothing care refers to the keeping of fabric or a garment in a satisfactory condition. Clothing care activities include: laundering, storage and mending the clothes when they are torn or when they develop faults (Anyakoha & Eluwa, 2007). Clothing care is also connected to lifespan of clothing. Maintenance is often the most energy-demanding stage during clothes' life cycle. Even though clothing maintenance has a substantial environmental impact, consumers connect environmental issues related to clothing mainly to the end of the use period when clothes are either given or thrown away (Laitala & Klepp, 2011). Less consideration is given to clothing maintenance and purchase stages. Many of the changes in garments were related to laundry related problems such as stains, odour, shrinkage, and colour changes. This shows that successful care phase is important for continued use of the garments.

**2.3.8.1 Laundry**

Laundry and life cycle of garment: a garment goes through a number of alternate wear and laundering cycles during its use. A typical laundry process includes the following stages: -loading of clothes, detergents and water → wash mode → draining → rinse mode → spin-mode. Each stage of a washing cycle and related parameters have a contribution to the change in dimensional properties of the knitted textiles (Anand *et al.*, 2002). A single laundry cycle does not have a significant effect on fabric drape, shear or bending properties. However, after a repeated laundry cycles, drape values increased overall, while shear and bending modulus and hysteresis decreased, resulting in a more drapable, pliable fabric after

License: This is an open access article under the CC BY 4.0 license: https://creativecommons.org/licenses/by/4.0/

five laundry cycles (Orzada*et al*., 2009). The level of change in handle of the fabric due to laundry depends on the number of wash cycles fabric had gone through and laundry parameters. Hence, an overview of life cycle of a garment during use and the laundry parameters is being given in the next sections. There is good evidence that washing processes generally contribute more to fabric damage than do use or wear.

Rigby (2011) has researched which types of clothing items are seldom washed, and designed a clothing line based on that information. She identified different themes that affect the washing behaviour, including material choice, use area and fit. For example, woollen materials, home wear and loose- fitting clothing were washed more seldom than other types of garments. As odour is one of the important reasons for laundering, material selection is an important way to reduce this need, for example wool can be aired to remove odours and to freshen it up (Rigby, 2011). Also, the design of loose fit and airier arm-pits that reduce sweat stains, or the use of in-lays that could be removed and washed would reduce the need for laundering.

Research suggests several measures that consumers can take to decrease the environmental burden caused by textile maintenance (Uitdenbogerd, 2007; Bain, *et al*., 2009; Laitala *et al.*, 2011). They can lower washing temperatures, use ecoprogrammes, fill the machine to capacity, decrease washing frequency and assure correct detergent dosing. They can also avoid tumble-drying and ironing, and practice alternative freshening methods such as airing. How to best realize this desired behaviour is, however, not straightforward but may be informed by recent research into design for sustainable behaviour. Some design solutions may involve simply providing information or putting the user in control, while other design directions may focus on making undesirable behaviour impossible (Zachrisson & Boks, 2010). Inbetween solutions may persuade or seduce users towards sustainable behaviour, like the use of eco-buttons or detergent tablets that should secure optimal dosage in wash (Lilley *et al*., 2005).

Lockton *et al*. (2010) collected a wide range of mechanisms which were often used in the period (Madsen *et al*., 2007; Otto *et al.*, 2007). Technological improvements in washing machines and detergents have reduced the total environmental impact per wash, but the total time that consumers spend on laundering has not been reduced (Klepp, 2003). Further information regarding consumer clothing maintenance habits and the reasons for their choices is required in order to study the possibilities for influencing consumer behaviour towards more sustainable practices. Laundering practices are constantly changing, influenced by social, cultural and moral norms (Shove, 2003). They must, therefore, be understood over time and across cultures. Before the industrial revolution, labour intensive practices such as washing textiles outside or boiling them on a stove were common. Such labour-intensive practices are disappearing as a result of new technology such as the advent of the electric washing machine. Efficiency in spreading information from professionals has also been a factor; washing temperatures have dropped considerably since World War II, first from boiling down to 60°C in the 1980s (Klepp, 2003). At this stage, the change was increasingly led by new washing technologies; materials in garments that did not tolerate being washed at high temperatures; and the consumers themselves reducing the washing temperature to 40°C and lower, despite the experts' advice to continue washing at 60°C (Klepp, 2007).

In recent years, experts' advice has varied depending on whether they have a hygienic or environmental argument on a basis. However, most experts agree that low washing temperatures can be used in home laundering, except in cases of epidemics or especially vulnerable user groups. Throughout history, the level of washing and acceptance of body odours has varied greatly. Today, body odour is considered appalling, and daily washes and use of artificial perfumes is almost a norm (Ashenburg, 2007). These changes in social norms have led to increased washing frequency of our bodies and clothing (Shove, 2003). These examples show that habits have changed relatively fast through different mechanisms and have been affected by new technologies, available information, as well as changes in society and its norms. Steering these processes of change will require a consideration of integrated sociotechnical systems and will therefore be complicated. A number of studies have shown that changes in attitudes and values may have limited effect on everyday behaviour (Ajzen & Fishbein, 1980) and that there are several barriers for change (Throne-Holst *et al*., 2008). The importance of cleanliness in the Western cultures is an example of a cultural-normative barrier where individuals' fear of having a body odour that might be caused by unsatisfactory laundering may inhibit the change to lower washing temperatures. Other barriers may be individual, psychological, and on earlier experiences or upbringing. Understanding these and other barriers is essential for successfully choosing and applying design for sustainable behaviour strategies.

Life Cycle Assessment (LCA) studies on clothing and products used in laundering, such as detergents and washing machines, show that the use period is usually the most energy-demanding period during these products' life cycle (Madsen *et al*., 2007; Otto *et al*., 2006; Saouter *et al*., 2002). Bain *et al*. (2009) pointed out the potential of using eco-friendly cleaning technologies as well as correct detergent dosing. In their report they evaluated some up-coming new technologies such as washing machines that use steam, ultra-sound, ozone, or silver ions, but they did not mention some of the alternative products to traditional detergents that are already readily available on the market, such as different laundry balls, washing pellets, soap nuts, and magnets. Results from these studies indicate that laundering with these products do have a cleaning effect, increased durability, or reduced need of ironing (Bruce & Thulin, 2010; Pusic *et al.*, 2011). Lighter colours had less colour change during rubbing and washing than darker shades, and had therefore potentially longer aesthetic lifespans.

Laundering practices are constantly changing and influenced by social, cultural and moral norms (Pettersen *et al*., 2013; Shove, 2003). These changes occur relatively fast through different mechanisms and have been affected by new technologies, available information, as well as changes in society and its norms. Washing textiles outside or boiling them on a stove were common practices before the industrial revolution. These practices started to disappear as new technologies such as the electric washing machines became more common. The average washing temperatures have dropped considerably since World War II, first from boiling down to 60C in the 1980's, and recently even lower (Klepp, 2003b). According to Klepp (2007a), the change was first led by new washing technologies and the advice given by Home Economics experts. Then, new textile materials that did not tolerate high temperatures became more common in use, and consumers continued to lower the washing temperatures, despite the experts' advice to keep on washing at 60C. During the past decade the washing technologies have improved further as new detergent formulations that function better at lower temperatures have been introduced (Ryom, 2003), as well as more efficient washing machines that consume less water and energy (Pakula & Stamminger, 2010). Despite the great improvement in cleaning technologies, the time that consumers use for washing clothes has not been reduced. These changes in social norms have led to increased washing frequency of the body and clothing (Gram-Hanssen, 2007; Pettersen, 2013; Shove, 2003). According to Klepp (2003a), consumers own more clothing, and wash them more frequently.

License: This is an open access article under the CC BY 4.0 license: https://creativecommons.org/licenses/by/4.0/

This increased amount of washing can counteract the technological improvements that have occurred in laundering. Steering these processes of change will require a consideration of integrated socio-technical systems (Gram-Hanssen, 2008). Rigby (2011) has interviewed consumers on which types of clothing they wash more seldom than others, and designed a clothing line based on that information. Rigby identified different themes in clothing that affect the washing behaviour, such as material choice, use area, for example, home wear, and fit.

In their review of laundering literature, Bain *et al*. (2009) pointed out a general lack of data on consumer behaviour related to clothing maintenance. However, laundering practices have been studied in several countries during the past two decades, including Australia (Jack, 2013b), Finland (Aalto, 2003; Järvi & Paloviita, 2007; Timonen, 2002), France (Kaufmann, 1998), Germany (Kruschwitz & Stamminger, 2011; Stamminger, 2009), Norway (Klepp, 2009), UK (Fisher *et al*., 2008; Pink, 2005), US (Hustvedt, 2011; Hustvedt *et al*., 2013), and even compared internationally (A.I.S.E., 2009a; Arild et al., 2003; Pakula & Stamminger, 2010). These studies show that there are great national variations in used washing machine types, laundering temperatures, frequencies, and in drying and ironing practices. However, many of these studies are quite old, taking into consideration the rapid developments in washing technologies and potential changes in practices.

In addition, most of these studies are not very detailed in specifying the variations in existing laundering practices, for example they seldom report laundering frequencies of households of different sizes. In addition, they often fail to take into account that consumers use several washing temperatures and methods depending on the product type in question. This kind of detailed data on clothing lifespans and selected maintenance methods is needed, for example when LCA studies aim to include the use phase to the calculations, and it has been shown that most LCA studies focus on the early stages (Madsen *et al*., 2007). Very few studies make a connection between the research on consumer's laundering practices and design for sustainable behavior actively select clothing that is somehow favourable from the environmental point of view compared to alternative products. Examples of preferable alternatives are textiles with the eco-label, pre-owned products, products made of specific fibres, recycled materials, materials that need less laundering during use, or has good quality, fit and design that enables long lifespan.

Earlier research has shown that one of the common reasons today to the high laundering frequency of clothing is based on the fear of body odour and resulting social consequences, as well as the attraction of "fresh" clothes (Fisher *et al*., 2008; Klepp, 2006). A German study has shown that the most common reason for using fabric softeners was a more comfortable feeling and softer touch, but their property to give good scent to textiles was the second most important reason (Braun & Stamminger, 2011). The main active ingredient of today's fabric softeners are esterquats (cationic surfactants), which show better biodegradability than the surfactants as used in the past (Braun & Stamminger, 2011). They also have low toxicity to aquatic organisms, and do not cause concern to human health with regard to regular consumer use (Housing and Economic Recovery Act: HERA of 2008, 2009).

As odour is one of the important reasons for laundering clothing. Laundering practices are constantly changing and influenced by social, cultural and moral norms (Pettersen et *al*., 2013; Shove, 2003). These changes occur relatively fast through different mechanisms and have been affected by new technologies, available information, as well as changes in society and its norms.

The average washing temperatures have dropped considerably since World War II, first from boiling down to 60C in the 1980's, and recently even lower (Klepp, 2003b). Then, new textile materials that did not tolerate high temperatures became more common in use, and consumers continued to lower the washing temperatures, despite the experts' advice to keep on washing at 60C (Klepp, 2007a). Knitted cotton fabrics were found to shrink more with increase in temperature while silk gave maximum area shrinkage at 35°C (Quaynor, 2000).

Washing products do significantly modify the physical effects of the mechanical action applied during washing. The effect of using detergent during laundry is minimal during the first five laundry cycles but for prolonged wash, ageing and the use of detergent may have significant influence on the dimensional stability and fabric shrinkage (Higgins *et al*., 2003). Laundry during this time period is increasingly being represented as an exercise in restoring clothes after having been contaminated by the wearer. Moving on to the late nineteenth century, increasing knowledge about microbes and bacteria impacted the laundry habits. The recommendation was now to boil underwear for at least 10 minutes (Shove,2003).Often today, clothes are not primarily washed due to soiling but rather to keep up a fresh appearance. There have been changes in what is considered dirty. The norm seems to be to wear the items for one day and then wash them (Shove, 2003). Respondents from a study by Lindén *et al*. (2006) stated that for some a shirt is always put in the laundry bin after one day of use regardless of whether or not unpleasant smells or stains are present. It is not common to use airing instead of washing and more than 60% declared that they never or almost never did air their used clothes (Lindén *et al*., 2006). There are examples of the washing machine being used rather than finding space and time to hang and sort the items. No public campaign has focused on the need of washing, or on how often clothes should be washed (Gram-Hanssen, 2008). This trend can also be discerned by the range of programs of the washing machine that focus more on refreshing the garments instead of cleaning them from dirt (Shove, 2003).

Age and gender impact clothing care practices. Barnes (1955) reported that girls assume some responsibility for laundry (washing, ironing), and mending and deciding on dry cleaning needs of their own clothing, but were less likely to darn socks. Girls whose mothers were employed outside the home assume more responsibility for their clothing care (washing, ironing and mending), than girls whose mothers were not employed. Koester and May (1985) found that as age increased, adolescents were more likely to repair, wash and iron their own clothes, and needed fewer remainders to do so. Adolescents were also likely to wash family clothing as age increased. Gender differences existed with adolescent girls being more likely to care for and family clothing than boys. When there are adolescent boys and girls in the same family, boys are even less likely to care for family clothing.

**2.3.8.2 Laundry Agents**

Laundry issues often turn out to be problematic. One reason is the significance of different types of laundry agents. Hauthal and Wagner (2004:13) presented some requirements for modern laundry agents as: good cleaning performance, favourable price, care of materials, environmentally friendly, consumer safety, hygienic together with such additional features as pleasant fragrance, convenience and 2-in-1 products". Aalto (1996) identified the following attitudes in cleaning: sporal; cleaning; evasive cleaning, routine cleaning and cleaning procedure development. It can be assumed that the choices of cleaning agents also reflect these attitudes. The components that caused allergy turned out to belong to this group. Niva *et al.* (1996) and Aalto (2002) have found that in decision making, scent as well as allergy factors are very important.

License: This is an open access article under the CC BY 4.0 license: https://creativecommons.org/licenses/by/4.0/

Laundry softeners can be classified into three categories according to method of applying softeners to textiles: - (a) water cycle softeners – softeners that are used in the wash cycle, (b) rinse cycle softeners – softeners that are used in the final rinse, and (c) dryer sheet fabric softeners – softeners that are used in the dryer. The orientation of non-ionic softeners depends upon the nature of the fibre surface, with the hydrophilic portion of the softener being attracted to hydrophilic surfaces and the hydrophobic portion being attracted to hydrophobic surface (Schindler, 2004).

**2.3.8.3 Clothing Laundering Practices**

Laundering is a process performed to get textiles clean (Arild et al., 2003). Why laundry should be done is a question that has evoked different answers throughout history. During ancient times, lower class people were not regarded as clean, and laundry was one way to rectify this. To a great extent, cleanliness became a culture, and the use of soap and water was seen as an indication of a civilized society (Frykman & Løfgren, 1979). Washing and changing to freshly laundered clothes was like a purification process. In 1882, the bacillus that carries tuberculosis was discovered, and after this period one important aspect of laundering was the fight against bacteria (Frykman & Løfgren, 1979). During the first part of the 20th century, major changes took place in the realm of laundry. As the hygienic aspect gained more support (Maartmann, 1998), the amount of laundry increased considerably (Klepp, 2003).

In recent times, knowledge of the technical aspects of laundering has expanded to a much greater extent than previously established. This is evident in the emergence of courses and schools for housewives, as well as in the growth of the detergents industry. Advertising and information campaigns increasingly has become the new arenas for knowledge on how to do laundry, compared to previously when this kind of information was learned in a personal and domestic context (Klepp, 2003).

Apparently, the middle-age generation, regardless of country, has the most remedies to be used for laundry in the house. This could reflect several things. One reason is that members of this generation have experienced a huge growth in the number of possible remedies. This could be seen as an opportunity to use less time and effort on their laundry, and it could also be an expression of great faith in "the wonders of chemistry" (Klepp, 2003, p. 22). Further, the middle-age generation have the financial means that allows them simply to discard remedies they do not like after having tried them once, or in worst case to buy new clothes if the remedy tried did not work quite as anticipated. Another explanation for this collection of remedies could be the fact that people within this age group are responsible for a family. There are simply more people in the household, all with different needs and preferences.

**2.3.8.4 Methods of laundering**

One of the most important functions of a laundering process is the wash performance, defined by the elimination of visible soil and stains from textiles (Arild et al., 2003). Humans have developed many specialized methods for laundering, ranging from early methods of pounding clothes against rocks in running streams, to the latest in electronic washing machines and dry cleaning (dissolving dirt in solvents other than water). Hot water washing (boiling), chemical cleaning and ironing are all traditional methods of sterilizing fabrics for hygiene purposes (Laitala, Boks, & Klepp, 2015). In the 19th century and the first part of the 20th century, laundry was done using other methods and other remedies than today (Sundt, 1975; Løfgren, 1979; Rasmussen, 1977).

The many elements involved in the laundering process indicate that the study of laundry is important. How we handle our laundry influences many aspects of society, both today and in the future. The effects on hygiene and health have already been mentioned; how we perceive and present ourselves in a social context is another consideration. Another very important element is the consumption of energy, water and chemical detergents. From the research results of the hygienic study, there are strong indications that the hygiene quality of washed laundry when still wet is related to the washing temperature and the presence of bleaching agents (A.I.S.E., 2001).

According to Arild et al. (2003), almost all micro-organisms are removed from the laundry samples by a 95°C programme using a detergent containing bleach. Washing at low temperatures seems to spread micro-organisms among the different laundry items in a washing sample rather than removing them. Temperature and hardness of water both affect washing efficiency. Temperature alone is far more decisive than hardness alone. Together there might be a reinforcement of effects, but this must be analyzed further in order to reach a conclusive result.

Recent evidence [APCC], 2008), suggests that many people do not sort their washing – hence increase the risk of colours running, or of washing more delicate fabrics at the wrong temperature. People also wash their clothes frequently, out of habit rather than necessity. Many consumers are unaware of material properties, and therefore do not care for their clothes as effectively as they could: for example, they do not know whether the best way to care for a garment is to hang it up or fold it, dry it flat or on a hanger, use the loops provided or hang it by the shoulders (Wrap, 2012). Many kinds of clothing are designed to be ironed before they are worn to remove wrinkles. Most modern formal and semi-formal clothing is in this category (for example, dress shirts and suits). Ironed clothes are believed to look clean, fresh, and neat. Much contemporary casual clothing is made of knit materials that do not readily wrinkle, and do not require ironing. Some clothing is permanent press, having been treated with a coating, such as polytetrafluoroethylene that suppresses wrinkles and creates a smooth appearance without ironing. Relevant suggestions for reducing the likelihood of poor performance resulting from laundering include:

1. Reducing the number of times, a garment is washed – freshening items up by

1. airing, as opposed to washing, where possible;
2. Sorting laundry into colours and fibre types before washing, to minimize the risk of discolouration or colour run;
3. Avoiding tumble-drying;
4. Steam-cleaning wool fabrics;
5. Considering hand washing or gentle machine washing;
6. Removing stains with a liquid detergent rather than washing the whole garment.

**2.3.8.5 Drying Method**

In most countries, drying is still done mainly by hanging the clothing in the open air (line drying), but in western countries, drying is increasingly being done using tumble dryers. In tumble drying, fabric is further subjected to the mechanical action which causes changes in dimensional characteristics of the fabrics. Studies of the relaxation process of cotton woven and knit fabrics have shown that tumble drying causes greater levels of shrinkage than line drying in the first few laundry cycles (Hearle, 1971). The level of shrinkage continues to increase if the fabrics are

License: This is an open access article under the CC BY 4.0 license: https://creativecommons.org/licenses/by/4.0/

tumble dried below normal moisture regain (Higgins *et al*., 2001). Tumble drying is beneficial in reducing the level of wrinkling but it increases damage to the fabrics as evident from the increased lint loss as compared to line drying.

The over drying of the textiles in tumble dryers was found to be beneficial to the appearance of the fabrics, with lower levels of wrinkling being exhibited after tumble drying for 45 minutes as compared with 30 minutes (Higgins *et al*., 2003). Tumble drying also has influence on the handling of the acrylic knitted fabrics. Tumbled fabrics have softer hands and a limper drape. It was also noted that fabric hands would become progressively soft if the fabric is tumbled at temperatures above 60°C (Brown, 1970). Textiles made with synthetic fibers tend to get charged with static electricity during tumble drying causing static cling (American Association of Textile Chemists and Colorists: AATCC Technical Manual, 2010). According to a report from the Swedish Energy Agency (2004), tumble dryers account for approximately 8% of the electricity use in Swedish households. To dry the clothes out of doors on lines has been the way of drying clothes for centuries. However, nowadays an increasing number of households dry their clothes artificially in drying cabinets or tumble dryers.

**2.3.8.6 Clothing Storage Practices**

Once clothes have been laundered and possibly ironed, they are usually hung on clothes hangers or folded, to keep them fresh until they are worn. Clothes are folded to allow them to be stored compactly, to prevent creasing, to preserve creases or to present them in a more pleasing manner. Storage is an important component in the care and maintenance of clothing. However, it is a component frequently overlooked until a problem occurs. Proper storage can and does reduce the time and money involved in upkeep and prolongs the life of your clothing (Heaten, 2002). The storage of clothing affects their lifetime, how often we launder them and how much we use them (Laitala, Boks & Klepp, 2015). This suggests that storage solutions could help in reducing unnecessary laundering. Storage of clothes is an important aspect of clothing care practices. Clothing storage decisions include, among others, storage facilities, ways of storing specific items, factors that influence the procedures to adopt. Proper storage of clothes involves decision making. Decision making is the action taken in selecting from alternative courses of action (Anyakoha & Eluwa, 2007).

Storage of clothes provides protection from dust, dirt, insects, fungus and dye transfer (Marshal et al., 2000). Adequate storage space for clothing and the way it is used, however, are management considerations (Wood, 2006). Taking proper storage of clothes in addition to making them look better, also makes them last longer. Improper clothing storage practices can lead to skin diseases, bad odour, feeling of unwholesome attitude and poor adjustment to social groups (Marshal et al., 2000). Clothing storage can be divided into three distinctive categories with respect to duration: short-term or day-to-day, seasonal and long- term.

Short-term storage is for items stored daily or on a day-to-day basis. It consists of that portion of the wardrobe currently being worn and used. Organization is extremely important to short term clothing storage. Organized closets and drawers permit wardrobes to be more functional and require less last-minute clothing maintenance. Short-term clothing storage must accommodate hanging as well as flat or folded items.

Clothes, that are hung, should be suspended in an appropriate manner from a hanger. Hooks, as hanging devices, have limited use and should generally be avoided. Appropriate clothes hangers and proper hanging techniques should be used. Hanging clothes in wardrobes prevents them from getting creased or rumpled so that they can retain their original shape (Anyakoha & Eluwa, 2007). Flat storage, on the other hand, is required for items that must be folded or stored in a non-hanging condition. There are many items that fit this category and include sweaters and other types of knitwear (such as dresses, jackets), heavy, stretchy clothing, and other delicate or fragile clothing. The following guidelines have been suggested for the storage of clothes (Anyakoha & Eluwa, 2007; Marshal et al., 2000; Wood Word, 2006; Laitala et al., 2015):

1. Select an appropriate clothes hanger for the garment. The type of hanger is determined by garment style and weight.
2. Slacks/pants can be suspended from the cuff or hem, or positioned on a hanger's horizontal bar that has been padded or is enlarged and slightly rounded to prevent creasing at the thigh.
3. Suspend the garment by the loops to help support garment weight while it is hanging. Loops help distribute garment weight and minimize distortion.
4. Avoid using wire hanger unless covered with white paper or cloth. Wire hangers can rust, paint can peel and the metal can snag delicate fabric.
5. When hanging, provide space between neighbouring garments/hangers for air movement and easy access without disturbing other garments.
6. If the garment has fasteners, keep at least the top one secured to prevent item from sliding off the hanger.
7. Keep the storage area clean. Clean, and/or wash it down at least once a year.
8. Herbs, scented odour devices and sachets give storage areas a pleasant smell.
9. When creasing can be a problem, consider using white tissue paper between garment folds to prevent creasing.
10. Fold garments at construction lines or natural wearing lines such as waist or knees.
11. Do not fold garment the same way each time. Alternate folding patterns help prevent permanent creasing.
12. Paint closet shelves, line drawers or otherwise protect clothing from snags and the natural oil and acid pH of unfinished wood.
13. When stacking is necessary, always place the largest, heaviest garments on the bottom.
14. Permit clothing to air at least overnight before storing in a closet, drawers or clothes hamper.
15. Remove and check for items left in pockets before storing. Secure or close fasteners.
16. Before storing clothes after wearing, check for soil as well as spots and stains. Remove spots and stains, and launder or dry-clean as soon as possible after soiling. Delays could shorten the life of the garment.
17. Keep items worn most frequently within easy reach and visible in the storage area. Mesh baskets make good storage units.
18. Consider storing similar items such as underwear, belts, and scarves, close to each other. This can make accessorizing easier and quicker.
19. Be sure laundered items are completely dry before putting them away.
20. Leave doors or drawers ajar periodically for several hours. Storage areas should be thoroughly cleaned at least once a year.

Pitts (2006) stated that special fabric needs special care and that moth often damage articles that are not stored properly. Marshal (2000) indicated that the components of storage to include facilities, equipment and storage process. Kathleen (2005) pointed out that clothes can be stored in boxes;

License: This is an open access article under the CC BY 4.0 license: https://creativecommons.org/licenses/by/4.0/

wardrobes, shelves, drawer, hangers, closets, shelves, drawer space, storage spaces, cartons, ropes, tight wrappers, pots hangers, insect repellers, mildews and moth proof, camphor acid free tissue mothballs and cedar. Knitted wear, under wear, domestic and drappers can be stored in flat drawers, closet drawers, closet, and shelves.

Proper care and storage of clothes help to keep them in good condition so that appearance of the wearer is enhanced. Storage of clothes provides protection from dust, dirt, insects, fungus and dye transfer (Marshal *et al*.,2000). Adequate storage space for clothing and the way it is used, however, are management considerations (WoodWord, 2006). Everyone needs suitable places to store clothes – a closet or place to hang some garments and shelves or other articles (Marshal *et al*., 2000). Hanging clothes in a wardrobe prevents them from getting creased or rumpled so that they can retain their original shape (Anyakoha & Eluwa, 2007). Taking proper storage of clothes in addition to making them look better also makes them last longer.

**2.3.9 Clothing Repairs/Mending**

Clothing repair (mending) skills have been lost in recent years and people often lack confidence in their ability to mend or alter clothes (Wrap, 2012). Most can sew buttons on, but fewer are able to alter a hem or darn a hole. As a result, many people simply store or discard items in disrepair or in need of alteration. However, there is growing evidence of interest in learning how to repair clothing.

Clothing repair can cover a rather wide range of activities varying from those requiring very little skill to those demanding a great deal of sewing skill and expertise (Wrap, 2012). The rewards of mending vary from the self-satisfaction for a job well done to a substantial monetary savings by prolonging the life of a garment. The need for clothing repair comes from various sources. Poor initial garment construction can be a problem with ready-to- wear as well as handmade items.

Everyday wear and tear will also take its toll. Poor garment fit can cause a seam to split or a fastener to break. Still other repairs become part of preventive mending, permitting the garment to be worn longer without the need of major repair or recycling. For example, the amount of clothing a person acquires influences how much each garment is used, and if garments are not properly taken care of, they can end up sooner in the disposal phase (Laitala, Boks, &Klepp, 2015). The cost of clothing continues to rise; however, garment cost or replacement is not the only factor to be considered. Answering the following questions each time clothing repair/mending is required should provide some insight:

1. How extensive is the repair or damage?
2. Do I have the knowledge and skill to repair it, or do I need to take the garment out for repair?
3. Is the garment worth repairing? (Consider garment age, current fashion, fit, and its use in the wardrobe. If for a child, will it soon be outgrown or can it be handed down?)
4. What is the time element involved in the repair? (Do I have the time to do it?
   Do I have the time to look for and see to someone else repairing it?)
5. Can I afford to replace the garment at this time?
6. Will the garment be worn after it is mended? (Laitala, Boks, & Klepp, 2015).

Poor initial garment workmanship or construction can be a problem with ready-towear as well as hand-made items. Every day wear and tear will also take its toll. Clothing repair and mending can cover a rather wide range of activities varying from those requiring very little skill to those demanding a great deal of sewing skill and expertise. The rewards of mending vary from the self-satisfaction for a job well done to a substantial monetary savings by prolonging the life of a garment. The need for clothing repair comes from various sources.

Textiles age through different mechanisms, such as mechanical stress, photochemical degradation, thermal degradation, physical structural changes, or chemical attack (Bresee, 1986). Natural ageing is usually a combination of several ageing mechanisms, and can cause holes, rifts, broken seams, loose buttons or faded colours.

Mending, re-design and altering are alternatives users have for prolonging the use period of clothing that is damaged, has poor fit or is not used for some other aesthetic reasons. Consumers may alter the garments' original appearance for several reasons, such as problems with fit, unwanted colour, lack of personal characteristics, or just to remove unwanted decorations. Studies on clothing sizes have shown that trouser length is one of the common clothing fit problems that can be altered by consumers (Laitala *et al*., 2012a).

The scale, focus and techniques in clothing mending have changed the past decades from very specialized, time consuming and invisible mending methods to far simpler techniques where the potential to unique aesthetic expression has become more important (Klepp, 2000). Creativity has become an increasingly more important reason for home-sewing instead of the economic reasons that were more important before (Johnson, 1960). The time consumed on repair, handicrafts and making own clothing has reduced significantly in the past decades (Aalto, 2003; Vaage, 2012).

A survey in the UK showed that about 62% of the respondents owned clothing that could be used if it was repaired (Gracey & Moon, 2012). Some studies that include consumers' clothing repair and altering practices have been made during the past years (Cooper *et al*., 2010; Ekström *et al*., 2012; Fisher *et al*., 2008; Gracey & Moon, 2012; Klepp, 2001). In general, these studies show that at least some repairs are still performed, but also several obstacles for repairing are recognized. However, none of the aforementioned studies specified to more detail the situations of when people decide to mend or alter their clothing, which types of clothing are repaired, the specified demographics of people that repair clothing, nor discussed the potential of design.

**2.3.9.1 Types of mending**

Clothing repairs or mending can be grouped into three main categories, including darning, patching, and remodeling (Gwilt, 2014). Darning is the "reweaving" of fabric in a damaged area, and can be done by hand or sewing machine. Machine darning is faster but more noticeable. Hand darning, which can be invisible to the unknowing eye, is time consuming and requires patience and skill (Gwilt, 2014).

Patching is often used when the damaged area is large or is not suited to darning. The repair can be almost invisible, or very decorative in nature. Patching is a sturdy method of garment repair. Before determining which type of patching method to use, consider carefully the damage location, type of garment, individual who wears the garment, type of fabric and how garment is used. The methods of patching include fusing, gluing, hand and machine stitching (Gwilt, 2014).

License: This is an open access article under the CC BY 4.0 license: https://creativecommons.org/licenses/by/4.0/

Remodeling generally requires the removal of a section or part of the garment so that a new portion or part can be installed. Replacement can require a great deal of skill, or just a little time and creative thought. Almost any section of a garment can be replaced depending on the skill of the individual doing the repair and the necessary fabric (matching, coordinating) to complete the task. For example, in order to replace a zipper, one would need to select a replacement zipper similar to the one removed, or the most suitable zipper available. Then carefully remove old zipper from garment, taking note as to how it was sewn. However, it should be noted that zipper replacement on ready to wear garments differs slightly from directions that may come with the replacement zipper. Frequent replacements on clothing include pockets, knit sleeve cuffs, and linings. Creative and decorative replacement could include such things as collar and sleeves. The belt of a garment may need to be replaced, or a belt may be added to a garment (Gwilt, 2014).

Throughout dress history it frequently appears that when mending did take place it served to mask damage, making it invisible, particularly, in garments that were perceived as valuable or precious. The extent of techniques used to accomplish these repairs varies enormously, depending on the user's accessibility to materials and skill, and the social and cultural norms of the time (Gwilt, 2014).

**2.3.9.2 Mending supplies and tools**

Mending supplies and tools can be categorized into many ways. However, all items should be kept together in a designated location. Everyone, male and female alike, who is responsible for the care and maintenance of their clothing needs at least a basic mending kit, including hand needle (package of assorted sizes [3/9]), stainless steel pins, safety pins, scissors, liquid fray preventer (found in lotion section at fabric store), thread, assorted snaps, hooks and eyes, sewing gauge or small 6-inch ruler, seam ripper, needle threader, pin cushion, assorted buttons, and bodkin (Gwilt, 2014). The colour of thread could include white, beige, black, brown, navy or medium shade of grey or other colours similar to colours in wardrobe to match the basic colours of the wardrobe.

There are numerous repair or mending methods. Some requiring creative talent while others are basic and rather fundamental. Determining which one to use depends on the location of the damage on the garment, type and size of damage, shape of the area to be repaired, type of fabric, ease of handling fabric, type of garment, and the garment's use and place in the wardrobe (Gwilt, 2014).

**2.3.10 Care Labels**

Garments are soiled during normal use. Aesthetics realities require used items must be cleaned and refurbished for reuse without substantially altering their functional aesthetic properties (Das, 2005). Care labelling outlines how a user should care for a particular clothing or textile product (Autralian Protection and Consumer Commission [APCC], 2008). Care codes are the internationally recognized symbols that are used for caring of garments in case of cleaning and ironing (Ghosh, Das & Bhattacharyya,
2014). These labels on which these codes are drawn or printed are called care labels. A care label must be easy to find, permanently attached, written in English and remain legible throughout the life of the garment (Ghosh, Das& Bhattacharyya, 2014). According to Ghosh, Das &Bhattacharyya (2014), care labels provide guidelines to consumers and garment care givers about the best cleaning procedures to be used for that particular combination of fabric, thread, decoration and construction techniques.

Content of label must be adequate and appropriate (Commerce Commission, 2001). Suppliers must ensure that care instructions are adequate and appropriate for the article. Care instructions must be appropriate so that garments are cleaned without damage (Das, 2005).

In general, care labels should cover:

1. General cleaning instructions.
2. General warnings.
3. Drying.
4. Ironing.
5. Washing.
6. Dry-cleaning.
7. How to maintain the texture if necessary.
8. Warnings against inappropriate treatment (Commerce Commission, 2001).

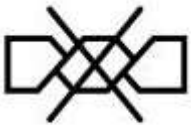
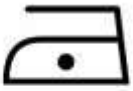
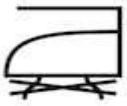
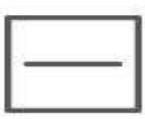
Care label guidelines deliver a uniform system of symbols for the disclosure of care instruction on textile products such as clothes. The U.S. Federal Trade Commission's care labelling rule requires manufacturers and importers to attach care instructions to garments (Ghosh, Das & Bhattacharyya, 2014). Sometimes symbols may be used in conjunction with words. The label provides things to do and not to do when cleaning or caring for the product. Care labelling provides the public with enough information to:

1. Know how to care for clothing and textile products.
2. Have prior knowledge of costs such as dry cleaning in the on-going care of clothing and textile products.
3. Understand how to clean clothing and textile products properly (e.g. cold hand wash only).
4. Maximise the useful life of clothing and textile products.
5. Avoid damage such as dyes running (APCC, 2008).

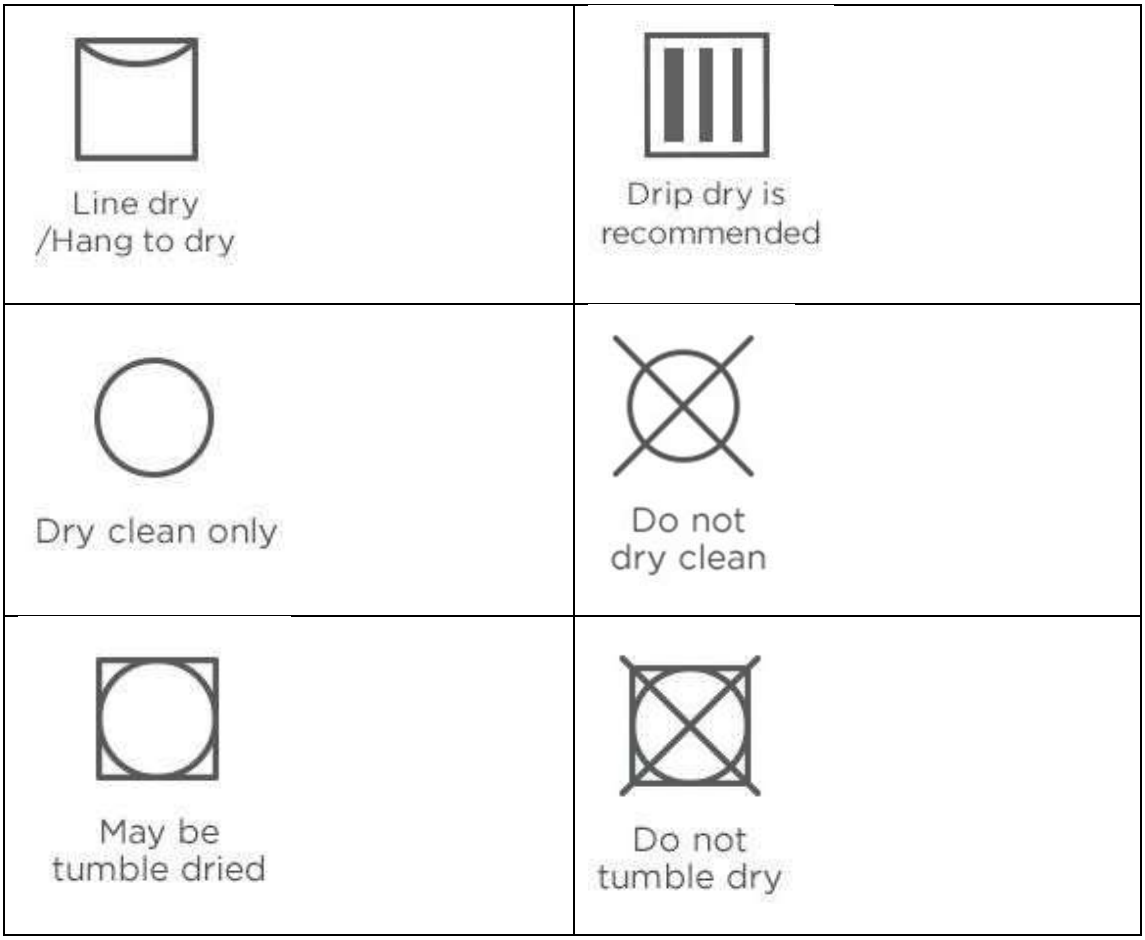
Where an article can be laundered or dry-cleaned or both, care instructions for both treatments must appear on the label. Care instructions may include both specific and prohibited instructions. Specific instructions provide advice on what a user should do with the article. Examples include; dry flat, cool iron, dry-clean only, etc. Prohibited instructions provide advice on what a user should not do with the article. Examples include; do not iron, do not tumble dry, do not wash, etc. Information in addition to care instructions in English, such as care symbols or instructions in other languages may be provided. Table 1 presents some common care label symbols and their corresponding terms.

License: This is an open access article under the CC BY 4.0 license: https://creativecommons.org/licenses/by/4.0/

**Table 2.1: Common Care Label Symbols and corresponding Terms**

| | |
|---|---|
|  Wash in mild temperature |  Wash in any temperature |
|  Donot Machine Dry |  Hand wash |
|  Donot wring |  Dry in any temperature |
|  Dry in mild temperature |  Iron in suitable temperature |
|  Steam Iron |  Iron at mild temperature |
|  DRY NORMAL, NO HEAT |  DO NOT IRON |
|  NO STEAM |  Dry flat |

License: This is an open access article under the CC BY 4.0 license: https://creativecommons.org/licenses/by/4.0/




Considering that the aim of these symbols is to elongate the life of the product, make it more sustainable, and prevent the possible mistreatments and damages to other products, the existence of these instructions might encourage the consumers to buy the product. This is also affected by the comprehension of the existence of these symbols as an indicator of quality (Yan et al., 2008; Barat, 2007). Yan et al. (2008) noted that the more the consumers understand the product information and have the confidence to be able to care for the product after purchase, the more they have the tendency to buy the product with less perturbation about the risks related to the purchased item.

Symbols can be divided into some subgroups, and the ones that include care labels are cognitive/perceptual symbols. Barat (2007) defines the perceptual symbols as a modal because in some cases, they do not form any correlation between their structure and perceptual state or meaning. "They are linked arbitrarily to the perceptual states that produce them" (Barsalou, 1999, p. 6). The triangle form as a "bleach" symbol can be shown as an example here.

The life span of an garment product is governed by many factors. Character of fibre, fabric construction, weight, and different mechanical and chemical finishing methods are some of them. Though it appears a little complicated to take right care of garment in laundering due to the non-existence of a uniform capsule, but a systematic and scientific approach can resolve the issue effectively by adopting the appropriate procedure and following the exact technique. Deviation due to ignorance and negligence in some cases often leads to loss in aesthetic and functional significance of an garment product and ultimately results in dissatisfaction (Das, 2008). It is well known that silk garment is delicate to laundering and demands scientific approach, appropriate procedure and techniques for proper refurbishing (Das, 2008).

In the past, there were only a few variations of textile fibres most of which were natural and these textiles had set cleaning instructions (Kadolph, 2007). However, the textile industry has since drastically changed and created variations of synthetic textiles, fibres, fibre blends, and finishes. This implies that consumers need to address complicated features of textile products, and therefore sometimes find it difficult to follow the continuous textile changes in order to make appropriate textile purchasing and post-purchasing decisions. Textile product labels could assist consumers to make informed decisions and consumer satisfaction regarding care, choice, and use of textile products and can be promoted by the information provided by the textile product label. Therefore, the information on the textile product label should be appropriate, legible, adequate, and understandable for consumers (Mason et al., 2008).

**2.3.10.1 Perceptions of consumers on care labels**

Perception is not a singular concept but a complex interactive process that occurs virtually simultaneously (Hawkins et al., 2007). The perceptual process is initiated when the consumer becomes aware of and pays attention to an environmental stimulus (Cantet al., 2006; Babin & Harris, 2009). According to Otienoet al. (2005), perception on care labels can be interpreted positively or negatively by consumers. If consumers have a negative perception regarding a stimulus, it may cause them to avoid and ignore the stimulus (De Klerk & Lubbe, 2008). This might include consumers‟ perceptions of textile product labels, which emphasizes that consumers‟ negative perceptions of textile product labels might influence purchasing

License: This is an open access article under the CC BY 4.0 license: https://creativecommons.org/licenses/by/4.0/

decisions negatively. A study by Chen-Yu and Kincade (2001) indicates that negative perceptions decreased consumers‟ satisfaction towards the textile product, whereas positive perceptions led to improved consumer satisfaction.

If consumers‟ perceptions of textile products influence their pre- and post-purchasing behaviour, their perceptions of textile product labels might also influence their pre- and post-purchasing behaviour. According to Solomon (2011), consumers are selective about what they pay attention to in a purchasing environment, and therefore, consumers may be aware of a stimulus (such as a textile product label) but choose not to pay attention to it. If consumers do not devote attention towards a stimulus, their sensory receptors cannot be used to process the stimulus (Hoyer & MacInnis, 2008).

Consumers‟ attention can be attracted through a stimulus that is clearly communicating and also be memorable in order to form an interpretation. Only after a consumer becomes aware of a stimulus, pays attention to it and views it as important enough to be processed, can it be interpreted (Cantet al., 2006; Hoyer & MacInnis, 2008; Babin & Harris, 2009). Consumers can either interpret a stimulus as acceptable or dismiss it as unacceptable (Blackwell et al., 2006). Consumers‟ interpretation of stimuli forms their perceptions, which will influence their actions, use, purchasing behaviour, leisure habits and other purchasing activities (Rousseau & Spoelstra, 2003). Although manufacturers of textile products‟ labels intend to aid consumers with valuable and necessary information regarding the textile product, consumers often interpret a stimulus differently to what marketers or manufacturers intended (Cantet al., 2006; Schiffman & Kanuk, 2010). Although a stimulus can draw consumers‟ attention, it will only be interpreted if the stimulus is important enough for consumers to form a perception (Hoyer & MacInnis, 2008). By comparing stimuli to other previously experienced stimuli, consumers categorise them according to their views of the importance thereof (Michaeliset al., 2008). Based on the positive or negative experience associated with the previous stimulus, consumers will view this stimulus as important or unimportant (Michaelis et al., 2008).

The importance of consumers‟ association with a stimulus is an essential stage in the perceptual process, especially for marketers wanting consumers to view their stimulus as important enough to enhance resulting purchasing decisions (Babin & Harris, 2009). Therefore, it is necessary to determine, through consumer‟s views and practices, whether textile product labels are important enough for consumers to process in order to form an interpretation of the labels.

**2.4 Conceptual Review**

The conceptual framework in Figure 2.1 illustrate the awareness and understanding of modern clothing care practices. Effective communication and educational initiatives are crucial for increasing knowledge of the consumers. Once consumers are aware, their attitudes and perceptions will influence their willingness to adopt these practices. So, consumers play a key role in shaping positive perceptions. consumers make decisions about whether to adopt or reject the new practices based on their perceptions of value and risk. This stage may involve trialability or initial experimentation with the new practices. Successful adoption requires integration of the practices into everyday routines. Support mechanisms, such as access to resources and ongoing guidance, are essential to confirm their care and management practice of the clothing. The final stage involves evaluating the effectiveness and satisfaction with the new practices and has been presented below diagrammatically.

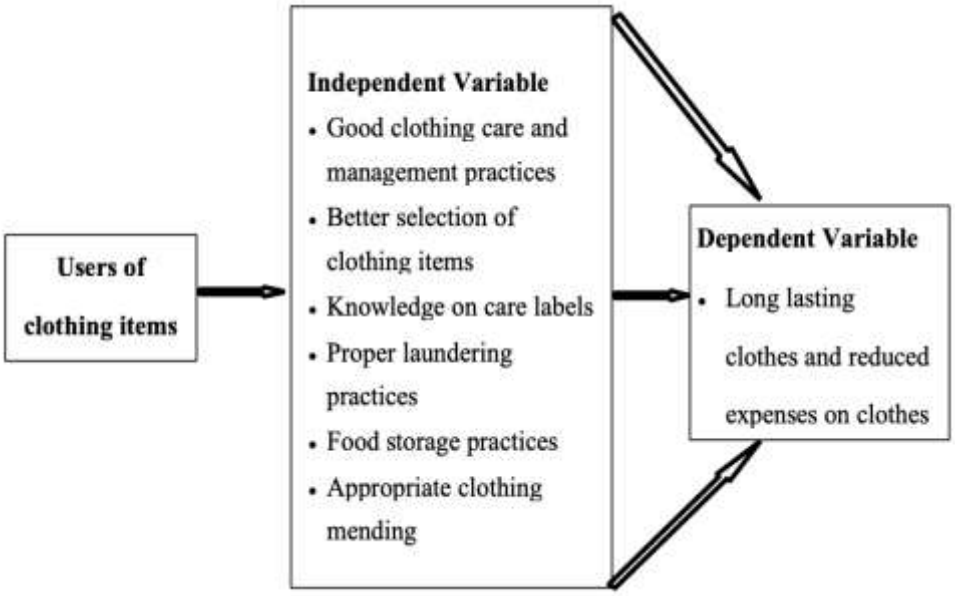



**Figure 2.1:Conceptual Framework**
**Source: Researcher's Construct (2024)**

**CHAPTER THREE**
**RESEARCH METHODOLOGY**

**3.1 Introduction**

The main purpose of the study was to investigate the modern clothing care management practices amongst the people in the Northern Region of Ghana. Specifically, data was sought on modern clothing care management practices concerning the selection of clothes, care labels and laundering of clothes, storing of clothes, and clothes repair.

License: This is an open access article under the CC BY 4.0 license: https://creativecommons.org/licenses/by/4.0/

The study employed purely quantitative approach to research and draws extensively on positivist philosophy. Positivism emphasizes the use of the scientific method through observation to empirically test hypotheses explaining and predicting what, where, why, how, and when phenomena occurred. Positivist philosophy claims that reality is fixed, knowable and it is directly measurable. They emphasize that, reality can be described from an objective point of view without interfering with the phenomena being studied and attempt to measure reality by operationalizing concepts in order to measure them as well as formulate hypothesis about them. Quantitative data obtained from responses on the questionnaire items were analysed using frequency and percentage tables. The results are presented and discussed in relation to empirical literature on clothing management practices.

**3.2 Research Design**

The research objectives and questions posed necessitate the collection of quantitative data from selected individuals at a single point in time. Thus, the research design adopted for this study is the cross-sectional survey design. "A cross-sectional survey is one in which data are collected from selected individuals at a single point in time" (Gay, Mills & Airasian, 2009). Cross-sectional survey is adopted for this study in order to make generalization statements about the modern clothing care management practices amongst the people in the Northern Region of Ghana.

Frankel and Wallen (1993) noted "obtaining answers from a large group of people to a set of carefully designed and administered question, lies at the heart of survey research". Polit and Hungler (1995) stated that the aim of descriptive studies, such as survey research, is to describe, observe and document aspects of a situation as it naturally occurs rather than explaining them. A descriptive study provides a more accurate picture of events and seeks to explain people's perception and behaviour on the basis of data gathered at a point (Anhwere, 2009).

Cross-sectional designs have the advantage of providing a snapshot of the current behaviours, attitudes, knowledge and beliefs among a group of people. It also provides data relatively quickly as the researcher does not have to wait for a certain period of time before data can be gathered, analysed, and conclusions made as in the case of longitudinal survey designs (Gay et al., 2009). Furthermore, cross-sectional approach is used with more or less sophistication in many areas of human activity.

Moreover, the descriptive design was used because according to Frankel and Wallen (2000), the big advantage of the design is the potential to provide a lot of information obtained from quite a large sample of individuals.

However, cross-sectional designs are not without disadvantages or difficulties. Specifically, it is not an effective design if the goal of the research is to understand trends or developments over time. Moreover, a single point in time often does not provide a broad enough perspective to inform decisions about changes in processes and systems reliably (Gay et al., 2009). Seifert and Hoffnung (1994) and Frankel and

Wallen (1993) noted further that there is the difficulty of ensuring that the questions to be answered using the descriptive design are clear and not misleading because survey results can vary significantly depending on the exact wording of questions. It may also produce untrustworthy results because they delve into private matters people may not be completely truthful about.

**3.3 The Study Area**

The Tamale Metropolitan Assembly was founded in 2004 by the legislative instrument (LI 2068) that raised the then Assembly which was Municipal to the status of Metropolis. In the country currently there are six Metropolitan Assemblies and it is one of them. The northern part of Ghana comprising the Upper East, Upper West, North East, Savannah, and Northern Regions have only one Metropolis, which is the Tamale Metropolitan Assembly. Tamale is the capital city of the Northern Region.

The Metropolis has a total estimated land area of 646.90180sqkm, accounting for around 0.9 percent of the northern region's total land area (Ghana Statistical Service, 2021). The Metropolis is located between the latitudes of 90 16 and 90 34 North and the longitudes of 00 36 and 00 57 West. The Metropolis is made up of 115 different settlements. The majority of rural settlements have extensive swaths of land suitable for agronomic activity, and they serve as the metropolis' food basket. The population of the city is estimated to be at 374,744 (Ghana Statistical Service, 2021).

This equates to 9.4 percent of the northern region's overall population.

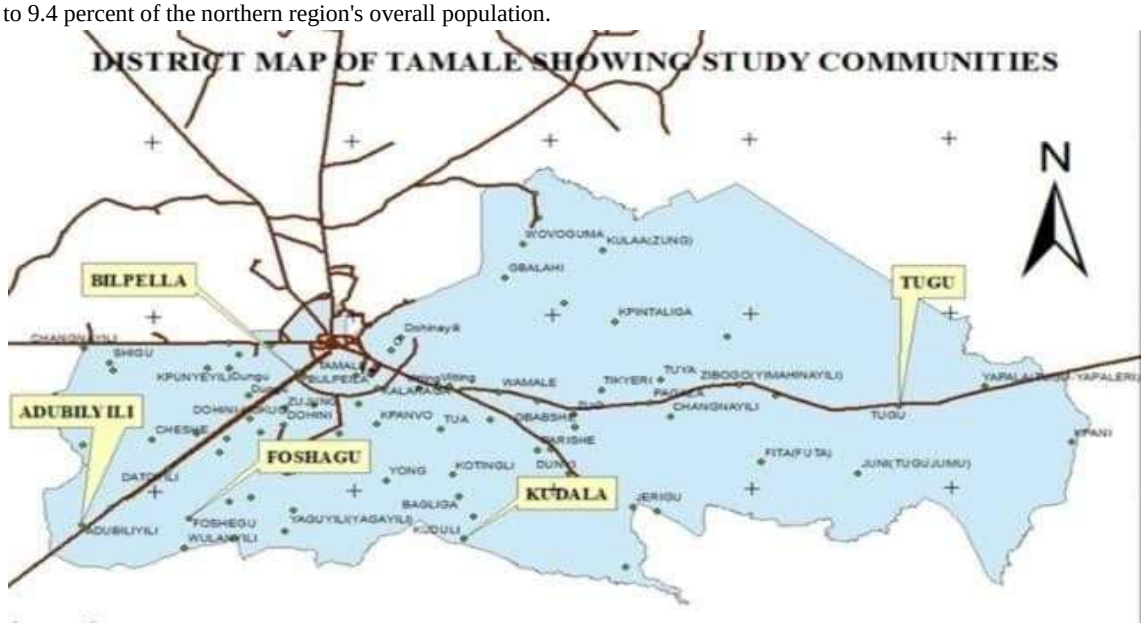



**Figure 3.1 Map of Tamale Metropolitan Assembly**

License: This is an open access article under the CC BY 4.0 license: https://creativecommons.org/licenses/by/4.0/

**3.4 Population**

The study population was made up of individuals from the Tamale Metropolitan area who take care of their clothes. This population excluded persons living in Tamale Metropolis who are less than 10 years of age. According to Tannor, (2014), the study population is the group that the research seeks out or aims to examine in order to solve the problem. Again, he added that a population does not necessarily refer to people; the population may be finite or infinite. A population can be defined as a group of individuals or people with the same characteristics and in whom the researcher is interested (Kusi, 2012).

This population was used for the study because the area comprises of heterogenous settlement where indigenous people with other groups of individuals from other areas have come to settle and are using modern clothes for work and other occasions. The researcher also thought of using the area because of the heterogenous nature of the inhabitants to avoid skewing the study to a group of people with same characteristics such as ethnicity, religion or tribe. The total population considered for the study was two hundred and seventy thousand (270,000).

**3.5 Sample Size and Sampling Techniques**

The sample size for this study was determined by using the recommended minimum sample size for conducting quantitative research as given by Krejcie & Morgan (1970) in their sample size table. The target population of the study was approximately two hundred and seventy thousand (270,000). Considering Krejcie & Morgan sample size table, a sample size of three hundred and eighty-four (384) was used for the study. The sample was selected from the communities in Tamale with stratified sampling technique as shown in Table 3.1 below:

**Table 3.1 Categories of Respondents**

| Category | Geographical Area in Tamale Metro | Estimated Population (n) | Sample size |
|---|---|---|---|
| Stratum 1 | Tamale North | 43,200 | 64 |
| Stratum 2 | Tamale East | 48,600 | 70 |
| Stratum 3 | Tamale Central | 70,200 | 100 |
| Stratum 4 | Tamale West | 54,000 | 75 |
| Stratum 5 | Tamale South | 54,000 | 75 |
| | **Total Sample** | **270,000** | **384** |

The individuals from the communities were conveniently sampled for the study base on the availability or willingness to participate in the study at the time of meeting the persons. This method gave all individuals in the community the opportunity to participate base on your willingness and availability to respond to the questionnaire for the study.

**3.6 Instrument for Data Collection**

The instruments used for collecting data for the study were questionnaires. The questionnaire was used to enable large collection of data from the study area and also, it allows you to address a large number of issues in a standardized way. Questionnaires are convenience, flexibility and scalability. (See Appendix A) and this was made up of five sections. Section A was on Bio data of the respondents and General Knowledge in modern Clothing Care management practices of the people in the Tamale Metropolis, Section B – Perception of the people in the Northern Region on care labels, Section C – Storage practices of clothing by people in the Northern Region of Ghana and Section D – Best means that the people in the Northern Region can improve upon clothing care practices. Responding to the questionnaire was made up of a five-point Likert scale rating ranging from: strongly agree (SA) = 5; Undecided (UD) = 3 Agree (A) = 4; Disagree (D) = 2; Strongly Disagree (SD) = 1. Also, dichotomous questions which require Yes or No answers were used.

**3.7 Validity and Reliability of Instruments**

The instrument was first scrutinized by the researcher's supervisor for the suitability of the items before pre-test. All the necessary corrections in the items were made and declared valid by the supervisor. This was done to establish construct validity. Content validity was also ensured by critically developing it within an established theoretical framework.

Reliability of a study instrument is the consistency of the instrument in producing the same or similar results given the same condition on different occasions (Seidu, 2007). To ensure reliability of the research instrument, it was pre-tested in the Target community where the research was conducted by the people in the area.

**3.8 Ethical Considerations**

The researcher explains to the respondents the purpose of the study before getting the participants who constituted the sample size for the study. The researcher explained the purpose of the study and procedure for responding to the questionnaire for the study participants. Participants were assured of the necessary confidentiality.

**3.9 Data Collection Procedure**

The questionnaires were personally administered to the people in the study area. The people who participated in study were met in offices, eating spots, wedding occasions, leisure sitting places and at homes. Those who could read were given the questionnaires to respond to and collected the same day. However, few were given to respondents who wanted to go home and respond and bring it back to the same venue for collection. Those who could not read were assisted to respond to the questionnaire and they were collected the same day after responding. They were not given the opportunity to send home and bring back the following day since they were needed to be guided to respond to it appropriately. The administration of the questionnaire were done after seeking consent from the participants.

License: This is an open access article under the CC BY 4.0 license: https://creativecommons.org/licenses/by/4.0/

**3.10 Data Analysis and presentation**

Descriptive statistics, using mainly frequencies and percentages were used to present data. The descriptive statistics, such as frequency, percentage tables, bar and pie charts were used to present data on demographic profile of the respondents and to evaluate modern clothing care management practices of the people in the community. The knowledge on modern clothing care practices was analysed using frequency distribution tables and pie charts. The perceptions of the people about care labels were analysed using the one-way ANOVA to explore the relationship between the perception variables. The special care and storage practices of clothing was analysed using the frequency distribution tables, bar and pie charts. Finally, the practices that can help improve upon the care for clothing items was analysed using the descriptive statistics such as the mean and mode.

## CHAPTER FOUR
## RESULTS AND DISCUSSION

**4.1 Overview**

This chapter presents results and discussion of findings. The quantitative data was analyzed and presented in tables as frequency counts, percentages and graphs. The first section (Section A) of the questionnaire used for bio data of the respondents and knowledge on modern clothing care practices of the people in the Northern Region of Ghana. Section 'B' covers the perception of the people in the Northern Region on care labels. Section 'C' deals with the storage practices of clothing by the people in the Northern Region of Ghana and section 'D' covers the best means that the people in the Northern Region can improve upon clothing care practices. The data were organized under themes in relation to the research objectives.

**4.2 Responses from Questionnaire**

A total of three hundred and eighty-four (384) was used as the sample size.

**4.2.1 Response Rate**

A total of three hundred and eighty-four (384) questionnaires distributed to the respondents and three hundred and fifty (350) of them were received by the researcher. This number received constitutes a response rate of 92%.

**4.2.2 Demographic Data on Respondents**

The demographic data of all the respondents was collected and analysed and these are presented and discussed below in this thesis report.

**4.3 Bio Data of Respondents**

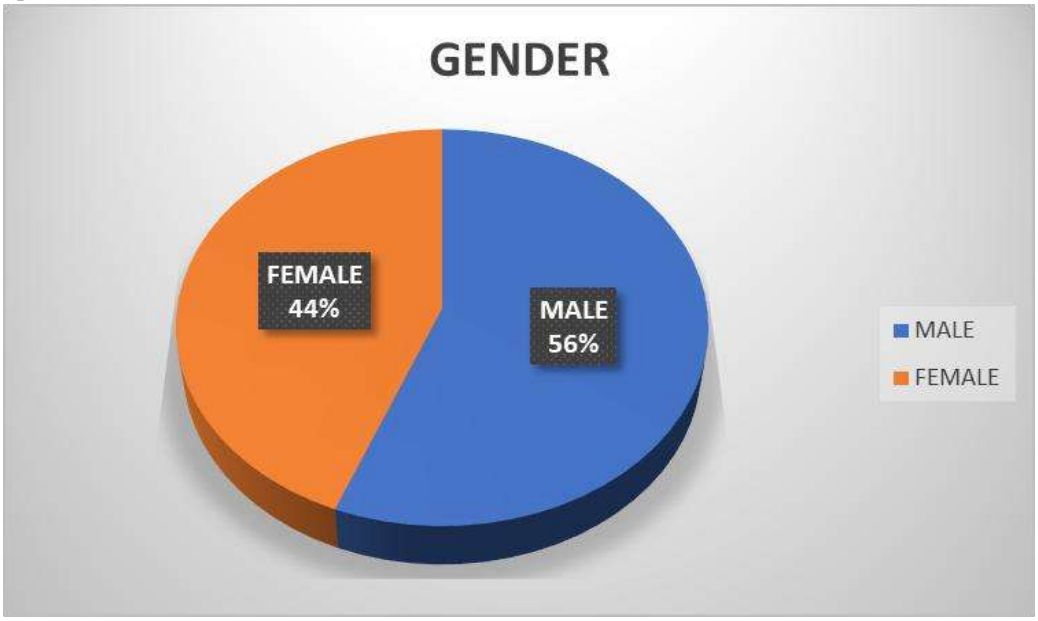



**Figure 4.1 Bio Data of Respondents**
**Source: Nkrumah (2024)**

The number of respondents indicated majority males representing 56% taking part in the study whereas 44% females also took part in the study. The data results is indifference from the observation made on the field since most of the respondents who were willing to take part in the study were mostly males.

**Table 4.1 Age of the respondents**

| Age of respondents | Number of respondents (18) | Percentage (%) |
|---|---|---|
| Less than 10 years | 0 | 0 |
| 10 – 29 years | 124 | 35 |
| 30 – 49 years | 125 | 36 |

License: This is an open access article under the CC BY 4.0 license: https://creativecommons.org/licenses/by/4.0/

| | | |
|---|---|---|
| 50 – 69 years | 72 | 21 |
| 70 years and above | 29 | 8 |
| **Total** | **350** | **100** |

The age of the respondents who took part in the study excluded less than ten (10) from the study and this recorded zero. This is because at that age most of the people do not care for their own or are not matured enough to be conscious of their clothing care by themselves. Majority of the age range who took part in the study were between 30 – 49 years old, followed by 10 – 29 years old and the least age brackets was the 70 years and above. This shows that various age groups such as adults and the aged took part in the study and blend of the ages will sure help tap some of the experiences these individuals has with respect to clothing care to support this study.

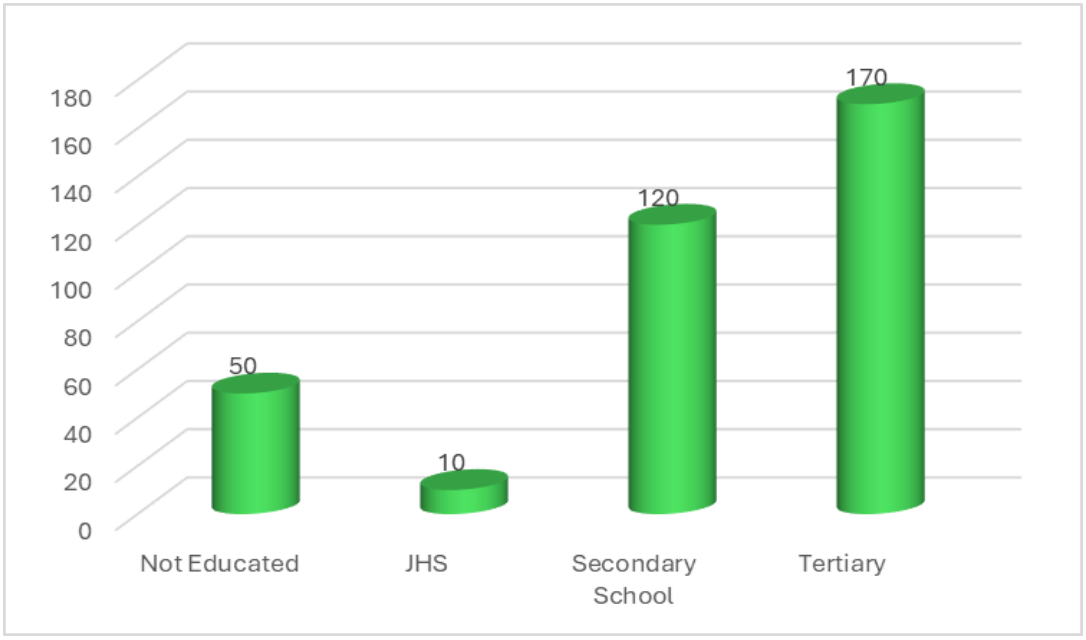



**Figure 4.2 Level of Education**
**Source: Nkrumah (2024)**

The study revealed majority 170 of the respondents having tertiary education followed by 120 of the respondents having secondary education and 50 of them were not educated formally whereas few (10) of the respondents had Junior High Education level education. This means that majority of the respondents had some level of education that could help in study with regards to modern clothing care practices.

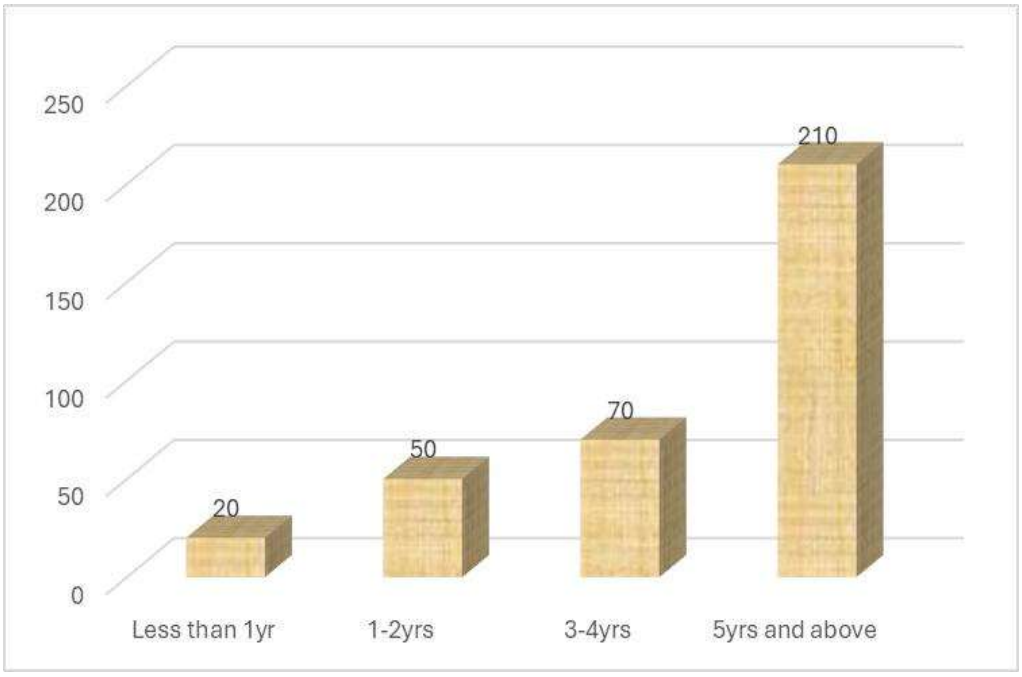



**Figure 4.3 Length of Stay in the Study Area**
**Source: Nkrumah (2024)**

License: This is an open access article under the CC BY 4.0 license: https://creativecommons.org/licenses/by/4.0/

The data revealed majority 210 representing 60% having stayed in the study area for five years and above whereas few 50 representing 14% staying in the area for a period between one to two years. Those who stayed in the area less than a year were 5% and between three to four years recorded 70 respondents representing 20%. This means that majority of the respondents have had some reasonable number of years staying in the study area which can help in determining the way and manner clothing practices are cared for with regards to modern practices. This data was not about whether participants were natives or not it was geared towards establishing the number of years the participants have stayed in the study area that can help them have some speak to the issues concerning the clothing care practices in the study area.

**Nativity status**

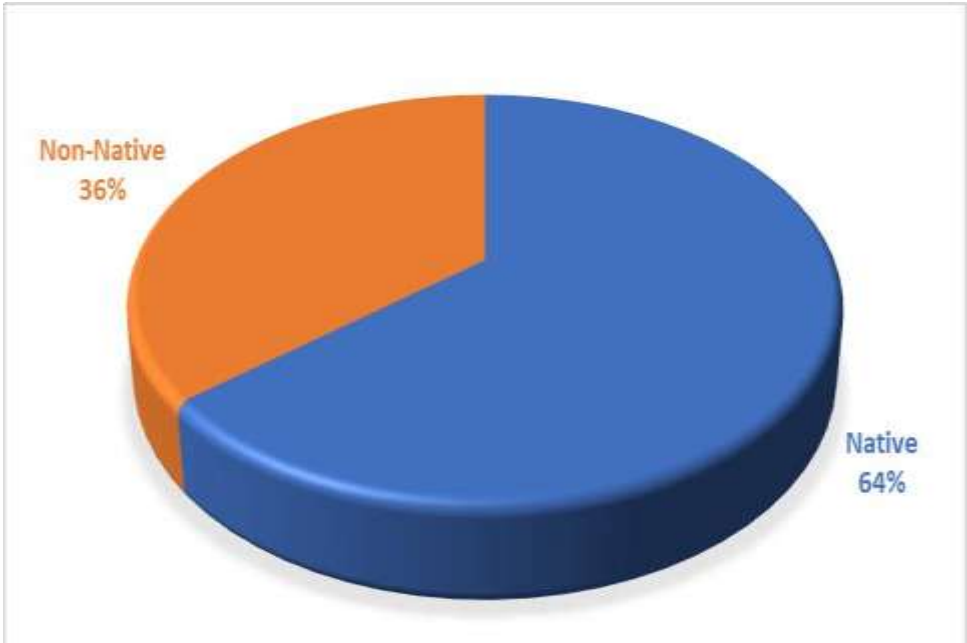



**Figure 4.4 Nativity Status of Respondents**
**Source: Nkrumah (2024)**

Information about respondents' origin with regards to the place they are currently responding to the questionnaire. The data gathered revealed majority 64% of the respondents being native from the study area whereas few representing 36% were non-native. This shows that majority who took part in the study were natives and this will help get the accurate information about the clothing care practices of the people in the Northern Region since they are natives and might have stayed in the region for relatively very long time than non-natives.

**4.2.3 Knowledge on Modern Clothing Care Practices of The People in The Northern Region Of Ghana**

**Table 4.1 Factors that influence clothing care practices**

| Statement | SA f(%) | A f(%) | UD f(%) | D f(%) | SD f(%) | Total | Mean | Rank |
|---|---|---|---|---|---|---|---|---|
| Selfconcept/esteem | 120 (34.2) | 220 (62.8) | 0 (0) | 10 (2.8) | 0 (0) | 350 (100) | 4.35 | 1st |
| Interest, attitudes and values | 115 (32.8) | 228 (65.0) | 0 (0) | 7 (2.0) | 0 (0) | 350 (100) | 4.3 | 2nd |
| Experience | 90 (25.7) | 180 (51.4) | 20 (5.71) | 45 (12.8) | 15 (4.28) | 350 (100) | 3.92 | 3rd |
| Peer or friends influence | 0 (0) | 80 (22.8) | 20 (5.71) | 180 (51.4) | 70 (20.0) | 350 (100) | 3.8 | 4th |
| Money | 80 (22.8) | 160 (46) | 0 (0) | 90 (25.7) | 20 (5.71) | 350 (100) | 3.4 | 5th |
| Age | 80 (22.8) | 145 (41) | 0 (0) | 95 (27) | 30 (9) | 350 (100) | 2.85 | 6th |
| Gender | 70 (20.0) | 80 (22.8) | 40 (11.4) | 150 (43) | 10 (2.8) | 350 (100) | 2.65 | 7th |

**Source: Nkrumah (2024)**

The data on the table 4.1 were analysed based on the higher influential factor such as agreeing or disagreeing. All factors was analysed to determined which aspects were the participants responses geared towards. Data gathered on factors influencing clothing care practices amongst the people in the Northern Region were ranked. The first factor with the highest mean of 4.35 was self-concept/esteem which was considered the most influential with regards to their modern clothing care practices. This means that most of the respondents considered their self-respect, reverence or honour in caring for their clothing.

License: This is an open access article under the CC BY 4.0 license: https://creativecommons.org/licenses/by/4.0/

The second factor with a mean record of 4.3 that was influential was the interest, attitudes and values of the individuals in the study area. The respondents were of the view that their interest, attitude and values influence their modern clothing care practices. The third factor that was also influential was experience of the individuals taking care of their clothing. This means that individuals without experience about clothing will not care much about their clothing care practices. However, the fourth ranked factor revealed participants disagreeing that peer or friends influence clothing care practices of the people in the northern region of Ghana. The five and sixth was based on money the individual has and the age of the person respectively, this was agreed that it influences that behaviour of individuals with respect to clothing care practices in the study area. However, the list ranked 7th was gender which means gender does not influence clothing care practices of individuals.

**Table 4.2 Reasons for clothing care practices**

| Statement | SA f(%) | A f(%) | UD f(%) | D f(%) | SD f(%) | Total | Mean | Rank |
|---|---|---|---|---|---|---|---|---|
| To remove dirt and stains | 110 (31.4) | 225 (64.2) | 0 (0) | 10 (2.85) | 5 (1.42) | 350 (100) | 4.50 | 1st |
| Prevent colour change | 0 (0) | 40 (11.4) | 10 (2.85) | 195 (55.7) | 105 (30.0) | 350 (100) | 3.64 | 3rd |
| Remove odour | 110 (31.4) | 180 (51.4) | 20 (5.71) | 30 (8.57) | 10 (2.85) | 350 (100) | 4.25 | 2nd |

**Source: Nkrumah (2024)**

The reasons for clothing care practices revealed majority with a mean score of 4.50 indicating that they care for their clothing to remove dirt and stains and this was ranked first. The second ranked agreed reason for caring for clothes was to remove odour from the clothing and this recorded a mean of 4.25 and the least agreed reason for caring of clothes was to prevent colour from changing. This means that majority care for their clothes to ensure that dirt and stains are removed rather than to prevent the colour change. On the aspect of disagreement, majority of the responded disagreed that they do not care for their clothes to prevent colour change hence being ranked first on the disagreement ranking.

**Table 4.3 Clothing Care Methods Frequently Used**

| Statement | SA f(%) | A f(%) | UD f(%) | D f(%) | SD f(%) | Total | Mean | Rank |
|---|---|---|---|---|---|---|---|---|
| Manual washing & ironing | 90 (26.2) | 150 (42.8) | 0 (0) | 110 (31.4) | 0 (0) | 350 (100) | 4.1 | 3rd |
| Drying the clothes by hanging them in the open air (line drying) | 115 (32.8) | 230 (65.7) | 0 (0) | 5 (1.42) | 0 (0) | 350 (100) | 4.65 | 1st |
| Airing the clothes when not dirty but worn | 60 (17.1) | 140 (40.0) | 20 (5.71) | 130 (37.1) | 0 (0) | 350 (100) | 4.05 | 4th |
| Storage of clothes in wardrobes & other stor-age facilities | 90 (25.7) | 190 (54.2) | 25 (7.1) | 45 (12.8) | 0 (0) | 350 (100) | 4.55 | 2nd |
| Laundry (washing & ironing) by machine with the right detergent and force | 5 (1.4) | 65 (18.5) | 0 (0) | 180 (51.4) | 100 (28.5) | 350 (100) | 3.85 | 5th |
| Brushing the clothes when required | 5 (1.42) | 55 (15.7) | 0 (0) | 170 (48.5) | 120 (34.2) | 350 (100) | 3.42 | 6th |
| Dry cleaning the clothes when required | 10 (2.8) | 120 (34.2) | 20 (5.71) | 155 (44.2) | 45 (12.8) | 350 (100) | 2.89 | 7th |

**Source: Nkrumah (2024)**

The mean scores were used to analyse and ranked the respondent's data gathered from the study area. Clothing care methods used by the respondents were ranked taking into consideration both agreeing and disagreement with the highest response rate. From the data gathered it was clear that one of the most frequently used method of clothing care was drying the clothes by hanging them in the open air (line drying) which had the highest means record of 4.65 and this was ranked first. The second significant practices which recorded a mean of 4.55 was storage of clothes in wardrobes & other storage facilities. The third ranked practice recorded a mean of 4.1 and this was about manual washing and ironing of clothes by the people in the study area. The fourth ranked most used method was airing the clothes when not dirty but worn and this recorded a mean score of 4.05 in the study area. However, the list ranked with a mean score of 2.89 was on dry cleaning of clothes when required and this aspect was vehemently disagreed that they do not dry clean clothes which means that most at times washing is done when clothes are dirty or stained. Another disagreed clothing care method used was laundry (washing & ironing) by machine with the right detergent and force and this was ranked fifth whereas the sixth ranked issue was on brushing the clothes when required. This means that clothing care practices amongst the people in the Northern Region are done with varied ways as established in the data gathered in the table above.

Aware of Modern Clothing Care Practices

License: This is an open access article under the CC BY 4.0 license: https://creativecommons.org/licenses/by/4.0/

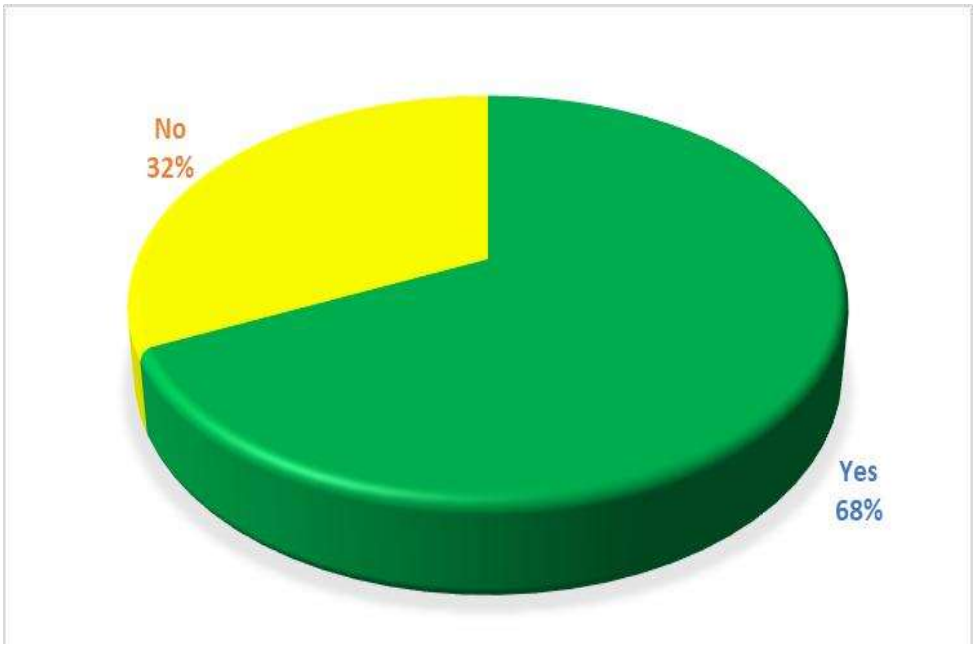



**Figure 4.5 Awareness of Modern Clothing Care Practices**
**Source: Nkrumah (2024)**

Participants information about their awareness of modern clothing care practices revealed majority 68% indicating their awareness whereas 32% were of the view that they are not aware of any modern way of clothing care practices. This means most of the participants who took part in the study are aware of modern clothing care practices whereas few are not aware.

**The use of Modern Clothing Care Practices in Caring for Clothes**

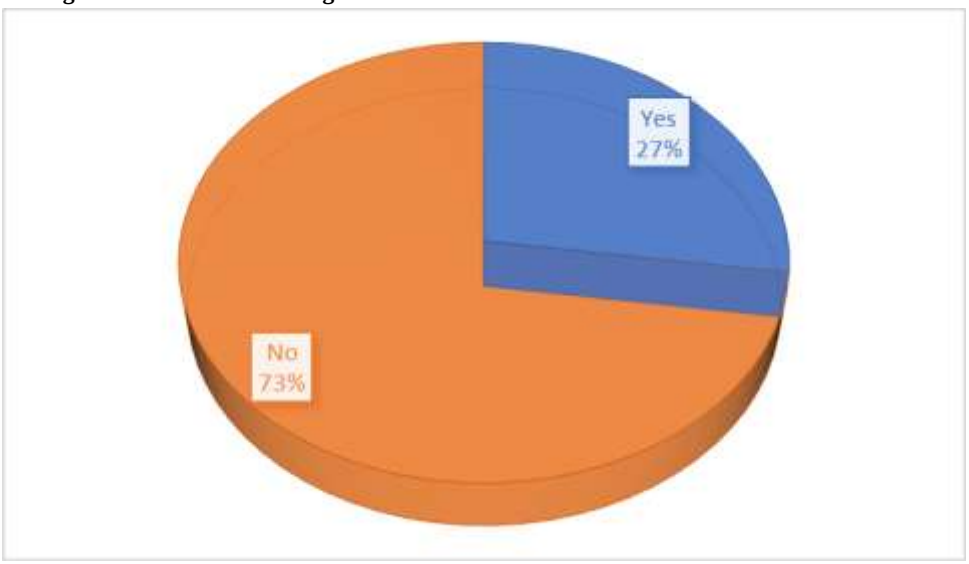



**Figure 4.6 The use of Modern Clothing Care Practices**
**Source: Nkrumah (2024)**

The use of modern clothing care practices in caring for clothes results revealed majority 73% indicating that they do not use these methods in caring for their clothes whereas 27% confirmed using the modern care practices in caring for their clothes. This is an indication that most of the participants although may be aware of the modern clothing care practices but they do not use these methods in caring for their clothes for many reasons best known to them which is discussed in the next table below.

License: This is an open access article under the CC BY 4.0 license: https://creativecommons.org/licenses/by/4.0/

**Table 4.4 Why do you use modern clothing care practices**

| Statement | SA f(%) | A f(%) | UD f(%) | D f(%) | SD f(%) | Total | Mean | Rank |
|---|---|---|---|---|---|---|---|---|
| To care for clothes to last longer | 120 (34.3) | 110 (31.4) | 50 (14.3) | 70 (20.0) | 0 (0) | 350 (100) | 3.02 | 1st |
| It's not expensive to use | 5 (1.4) | 25 (7.2) | 90 (25.7) | 120 (34.3) | 110 (31.4) | 350 (100) | 2.92 | 2nd |
| Its fast and safe way of caring for clothes | 15 (4.3) | 50 (14.3) | 165 (47.1) | 105 (30.3) | 15 (4.3) | 350 (100) | 2.83 | 3rd |

**Source: Nkrumah (2024)**

The mean scores were used to analyse and rank the respondents modern clothing care practices in the study area. The data gathered revealed majority with a mean score of 3.02 ranking first agreeing that it enable them to care for their clothes to last longer. The second ranked with a mean score of 2.92 disagreed that the use of modern clothing care practices is not expensive. This means that they may not be using these modern clothing care practices due to the expensive nature. The least ranked which was third with a mean score of 2.83 discard the idea that it was fast and safe way of caring for clothes. The data clearly shows that majority of the respondents were undecided hence recorded a response of 165% which means they may not have knowledge of the modern clothing care practices. From the data it means majority hold the view that when modern clothing care practices are used it help them to last longer than the other methods of caring for them.

**Table 4.5 Why not Using Modern Clothing Care Practices in Caring for Clothes**

| Statement | SA f(%) | A f(%) | UD f(%) | D f(%) | SD f(%) | Total | Mean | Rank |
|---|---|---|---|---|---|---|---|---|
| Its expensive/costly | 120 (34.3) | 180 (51.43) | 10 (2.86) | 25 (7.14) | 15 (4.3) | 350 (100) | 4.35 | 1st |
| Waste time to practice | 90 (25.7) | 125 (35.7) | 120 (34.2) | 15 (4.9) | 0 (0) | 350 (100) | 3.78 | 3rd |
| Lack of experience to practice | 80 (22.9) | 160 (45.7) | 40 (11.4) | 50 (14.2) | 20 (5.7) | 350 (100) | 3.95 | 2nd |

**Source: Nkrumah (2024)**

The data gathered in table 4.5 shows majority of the respondents saying that modern clothing care practices is expensive and this recorded a higher mean score of 4.35 and ranked first. This means that majority do not accept using modern methods of clothing care practices. The second highest was lack of experience about the modern clothing care practices. The mean score is 3.95 hence ranked second which means majority were of the view that they do not have the experience hence the inability to use these techniques or methods to care for their clothes. The least ranked was third and this responded having the view that it wastes time to practice how to care for modern clothing practices before employing it to their clothes.

**Table 4.6 Modern Clothing Care Devices Use**

| Statement | SA f(%) | A f(%) | UD f(%) | D f(%) | SD f(%) | Total | Mean | Rank |
|---|---|---|---|---|---|---|---|---|
| Washing machine | 35 (10) | 65 (18.5) | 0 (0) | 190 (54.2) | 60 (17.14) | 350 (100) | 0.24 | 8th |
| Dryers | 5 (1.42) | 70 (20.0) | 105 30.0) | 170 (48.5) | 0 (0) | 350 (100) | 3.24 | 6th |
| Steamers/garment steam bags | 5 (1.42) | 55 (15.7) | 75 (21.4) | 185 (52.85) | 30 (8.57) | 350 (100) | 3.87 | 4th |
| Clothes folding boards | 140 (40) | 160 45.7) | 25 (7.14) | 25 (7.14) | 0 (0) | 350 (100) | 4.22 | 2nd |
| Electric irons | 145 (41.4) | 205 58.5) | 0 (0) | 0 (0) | 0 (0) | 350 (100) | 4.37 | 1st |
| Fabric shavers | 20 (5.7) | 45 (12.8) | 70 (20) | 165 (47.1) | 50 (14.2) | 350 (100) | 3.55 | 5th |
| Stain removers | 50 (14.2) | 155 44.2) | 40 (11.4) | 100 (28.6) | 5 (1.42) | 350 (100) | 2.98 | 7th |
| Clothing air purifiers | 80 (22.9) | 80 (22.9) | 120 34.2) | 55 (15.7) | 15 (4.28) | 350 (100) | 3.94 | 3rd |

**Source: Nkrumah (2024)**

The information gathered about the modern clothing care devices used by the people in the study area revealed majority agreeing of using electric irons in keeping their clothes well and this had the highest respond and a mean record of 4.37. The second highest was clothes folding boards which many agreed using it in the homes, this also recorded a mean score of 4.22. This means that many of the people in the study area use electric irons and ironing boards when ironing to wear or store them for safe and to prolong their lifespan.

The third ranked with a mean score of 3.94 indicated that many of the people use clothing air purifiers in the study area. The fourth, fifth, sixth and seventh ranking respondents disagreed using them in their homes to care for their clothes which means that they do not use them to care for their clothes in the home. This is an indication that majority of the devices except electric iron and ironing boards are not used in the homes to take

License: This is an open access article under the CC BY 4.0 license: https://creativecommons.org/licenses/by/4.0/

care of their clothes. The least clothing care device used in the study area was the washing machine which recorded a mean of 0.24 was ranked 8th. This means that majority of the people in the study area do not use washing machine to launder their clothes and this shows that they mostly do their washing using the manual method.

**Perception of the People in The Northern Region on Care Labels**

Reading of care labels on garments before caring for them

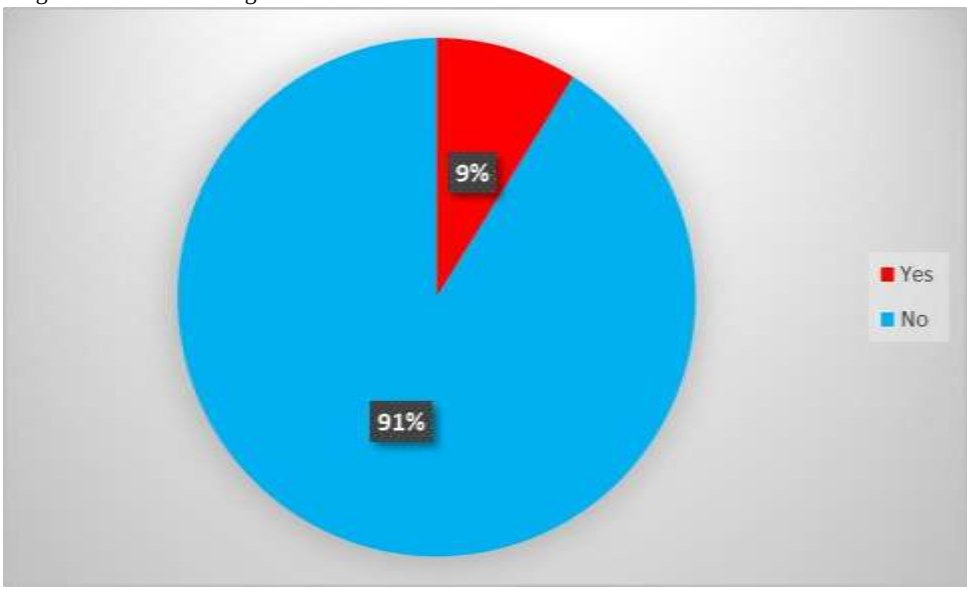



**Figure 4.8 Reading of care labels on garments**
**Source: Nkrumah (2024)**

Information about reading of care labels on garment before caring for them revealed majority 91% not reading about care labels and caring for their clothes whereas 9% do read and care for their clothes. This means that majority of the people in study area do not read about care labels when caring for their clothes and this can lead to poor maintenance and long last of their clothing if care is not taken.

4.2.4 Application of care label instructions to the method of washing and drying of garments

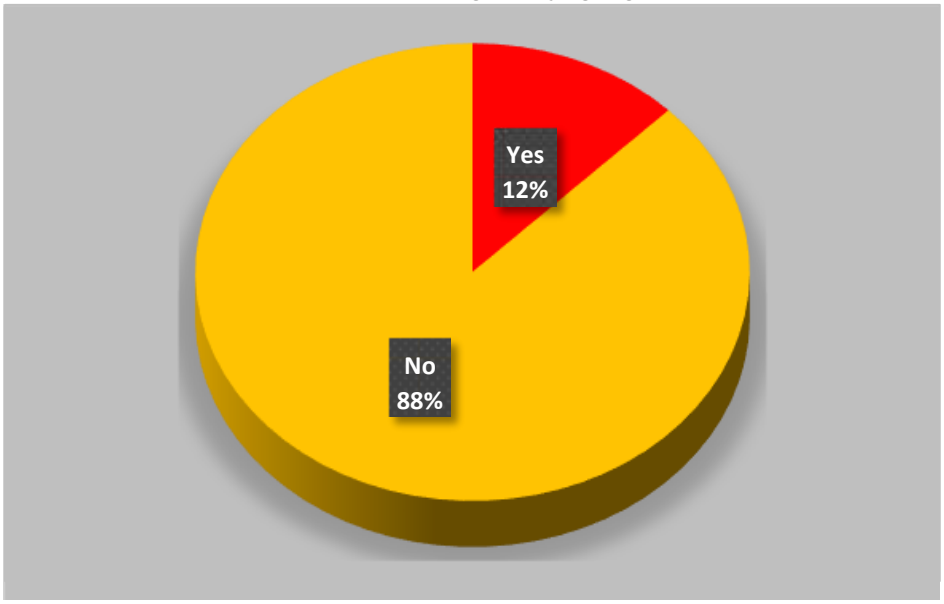



**Figure 4.9 Application of care label instructions on garment**
**Source: Nkrumah (2024)**

The data on the application of care label instructions after reading of them on garment revealed majority 88% do not apply care label instructions on their garment when caring for them whereas few representing 12% do apply the care label instructions to the garment when caring for their clothes. This means that though some read the care label instructions on their garment just few of them apply it when caring for their clothes.

License: This is an open access article under the CC BY 4.0 license: https://creativecommons.org/licenses/by/4.0/

**4.2.5 Reading of care label instructions before ironing**

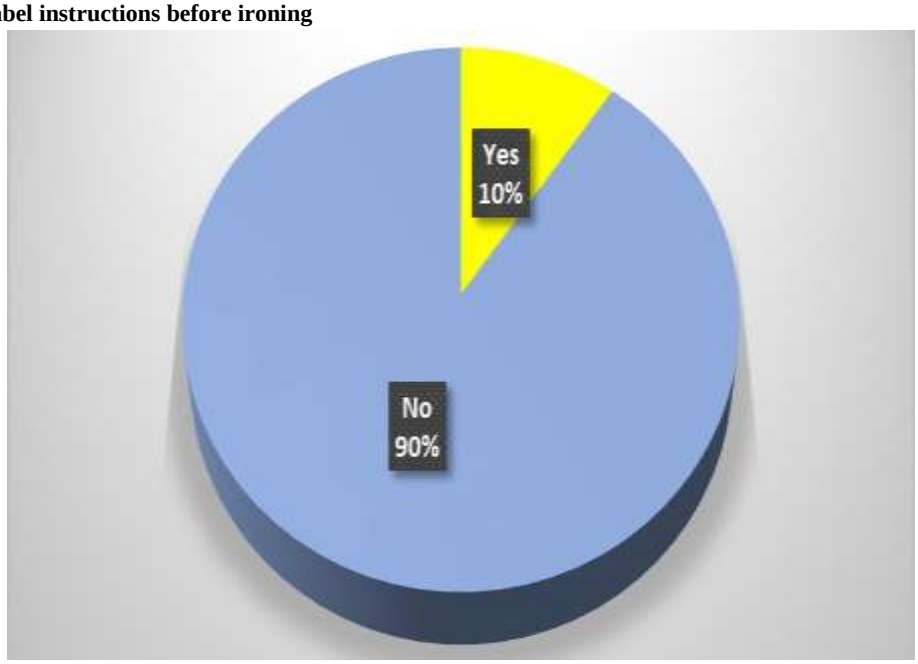



**Figure 4.10 Reading of care label instructions when ironing**
**Source: Nkrumah (2024)**

Reading of care label instructions before ironing revealed majority 90% indicating that they do not read the care label instructions before ironing their clothes whereas 10% were of the view that they do read and apply the instructions. The data shows clearly that majority of the people in the Northern Region of Ghana do not read care label instructions when ironing their clothes. Hence, clothing care maintenance with regards to reading and applying instructions when ironing is done anyhow and not according to right instructions.

**4.2.6 Familiar with modern clothing care label information**

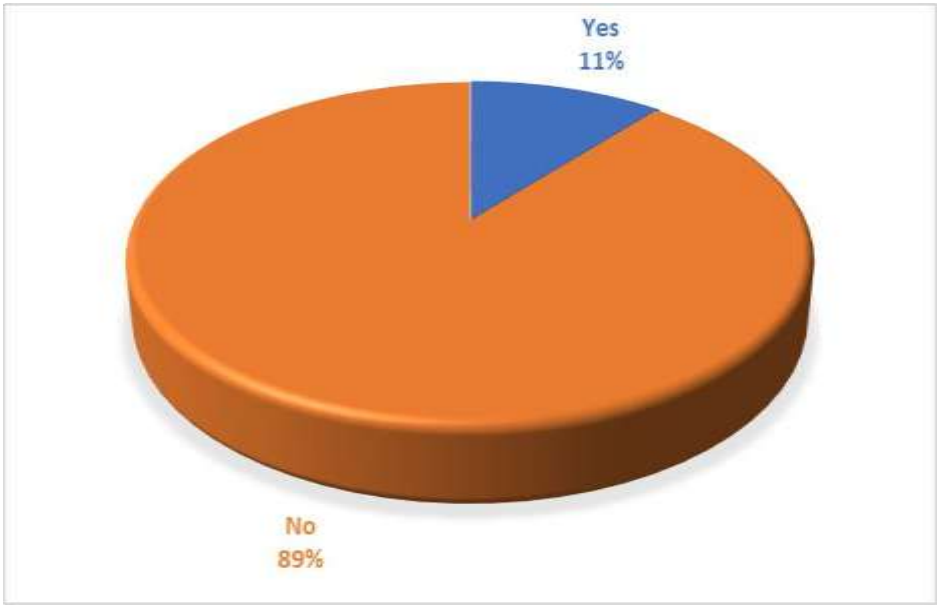



**Figure 4.11 Familiarity with modern clothing care label information**
**Source: Nkrumah (2024)**

The data results from familiarity with modern clothing care label information revealed majority 89% not familiar with the modern clothing care labels whereas few representing 11% are aware of modern clothing care label information. This means that majority use clothing but are not aware of modern clothing care label information to enable them care for their clothes appropriately and to help them last longer.

License: This is an open access article under the CC BY 4.0 license: https://creativecommons.org/licenses/by/4.0/

**4.2.7 Do you think it is good to abide by care labels instructions when caring for clothes**

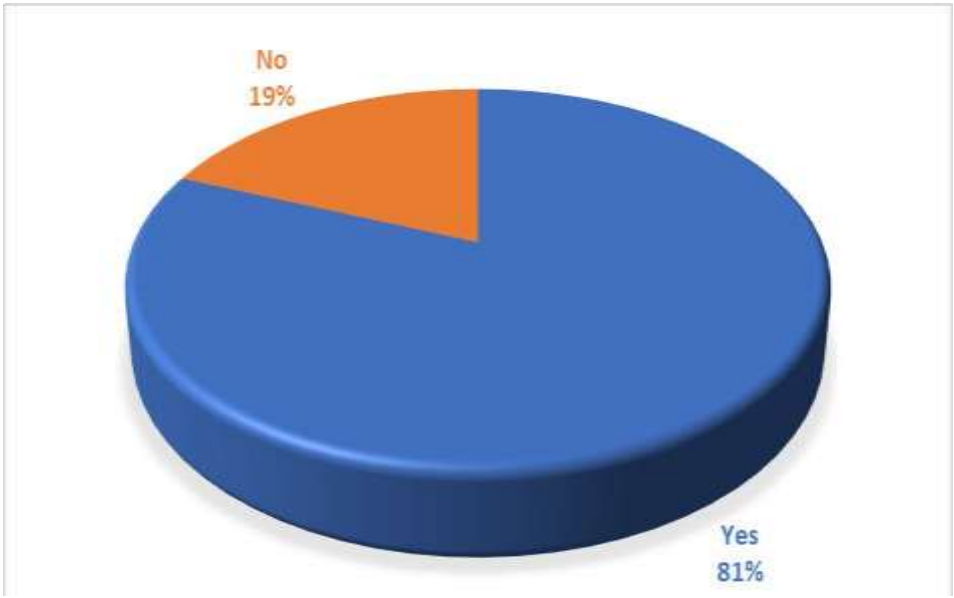



**Figure 4.12 Abiding by care label instructions**
**Source: Nkrumah (2024)**

Information solicited about whether it is important to abide by clothing care labels when caring for clothes revealed majority 81% consenting to it whereas 19% had an opposing view that it is not necessary to abide by care labels instructions when caring for clothes. This result was amazing because majority holds the view that it is good to abide by care label instructions however, they do not practice it when caring for their clothes at home.

**Table 4.7 Why it is Good to Apply Care Labels And Instructions On Clothes**

| SA | A f(%) | UD f(%) | D f(%) | SD f(%) | Statement f(%) | Total | Mean | Rank |
|---|---|---|---|---|---|---|---|---|
| To avoid damage to clothes | 70 (20.0) | 260 (74.3) | 5 (1.43) | 10 (2.85) | 5 (1.43) | 350 (100) | 4.32 | 1st |
| To care for clothes appropriately | 90 (25.7) | 215 (61.4) | 15 (4.28) | 20 (5.71) | 10 (2.85) | 350 (100) | 3.89 | 2nd |
| To clean them fast | 25 (7.14) | 50 (14.2) | 35 (10.0) | 155 (44.3) | 85 (24.2) | 350 (100) | 3.27 | 3rd |

**Source: Nkrumah (2024)**

The data on Table 4.7 show that applying care label instructions to garment will help avoid damage to it when caring for it. This recorded the highest mean score of 4.32 which means it is very important to have care label instructions on garment to give guidance on how to care for them to avoid applying wrong methods to them. This means that majority holds the view that when care labels instructions are used accordingly when caring for clothes it will avoid damage to clothes and this will let them last longer. The second ranked statement which records a mean of 3.89 was to care for clothes appropriately. This means it will enable people to cater for their clothes in the right way which will also help it to last longer and not spoiled or deteriorate earlier than it can last while in use. The least ranked statement with a mean of 3.27 was to enable them clean clothes fast. This means that the good aspect of reading care label instructions and applying them to clothes do not lead to fast laundry.

**Table 4.8 ANOVA Result of group knowledge on care labels and modern clothing care practices**

| | | Sum of Squares | Df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| Natives knowledge of care labels | Between Groups | .149 | 2 | .074 | .290 | .450 |
| | Within Groups | 6.918 | 27 | .256 | | |
| | Total | 7.067 | 29 | | | |
| Non-natives knowledge of care labels | Between Groups | .569 | 2 | .284 | .719 | .496 |
| | Within Groups | | 27 | .395 | | |
| | Total | | 29 | | | |

**Source: Nkrumah (2024)**

License: This is an open access article under the CC BY 4.0 license: https://creativecommons.org/licenses/by/4.0/

The first research question sought about the knowledge of the respondents on the care labels and modern clothing care practices was tested by comparing the significant value to the alpha value of 0.05. of the two groups who took part in the study such as the natives and the non-natives in the region. The groups responses data values were computed and tested using one-way ANOVA. The test was repeated in triplicate to ensure that the values read/taken during the questionnaire data gathering were accurate and yield similar results.

**4.2.8 Storage practices of clothing by people in the Northern Region of Ghana**

**Table 4.9 Ironing and Storage practices**

| Statement | SA | A | UD | D | SD | Total | Mean | Rank |
|---|---|---|---|---|---|---|---|---|
| I iron clothes as needed, using the recommended heat setting | 80 (22.9) | 135 (38.6) | 0 (0) | 105 (30) | 30 (8.57) | 350 (100) | 0.67 | 8th |
| I often air my clothes after use before storing | 40 (11.4) | 125 (35.7) | 0 (0) | 120 (34.3) | 65 (18.6) | 350 (100) | 0.78 | 7th |
| I store under clothes and night garments in drawers /bags/wardrobe/closets etc. | 100 (28.6) | 215 (61.4) | 0 (0) | 20 (5.7) | 15 (4.3) | 350 (100) | 2.12 | 4th |
| I store tops and shirt on hangers | 50 (14.2) | 170 (48.6) | 70 (20) | 30 (8.6) | 30 (8.6) | 350 (100) | 1.87 | 6th |
| I fold shirts and put them drawers/bags/wardrobe/closets etc. | 55 (15.7) | 95 (27.1) | 0 (0) | 120 (34.3) | 80 (22.9) | 350 (100) | 0.56 | 9th |
| I store daily used articles in drawers/bags/wardrobe/closets etc. | 10 (2.85) | 75 (21.4) | 0 (0) | 215 (61.4) | 50 (14.2) | 350 (100) | 2.25 | 3rd |
| I clean all outfits thoroughly before storing in drawers /bags/wardrobe/closets etc. | 120 (34.3) | 230 (65.7) | 0 (0) | 0 (0) | 0 (0) | 350 (100) | 2.87 | 1st |
| I store clothes in clean, cool, dark and dry area to protect clothes | 130 (37.1) | 190 (54.3) | 0 (0) | 30 (8.57) | 0 (0) | 350 (100) | 2.5 | 2nd |
| I store clothing in/on wardrobes, shelf & other storage spaces with insect/pest repellents | 45 (12.9) | 225 (64.3) | 0 (0) | 75 (21.4) | 5 (1.43) | 350 (100) | 1.95 | 5th |

**Source: Nkrumah (2024)**

The above data in table 4.9 was analysed using the mean scores recorded. The data above shows how the people in the Northern Region iron and store their clothes appropriately in their homes. These statements were ranked and it revealed that majority with a mean 2.87 were of the view that they clean their outfits thoroughly before storing in drawers/bags/wardrobe/closets in their homes and this was ranked first. The second most practice care management was storing clothes in clean, cool, dark and dry area to protect them from damage. This recorded a mean of 2.50 by the respondents responses. This means that the first and second ranked statements were agreed upon and they practice them at home. However, the third ranked statement was about storing daily used articles in drawers/bags/wardrobe/closets and this was not agreed by majority of the respondents with a mean score of 2.25 as shown in the table above. They indicated that they do not store daily used clothing articles in drawers/bags/wardrobe/closets but rather they agreed that they often air clothes after use before storing and that is why the statement on the aspect of airing and storing was ranked 7$^{th}$ on the list. This means majority do not just wear clothes daily and store them and use later but rather they air them before storing and using another time.

Also, the data showed that many of the respondents do not fold shirts and put them drawers/bags/wardrobe/closets when caring for them. This means they hang or place them anywhere without considering some of these storage facilities. This was clear when the aspects of where they store their shirts and tops it was agreed by many that they store them on hangers and this was ranked 6$^{th}$ on the storage practices. The use of recommended heat setting when ironing clothes was not abided by many hence ironing is done based on whatever heat they think will not damage their clothes but not based on recommended heat setting. The data gathered shows that respondents do wash their clothes before storing and they mostly store them in clean, cool, dark and dry area to protect them.

**Table 4.10 Ways to improve upon clothing care practices**

| Statement | SA | A | UD | D | SD | Total | Mean | Rank |
|---|---|---|---|---|---|---|---|---|
| Read care labels on clothes before caring for them | 70 (20) | 160 (45.7) | 0 (0) | 70 (20) | 50 (14.2) | 350 (100) | 4.32 | 2nd |
| Sort clothes before laundry and drying | 10 (2.85) | 280 (80) | 0 (0) | 20 (5.7) | 40 (11.4) | 350 (100) | 3.23 | 4th |
| Pre-treat stains on clothes before washing | 60 (17.1) | 145 (41.4) | 60 (17.1) | 50 (14.2) | 35 (10) | 350 (100) | 3.45 | 3rd |
| Use detergent carefully in caring for my clothes | 40 (11.4) | 115 (32.9) | 75 (21.4) | 90 (25.7) | 30 (8.6) | 350 (100) | 0.88 | 7th |
| Avoid overloading washing machine | 40 (11.4) | 60 (17.1) | 170 (48.6) | 70 (20) | 10 (2.85) | 350 (100) | 0.66 | 8th |
| Irone my clothes with the recommended heat | 10 (2.85) | 105 (30) | 80 (22.9) | 125 (35.7) | 30 (8.6) | 350 (100) | 2.44 | 6th |
| Store clothes properly in safes/bags/cupboards | 90 (25.7 | 230 (65.7) | 0 (0) | 30 (8.6) | 0 (0) | 350 (100) | 4.78 | 1st |
| Mend/repair torn clothes immediately | 10 (2.85) | 80 (22.9) | 60 (17.1) | 160 (45.7) | 40 (11.4) | 350 (100) | 2.74 | 5th |

**Source: Nkrumah (2024)**

License: This is an open access article under the CC BY 4.0 license: https://creativecommons.org/licenses/by/4.0/

The information above was solicited to establish the best ways or means the people in the Northern Region can employ to improve in taking care of their clothes. The study results were ranked and it revealed majority with a mean of 4.78 indicating that storing clothes properly in safes/bags/cupboards is one of the best ways and this was ranked first. The second statement which was widely accepted or agreed was reading of care labels on clothes before caring for them. This was ranked second with a mean of 4.32 agreed to it.

The third ranked statement was on pre-treatment of stains on clothes before washing them and this recorded a mean of 3.45. This means that when people pre-treat stains on clothes before washing can improve upon clothing care practice and this can lead to clothes to last longer and still look attractive to use. The fourth ranked item was also agreed to and it was on sorting clothes before laundering and drying. The mean was 3.23 and it is agreed that when laundering clothing, sorting must be done first and this will prevent mixing all forms of fabrics with different texture and those with colour fast to spoil other garments. It was established in the study that many people do not mend or repair their clothes immediately there is a problem. This was ranked 5$^{th}$ with a mean of 2.74 as shown in table 4.10 above. The 6$^{th}$ ranked statement was using recommended heat setting when ironing clothes. The use of detergent carefully in caring for clothes and avoid loading washing machine was also agreed upon and were ranked 7$^{th}$ and 8$^{th}$ respectively. However, a lot of the respondents were undecided especially on the aspect of overloading of the washing machine which means they are people who might not know how it is and the usage hence the decision to remaining neutral on either agreeing or disagreeing.

**4.3 Discussion**

The number of respondents indicated majority males representing 56% taking part in the study whereas 44% females also took part in the study. The study revealed majority 220 of the respondents having tertiary education followed by 180 of the respondents having secondary education and 80 of them were not educated formally whereas few (20) of the respondents had Junior High Education level education. This means that majority of the respondents had some level of education that could help in study with regards to modern clothing care practices. With regards to the respondent's length of stay in the study area revealed majority of the respondents have had some reasonable number of years staying in the study area which can help in determining the way and manner clothing practices are cared for with regards to modern practices. The study also shows that majority who took part in the study were natives and this will help get the accurate information about the clothing care practices of the people in the Northern Region since they are natives and might have stayed in the region for relatively very long time than non-natives.

Data gathered on factors influencing clothing care practices amongst the people in the Northern Region were ranked and the most significant factor established was on selfconcept/esteem. This was one of the factors that was agreed strongly that influence clothing care practices in them. Self-concept is more closely related to individual values and belief systems, and tend to provide an explanation or reasoning for an individual's perception of self as a social object. Piacentini and Mailer (2004) stated that clothing choices are closely tied to self-concept and influences how people expressed themselves while making judgments about others. Consumers' choice of clothing is often influenced by their perceptions of product attributes in terms of relative importance (Yan, 2009) and this can be attributed to why many of the people responded agreed vehemently to the self-concept/esteem in the study. Whereas the aspect of gender was ranked the least as a factor that influences their clothing care practices in the people of Northern Region. However, the fourth ranked factor revealed participants disagreeing that peer or friends cannot influence clothing care practices of the people in the northern region of Ghana.

The information on reasons for clothing care practices showed majority indicating that they care for their clothing to remove dirt and stains and this was ranked first on the aspect of agreeing. This is strongly affirmed by the study of Ashenburg, (2007), they indicated that throughout history, the level of washing and acceptance of body odours has varied greatly. Today, body odour is considered appalling, and daily washes and use of artificial perfumes is almost a norm. This means that many people now use washing to clear the body odour in their clothes to enable them wear and they also use and artificial perfumes to clear body odour to avert frequent washing which may lead to early deterioration of clothes. The second ranked agreed reason for caring for clothes was to remove odour from the clothing and the least agreed reason for caring of clothes was to prevent colour from changing. This means that majority care for their clothes to ensure that dirt and stains are removed rather than to prevent the colour change. On the aspect of disagreement, majority of the responded disagreed that they do not care for their clothes to prevent colour change hence being ranked first on the disagreement ranking.

Clothing Care Methods frequently used data gathered revealed that one of the most frequently used method of clothing care was drying the clothes by hanging them in the open air (line drying) and this was ranked first with a mean of 4.65 and this was followed second by storage of clothes in wardrobes & other storage facilities and the third ranked frequently used method was manual washing and ironing of clothes. However, the list ranked was on dry cleaning of clothes when required and this aspect as vehemently disagreed that they do not dry clean clothes which means that most at times washing is done when clothes are dirty or stained. According to Gram-Hanssen, (2007); Pettersen, (2013) and Shove, (2003) changes in social norms have led to increased washing frequency of the body and clothing. Also, Klepp (2003a), indicated that consumers own more clothing, and wash them more frequently. Another disagreed clothing care method used was laundry (washing & ironing) by machine.

Awareness of modern clothing care practices revealed majority being aware of the practices, however, the study established that these individuals are aware but they do not use these practices to care for their clothes. Those who use the modern clothing practices to care for their clothes indicated varied reasons and the most significant one is to care for their clothes to last longer. This means that majority hold the view that when modern clothing care practices are used it help them to last longer than the other methods of caring for them. Storage is an important component in the care and maintenance of clothing. However, it is a component frequently overlooked until a problem occurs. Proper storage can and does reduce the time and money involved in upkeep and prolongs the life of your clothing (Heaten, 2002). The storage of clothing affects their lifetime, how often we launder them and how much we use them (Laitala, Boks & Klepp, 2015). This suggests that storage solutions could help in reducing unnecessary laundering. Study also supports that hanging clothes in wardrobes prevents them from getting creased or rumpled so that they can retain their original shape (Anyakoha & Eluwa, 2007). Hence the use of wardrobes to hang clothes will help them last longer and maintain their original shape.

Why not using modern clothing care practices in caring for clothes the data gathered revealed majority agreeing to the fact that it's expensive or costly to use this method to care for clothing. However, the second highest response opine that the use of modern clothing care was fast and do not waste time hence they disagreed with the statement that it wastes time to practice when caring for clothing using the modern methods.

License: This is an open access article under the CC BY 4.0 license: https://creativecommons.org/licenses/by/4.0/

The information gathered about the modern clothing care devices used by the people in the study area revealed majority agreeing of using electric irons in keeping their clothes well and this had the highest respond hence was ranked first. This affirms to the study of Ghosh, Das & Bhattacharyya, (2014) who stated that care codes are the internationally recognized symbols that are used for caring of garments in case of cleaning and ironing to keep them in shape without altering their functional aesthetic properties. The second highest was clothes folding boards which many disagreed using it in the homes. The least clothing care device used in the study area was the washing machine which was ranked 8th. This means that majority of the people in the study area do not use washing machine to launder their clothes and this shows that they mostly do their washing using the manual method.

The data on the application of care label instructions after reading of them on garment revealed majority 88% do not apply care label instructions on their garment when caring for them whereas few representing 12% do apply the care label instructions to the garment when caring for their clothes. This means that though some read the care label instructions on their garment just few of them apply it when caring for their clothes. This means that majority garments will be affected negatively with their life span since they are not following the instructions on the fabrics as how to care for them. According to Das (2008) who stated that silk garment is delicate to launder and demands scientific approach, appropriate procedure and techniques for proper refurbishing and when this is not done accordingly it may be damaged and this can happen to any other fabric or garment when users and consumers do not follow care label instructions.

Information about reading of care labels on garment before laundering revealed majority 91% not reading about care labels and caring for their clothes whereas 9% do read and care for their clothes. This means that majority of the people in study area do not read about care labels when caring for their clothes and this can lead to poor maintenance and long last of their clothing if care is not taken. Also, reading of care label instructions before ironing revealed majority 90% indicating that they do not read the care label instructions before ironing their clothes whereas 10% were of the view that they do read and apply the instructions. The data shows clearly that majority of the people in the Northern Region of Ghana do not read care label instructions when ironing their clothes and this can affect the way they care for their clothes. To buttress this Ghosh, Das & Bhattacharyya (2014), indicated that care labels provide guidelines to consumers and garment care givers about the best cleaning procedures to be used for that particular combination of fabric, thread, decoration and construction techniques.

The data results from familiarity with modern clothing care label information revealed majority 89% not familiar with the modern clothing care labels whereas few representing 11% are aware of modern clothing care label information. This means that majority use clothing but are not aware of modern clothing care label information to enable them care for their clothes appropriately and to help them last longer. Yan et al. (2008) noted that the more the consumers understand the product information and have the confidence to be able to care for the product after purchase, the more they have the tendency to buy the product with less perturbation about the risks related to the purchased item.

Information solicited about whether it is important to abide by clothing care labels when caring for clothes revealed majority 81% consenting to it and this is in line with the study of Das, (2008) who opines that a deviation due to ignorance and negligence in some cases often leads to loss in aesthetic and functional significance of an garment product and ultimately results in dissatisfaction. Whereas 19% had an opposing view that it is not necessary to abide by care labels instructions when caring for clothes. This result was amazing because majority holds the view that it is good to abide by care label instructions however, they do not practice it when caring for their clothes at home. According to Otienoet al. (2005), perception on care labels can be interpreted positively or negatively by consumers. If consumers have a negative perception regarding a stimulus, it may cause them to avoid and ignore the stimulus (De Klerk & Lubbe, 2008).

Why it is good to apply care labels and instructions on clothes and it was clear that majority holds the view that when care labels instructions are used accordingly when caring for clothes it will help prevent damage to clothes and this will let them last longer. The second ranked statement was to care for clothes appropriately whereas the least was on to clean them fast. Study revealed that deviation due to ignorance and negligence in some cases often leads to loss in aesthetic and functional significance of an garment product and ultimately results in dissatisfaction (Das, 2008). This means that care must be taken not to deviate from the care of some clothes which can lead to altering the aesthetic qualities in them. In the past, there were only a few variations of textile fibres most of which were natural and these textiles had set cleaning instructions (Kadolph, 2007). However, the textile industry has since drastically changed and created variations of synthetic textiles, fibres, fibre blends, and finishes. This implies that consumers need to address complicated features of textile products, and therefore needs to read about these care labels to enable them care for their garments well to avoid causing damage to them with wrong procedure or approaches.

Ironing and Storage practices of clothes was established in this study that majority of the people in the Northern Region clean all outfits thoroughly before storing in drawers/bags/wardrobe/closets in their homes and this was ranked first. The second most practice item is many of them store clothes in clean, cool, dark and dry area to protect them from damage. In line with other research work they indicated that proper care and storage of clothes help to keep them in good condition so that appearance of the wearer is enhanced. Storage of clothes provides protection from dust, dirt, insects, fungus and dye transfer (Marshal *et al*.,2000). Adequate storage space for clothing and the way it is used, however, are management considerations (WoodWord, 2006). Everyone needs suitable places to store clothes – a closet or place to hang some garments and shelves or other articles (Marshal *et al*., 2000). Hanging clothes in a wardrobe prevents them from getting creased or rumpled so that they can retain their original shape (Anyakoha & Eluwa, 2007). Taking proper storage of clothes in addition to making them look better also makes them last longer. Also, the data showed that many of the respondents do not fold shirts and put them in the drawers/bags/wardrobe/closets when caring for them. This means they hang or place them anywhere without considering some of these storage facilities. This was clear when the aspects of where they store their shirts and tops it was agreed by many that they store them on hangers and this was ranked 6th on the storage practices.

Ways to improve upon clothing care practices revealed majority indicating that storing clothes properly in safes/bags/cupboards is one of the best ways and this was ranked first. According to Pit (2006) stated that special fabric needs special care and that moth often damage articles that are not stored properly. Marshal (2000) indicated that the components of storage include facilities, equipment and storage process.

Kathleen (2005) pointed out that clothes can be stored in boxes; wardrobes, shelves, drawer, just as indicated in this study. However, this study was not exhaustive about the storage facilities that can be used in keeping clothes. Kathleen (2005) included cartons, ropes, tight wrappers, pots hangers. The second statement which was widely accepted or agreed was reading of care labels on clothes before caring for them. This was second

License: This is an open access article under the CC BY 4.0 license: https://creativecommons.org/licenses/by/4.0/

ranked second since 460 of the respondents agreed to it. The use of detergent carefully in caring for clothes and avoid loading washing machine was also agreed upon and were ranked 7th and 8th respectively. However, a lot of the respondents were undecided especially on the aspect of overloading of the washing machine which means they are people who might not know how it is and the usage hence the decision to remaining neutral on either agreeing or disagreeing.

The best ways to improve clothing care practices is to ensure that they are laundered properly and make sure that they are kept in the right places or storage spaces to prevent them from damage. Clothes should be laundered with the right detergent alongside the right temperature and also ensure that they are ironed properly with the right temperature before storage.

## CHAPTER FIVE
## SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

### 5.0 Overview of the Study

Clothing is one of the essential commodities of humans that cannot be ignored. Clothes are now made in different formulation and hence with modern styles and techniques which make them unique in all aspect. The way to care and maintain them is very essential in ensuring that they last longer to save money used in purchasing clothes all the time.

### 5.1 Summary of Key Findings

The study revealed majority of the respondents having tertiary education followed by respondents having secondary education and few of them were not educated formally whereas the least were those who had Junior High Education level education.

The first research objective was to determine the level of knowledge on care labels and modern clothing care practices of the people in the Northern Region of Ghana. The study established majority of the respondents being aware of modern clothing care practices but they do not use these practices to care for their clothes.

On the aspect of care labels, majority of the respondents were not aware of modern clothing care labels on clothes and do not adhere to it whereas some were of the view that it's expensive or costly to use these methods to care for clothing. Another group opine that, the use of modern clothing care was fast and do not waste time hence they disagreed with the statement that it wastes time to practice when caring for clothing using the modern methods. The study also established that though few of the respondents are aware of the these care labels on their clothes, they do not read about them when caring for their clothes and this can also lead to poor maintenance and affect the longevity of the clothes.

The second research objective was to determine special care and storage practices given to clothes by the people in the Northern Region of Ghana. The study established that majority of the people store their clothes in drawers, bags, wardrobe and closets to keep them safe and prevent damage to the clothes. This will help them look neat and last longer when proper care is applied to the clothes before storage in the right spaces. The study also established that despite the storage places used in keeping the clothes they also ensure that the space is clean, cool, dark and dry area to protect them from damage.

The third research objective was to find out the best means that the people in the Northern Region can improve upon clothing care practices. The best ways to care for clothing is to launder them properly and make sure that they are kept in the right places or storage spaces to prevent them from damage. The study also established that during laundering the right detergent and right temperature for ironing clothes should be used before they are stored in the appropriate storage spaces to improve upon the life span of the clothes.

The descriptive result after the Repeated Measures Analysis of Variance (ANOVA) and the result between and within groups showed that knowledge level of the natives and the non-natives about care labels and modern clothing care practices was higher than the alpha value of 0.05 ($p>0.05$). There was therefore no statistically significant difference between the two groups on the knowledge level of the natives and the non-natives about care labels and modern clothing care practices.

### 5.2 Conclusions

The main focus of the study was to establish modern clothing care practices of the people of Tamale. This research has demonstrated that modern clothing care practices such as reading care labels and applying them on clothes are a critical aspect of sustainable fashion, with significant impact on garment longevity to save money, reduce waste and environmental conservation. The Repeated Measures Analysis of Variance (ANOVA) showed that there is no statistically significant difference between the two groups on the knowledge level of the natives and the non-natives about care labels and modern clothing care practices.

### 5.3 Recommendations

From the key findings and the conclusions drawn from the study, the following recommendations were made;

- Industries or manufacturers should use clear care labelling or standardized labelling for easy to understand the care labels by the consumer without much difficulty. Language: Care labels should have a common language understood by majority of the countries or be stated in two different languages for easy understanding.
- The consumer should take time to educate himself/herself to understand care labels and learn to take care of clothes appropriately adhering to the instructions required on the clothes.
- Legislation: The Ghana Standards Authority Should add clothing care management labels as a requirement for producing made-in-Ghana garments. Also, policy should ensure that traditional African wears should be given care labels just like we see in most foreign wears.
- The government of Ghana can promote sustainable fashion education by integrating sustainable fashion practices into school curricula and public awareness campaigns.
- Clothing and Textiles teachers in Ghana should also design a leaflet which provides information on modern clothing care label, laundry and storage procedures and integrated into the school curriculum for learners to get the concept as a form of crosscutting learning if not taught as an aspect in the classroom. Also, teachers can provide periodic education for all the students, teachers and parents to create

License: This is an open access article under the CC BY 4.0 license: https://creativecommons.org/licenses/by/4.0/

awareness on the need to adhere to care labels on clothes when caring for them due to varied and fashionable nature of new and emerging clothes in the market.

- It is recommended that more of public education should be given to the people on clothing care management and practices. This will help them to be able to care very well for their clothes and wear them for quite a longer time. This can be possible through advertisement on television, radio, magazines, and newspapers at the famous stations in the town. Also, awareness can be given through seminars and workshops.

**5.4 Area for further Study**

The study recommended that the scope of the current study be expanded to other regions of Ghana; and should include other variables such as the type of fabric and how to care for them, the nature of work of the individual using the clothes and the economic status of the one using the clothes.

**REFERENCES**


1) Amedahe, F. K. & Asamoah-Gyimah, E. (2005). *Introduction to educational research*. Accra-North: Mercury Press (Centre for Continuing Education of the University of Cape Coast.
2) Anyakoha, E, U. & Eluwa, A. S. (2007). *Home management for schools and colleges.*
3) Anyakola, E, V. & Eluwa, A., S. (2005). The management of construction company overhead costs. *International Journal of Project Management, 19*, 295-303 p2.
4) Asamoah-Gyimah, K. & Duodu, F. (2006). *Introduction to research methods in education.* Winneba: I. E. D. E., U. E. W.
5) AATC Technical Manual (2010). *Overview of liquid fabric softners used in home making.* New York, Howe's Publishing Co., Inc
6) Babbie, E. & Mouton, J. (2004). *The practice of social research*. Oxford University Press.
7) Bain, J., Beton, A., Schultze, A., Mudgal, S., Dowling, M. & Holdway, R. (2009). *Reducing the environmental impact of clothes cleaning: A research report completed for DEFRA.* London: BIO intelligence Service in collaboration with Giraffe and Intertek.
8) Barnes, S. H. (1955). Preferences and practices in the purchase, use and care of clothing of 225 junior high school students in Zanesville, Ohio. Ohio, Ohio State University, unpublished M.Sc. thesis.
9) Barsalou, L. W. (1999). Perceptual symbol systems. *Behavioral and Brain Sciences*, 22(4), 577–609.
10) Burke, R. J. & Christensen, L. B. (2008). *Education Research: Quantitative, qualitative, and mixed approaches* (3rd ed). London: Sage Publications.
11) Cant, M. C., Brink, A., & Brijball, S. (2006). *Consumer behaviour*. Juta.
12) Cohen, L., Manion, L. & Morrison, K. (2000). *Research methods in education* (5th ed.). RoutledgeFalmer.
13) Cooper, T., Fisher, T., Hiller, A., Goworek, H., & Woodward, S. (2010). Excessive speed/short lives: Attitudes to clothing longevity and disposal. In F. Ceschin, C. Vezzoli, & J. Zhang (Eds.), *Proceedings of the LeNS Conference: Sustainability in Design – Now!* (pp. 728–737). Greenleaf Publishing.
14) Das, A. B., & Bhattacharyya, R. (2014). See Ghosh, Das, & Bhattacharyya (2014) below; the in-text citation should read (Ghosh, Das & Bhattacharyya, 2014), matching the reference entry: Ghosh, S. K., Das, A. B., & Bhattacharyya, R. (2014). Care label issues of silk fabric. *International Journal of Research in Engineering and Technology*, 3(7), 176–179.
15) De Klerk, H. M., & Lubbe, S. (2008). Female consumers' evaluation of apparel quality: Exploring the importance of aesthetics. *Journal of Fashion Marketing and Management*, 12(1), 36–50.
16) Ekström, K. M., Gustafsson, E., Hjelmgren, D., & Salomonson, N. (2012). *Mot en mer hållbar konsumtion: En studie om konsumenters anskaffning och avyttring av kläder* [Towards a more sustainable consumption: A study of consumers' acquisition and disposal of clothing] (Vetenskap för profession, 20:2012). University of Borås.
17) Fisher, T., Cooper, T., Woodward, S., Hiller, A., & Goworek, H. (2008). *Public understanding of sustainable clothing: A report to the Department for Environment, Food and Rural Affairs*. Defra.
18) Gracey, F., & Moon, D. (2012). *Valuing our clothes: The evidence base*. WRAP.
19) Hoyer, W. D., & MacInnis, D. J. (2008). *Consumer behavior* (5th ed.). South-Western Cengage Learning.
20) Fletcher, K.; Klepp, I. G. (2017). Opening Up the Wardrobe: A Methods Book; Novus: Oslo, Norway, p. 195.
21) Gay, L. R. (1992). *Education research: Competencies for analyses and adaptation* (4th ed.). McGraw Hill Inc.
22) Gay, L. R., & Airasian, P. (2003). *Educational research: Competencies for analysis and application* (7th ed.). Pearson Education.
23) Gram-Hanssen, K. (2008). Consuming technologies: Developing routines. *Journal of Cleaner Production, 16*, 1181-1189.
24) Herale, J. W. S. (1971). *The nature of setting, chapter: 1 in setting of fibre and fabrics.* Watford, Merrow Publishing Co.
25) Higgins, L., Anand, S. C., Holmes, D. A., Hall, M. E. & Underly, K. (2003). Effect of various home laundering practices on the dimensional stability, wrinkling and other properties of plain-woven cotton fabrics part I: Experimental overview, reproducibility of results and effect of detergent. *Textile Research Journal, 73*, 357-366.
26) Higgins, L., Anand, S. C., Hall, M. E., Holmes, D. A. & Brown, K. (2001). Effects of repeated laundering on dimensional stability and distortion of soft knitted cotton fabrics. In AIT conference proceedings, Colombus, Ohio
27) Jone, G. (1990). *Finding out about textiles*. Stanley thorns Publishing Ltd.
28) Kish, L. (1965). *Survey sampling*. John Wiley & Sons, Inc.
29) Koester, A. M. & May, J. K. (1985). Profiles of adolescents' clothing practices: Purchase, daily selection, and care. *Adolescence, 20* (77), 97-113.
30) Laitala, K., Kirsi, L., Ingun, P., Klepp, G. & Hauge, B. (2011). Matierialised Ideals: Size and beauty. *Culture Unbound, 3*, 19-41.
31) Laitala, K., Boks, C. & Klepp, I. G. (2011). Potential for environmental improvements in laundering. *International Journal of Consumer Studies, 35*, 254-264.


License: This is an open access article under the CC BY 4.0 license: https://creativecommons.org/licenses/by/4.0/

32) Kaiser, S. (1990). The social psychology of clothing. Macmillan Publishing Company.
33) Kathleen, M. J. (2005). *Taking care of your clothes.* Retrieved on October16, 2014 from http://www.joe.org/joe/rb2.html.me
34) Klepp, I.G.; Bjerck, M. A (2014). methodological approach to the materiality of clothing: Wardrobe Studies. Int. J. Soc. Res. Methodol. 17, 373–386.
35) Klepp, I. G. (2007). Patched, Louse-Ridden, Tattered: Clean And Dirty Clothes. Text. J. Cloth Cult. 5, 254–275.
36) Kim, J.; Park, Y.; Yun, C.; Park, C.H. (2015). Comparison Of Environmental And Economic Impacts Caused By The Washing Machine Operation Of Various Regions. Energy Effic. 8, 905–918.
37) Kusi, H. (2012). *Doing qualitative research:A guide for researcher.*Accra Newtown: Emmpong Press.
38) Laitala, K., Boks, C., & Klepp, I. G. (2011a). Potential for environmental improvements in laundering. *International Journal of Consumer Studies*, *35*(2), 254.
39) Lindén A-L, Carlsson-Kanyama A, Eriksson B. (2006). Efficient and inefficient aspects of residential energy behaviour: What are the policy instruments for change? *Energy Policy, 34*, 1918-1927.
40) Madsen, J.; Hartlin, B.; Perumalpillai, S.; Selby, S.; Aumônier, S. (2007). Mapping of Evidence on Sustainable Development Impacts That Occur in Life Cycles of Clothing: A Report to Defra; Environmental Resources Management Ltd.
41) Marshal, H., Suzanne, G., Jackson, O. H., Stanley, S. M., Kegan, M. & TouchieSpecnt, P. (2000). *Individuality in Clothing selection and Personal Appearance*. Prentice Hall.
42) Mitchell, M. L. & Jolley, J. M. (2004). *Handbook of methods in social psychology.* Thousand Oaks: The Sage.
43) Nathan, K. (2009). *The impact of Internet Communication Technology (ICT) in rural education:* Case study. *Nigeria Journal of Technology, 28* (2), 71-79.
44) Neuman, W. L. (2000). *Social research methods: Qualitative and quantitative approaches*. Allyn and Bacon.
45) Ohwvoriole, P. I. & Ugeru, E. (2002). *Problems of clothing management practices of home makers: Research issues in Home Economics.* Nsukka: ECCE Homo Enterprises.
46) Okoro, O. M. (1999). *Principles and methods in vocational and technical education.* University Trust Publisher.
47) O'Leary, A. (2004). *The essential guide to doing research.* SAGE Publications.
48) Onasch, J. A (2011). Feasibility and cost comparison of perchloroethylene dry cleaning to professional wet cleaning: Case study of Silver Hanger Cleaners, Bellingham, Massachusetts. J. Clean. Prod. 2011, 19, 477–482.
49) Ozarda, B. T., Moore, M. A., Collier, B. J. & Chen, J. Y. (2009). Effect of laundering on fabric drape, bending and shear. *International Journal of Clothing Science and Technology, 21* (1), 44-55.
50) Pakula, C., & Stamminger, R. (2010). Electricity And Water Consumption For Laundry Washing By Washing Machine Worldwide. Energy Effic. 3, 365–382.
51) Quaynor, L. Takahashi, M., & Nakajima, M. (2000). Effects of laundering on the surface properties and dimensional stability of plain knitted fabrics. *Textile Research Journal, 70,* 28-35.
52) Schinder, W. D. & Hauser, P. J. (2004). Softening finishes: Chemical finishes of textiles. Woodhead Publishing Ltd, 29-42.
53) Shove E. (2003). *Comfort, cleanliness and convenience: The social organization of normality.* Oxford, Berg.
54) Storm, P. (1987). *Functions of dress.* Prentice- Hall.
55) Sugiyono, (2011). *Metodepenelitiankuantitatif, kualitatif, dankombinasi (Mixed method).* CV. Alfabeta.
56) Throne-Holst, H., Stø, E. & Strandbakken, P. (2007). The role of consumption and consumers in zero emission strategies. *Journal of Cleaner Production; 15*, 1328-1336.
57) Tuckman, B. W. (1992). *Conducting educational research*. Harcourt Brace Jovanovich, Inc.
58) WoodWard (2006). *Clothing care and sewing techniques for visually impaired on total blind student's* home making teacher. Retrieved on Septeber 8, 2014 from Com.http://home.home. how stuffoncom/how-to-care-for-your-clothes.htm.
59) Yin, R. K. (2003). *Case study research design and methods. Applied social research methods series* (3rd ed.). Sage.


**APPENDIX**

**APPENDIX A**

**QUESTIONNAIRE FOR THE PEOPLE OF NORTHERN REGION, GHANA**

Dear Respondent,

This questionnaire is an instrument of a survey to be conducted on the modern clothing care management practices among people in the Northern Region of Ghana. I would be very grateful if you would answer the questions below as accurately as possible. The study is for academic purpose and you are assured of utmost confidentiality. **Please (Tick (√) to indicate your answers in spaces provided and tick in the appropriate boxes of five-point Likert scale provided in the questionnaire for your responds.**

**SECTION A**

**Bio Data of Respondents and Knowledge on modern clothing care practices of the people in the Northern Region of Ghana**

1. Gender: Male [ ] Female [ ]
2. Level of Education: Not Educated [ ] JHS [ ] Secondary School [ ] Tertiary [ ]
3. How long have you stayed in Northern Region: less than 1yr [ ] 1-2yrs [ ]
   3-4yrs [ ] 5yrs and above [ ]
4. Nativity status: Native [ ] Non-Native [ ]
5. Which of the following factors influence your clothing care practices?

License: This is an open access article under the CC BY 4.0 license: https://creativecommons.org/licenses/by/4.0/

**SECTION B**

Please indicate the extent to which you agree with the following statement regarding to the question. Respond using a Likert scale of ***1=Strongly disagree, 2=Disagree, 3=Indifferent, 4=Agree, and 5=Strongly agree.*** **(tick as many as applicable to you)**

| **Statement** | **SA** | **A** | **UD** | **D** | **SD** |
|---|---|---|---|---|---|
| Money | | | | | |
| Gender | | | | | |
| Interest, attitudes and values | | | | | |
| Age | | | | | |
| Self-concept/esteem | | | | | |
| Peer or friends influence | | | | | |
| Experience | | | | | |

6. What are your reasons for clothing care practices? **(tick as many as applicable to you)**

| **Statement** | **SA** | **A** | **UD** | **D** | **SD** |
|---|---|---|---|---|---|
| To remove dirt and stains | | | | | |
| Remove odour | | | | | |
| Prevent colour change | | | | | |
| Others | | | | | |

7. Which of the following Clothing Care Methods are frequently used? **(tick as many as applicable to you)**

| **Statement** | **SA** | **A** | **UD** | **D** | **SD** |
|---|---|---|---|---|---|
| Manual washing & ironing | | | | | |
| Drying the clothes by hanging them in the open air (line drying) | | | | | |
| Airing the clothes when not dirty but worn | | | | | |
| Storage of clothes in wardrobes & other storage facilities | | | | | |
| Laundry (washing & ironing) by machine with right detergent and force | | | | | |
| Brushing the clothes when required | | | | | |
| Dry cleaning the clothes when required | | | | | |

8. Are you aware of modern clothing care practices? **(if yes respond to question 9)**

Yes [ ] No [ ]

9. Do you use modern Clothing Care practices in caring for your clothes? Yes [ ] No [ ]

**(if yes respond to question 10 and if no respond to question 11)**

10. If "Yes" why do you use modern clothing care practices? **(tick as many as applicable to you)**

| **Statement** | **SA** | **A** | **UD** | **D** | **SD** |
|---|---|---|---|---|---|
| To care for clothes to last longer | | | | | |
| Its fast and safe way of caring for | | | | | |
| clothes | | | | | |
| It's not expensive to use | | | | | |

11. If "No" why are you not using modern clothing care practices in caring for your clothes? **(tick as many as applicable to you)**

| **Statement** | **SA** | **A** | **UD** | **D** | **SD** |
|---|---|---|---|---|---|
| Its expensive/costly | | | | | |
| Waste time to practice | | | | | |
| Lack of experience to practice | | | | | |

License: This is an open access article under the CC BY 4.0 license: https://creativecommons.org/licenses/by/4.0/

Which of the following Modern Clothing Care devices do you use? **(tick as many as applicable to you)**

| **Statement** | **SA** | **A** | **UD** | **D** | **SD** |
|---|---|---|---|---|---|
| Washing machine | | | | | |
| Dryers | | | | | |
| Steamers/garment steam bags | | | | | |
| Clothes folding boards | | | | | |
| Electric irons | | | | | |
| Fabric shavers | | | | | |
| Stain removers | | | | | |
| Clothing air purifiers | | | | | |

**C: Perception of the people in the Northern Region on care labels** Please indicate the extent to which you agree with the following statement regarding to the question. Respond using a Likert scale of ***1=Strongly disagree, 2=Disagree, 3=Indifferent, 4=Agree, and 5=Strongly agree.*** **(tick as many as applicable to you)**

12. Do you read care labels on your garments before caring for them? Yes [ ] No [ ]

**(if yes respond to question 14 and if no respond to question 15)**

14. Do you apply care label instructions to the method of washing and drying for all your garments? Yes [ ] No [ ]
15. Do you read care instructions before ironing? Yes [ ] No [ ]
16. Are you familiar with modern clothing care label information? Yes [ ] No [ ]
17. Generally, do you think it is good to abide by care labels and instructions when caring for clothes? Yes [ ] No [ ]
18. If "Yes" why do you think it is good to apply care labels and instructions when caring for clothes?

| **Statement** | **SA** | **A** | **UD** | **D** | **SD** | **RANK** |
|---|---|---|---|---|---|---|
| To avoid damage to clothes | | | | | | |
| To care for clothes appropriately | | | | | | |
| To clean them fast | | | | | | |

**D: Storage practices of clothing by people in the Northern Region of Ghana**

Please indicate the extent to which you agree with the following statement regarding to the question. Respond using a Likert scale of ***1=Strongly disagree, 2=Disagree, 3=Indifferent, 4=Agree, and 5=Strongly agree.*** **(tick as many as applicable to you)**

19. Which of the following ironing and Storage practices do you use in caring for your Clothing? **(tick as many as applicable to you)**

| **Statement** | **SA** | **A** | **UD** | **D** | **SD** |
|---|---|---|---|---|---|
| I iron clothes as needed, using the recommended heat setting | 80 | | | | |
| I often air my clothes after use before storing | | | | | |
| I store under clothes and night garments in drawers/bags/wardrobe/closets etc. | | | | | |
| I store tops and shirt on hangers | | | | | |
| I fold shirts and put them drawers/bags/wardrobe/closets etc. | | | | | |
| I store daily used articles in drawers/bags/wardrobe/closets etc. | | | | | |
| I clean all outfits thoroughly before storing in drawers/bags/wardrobe/closets etc. | | | | | |
| I store clothes in clean, cool, dark and dry area to protect clothes | | | | | |
| I store clothing in/on wardrobes, shelf & other storage spaces with insect/pest repellents | | | | | |

**E: Best means that the people in the Northern Region can improve upon clothing care practices**

Please indicate the extent to which you agree with the following statement regarding to the question. Respond using a Likert scale of ***1=Strongly disagree, 2=Disagree, 3=Indifferent, 4=Agree, and 5=Strongly agree.*** **(tick as many as applicable to you)**

20. Which of the following ways do you best care for your clothing. **(tick as many as applicable to you)**

| **Statement** | **SA** | **A** | **UD** | **D** | **SD** |
|---|---|---|---|---|---|
| Read care labels on clothes before caring for them | | | | | |
| Sort clothes before laundry and drying | | | | | |

License: This is an open access article under the CC BY 4.0 license: https://creativecommons.org/licenses/by/4.0/

| | | | | | |
|---|---|---|---|---|---|
| Pre-treat stains on clothes before washing | | | | | |
| Use detergent carefully in caring for my clothes | | | | | |
| Avoid overloading washing machine | | | | | |
| Irone my clothes with the recommended heat | | | | | |
| Store clothes properly in safes/bags/cupboards | | | | | |
| Mend/repair torn clothes immediately | | | | | |

**THANK YOU**

License: This is an open access article under the CC BY 4.0 license: https://creativecommons.org/licenses/by/4.0/

Corresponding Author: Stella Ama Nkrumah