

**EXTENT OF USE OF SKIN BLEACHING AGENTS AND ASSOCIATED  
FACTORS AMONG FEMALE COLLEGE STUDENTS IN ILALA  
DISTRICT, DAR ES SALAAM**

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AMONG FEMALE COLLEGE STUDENTS IN ILALA DISTRICT, DAR ES SALAAM**

**By**

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**A Dissertation/Thesis Submitted in (Partial) Fulfillment of the Requirement for the  
School of Public Health and Social Sciences of**

**Muhimbili University of Health and Allied Sciences  
October, 2017**

**CERTIFICATION**

The undersigned certifies that he has read and hereby recommends for acceptance by Muhimbili University of Health and Allied Sciences a dissertation entitled: “**Extent of use of skin bleaching agents among female college students in Ilala District, Dar es Salaam**” in (partial) fulfillment of the requirements for the Muhimbili University of Health and Allied Sciences

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**Dr. Ezra J. Mrema (PhD)**

(Supervisor)

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**Date**

**DECLARATION AND COPYRIGHT**

I, **Ona Isaac Noel Machangu**, declare that this **dissertation** is my own original work and that it has not been presented and will not be presented to any other university for a similar or any other degree award.

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**DEDICATION**

I dedicate this work to all female college students in Tanzania.

*To inspire them on black color is beautiful.*

## **ABSTRACT**

**Background:** Skin bleaching is the cosmetic treatment to reduce melanin in the skin. Melanin acts as a protector of the body from external factors that can harm it. The use of skin bleaching has recently increased in Tanzania. Bleaching agents can be in various forms such as creams, pills, injection and soap. They contain hydroquinone, mercury and steroids which are highly poisonous to human body that may lead to diseases such as leukemia, skin cancer, kidney failure, hypertension and irreversible skin damage. Despite these adverse effects, the use of skin bleaching agents is still on the rise. Women especially female college students are engaged in bleaching their skin for beautification without the knowledge of adverse effects to their body physiology.

**Aim of the study:** To assess the extent of use of skin bleaching agents and its associated factors among female college students in Ilala District, Dar es Salaam.

**Methodology:** This was a cross-sectional study conducted among female students in four randomly selected higher learning institutions in Ilala district, Dar es Salaam. Multi stage sampling technique was used to obtain the study sample. The data was collected by using self administered structured questionnaire to 623 female students. Data entry and analysis was conducted by the Statistical Package for Social Sciences (SPSS) version 20. Data was summarized using descriptive statistics. Frequency distribution tables summarized categorical variables. Logistic regression was used to examine associations between various study subjects' characteristics and use of skin bleaching agents.

**Results:** The proportion of higher learning students reported to use skin bleaching agents was 57.8%. College students who were divorced or cohabiting were about twelve times more likely to use bleach compared to those who were single [adjusted odds ratio (AOR), 11.97 (95% CI: 3.28, 43.72)]. Students from Institute of finance Management (IFM) and Dar es salaam school of journalism (DSJ) were more likely to use bleach compared to students from Muhimbili university of health Allied Science (MUHAS) (about 23 times and 7 times respectively,  $p < 0.0001$ ).

Students who perceived positively about skin bleaching agents were twice more likely to use skin bleaching agents compared to those who are with negative views or those who did not have any views about skin bleaching agents (AOR, 2.63; 95% CI: 1.64, 4.23,  $p < 0.0001$ ). Age and income were not associated with use of skin bleaching agents.

**Conclusion:** Results of this study led to the following conclusion. Over half of the female students reported to use skin bleaching agent. Secondly being married, divorced and a student of Institute of finance management (IFM) or Dar es salaam School of Journalism (DSJ) student was associated with the use of skin bleaching product, However face and arms were the most parts of the Body where by application of the bleaching agent was reported and Positive perception towards the end results of using skin bleaching products caused the consumer to continue using the product

**Recommendation;** Sustainable health education to intensify awareness on the side effects of the skin bleaching agents may need to be raised to curb their serious health effects and change the perception among college students.



## TABLE OF CONTENTS

CERTIFICATION .....	i
DECLARATION AND COPYRIGHT .....	ii
ACKNOWLEDGMENT .....	iii
DEDICATION .....	iv
ABSTRACT .....	v
TABLE OF CONTENTS .....	vii
LIST OF TABLES .....	x
LIST OF FIGURES .....	xi
ABBREVIATIONS .....	xii
DEFINITION OF TERMS .....	xiii
CHAPTER ONE.....	1
1.0 INTRODUCTION .....	1
1.1 Background.....	1
1.2 Problem Statement.....	3
1.3 The Conceptual Framework.....	4
1.4 Rationale of the study .....	5
1.5 Research Questions.....	5
1.6 Objectives .....	5
1.6.1 Main Objective.....	5
1.6.2 Specific Objectives.....	5
CHAPTER TWO.....	6
2.0 LITERATURE REVIEW .....	6
2.1 Proportion of skin bleaching users.....	6
2.2 Percieved health risk associated with skin bleaching. ....	8
2.3 Social economic factors influencing skin bleaching practice .....	11
2.4 Preferred parts of the body for the application of Skin bleaching agents.....	13

CHAPTER THREE .....	15
3.0 METHODOLOGY .....	15
3.1 Study Design.....	15
3.2 Study Area .....	15
3.3 Study Population.....	15
3.3.1 Criterion for inclusion in the study .....	16
3.3.2 Criterion for exclusion in this study.....	16
3.4 Sampling process and sample size estimation .....	16
3.4.1 Sample size estimation.....	16
3.4.2 Sampling Process .....	17
3.5 Variables .....	19
3.5.1 Dependent variable.....	19
3.5.2 Independent variables.....	19
3.6 Data collection tools and procedures .....	19
3.6.1 Recruitment and training.....	19
3.6.2 Data collection tools.....	20
3.7 Data management, quality assurance and statistical analysis .....	20
3.8 Ethical Consideration.....	21
3.9 Study Limitation .....	22
CHAPTER FOUR .....	23
4.0 RESULTS.....	23
4.1 Description of the study participants .....	23
4.2. Proportion of skin bleaching users among female college students .....	23
4.3. Factors associated with skin bleaching use among the female college students .....	26
4.4 Percieved health risks associated skin bleaching use among female college students .....	30
4.5 Preferred body area for application of skin bleaching agents.....	30
CHAPTER FIVE .....	33
5.0 DISCUSSION.....	33

CHAPTER SIX .....	35
6.0 CONCLUSION AND RECOMMENDATIONS .....	35
6.1 Conclusion .....	35
6.2 Recommendation .....	35
REFERENCES .....	36
APPENDICES .....	45
Appendix I: Informed Consent - English version .....	45
Appendix II: Informed consent – Kiswahili version.....	48
Appendix III: Questionnaire English version .....	50
Appendix IV: Questionnaire – Kiswahili Version.....	58

**LIST OF TABLES**

Table 1: List of higher learning institutions located at Ilala District, Dar es Salaam stratified by ownership .....	18
Table 2: General characteristics of female college students who participated in the study .....	24
Table 3: Proportion of skin bleaching users, crude & adjusted odds ratio (95% CI) for logistic regression between independent variables studied against use of skin bleaching agent. ....	27
Table 4: Proportion of skin bleaching users , crude and adjusted odds ratio (95% CI) for logistic regression between independent variables studied against use of skin bleaching agent. ....	29
Table 5: Distribution of participants by who influenced them to use skin bleaching agent.....	32
Table 6: Distribution of participants by Sources of information about the safety of skin bleaching agents .....	32

**LIST OF FIGURES**

Figure 1: The conceptual framework attributes on the causes that may lead to increase prevalence of use of Skin Bleaching products among women. ....4

Figure 2: Pictorial presentation of some adverse skin reactions from the use of skin bleaching agents. .... 10

Figure 3: Proportion of female college students who use skin bleaching agents. ....25

Figure 4: Skin bleaching problems encountered after applying skin bleaching agent. ....25

Figure 5: Perceived health risks associated with skin bleaching use among female college students in Dar es Salaam. ....31

Figure 6: Proportion of respondents by preferred body part for application of skin bleaching agent .....31

**ABBREVIATIONS**

AOR	Adjusted odds ratio
DCC	Dar es Salaam city council
DSJ	Dar es Salaam School of Journalism
EU	European Union
IFM	Institute of Finance Management
MPH	Masters of Public Health
MUHAS	Muhimbili University of Health and Allied Sciences
OR	Odds ratio
OTC	Over the counter
SPSS	Statistical Package for Social Science
TBS	Tanzania Bureau of Standards
TFDA	Tanzania Food and Drug Authority
UV light	Ultra Violet light
WHO	World Health Organization
Tshs	Tanzanian shillings
MYR	Malaysian Ringgit

### **DEFINITION OF TERMS**

**Skin bleaching** - synonym to skin lightening is the process of using chemical substances to change skin colour to reduce the melanin component of the skin.

**Melanin** - The pigment that gives human skin, hair and eyes their colour. It is the primary determinant of skin colour.

**Hydroquinone** – Is a skin-bleaching agent that is used to lighten areas of darkened skin such as freckles, age spots and acne scars. It is used as a topical application to whitening the skin and reduces the colour of the skin.

**Cosmetic** – Synonymous to make up a substance use to enhance the beauty of the human body.

**Massage parlors** - is a place where massage services are provided.

## CHAPTER ONE

### 1.0 INTRODUCTION

#### 1.1 Background

Skin bleaching is synonymously known as skin lightening. These names carry the same concept of depriving the normal skin originality by removing the melanin from the skin. Skin bleaching is one of the cosmetic treatments to reduce the prominence of skin discolorations and even out the colour of the skin. Skin bleachers work by reducing melanin, the pigment which is produced by specialized cells in the body called melanocytes (Gardner, 2014). The amount of melanin in the skin is determined mainly by genetic makeup of an individual. People with dark skin have more melanin as compared to those with lighter skin. Other factors such as sunlight exposure, hormones and exposure to certain chemicals can also affect melanin production hence determines ones skin colour. Melanin acts as a skin protector against damage that can be caused by high temperatures, chemical stresses such as heavy metals, oxidizing agents and biochemical threats (Hamilton&Gomez, 2002).

Bleaching agents have been used to lighten skin color for decades. This practice has been adapted throughout the world, especially in the sub-Saharan Africa where majority of the dark skinned population resides. People living close to the equator are known to be highly darkly pigmented compared to those living near the poles. The rest of humanity has a high degree of skin colour variation between these two extremes, generally correlating with UV exposure (Jablonski, 2012). The use of bleaching agents is very common in Africa and Asia. Having the fair skin is linked to beauty and high social class (Njoku *et al.*, 2013). In Hong Kong, Malaysia, the Philippines and South Korea, 4 out of 10 women surveyed are using skin-bleaching cream. More than 60 companies globally compete for Asia's estimated \$18 billion cosmetic market economy (Verma, 2011)

Women are the major consumers of skin bleaching agents as compared to men. They use skin bleachers to remove pimples, rashes and other skin diseases. Others aim at having soft skin, to be white, beautiful and look more European to attract male partners sexually (Lewis *et al.*,



2013). In Jamaica women apply skin bleachers or lightening cosmetics desiring to be more sexually attractive to men. Some spouses even request their partners to acquire the lightening physicality as they find it sexually attractive. Majority of male clients in "massage parlors" prefer female sex workers who lightens their skin (Charles, 2011).

In Africa, the use of bleaching agents has been a long-standing practice aimed to change one's skin colour. In some communities this practice is socially acceptable (Alghamdi, 2010). The number of women who use skin-lightening agents is estimated at 25%, 35% and 77% in Bamako (Mali), Pretoria (South Africa) and Lagos (Nigeria), respectively, Nigeria being the first African country on the list (Glenn, 2008).

Skin bleaching agents become severely detrimental because of the dangerous combination of caustic agents such as automotive battery acid, washing powder, toothpaste and cloth bleaching agents with common bleaching cosmetics that contain mercury, hydroquinone and corticosteroid (Mahe *et al.*, 2003). Skin bleaching practices have also been reported among the African populations of Europe, West Indies and Asia (Del Giudice & Yves, 2002). In Dakar, Senegal the prevalence of skin bleaching agents use is reported to be 67.2% and the bleaching agents contain hydroquinone derivatives (61%), topical corticosteroids (37%) and 2% of agents from unknown origin (Wone *et al.*, 1999). These chemicals increase the risk of irreversible skin damage, skin cancer and leukemia (Amir *et al.*, 1992), infertility, liver or kidney failure (Lewis *et al.*, 2013). Despite these risks, skin bleaching is still prevalent in Africa; the use being more prevalent among young women between 30 to 44 years of age (72.5%), married (72.2%), illiterate (75%) and working women (77.6%) (Wone *et al.*, 1999).

In East Africa prevalence of skin bleaching practice is 30% (Lewis *et al.*, 2013) despite the interventions made by countries such as Tanzania. Although there are serious adverse health risks associated with the use of bleaching agents, people still continue to bleach their skin (Lewis *et al.*, 2012). Tanzania Food, Drug and Cosmetics Act of 2003 prohibits the manufacture, sell, supply and distribution of cosmetics that contain prohibited ingredients which may harm or cause injury to the users under normal use conditions. These agents which

can be found over the counter and by prescription includes variety of pills, soaps and creams (TFDA, 2003). One can get them from the cosmetic shops without knowledge of its contents or its effects to the healthy skin. Efforts are made by regulatory boards such as Tanzania Food and Drug Authority (TFDA) and Tanzania Bureau of Standards (TBS) to ban these agents which contain mercury, hydroquinone and steroids.

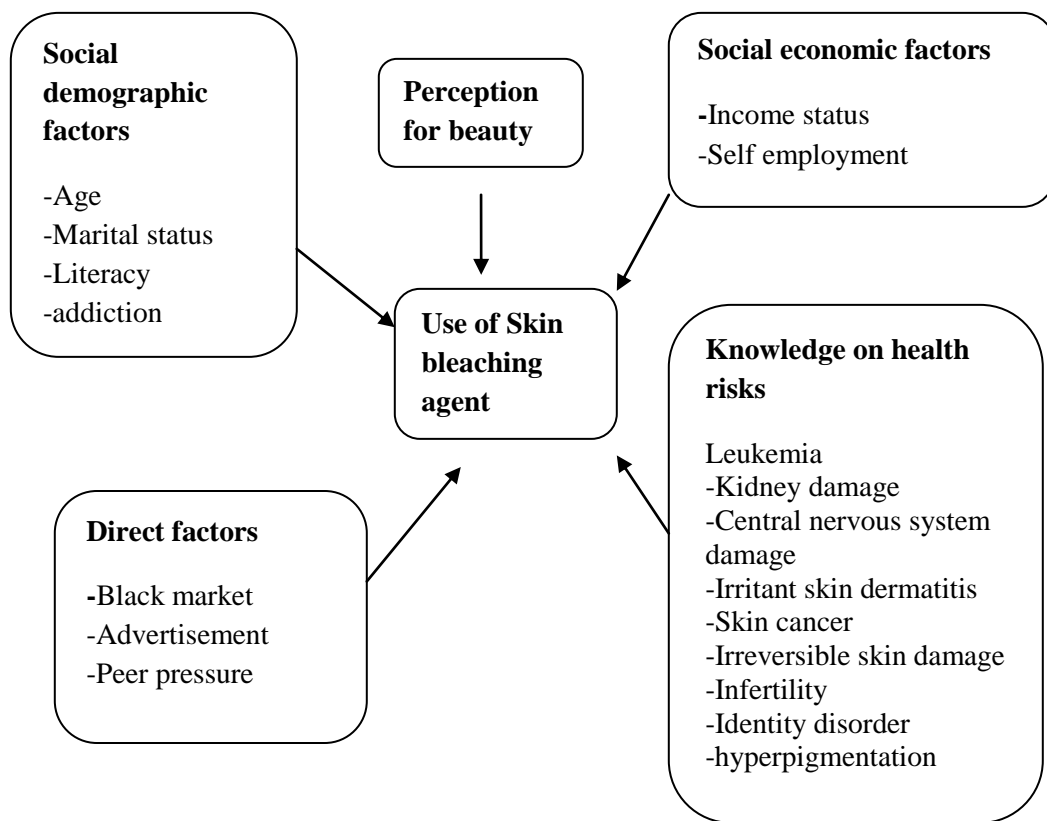
## **1.2 Problem Statement**

Tanzania government has put very strict laws concerning the utilization and manufacturing of harmful cosmetics. Despite the availability of control measures and interventions in the country, still there is an increase of these agents (TFDA, 2003). One out of three women is reported to use skin bleaching agents (Fihlani, 2013). The use is growing among educated women as well (Lewis, 2011). Women receiving tertiary education use skin bleaching agents to light their skin in belief that lighter skin woman are more privileged compared to dark skinned women. This led to increase utilization of these agents. Increase incidence of skin diseases, skin cancer, leukemia, kidney, peripheral neuropathy and infertility cases in hospital clinics signifies the continuation of consumption of these agents which have been linked with the use of these agents (Lewis *et al.*, 2013). Recent research indicated that skin bleaching is increasing at estimated rates of nearly 30% annually, in East Africa with women being more affected by these agents (Lewis, 2011).

Substantially less research has been conducted on the practice of skin bleaching in East Africa (including Tanzania) as compared to West, North and South Africa despite its widely observed use (Adebajo, 2002; De Souza, 2008; Yves, 2002; Mahe` *et al.*, 2003; Lewis, 2009). Female students are the subset of educated group. Much has not been studied concerning the use of skin bleaching agents among educated female students in Tanzania. This study is therefore aimed to determine the extent of use of skin bleaching agents and associated factors among female college students in Tanzania.

### 1.3 The Conceptual Framework

Individual or personal factors and indirect factors such as age, literacy, topical addiction, and medical treatment, perception for beauty, black market, advertisements and peer pressure attribute to the use of skin bleaching agents in form of soap, creams, injections and pills (Figure 1). Knowledge on health risk associated with skin bleaching agents will necessitate one to either use or disuse these agents and thus prevents developing of the health impacts.



**Figure 1: The conceptual framework attributes on the causes that may lead to increase prevalence of use of Skin Bleaching products among women.**

## **1.4 Rationale of the study**

The findings of this study will facilitate development of strategies and more policies on export and import of cosmetic agents. Strengthening on checking the standard of products imported for human use before it reached to the market. It is also anticipated that this study would contribute to the development and implementation of appropriate health programs to reduce both the incidence and prevalence of health risks associated with skin bleaching use. Thus building up knowledge and awareness by intensifying educative messages on risks of the practice of skin bleaching and importance of Skin to the body physiology by motivating women on the importance of Skin colour to their body health.

## **1.5 Research Questions**

The following are design questions to find out as to what extent of use of skin bleaching agents among female college students and associated factors.

1. What is the extent of use of skin bleaching agents among female college students?
- 1.2. \_\_\_\_\_ What factors causes female college students to use skin bleaching agents?
- 1.3. \_\_\_\_\_ What areas of body do female students prefer to apply skin bleach?
- 1.4. \_\_\_\_\_ What are the perceived health risks to consumers of skin bleaching agents?

## **1.6 Objectives**

### **1.6.1 Main Objective**

The main objective of this study is to assess the extent of use of skin bleaching agents and associated factors among female college students in Ilala District, Dar es Salaam.

### **1.6.2 Specific Objectives**

1. To determine the proportion of skin bleaching users among female college students.
2. To determine perceived health risks associated with skin bleaching use among female college students. .
3. To determine factors associated with skin bleaching use among the female college students.
4. To determine the preferred body area for application of skin bleaching agents.

## CHAPTER TWO

### 2.0 LITERATURE REVIEW

#### 2.1 Proportion of skin bleaching users

Skin bleaching agents are used in form of cream, drugs, injections, lotion, oil, gel and soap or pomade formulations which are typically obtained from both medical and non-medical sources such as open markets, beauty stores and pharmacies (Mahe *et al.*, 2005). Being light skinned is perceived to beauty and sexual attractiveness. Perception for beauty plays a key cognitive effect in the mind of many women that are being enticed by the worldly advertisement and celebrities who are the fore front to commercialize these bleaching agents (Rondilla, 2012).

To some countries Skin bleaching agents are part of daily cosmetics being consumed by women for use on their skin. Consumption of lightening products is more among women as compared to man, according to Japan cosmetic giants sales of skin bleaching products has grown by 20% between 1997 and 2003 Hunter (2011) due to increase demand of use. In Hongkong has a prevalence 45%, Malaysia has prevalence of 41%, the Philippines, South Korea and Taiwan 4 out of 10 women are said to use skin bleaching cosmetics. (Lopez *et al.*, 2012).

Use of bleaching agents is very common among women attending Skin clinics in Saudi Arabia, 38.9% of the participating women are users of bleaching agents. The results are of great importance as the overuse of cosmetic bleaching agents is being notified and in clinics where women go after suffering adverse side effect. Alghamdi (2010) In Mali study conducted revealed that bleaching agent related complications were particularly frequent in unmarried women (39%), literate women (34%) and female students (45%) these are the groups in female community that use bleaching agents (Robinson, 2011).

In Cameroon according to (Kouotou *et al.*, 2017) university female students (27.3%) reported to practice skin whitening. They refer the practice as “stripping” or “mazembe”. however it is considered a taboo that is shameful in some of the tribes in Cameroon. Study conducted in

university of Putra Malaysia, 60.6% of females students use skin bleaching products. 61.9% were undergraduate students and 38.1% were post graduate students. This was notified after dermatologic complication reported by the students during the clinic visits.(Rusmandi., *et al* 2015)

The prevalence of skin bleaching agents use reported in the studies conducted in Nigeria and Senegal showed that the use of cosmetic bleaching products ranged from 53% to 59% of people surveyed respectively Ali & Khwaja (2016). In Saudi Arabia, 10.3% of the participating women continued applying bleaching products throughout pregnancy, while 20.8% did during lactation. The results were more drastic in Senegal where 81% of the women carried on with their use during pregnancy and 87% did so during lactation (Al-Ghamdi, 2010).

In Nigeria hospital based study conducted by Adjose (2010) reports 40% of female use skin bleaching, another hospital based study done by Nnoruk *et al.*, (2006) in Senegal reports 58.7% use of skin bleaching agent. As well in Nigeria community study done by Adejabo reports 72.4 % of women in active skin bleaching agent. In Senegal hospital based study done by Del Giudice *et al.*, (2002) reports 27% active skin bleachers. That the use of skin bleaching is twice a day.

In Togo a community base study conducted by Pitché *et al.*, (2005) reports 58.9% of practice the skin bleaching to even the skin tone. In France the hospital based study done by Petit *et al.*,(2003), reports 80% women attending the clinic reported used skin bleaching cosmetics more than once for the purpose of evening the skin tone and remove black spot and pimples. In Burkina Faso community based study done by the Traore *et al.*, (2005) 44.3% reported bleaching their skin for beautification.

A survey was conducted to describe the demographics and patterns of use of this cream in border communities of Arizona, California, New Mexico and Texas The results of this study demonstrated that the majority of users of this 'beauty cream' were Hispanic women, with 44% using this 'beauty cream' as a skin lightener. Most cream users used this agent over a

median of 4 years, with 52% applying this cream two to three times per day (Weldon. *et al* 2000).

Being light skinned symbolizes beauty, sexual attractiveness, and more privileges to the community especially with the intriguing growing of show business and commercial advertisements. Perception for beauty plays a key cognitive effect in the mind of many women being enticed by the worldly advertisements and celebrities who are the fore front individuals to commercialize these bleaching agents (Rondilla, 2012).

From the relationship perspective, women are judged heavily on the basis of appearance as compared to men. Skin colour can be seen as a form of symbolic capital that affects one's life opportunities. If women are held to higher beauty standards, then skin colour becomes one of a determining factors that affects life chances the most (Gaska, 2013). Glenn (2008) explains that men are more likely to be considered valuable when they have wealth, education and other forms of human capital while women are considered valuable when they are physically attractive, even if they lack other capital.

## **2.2 Percieved health risk associated with skin bleaching.**

Skin bleaching is an important risk factor accountable for some non-communicable diseases (NCDs) such as Leukemia, Kidney damage, Central nervous system, damage-Irritant skin dermatitis, Skin cancer,-Irreversible skin damage-Infertility -Identity disorder – hyperpigmentation. (Dlova *et al.*, 2014) Women with postive percetion towards the use of Skin bleaching are more likely to use regardles of the risks of using skin bleaching agent. Fokuo, (2009)A community based survey from Nepal, for an example, showed that the adolescents who perceived benefits of skin bleaching and did not think of health risks were at the risk of skin bleaching initiation. Next, the female who did not think that skin bleaching is harmful to their health were more likely to use bleaching agents than those who perceived health risks of skin bleaching The study also revealed that the females skin bleachers did not believe in addictive nature of skin bleaching agents (Negussie, 2014).

However, reasonable price (55.6%) and ingredients (46%) were considered the most important factors in the product selection. Most respondents purchased the product from drugstores (61.9%). Twenty-two respondents (34.9%) experienced skin problem from the products they used. Skin peeling (12.5%) and acne (8.7%) were the most frequent symptoms experienced (Rusmadi *et al.*, 2015). Most of the respondents have the perception that lighter skin provides high self-esteem (53.8%) and looks beautiful and healthier (51.9%). The use of skin lightening products is common among female students in this study and some of these products can cause skin problems such as skin peeling, acne, and itching. (LaChance, 2014).

Skin bleaching causes damage to the skin hence negative health outcome to the consumer of the bleaching agents. Skin conditions such as acne, burns, and dermatitis are associated with skin bleaching practices (Adebajo, 2002). Skin bleaching may expose one to skin infections caused by bacteria, fungus and parasites. These infections include dermatophyte infections, skin lesions, and scabies (Ajose, 2005). Irreversible skin pigmentation abnormalities such as hypo- and hyper- pigmentation, and exogenous ochronosis may result from prolonged use of skin tanning agents (Diven *et al.*, 2007). For pictorial illustration of some of these effects see Figure 2.





**Figure 2: Pictorial presentation of some adverse skin reactions from the use of skin bleaching agents.**

Skin bleaching is associated with epidermal atrophy or thinning and fragility (Mahé *et al.*, 2003). Extended use of skin bleaching causes the skin to become fragile leading to early aging and the formation of striae and telangiectasia (Ajose, 2005). At cellular level damage to the skin caused by the use of skin bleaching agents can lead to stunted purkinje cell dendrite growth. This cell is responsible for nervous system in our body (Washam, 2011). Skin bleaching causes disruption of the normal DNA functioning and changes at the gene level (Akiibinu *et al.*, 2010; (Westerhof & Kooyers, 2005). Renal and neurological complications are reported to be caused by presence of mercury p in bleaching agents (Harada et al., 2001;

Mahé *et al.*, 2005), extended use of bleaching products well reported to cause early cataracts and glaucoma in majority of women (Olumide *et al.*, 2008).

Skin bleaching agents contain toxic chemicals causing organ poisoning to human consumers (Copan *et al.*, 2012). Mercury toxicity (Peregrino *et al.*, 2011; Washam, 2011), hydroquinone toxicity (Kooyers & Westerhof, 2006), and steroids such as clobetasol (Petit *et al.*, 2006) cause change in body physiology of the fetus thus causing deformities and birth defects (Alabdulrazzaq, 2012). There is clinical evidence of renal dysfunction and cataracts in newborn of the mothers who use skin bleaching agents (Sinclair *et al.*, 2016).

Further evidence found that pregnant women skin bleachers had smaller placenta and their children are born with low birth weights, low cortisol levels and higher rates of birth defects compared to those who do not use bleaching agents (Mahé *et al.*, 2007). Research in sub-Saharan Africa suggests that skin bleaching is one of the contributors to the increased incidence of skin cancer and leukemia, among the four leading malignancies in Africa (Amir *et al.*, 1992).

### **2.3 Social economic factors influencing skin bleaching practice**

Individual income is associated with skin bleaching use; women of lighter colour are more privileged economically and socially. Lighter colour is exported around the globe through media images that help sustain skin bleaching and cosmetic surgery industry (Gleibermann, 1995). The production and marketing of skin-lightening products offers the promise of lighter, whiter skin to the dark skin consumers (Glenn, 2008). Skin lightening has been incorporated into transnational flows of capital and western culture growth as a symbol of globalization. It is implicated in both the formal and informal global economy and more often underground economies to petty business entrepreneurs (Zinn *et al.*, 2015).

Advertisements create a need for skin-bleaching to dark skinned women. Dark colour is portrayed as a condition of unhappy, ignorant and low self-esteem woman. The presented cure is to use skin-lightening products. Light skin is associated with being youthful, beautiful, modern and affluent (Mire, 2001). Mushrooming of different social networks such as

facebook, instagram and twitter in recent decade has geared up the growth of bleaching products and cosmetic business by advertising on Cosmetics with bleaching agents, portrays unrealistic contents of the bleaching products (Glenn, 2008). Internet has become one of the major tools for cosmetic market. Those who are able to access it have to be computer literate. Networking industry plays a great role to push the market of the bleaching products high. Entrepreneurs, skin doctors, direct and indirect sale merchants use internet platform to disseminate the sale of these products. The major consumers (mainly women) purchase and import these skin bleaching products online. Some of these products are neither legal nor fit for healthy use (Maan *et al.*, 2009).

Studies report the dumping of substandard products in the global south by overseas industries. Often most of these products were not passed for human use in their countries of origin (Souza, 2008). The mercury soaps used by Africans are manufactured in the European Union (EU) where they are allowed to be manufactured as long as the products are exported. EU manufactured soaps are reportedly smuggled back into EU where they are sold to African immigrant communities (Glenn, 2008).

A number of third-world countries are believed to be used as off-shore production and distribution sites for western-based pharmaceutical companies (Mire, 2001). The South African, Tanzanian and Kenyan governments have banned the import and sale of mercury and hydroquinone products. However, these bans are often poorly enforced and difficult to control due to the fact that they are smuggled in from other African or European nations (Glenn, 2008). Products remain easily available in African capitals where they are sold over the counter without medical prescription and control, hence fuelling the extensive and uncontrolled use of skin-lighteners. Counterfeit products and adulterations of branded products are commonly sold in backstreets and even given out by physicians (Souza, 2008). Scholars are critical of the western medical community who have failed to intervene in the production and use of these skin-lightening chemicals and who seem to dismiss their use as an exclusively black problem (Mire, 2001).

#### **2.4 Preferred parts of the body for the application of Skin bleaching agents.**

Women prefer bleaching different body parts depending on the need. Each part depends on the women's preference. Bleaching mainly involves different body regions with different intention. Some forms of skin bleaching agents are specific to the certain region. The bleaching body areas include the face, upper parts, lower parts and private (sexual) parts. The reason for choosing which type or pattern of skin bleaching depends largely on the individual and the purpose of doing it (Olumide, 2006).

Upper parts bleaching involve the face, the neck, the arms, the chest and stomach. The practice is aimed at making the upper parts of the body lighter than the lower parts (Adeleye 2007). Study conducted by Nnoruka&Okoye (2006) reported 81.3% of cases surveyed apply skin bleaching to the whole body with the intention to look European like while 18.7% applied to the face directly. The study reported as well the skin bleaching among pregnant woman for the purpose of removing the hyper pigmentation caused by changes in their hormones during pregnancy. However, facial bleaching is the most preferred part of the body for bleaching. It involves removal of the facial skin layer to become lighter in color. Duration of bleaching application depends on the satisfaction of the change needed (Akerere, 2006).

Those that prefer facial bleaching above other types might believe that it increases their social acceptance and does add commercial value to their quality (Findlay *et al.*, 1975). Lower parts bleaching include the legs, the waist and the feet (Adeleye, 2007). Private parts bleaching involve bleaching of the sexual organs such as the breasts, penis, the bottom and the thigh mainly for sexual attraction of the opposite sex. This practice is common among commercial sex workers (Suaja, 1998).

The whole body bleaching involves completely bleaching of the whole body parts which is common among celebrities important for show business industry, nude poses business created and maintained by women (especially) who bleach their skin to gain sense of social prestige (Andrew, 2007). Some women prefer to completely bleach the whole body parts, not exempting any body region. One may adduce the reason as being an attempt to attract public and probably to attain a balance body colour.

People not only gained friends through bleaching but they equally attract attention and popularity. It is apparent that many individuals think that bleaching helps them to gain adequate attention at social services (Moraga & Anzaldúa, 2015). The study conducted by (Alghamdi, 2010) only 7.3% of the cases applied the bleaching products to their whole body.

## **CHAPTER THREE**

### **3.0 METHODOLOGY**

#### **3.1 Study Design**

A cross-sectional descriptive study design.

#### **3.2 Study Area**

Ilala district is one of the three districts in Dar es Salaam region which was established in the year 2000 (Figure 3). The district covers an area of 210 square kilometers. According to the national census of 2012, the population of Ilala is 1,220,611 with 595,928 males and 624,683 females. Ilala district is commonly known as “Downtown Dar” with high population movement of people from different parts of the Tanzania. In this district 25 higher learning institutions are located. Much of the cosmetic business is undertaken in this district.

The study was conducted in four selected higher learning institutions situated at the Ilala District namely the Institute of Finance Management (IFM), St. John University (St. Marks Teaching Centre, Dar es Salaam), Dar es Salaam School of Journalism (DSJ) and Muhimbili University of Health and Allied Sciences (MUHAS). The study targeted female students studying in these colleges.

#### **3.3 Study Population**

The study population comprised of female students studying in the four randomly selected colleges in Ilala district. Four higher learning institutions were randomly selected among 26 colleges that are located in Ilala district. Female students were selected in each university/college to amount to the total study sample calculated for the study in subsection 3.4.1.

### **3.3.1 Criterion for inclusion in the study**

Female students studying in the four randomly selected higher learning institution located at Ilala district were included in this study. Female students who reside at the respective university/college hostels during the time of the study were recruited in the study.

### **3.3.2 Criterion for exclusion in this study**

The female students with skin disability conditions studying in these selected higher learning institution were not included in the study. These skin disability conditions include albinism and vitiligo.

## **3.4 Sampling process and sample size estimation**

### **3.4.1 Sample size estimation**

Sample size was calculated by using a simple proportion formula:

$$n = Z^2 P (100-P)deff/ d^2$$

Where,

n = sample size required

Z = 1.96 at 95% confidence interval

P = 50% expected proportion was adapted because no related study has been conducted in Tanzania.

E = margin of error 5%

Deff = design effect

The design effect was introduced to get the number of study subjects needed to participate. The chosen design effect was 1.5.

10% adjusted for non response of subject to the study to reduce bias. Thus the estimated sample size was 632.

### **3.4.2 Sampling Process**

The study subjects were sampled from 4 higher learning institutions which were selected from the 26 higher learning institutions in Ilala district using multistage strategy. In the first stage, colleges were stratified by ownership to identify government and private higher learning institutions in Ilala. The second stage involved stratifying private and government institutions by whether they had female hostels or not. Two balloting boxes were made. The first box contained pieces of papers each with a written name of the private higher learning institution with hostel. The second box contained pieces of papers with names of the government universities/colleges with female hostels.

The principal investigator randomly picked two pieces of paper with the name of the universities/colleges in the box. Two government universities/colleges and two private universities/colleges were selected both having hostels in their campuses. Finally four universities/colleges were selected. Convenient non probability sampling was used to obtain female students from the selected universities/colleges hostels. A number was assigned to hostels to which the students' resides.

To obtain the representative sample size for each selected universities/colleges the calculated sample size (i.e. 632) was divided by 4. Thus, 158 samples were selected from each institution.



**Table 1: List of higher learning institutions located at Ilala District, Dar es Salaam stratified by ownership**

S/N	Private Institutions	S/N	Public Institutions
1	St. John University (St. Marks centre)	1	Muhimbili University Health Allied Sciences (MUHAS)
2	St Mary's Teachers college	2	Dar es Salaam School of Journalism
3	India Tanzania Center of Excellence in ICT	3	Institute of Finance Management (IFM)
4	Institute of Management and Information Technology	4	College of Business Education (Dar es Salaam campus)
5	Future world business college	5	Dar es Salaam Institute of Technology (DIT)
6	Silva Institute of business and management	6	National college of tourism
7	The Covenant college of business studies	7	Institute of Procurement and Supply (IPS), Dar es Salaam
8	Institute of arts and media communication	8	United Tanzania aeronautics college, Dar es Salaam
9	Asania college of Management-Dar es Salaam	9	Tanzania public service collegee - Dar es-Salaam
10	The Sinon college - Dar es Salaam college	10	Bandari college, Dar es Salaam
11	Gataraye research and training centre	11	Tanzania Peoples Defence Force (TPDF) - Information and technology centre
12	Unique Academy	12	College of agriculture and natural resources
13	Alharamain college of education	13	Regional Aviation college

### **3.5 Variables**

#### **3.5.1 Dependent variable**

1. Use of skin bleaching agents
2. Percieved risks of using skin bleaching agent
3. Factors associated with the use of skin bleaching agent
4. Prefered parts of the body

#### **3.5.2 Independent variables**

1. Age
2. Marital status
- ~~1~~.3. \_\_\_\_\_ Level of income
- ~~2~~.4. \_\_\_\_\_ Type of university or college
- ~~3~~.5. \_\_\_\_\_ Religion
- ~~3~~.6. \_\_\_\_\_ Perception on skin bleaching

### **3.6 Data collection tools and procedures**

#### **3.6.1 Recruitment and training**

Two research assistants experienced in social work were recruited and trained for two days. Orientation was done on study objectives and familiarization with data collection tools, together with work plan, informed consent, ethical issues and other study logistics.

Before data collection started the questionnaire was pre-tested to check for reliability, clarity and logic. Female students studying at Dar es Salaam University College of Education (DUCE) in Temeke district were used during pretesting. The tool was assessed and reviewed by improving the smoothness and the flow of the questions targeting the objectives set for the study.

### **3.6.2 Data collection tools**

The questionnaire was developed by the principal investigator and translated into Swahili. The questionnaire contained five sections A-E (Appendix III) containing both open and closed ended questions.

Section a contained close-ended questions to obtain general socio-demographic information of the study participants. Section B had questions which addressed utilization of skin bleaching agents by the study participants. Section C questions sought to determine factors associated with skin bleaching among study participants. Section D questions addressed health risks associated with skin bleaching use. The last section had questions that tried to understand positive or negative perceptions towards the use of bleaching agents.

The questionnaires were coded before given to the research assistants. The trained research assistants and the principal investigator distributed the coded questionnaires to the study participants who consented to take part in the study. They were requested to fill in questionnaire. All the data obtained from the study participants were recorded and documented. The research assistants collected the filled questionnaires and signed consent forms the next day after distributing to the study participants. In order to minimize errors, the data collected through the questionnaires were checked for completeness, consistency and accuracy by the principal investigator before data entry.

### **3.7 Data management, quality assurance and statistical analysis**

Participants' information was recorded in the self-administered questionnaire. Data collected were checked for completeness and consistence by the researcher. Data were entered into the computer using excel sheet and then analyzed using the Statistical Package for Social Sciences (SPSS) statistical software version 20. Frequencies were run for all categorical variables including but not limited to religion, marital status, and year of study. All continuous variables such as age were summarized by calculating means and standard deviations. Associations between various independent variables of interest with the outcome variable were examined by unadjusted and adjusted (multiple) logistic regressions. As mentioned previously,

independent variables used were age, marital status, religion and income, year of study, type of university studied, and perceptions about use of skin bleaching agents. The dependent variable/outcome variable was the use of skin bleaching agents. For perception, there were six questions with the following possible responses; strongly agree, agree, disagree, and don't know. Participants who responded strongly agree or agree in any question were considered as one category while those who said they disagreed or said don't know formed another category. Variables with p-value <0.20 in univariate analyses were used in the multiple (adjusted) logistic regression model. The statistical significant test (p-values) less than 0.05 were taken as a level of statistical significance. All p-values were two-tailed.

### **3.8 Ethical Consideration**

The proposal to conduct this study was reviewed and ethical approval was obtained from Institutional Review Boards (IRBs) of Muhimbili University of Health and Allied Sciences (MUHAS). In this case, research and publication committee of MUHAS played this role. The permission to conduct this study was obtained from respective university principals namely St John university (st Mark's centre), Dar es salaam School of Journalism (DSJ) Institute of Finance Management (IFM) and Muhimbili university of health allied Science (MUHAS). Before the participants were requested for consent, they were informed about the aim and potential benefits and risks of the study; the nature of the study, study methods to be used, the confidentiality of the information collected from them and their right not to answer specific questions, or not to participate at all. To ensure confidentiality, privacy and rights of the participants' any information that could expose recognition of the study participant was removed from the questionnaire. For example identification numbers were used instead of names (Appendix I&II). Written consent was finally requested from the study subjects who were approached at commencement of the study. For clarity questionnaire and informed consent forms were translated to Swahili.

### **3.9 Study Limitation**

One of the limitations of this study is that the use of skin bleaching agents was self-reported. It is possible that some participants may report that they did not use bleaching agents since use of these agents sometimes is perceived negatively in the society and participants may feel that they should report what is expected of them. To minimize this, participants were assured that their responses will be kept private and confidential.

## CHAPTER FOUR

### 4.0 RESULTS

#### 4.1 Description of the study participants

The study population comprised of female students from four higher learning institutions in Ilala district. Dar es salaam aged 15-50 years with the mean age of 23 years (standard deviation of  $\pm 3.1$ ). The majority of the participants (83.2%) were 25 years and below . Out of 440 (80.9%) were single, while 74 (13.6%) were married.

Study participants with the monthly income of 200,000 Tanzania shillings and below were 308 (63.1%). With regards to religion; 21.8% of participants were Muslims and 75.4% were Christians. MUHAS students were 149 (24.6%), 137 (22.6%) were from St. John University, 149 (24.6%) from IFM, and 170 (28.1%) from DSJ. Students came from various years of their study; first year were 199 (39.6%), second year 177 (35.6%) and third year 126 (25.1%).

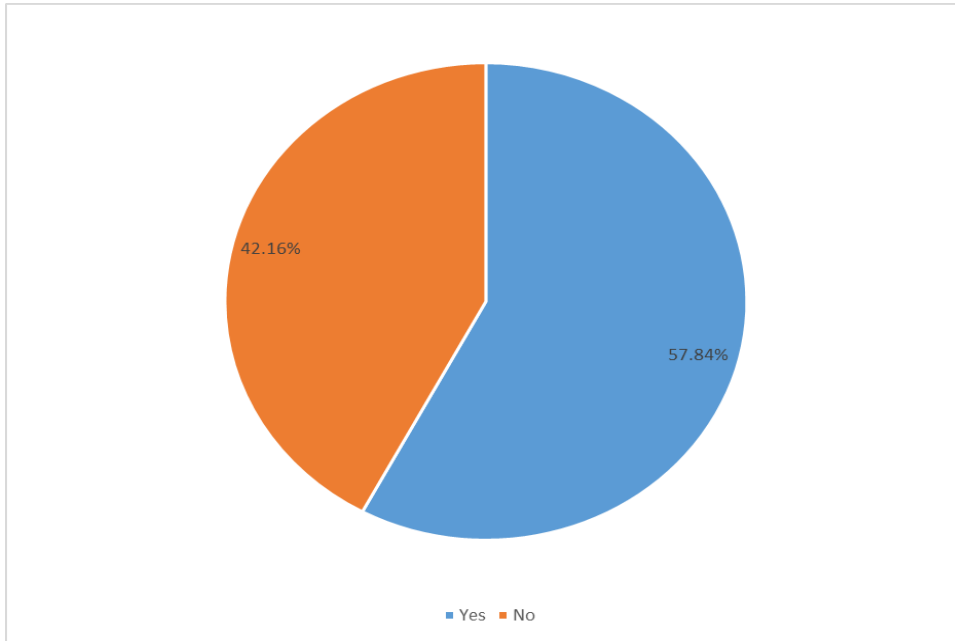
#### 4.2. Proportion of skin bleaching users among female college students

Female college students were asked to indicate whether they have already used skin bleaching agents in their life time. Of 623 subjects, 306 (57.8%) reported ever using skin bleaching agents (Figure 6). The study participants reported to encounter the skin problems after applying the skin bleaching agents. Skin pimples were the most frequently reported problem (69%). Other problems included rashes (10%), acne (9%) and other problems (e.g. dermatitis, exogenous onychosis, skin easily bruises, and skin hyperchromia). Figure 7 summarizes these results.

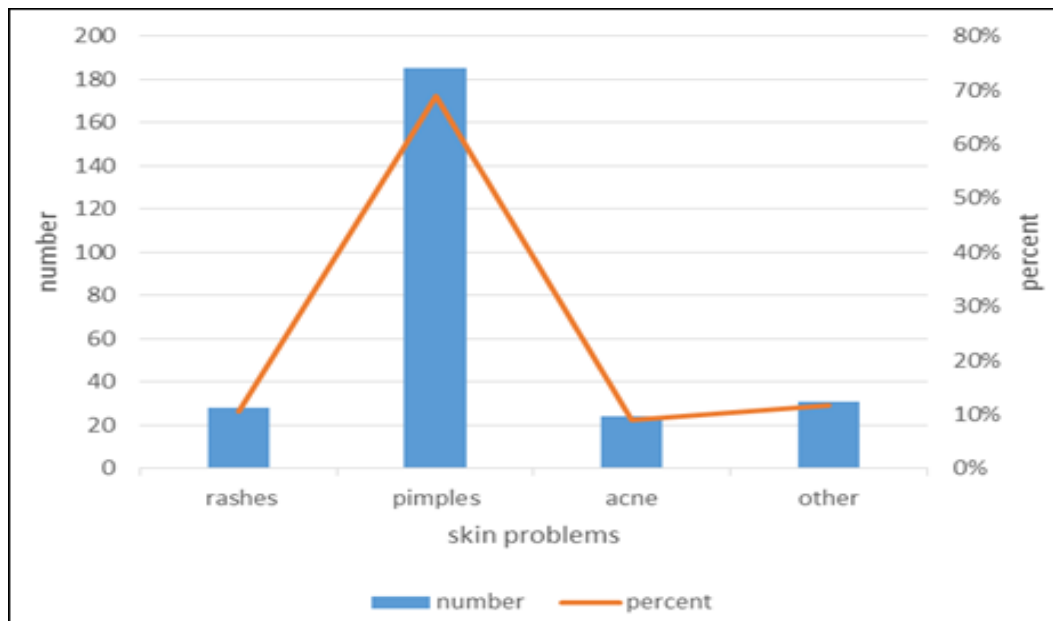
**Table 2: General characteristics of female college students who participated in the study**

Characteristics	Number (n)	Percent (%)
<b>Age</b>		
≤20	52	9.1
21-25	424	74.1
26-30	78	13.6
>30	18	3.2
<b>Marital status</b>		
Single	440	80.9
Married	74	13.6
Divorced	12	2.2
Cohabiting	18	3.3
<b>Religion</b>		
Muslim	111	21.8
Christian	384	75.4
Pagan	14	2.8
<b>Income</b>		
<200,000	308	63.1
200,000-400,000	112	23.0
400,000-600,000	28	5.7
>600,000	40	8.2
<b>Year of study</b>		
1 <sup>st</sup>	199	39.6
2 <sup>nd</sup>	177	35.6
3 <sup>rd</sup>	126	25.1
<b>University</b>		
MUHAS	149	24.6
St. John	137	22.6
IFM	149	24.6
DSJ	170	28.1

Keys: MUHAS, Muhimbili University of Health and Allied Sciences; IFM, Institute of Finance Management; DSJ, Dar es Salaam School of Journalism



**Figure 3: Proportion of female college students who use skin bleaching agents.**



**Figure 4: Skin bleaching problems encountered after applying skin bleaching agent.**



### **4.3. Factors associated with skin bleaching use among the female college students**

#### **Unadjusted results (Univariate results)**

Compared to students who were 20 years or younger, those who were between 21 and 25 years old were twice more likely to use bleach (95% CI: 1.12, 3.69). Those who were between 26 and 30 years were more than twice more likely to use bleach. Those who were more than 30 years old had no significant difference with those 20 years old or younger. College students who were divorced or cohabiting were four-folds more likely to use bleach compared to those who were single. Married students were not significantly different in their rates of use of bleach to single students. With regards to income, those earning 200,000-400,000 Tshs per month were more likely to use bleach than those earning less than 200,000 Tshs. OR, 1.12 (95% CI: 0.54, 2.69) Students from IFM were more likely to use bleach compared to students from MUHAS (about 13 times and 4 times, respectively OR,12.95(95% CI:7.14, 23.49). There was no significant difference in the use of bleach between students from MUHAS and students from St. John's University. Students who had good perception about bleaching agents were twice more likely to use bleaching agents than students who viewed bleaching agents negatively or did not have any views about bleaching agents (OR, 2.04; 95% CI: 1.42, 2.91,  $p < 0.0001$ ).

**Table 3: Proportion of skin bleaching users, crude and adjusted odds ratio (95% CI) for logistic regression between independent variables studied against use of skin bleaching agent.**

Factors	Proportion using bleach	Unadjusted OR (95% CI)	p-value*
<b>Age (Years)</b>			0.11
≤20	21/50	1.00	
21-25	234/393	2.03 (1.12, 3.69)	
26-30	44/72	2.17 (1.04, 4.53)	
>30	7/14	1.38 (0.42, 4.53)	
<b>Marital status</b>			0.01
Single	235/425	1.00	
Married	44/71	1.32 (0.79, 2.21)	
Divorced or Cohabiting	25/30	4.04 (1.52, 10.76)	
<b>Income (in Tanzanian shillings)</b>			0.09
<200,000	183/302	1.00	
200,000-400,000	54/111	0.62 (0.40, 0.96)	
>400,000	40/68	0.93 (0.54, 1.59)	
<b>University</b>			<0.0001
MUHAS	40/125	1.00	
St. John	32/88	1.21 (0.68, 2.16)	
IFM	128/149	12.95 (7.14, 23.49)	
DSJ	103/161	3.77 (2.30, 6.19)	
<b>Perception</b>			<0.0001
Bleach good	181/273	2.04 (1.42, 2.91)	
Bleach not good or don't know	117/238	1.00	

Keys: OR, odds ratio; CI, Confidence interval; MUHAS, Muhimbili University of Health and Allied Sciences; IFM, Institute of Finance Management; DSJ, Dar es Salaam School of Journalism. \*P-values reported here are those for a trend

**Adjusted results (multivariate results)**

Associations between various independent variables of interest with the outcome were examined using multiple logistic regressions. Variables with p value <0.20 in univariate analyses were used in the multiple (adjusted) logistic regression model. College students who were divorced or cohabiting were about twelve times more likely to use bleach compared to those who were single (OR, 11.97; 95% CI: 3.28, 43.72). Married students were not significantly different in their use of bleach to single students. Students from IFM were more likely to use bleach compared to students from MUHAS (about 23 times and 7 times respectively,  $p < 0.0001$ ). There was no significant difference in use of bleach between students from MUHAS and students from St. John's University. Students who had good perception about bleaching agents were twice more likely to use bleaching agents than students who viewed bleaching agents negatively or did not have any views about bleaching agents (OR, 2.63; 95% CI: 1.64, 4.23,  $p < 0.0001$ ). Age and income were not associated with use of skin bleaching agents.

**Table 4: Proportion of skin bleaching users , crude and adjusted odds ratio (95% CI) for logistic regression between independent variables studied against use of skin bleaching agent.**

<b>Factors</b>	<b>Proportion using bleach</b>	<b>Adjusted OR (95% CI)</b>	<b>p-value*</b>
<b>Age (Years)</b>			0.40
≤20	21/50	1.00	
21-25	234/393	0.93 (0.43, 2.04)	
26-30	44/72	1.40 (0.52, 3.77)	
>30	7/14	1.636 (0.27, 9.86)	
<b>Marital status</b>			
Single	235/425	1.00	<0.001
Married	44/71	1.16 (0.50, 2.67)	
Divorced or Cohabiting	25/30	11.97 (3.28, 43.72)	
	0.82		
<200,000	183/302	1.00	
200,000-400,000	54/111	0.91 (0.52, 1.60)	
>400,000	40/68	1.21 (0.54, 2.69)	
<b>University</b>			<0.0001
MUHAS	40/125	1.00	
St. John	32/88	1.92 (0.88, 4.20)	
IFM	128/149	22.71 (11.25, 45.87)	
DSJ	103/161	6.51 (3.48, 12.18)	
<b>Perception</b>			<0.0001
Bleach good	181/273	2.63 (1.64, 4.23)	
Bleach not good or don't know	117/238	1.00	

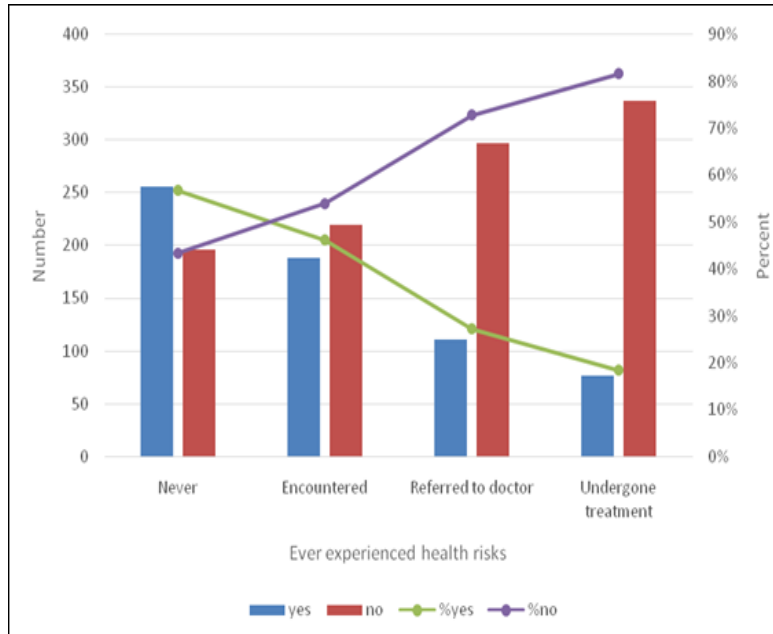
Keys: OR, odds ratio; CI, Confidence interval; MUHAS, Muhimbili University of Health and Allied Sciences; IFM, Institute of Finance Management; DSJ, Dar es Salaam School of Journalism. \*P-values reported here are those for a trend

#### **4.4 Percieved health risks associated with skin bleaching use among female college students**

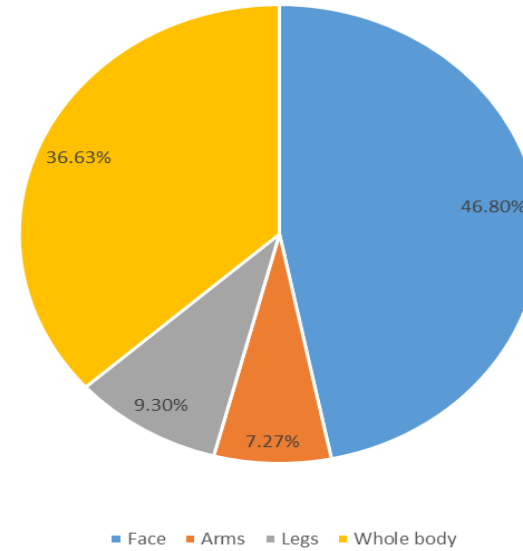
Participants who perceived having encountered a skin problem due to skin bleaching where 188 (46%) while 111 (27%) were referred to a doctor for intervention, and 76 (18%) received treatment.

#### **4.5 Preferred body area for application of skin bleaching agents.**

Figure 9 show the proportion of study subjects by respective preferred body area for skin bleaching application. The four main body areas students prefer to apply on are the face (46.80%), arms (7.27%), legs (9.30%) and the whole body (36.63%). Among the students 39.4% of study participants reported that friends influenced them to use the skin bleaching agents. (Table 4). Female students also reported that advertisement played a second role on promoting the use of skin bleaching agents by 21.3 %, while the brand of the product contributed by 12.8%.



**Figure 5: Perceived health risks associated with skin bleaching use among female college students in Dar es Salaam.**



**Figure 6: Proportion of respondents by preferred body part for application of skin bleaching agent**

**Table 5: Distribution of participants by who influenced them to use skin bleaching agent**

<b>Who introduced students to skin bleaching agents</b>	<b>Frequency (n)</b>	<b>Percent (%)</b>
Friend recommendation	135	39.4
Advertisement	73	21.3
A doctor	33	9.6
A pharmacist	20	5.8
Make up saloon	16	4.7
Brand influence	44	12.8
Other	22	6.4

Much as friends' recommendations play the role in promoting the use of skin bleaching product but the safety information of products is not obtained from friends. As shown in table 5 friends contributed less (12.8%) on providing the safety information of skin bleaching products, books and magazine being the major source of information followed by radio stations.

**Table 6: Distribution of participants by Sources of information about the safety of skin bleaching agents**

<b>Sources of information</b>	<b>Frequency (n)</b>	<b>Percent (%)</b>
Television station	61	13.0
Radio station	105	22.4
Books and magazines	158	33.8
Internet	84	18.0
Friend	60	12.8

## CHAPTER FIVE

### 5.0 DISCUSSION

The study was carried out to find extent of use of skin bleaching products among female college students and associated factors. The findings of this study indicated that female students (57.8%) reported to use skin bleaching agents. This is comparatively low as compared to similar study conducted in Malaysia University which reported a proportion of 69.6% (Ismail & Praveena, 2015). However, the prevalence is higher than the study done in India, which reported a proportion of (45%) (AlGhamdi, 2010). Also high compare to the study conducted among female college students in Younde, Cameroon 27.3% (Kouotou et al., 2013) The results reported a high proportion (40.2%) of women using skin-bleaching agents that their use was more common among younger women and those with a higher level of University education (Mosca, 2013). This stipulates that there is a difference in practice of skin bleaching agents use among women of the same literacy level.

This study found a significant factors that a associated with skin bleaching among female college students. 74.1% of female were between the ages of 21-25 where practicing skin bleaching. The study found that student between the age of 21 and 25 where more likely to use Skin bleaching compared to 20 years and younger, and those who aged between 26 and 30 (13.6%) years were twice more likely to use bleach as compared to the aged group 21 and 25(74.1%). This indicated that age is associated with the use of skin bleaching among female students. The older the age there is a likely chance of using skin bleaching products. However this is high compared to the study reported by (Hamed et al., 2010) that 50.3% of females using skin bleaching products are between 20 and 30 years old. Likewise Adebajo (2007) showed that 51.6% of the respondents were aged between 20 and 29 years where on skin bleaching practice. The study done by Ravichandran (2013) found that plenty of reported cases of side effects caused by lightening cream were among women in the age group of 20 to 30 years. Female students who are the majority college scholars fall under these age groups to whom most of the decision making on carrier choice are being made at this age group. Female students are being driven by appearance showbiz due to social media influence.



This study also reported that skin bleaching use was associated with the level of income. Those who receive allowances between 200000 to 400000tshs (23%) from their caretakers and loan board use skin bleaching more as compared to those below 200000tshs (63.1%) and those with income of 400000tshs (5.7%) and higher. This is comparatively higher than the study reported in Malaysia, that female students (56.4%) prefer skin bleaching products less than Malaysian ringgit MYR 30 (15,900Tshs). However the same study revealed postgraduate students (45.8%) preferred purchasing skin bleaching agents between MYR 30 (15,900Tsh) and MYR 60 (equiv:31,800 Tshs).. According to Rusmadi et al. (2015) majority of the students in the Malaysia received a monthly income or allowance of less than MYR 500 (265,000Tsh) The amount of income or allowance received per month is believed to be the reason on preference to purchase skin bleaching agents hence the use. *1MYR is equivalent to 530 Tshs.*

This study found that College students who were divorced(2.2%) or cohabiting(3.3%) were four-folds more likely to use bleach compared to those who were single (80.9%). Married students(13.6%) were not significantly different in their use of bleach to single students. This is comparative to the study done in Ghana which showed that unmarried women were more likely to engage in use of skin bleaching compared to married with the proportion of 52% and 45%, respectively(Kuffour et al., 2014). This finding is contrary to the study conducted among women in Saudi Arabia which indicated that bleaching agents is extensively used regardless of age, educational level, income or marital status but rather the attitude towards the practice of skin bleaching played a key role in influencing the use. (Alghamdi, 2010).

This study showed that students who had good perception about bleaching agents were twice more likely to use bleaching agents than those who viewed bleaching agents negatively or did not have any views about bleaching agents. This is supported by Nigerian study which found that perception towards looking beautiful and European custom like prefer bleaching their skin helps women to attain high social standard, become more successful in life, look fashionable, express positive self-concept regardless of the health risks associated with it. And this lead to many of the students to engage on skin bleaching (Ed & Oniye, 2012)

However this study found health risks associated with those using bleaching agent. Prominent being the dermatological one. Skin pimples(69%) were the most frequently reported skin disease . skin rashes (10%), acne (9%) and other reported are (dermatitis, exogenous onychosis, skin bruises and skin hyperchromia(12%). This was also reported by Rusmadi et al (2015) majority of female students who applied bleaching products had skin peeling (59.1%), acne (40.9%) and itching (36.4%). Another study reports complications such as appearance of black spots (52.5%) and stretch marks (20%) among women since the beginning of the skin bleaching practice. The diagnosis made by the dermatologist was an exogenous ochronosis in 20% (Kourouma et al., 2016). Other researchers reported cutaneous conditions such as acne, burns and dermatitis associated with skin bleaching (Adebajo, 2002; Ajose, 2005; de Souza, 2008; del Giudice & Yves, 2002; Ly et al., 2007; Mahé et al., 2003, 2005; Petit et al., 2006; Suzuki, Yagami & Matsunaga, 2012; Toombs, 2007).

This study found that Skin bleaching agents is applied in various body parts depending on the need of the consumer for beautification or treatment. Facial skin (46.8%) was the mostly preferred because of beautification purpose. This is higher compare to the study done by Yousif et al (2014) which showed that 35.4% of the participants applied the agents in face region. Dlova et al (2014) reported higher preference of face region (92.5%). Those who use it in the whole body, arms and legs were 36.63%, 7.27% and 9.3%, respectively. Our results are comparable to the study conducted by Akerele (2006). Many students entering adulthood stage prefer to look beautiful aiming at removing pimples or rashes or black spots to their facial skin. This led them to continue using bleaching agents. The study done by Charles (2009) reported face preference on using skin bleaching agents aiming at removing facial blemishes. The study conducted among immigrant women in Italy reported the application of skin bleaching agents in forms of creams, milks, oils, ointments and soaps. These were applied on the face, neck, arms and other body parts such as armpits and pubis area. (Cristaudo et al., 2013). Adeleye (2007) reported that bleaching of private parts is practiced mostly by women who are involved in show business where the body colour is the brand for commercial.

In this study 39.4% of the participants reported to start using skin bleaching agents after being recommended by their friends. Advertisement via internet contributed to 21.3% in promoting the use of skin bleaching agents. Study done by Cristaudo et al. (2013) reported as well that internet advertising played a role to skin bleaching product use among female. Also Hamed et al., (2009) found that advertisement via social media was the major factor in promoting the practice of skin lightening agents by 77.4% among female college students. Another study reported friends' recommendations contributed to the use of skin bleaching among female students by 30.2% (Rusmadi et al., 2015)

With regard to source of information on safety of skin bleaching products, This study reported that 33.8% of the students use books and magazines as the main source of this information. The study conducted by Kamagaju et al. (2016) indicated that adolescents know about and practice skin bleaching but are restricted by family, religion and Rwandese culture. Whenever side effects appear, consumers opt either to stop bleaching practices for a while or switch from their commercial topical product to another one with, presumably, a different composition (Kamagaju et al., 2016).

## **CHAPTER SIX**

### **6.0 CONCLUSION AND RECOMMENDATIONS**

#### **6.1 Conclusion**

This study showed that there is still the use of skin bleaching agents going on among female students. Over half of the female students reported to use skin bleaching agent. Secondly being married or divorced and being a female student of IFM or DSJ student was associated with the use of skin bleaching product Thirdly those who perceive positively of the use of skin bleaching agent reported using skin bleaching agent. However face and arms where the most parts of the Body where by application of the bleaching agent was reported Positive perception towards the end results of using skin bleaching products caused the consumer to continue using the product.

#### **6.2 Recommendation**

The study recommends the following to be considered:

- Direct public education initiatives that increase recognition and understanding of the importance of skin health and avoidance from Skin bleaching use by colleague relationship through advertisement by media and through provision of information brochures in government agencies, public health offices and schools should be encouraged and promoted.
- Further studies should be done on, attitudes towards perceived risk behavior of skin bleaching use among college students in Tanzania

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## APPENDICES

### Appendix I: Informed Consent - English version

#### MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES

#### DIRECTORATE OF RESEARCH AND PUBLICATION

Greetings, My name is *Ona I.N.Machangu*. I'm a student of School of Public Health and Social Sciences at Muhimbili University of Health and Allied Sciences in Dar es Salaam.

I am working on this research project with the objective of assessing the extent of use of skin bleaching agents and associated factors among female college students in Ilala District, Dar es salaam.

#### **Purpose of the Study**

This study aims at collecting information on female student's extent of use of skin bleaching agents and factors associated with skin bleaching practices. Increase in prevalence of skin bleaching among women in recent decade is alarming. Women of all cadres are affected with this practice from housewives to women with higher professions in the society. I have chosen female students because it is the group in the society with higher learning education. They are considered being at the position to make better career choices in all aspects of life. Many women want to look beautiful at any cost others have engage themselves to skin bleaching practices which brings a public health attention. So assessing the use of skin bleaching practice will be a great deal to the community as it will add value on various perceptions on skin bleaching practice in the society. Kindly be honest and true for betterment of the results that could lead to better intervention and recommendations in future.

#### **Confidentiality**

Information which you provide will be treated confidentially. We will not write your name on the questionnaire or in any report/documents that might let someone identify you. Your name will not be linked to the research information in any way. The investigators will take care of

the data and information collected. However, the final results after the analysis will be shared with national stakeholders and the manuscript will be prepared and submitted to scientific journals to further the research studies.

### **Right and withdrawal alternatives**

Your participation is voluntary. You may decline from participation to the study at anytime during interview even if you have consented to participate. Your decision to participate or not will not be associated with your right. There is no penalty for refusing to participate to the study. You will not experience any loss if you refuse to participate in this study.

### **Benefits**

The information you provide will help to increase our understanding and give a clear picture on the knowledge on skin bleaching practices. This can therefore help in providing useful information and contribute to future health care policy formulation and strategic planning.

### **If any damage will occur**

It is not expected that there will be any damage for your participation as the respondent to this study.

### **Risks**

There is no harm for participating in the study. However, you are free to stop participation at any time during this discussion in the event you feel uncomfortable.

### **Who to Contact**

If you ever have questions about this study, you should contact the **Principal Investigator, Ona I. N. Machang'u (+255 754 437009)** of Muhimbili University of Health and Allied Sciences, P. O. Box 65001, Dar es Salaam. If you ever have questions about your rights as a participant, you may call **Prof. Aboud Said, Chairman (Research and Publications Committee, MUHAS. P.O. Box 65001, Dar es Salaam – Tanzania, Tel +2552150302-6);** and **Dr. Ezra J. Mrema,** from Muhimbili University of Health and Allied Sciences , P.O.BOX 65001 Dar es Salaam, who is the supervisor of this study.

**Signature:** Do you agree?      Participant agrees .....Participant does NOT agree  
.....

**Signature of participant** .....

Signature of Research Assistant .....

Date of signed consent .....



**Appendix II: Informed consent – Kiswahili version****CHUO KIKUU CHA AFYA NA SAYANSI SHIRIKISHI MUHIMBILI****KURUGENZI YA TAFITI NA MAANDIKO****FOMU YA KUOMBA RIDHAA**

Salamu, Jina langu ni **Ona I. N. Machangu** mwanafunzi wa shahada ya uzamili katika Chuo Kikuu cha Afya na Sayansi Shirikishi, Muhimbili katika Shule ya Afya ya Umma na Sayansi ya Jamii. Nafanya utafiti wenye lengo la kutathmini kiwango cha matumizi ya vipodozi vya kujichubua ngozi na sababu zinazopelekea matumizi hayo kwa wanafunzi wa kike wanaosoma vyuo vikuu vilivyopo wilaya ya Ilala, Dar es Salaam.

**Usiri**

Endapo utakubali kushiriki katika utafiti huu, nitaomba ujibu maswali yatakayohusu ufahamu wako wa athari za kiafya zitokanazo na matumizi ya **vipodozi vya kujichubua ngozi**. Nitatumia muda wa dakika kati 10 – 15 katika mahojiano haya. Taarifa zote utakazotupatia zitatumizwa kwa usiri wa hali ya juu. Jina lako halitaandikwa katika ripoti yoyote/nyaraka ambayo utaijaza. Herufi au namba zitatumika badala ya jina lako. Watafiti watatunza takwimu na taarifa zitakazokusanywa. Hata hivyo, matokeo ya mwisho baada ya uchambuzi yatatumiwa na wadau wa kitaifa na mimi kuwasilisha mada kwa ajili ya uchapishaji katika majarida ya kisayansi.

**Ushiriki**

Ushiriki wako ni hiari. Hata kama ulikuwa umekubali kushiriki uko huru kujiondoa katika utafiti huu wakati wowote mahojiano yatakapokuwa yanaendelea. Uamuzi wako wa kushiriki au kutoshiriki hautohusishwa na haki yako ya kufanya kazi popote katika kituo.

**Faida**

Taarifa utakayotoa itasaidia kuongeza uelewa wetu na kutoa picha ya wazi juu ya maarifa kuhusiana na athari za kiafya za matumizi ya vipodozi vya kujichubua ngozi. Hii inaweza kusaidia kutoa taarifa muhimu na kuchangia katika uundaji wa sera za kiafya na mipango mikakati.

**Hatari au madhara ya utafiti**

Haitarajiwi kuwa kutakuwa na madhara yoyote kwa ajili ya ushiriki wako katika utafiti huu. Hata hivyo, wewe uko huru kuacha ushiriki wakati wowote katika mjadala huu katika tukio unalojihisi kuwa na wasiwasi nalo.

**Nani wa kuwasiliana naye**

Kama una maswali kuhusu utafiti huu, wasiliana na Mtafiti, **Ona I. N. Machangu (0754437009)** wa Chuo Kikuu cha Afya na Sayansi Shirikishi Muhimbili, S.L.P. 65001, Dar es Salaam. Kama una maswali juu ya haki zako kama mshiriki, unaweza kupiga simu kwa **Prof Aboud Said.**, Mwenyekiti wa Kamati ya Tafiti na Machapisho, S.L.P. 65001 MUHAS, Dar es Salaam - Tanzania, Tel **2552150302-6.**) na **Dr. Ezra J. Mrema**, wa Chuo Kikuu cha Afya na Sayansi Shirikishi, Muhimbili, S.L.P. 65001 Dar es Salaam, ambaye ni msimamizi wa utafiti huu.

Sahihi: Je, unakubali? Mshiriki anakubali .....

Mshiriki hakubaliani ..... Sahihi ya Msaidizi wa Utafiti .....

Saini ya Mshiriki .....

Tarehe ya ridhaa na saini .....

**Appendix III: Questionnaire English version**

**A QUESTIONNAIRE ON EXTENT OF USE OF SKIN BLEACHING AGENTS AND ASSOCIATED FACTORS AMONG FEMALE COLLEGE STUDENTS IN ILALA DISTRICT, DAR ES SALAAM.**

Questionnaire No.: \_\_\_\_\_ Date of interview \_\_\_\_\_

Name of the University: .....

Course of study.....

Instructions: Circle the preferred answer to the question asked

**A. Demographic information**

1. Age in years.....

2. Which year of study.....

3. Status:

- 1) Single
- 2) Married
- 3) Divorced
- 4) Widow
- 5) Cohabiting

4. Tribe.....

5. Religion.....

**B. The use of skin bleaching agents**

6. Have you ever used skin bleaching products?

- 1) Yes
- 2) No

7. Do you intend to use skin bleaching products?

- 1) Yes
- 2) No

8. What is your monthly income range?

- 1) Less than 200,000
- 2) 200000-400000
- 3) 400000-600000
- 4) 600000 or more

9. In what common form do skin bleaching agents are made of (check 2 most forms)

- 1) Cream
- 2) Pills
- 3) Injection
- 4) Soap
- 5) Mention others.....

10. Name the product you have seen on the market by name (check 3 most used agents)

- 1) Facial cleanser
- 2) Facial mask
- 3) Facial moisturizer
- 4) Ant aging
- 5) Skin Toner
- 6) Others.....

11. Where do you normally go to buy your skin bleaching agents? (Check 3 most used agents)

- 1) Make up store
- 2) Pharmacy
- 3) Online shopping
- 4) Convenient shop
- 5) Mention Others.....

12. How long have you used the skin bleaching product?

- 1) 1 or less year
- 2) 2 years
- 3) 3 years and above

13. What is the price of the skin bleaching product you use?

- 1) 0 - 10,000/-
- 2) 10,000 - 50,000/-
- 3) 50,000 - more

14. At what most time do you apply skin agents to your skin?

- 1) Morning
- 2) Evening
- 3) Night
- 4) Any specific time of the day

15. Who introduced you to the skin bleaching product? (check any 3 that apply)

- 1) Friend recommendation
- 2) Advertisement
- 3) A doctor
- 4) A pharmacist
- 5) Make up saloon
- 6) Reasonable price
- 7) Brand influence
- 8) Effective within short time
- 9) Mention others.....

16. What part of the body do you prefer to skin bleach?

- 1) Face
- 2) Arms
- 3) Legs
- 4) Whole body

17. Why do you prefer to skin bleach the area of the body you select?

- 1) To look beautiful
- 2) To treat skin disease
- 3) To please my partner
- 4) Mention other reasons .....

18. What were the effects of using the skin bleaching agents?

- 1) Good
- 2) Bad

**Factors associated with skin bleaching use**

19. What is the main source of your income to cover your daily life expenses?

- 1) Loans board
- 2) Parents
- 3) Guardians
- 4) Business
- 5) Mention others.....

**Ingredients in the skin bleaching**

20. Do you normally check the ingredient before buying skin bleaching agents?

- 1) Yes
- 2) No

Name any ingredient you know by name .....

21. Are you satisfied by using the product?

- 1) Satisfied
- 2) Not satisfied

22. When buying any of the skin agents in shop do you look the following to make sure it is the safe product to use?

	Yes	No
1) List of ingredients		
2) Net content		
3) Name of the manufacturer		
4) Country of origin		
5) Manufacturer date		
6) Expiry date		
7) Instruction for use		

23. Skin bleaching practices can be associated with development of health side effects to the consumers

- 1) Strongly agree
- 2) Agree
- 3) Disagree
- 4) Don't know

#### **Perceived health risk associated with skin bleaching**

24. Have you encountered any of the skin problem associated with using the skin bleaching product?

- 1) Yes
- 2) No

25. Have you ever been referred to the doctor concerning any skin problem?

- 1) Yes
- 2) No

26. Have you ever undergone any skin problem treatment?

- 1) Yes
- 2) No

27. Do you remember what medication were you given by the doctor for treating a skin condition? Mention any three (3)

.....  
.....

28. Tick any of the following skin problems that you have ever encountered from applying skin bleaching agents. (Check any 5 that apply)

- 1) Skin rushes
- 2) Skin Pimples
- 3) Skin Acne
- 4) Skin dermatitis
- 5) Exogenous onchronosis
- 6) Skin easily bruises
- 7) Skin hyperchromia
- 8) Skin hypochromia.
- 9) Skin cancer
- 10) Mention others.....

29. What are the indicators in the product that is not safe for use by human beings? (Mention any you know).....

30. Mention three chemicals which the government has declared illegal for use in skin agents

1).....2).....3).....

31. How much do you think the government has succeeded in banning these agents? (Explain short).....

.....  
.....  
.....  
.....



**Knowledge and perception on skin lightening use**

32. Can the use of skin lightening cause bad health effects in life?

- 1) Yes
- 2) No

33. What are the effective ways to obtain information about the safety of skin bleaching agents? (check any 3 that apply)

- 1) TV station
- 2) Radio station
- 3) Books and magazine
- 4) Internet
- 5) Friend
- 6) Mention other way that you fill it is effective.....

To what extent do you agree with the following statements regarding skin bleaching?

34. Lighter skin is more beautiful and looks healthier

- 1) Strongly agree
- 2) Agree
- 3) Disagree
- 4) Don't know

35. Lighter skin provides higher self-esteem

- 1) Strongly agree
- 2) Agree
- 3) Disagree
- 4) Don't know

36. Lighter skin implies belonging to higher social class

- 1) Strongly agree
- 2) Agree
- 3) Disagree
- 4) Don't know

37. Lighter skin helps in getting better job

- 1) Strongly agree
- 2) Agree
- 3) Disagree
- 4) Don't know

38. Lighter skin increases chance of getting married

- 1) Strongly agree
- 2) Agree
- 3) Disagree
- 4) Don't know

39. Men consider woman with lighter skin to be more beautiful

- 1) Strongly agree
- 2) Agree
- 3) Disagree
- 4) Don't know

#### **Appendix IV: Questionnaire – Kiswahili Version**

**DODOSO KUHUSU KIWANGO CHA MATUMIZI YA VIPODOZI VYA KUJICHUBUA NGOZI NA SABABU ZINAZOPELEKEA MATUMIZI YA VIPODOZI HIVYO KWA WANAFUNZI WA KIKE WANAOSOMA VYUO VILIVOPO WILAYA YA ILALA, DAR ES SALAAM.**

*Zungushia duara katika jibu ulilochagua.*

##### **A. Taarifa za Jumla**

1. Namba ya fomu:\_\_\_\_\_
2. Tarehe ya usaili:\_\_\_\_\_
3. Jina la chuo unachosoma:\_\_\_\_\_
4. Jina la kozi unayosoma:\_\_\_\_\_

##### **B. Taarifa binafsi za mshiriki**

1. Jinsia\_\_\_\_\_
2. Umri wa mshiriki (Miaka)\_\_\_\_\_
3. Dini ya mshiriki\_\_\_\_\_
4. Kabila la mshiriki\_\_\_\_\_
5. Hali ya Ndoa
  - 1) Nimeolewa
  - 2) Sijaolewa
  - 3) Sijaolewa nakaa na mpenzi
  - 4) Nimeachika
  - 5) Nimefiwa na mme

**C. Maswali yahasuyo sababu na muda wa utumiaji wa vipodozi vya kujichubua**

6. Je unatumia vipodozi vya kujichubua ngozi?
- 1) Ndiyo
  - 2) Hapana
- Kama hapana nenda swali la 7
7. Je unategemea kutumia vipodozi vya kujichubua ngozi?
1. Ndiyo
  2. Hapana
8. Je kipato chako cha mwezi ni sh ngapi?
- 1) Chini ya 200,000
  - 2) 200000-400000
  - 3) 400000-600000
  - 4) 600000-ZAIDI
9. Je vipodozi hivyo vimetengenezwa katika mfumo wa aina gani?( JIBU 2 AU ZAIDI)
- 1) Sabuni
  - 2) Vidonge vya kumeza
  - 3) Sindano
  - 4) Krimu za kupaka
  - 5) Taja zinginezo.....
10. Je ni kwa madhumuni gani ulitumia kipodozi hicho?
- 1) Kuwa na mwonekano mzuri
  - 2) Kutibu maradhi ya ngozi
  - 3) Kumpendezesha mpenzi au mme
  - 4) Taja sababu zinginezo.....

11. Je ni athari zipi umepata/mwanamke awezapata baada ya kutumia vipodozi hivyo  
Nzuri (eleza kwa kifupi).....  
.....  
Mbaya (eleza kwa kifupi) .....  
.....  
.....  
.....
12. Ni wakati gani katika siku unatumia au mwanamke hupenda kupaka kipodozi hicho
- 1) Asubuhi
  - 2) Mchana
  - 3) Usiku
  - 4) Wakati wote
  - 5) Sijui wakati gani
13. Taja kwa jina aina tatu tofauti ya kipodozi cha kuchubua ngozi ambacho umewahi kutumia au unatumia au umewahi kumwona mtu akitumia .....
- .....
- .....
- .....
14. Je ni wapi huwa wanawake hufanya manunuzi au mtu anaweza kupata vipodozi hivyo?
- 1) Duka la baridi
  - 2) Duka la vipodozi
  - 3) Kupitia mtandao
  - 4) Mtu binasfi
  - 5) Taja sehemu zinginezo.....

15. Je ni kwa muda gani umetumia vipodozi hivyo?
- 1) Chini ya mwaka mmoja
  - 2) Mwaka mmoja
  - 3) Miaka miwili
  - 4) Zaidi ya miaka miwili
16. Ni nani aliyekujulisha kuhusu matumizi ya vipodozi vinaweza kuweka ngozi yako kung'aa hivyo?
- 1) Rafiki
  - 2) Matangazo ya televisheni
  - 3) Daktari
  - 4) Mfamasia
  - 5) Taja zaidi ya hao.....
17. Je ni eneo gani la mwili hasa unapendelea kutumia kupaka vipodozi hivyo?
- 1) Uso
  - 2) Mikono
  - 3) Miguu
  - 4) Mwili mzima
18. Je, nini matokeo kwa kutumia vipodozi hivyo katika eneo la mwili husika?
- 1) Mazuri
  - 2) Mabaya
19. Nini chanzo chako cha kipato kinachokuwezesha kupata vipodozi hivyo?
- 1) Bodi ya mkopo
  - 2) Wazazi
  - 3) Walezi
  - 4) Biashara

**D. Maswali yanayohusu aina ya viambato**

20. Je, umewahi kusikia kuhusu kemikali zinazotumika kutengeneza vipodozi hivyo?

- 1) Ndiyo
- 2) Hapana

21. Taja aina za kemikali unazofahamu ambazo hutumika kutengeneza vipodozi?

.....

22. Je, huwa unasoma lebo kabla ya kununua kipodozi chochote katika duka?

- 1) Ndiyo
- 2) Hapana

23. Je, ni taarifa zipi unaangalia katika bidhaa ili kuhakiki kuwa hiyo bidhaa ni bora na inafaa kwa matumizi?

1) Orodha ya viambato		
2) Jina la mtengenezaji		
3) Nchi inakotoka bidhaa		
4) Ujazo		
5) Tarehe ya kutengeneza		
6) Tarehe ya mwisho wa matumizi		
7) Maelekezo ya matumizi		

**E. Maswali yanayohusu athari za viambato**

24. Je, alama ipi/zipi ambazo itaonyesha kuwa bidhaa hii imethibitishwa na serikali na inafaa kutumika nchini (Taja aina yeyote unayoifahamu)

.....  
 .....

25. Taja aina ya kemikali ambazo serikali imepiga marufuku kwenye utengenezaji wa vipodozi/krimu nchini

1).....2).....3).....

26. Je, matumizi ya vipodozi vya kung'arisha ngozi yanaweza kuleta athari za kiafya kwa mtumiaji?

- 1) Ndiyo
- 2) Hapana

27. Weka alama ya v kuainisha athari zinazoweza kumpata mtu endapo atatumia vipodozi/krimu za kung'arisha ngozi kwa muda mrefu.

1) Fangasi ya ngozi			
2) Chunusi ndogo ndogo			
3) Chunusi kubwa			
4) Mzio wa ngozi			
5) Eksogenas okronosia'			
6) /hypkromia ya ngozi			
7) Saratani ya ngozi			
8) Saratani ya figo			
9) Ugumba au utasa			

28. (a) Je, unafikiri ni kwa kiwango gani serikali imefanikiwa kutokomeza vipodozi vya kung'arisha ngozi vilivyo pigwa marufuku

- 1) Cha chini
- 2) Cha kati
- 3) Cha juu
- 4) Haijafanikiwa kabisa



(b) Katika ulilochagua hapo juu 8eleza kwa ufupi kwa nini?

.....  
.....  
.....

29. Je, matumizi ya vipodozi vya kujichubua yanaweza kuathiri afya ya mtumiaji?

- 1) Ndiyo
- 2) Hapana

30. Ni njia zipi zinaweza kutoa taarifa kuhusu usalama wa matumizi ya vipodozi hivyo

(chagua majibu 3 sahihi zaidi)

- 1) Vipindi vya televisheni
- 2) Vipindi vya redioni
- 3) Vitabu na majarida
- 4) Intaneti
- 5) Marafiki
- 6) Taja nyinginezo unazo zifahamu.....

Ni kwa kiwango gani unakubaliana na sentensi hizi kuhusu kujichubua ngozi?

31. Ngozi mng'avu inavutia kuliko ngozi nyeusi

- 1) Nakubaliana sana
- 2) Nakubali
- 3) Sikubali
- 4) Sijui

32. Ngozi nyeupe inongeza kiwango cha kujiamini

- 1) Nakubaliana sana
- 2) Nakubali
- 3) Sikubali
- 4) Sijui

33. Ngozi nyeupe inamaanisha una maisha ya hali ya juu
- 1) Nakubaliana sana
  - 2) Nakubali
  - 3) Sikubali
  - 4) Sijui
34. Ngozi nyeupe inasaidia kupata ajira
- 1) Nakubaliana sana
  - 2) Nakubali
  - 3) Sikubali
  - 4) Sijui
35. Ngozi nyeupe inasaidia kuolewa haraka
- 1) Nakubaliana sana
  - 2) Nakubali
  - 3) Sikubali
  - 4) Sijui
36. Wanaume wanadhania kuwa wanawake kuwa na ngozi nyeupe ina maana ndio wazuri
- 1) Nakubaliana sana
  - 2) Nakubali
  - 3) Sikubali
  - 4) Sijui