PREVALENCE OF BODY PIERCING AND TATTOOING AND KNOWLEDGE OF ASSOCIATED HEALTH RISKS AMONG UNDERGRADUATES IN UNIVERSITY OF IBADAN, NIGERIA

BY

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ABSTRACT

Body Piercing and Tattooing (BPT) can increase the risk of contracting infectious diseases. Despite the potential harmful health consequences, the practice has remained attractive to young people. Body piercing (BP) includes piercing of various parts of the body excluding single piercing of both earlobes for females. Documented information on BPT and the awareness of its associated health risks among young people in Nigeria is few despite the practice. It is necessary to determine the prevalence, motivations for practicing BPT and awareness of the associated health risks among young people. This study was conducted to determine the prevalence of BPT and assess knowledge of associated health risks among undergraduates in University of Ibadan, Nigeria.

A cross-sectional survey involving a 3-stage sampling technique using simple random and systematic methods were used to select 424 students in 34 rooms each from two male and two female halls of residence out of five and four halls respectively. A self-administered semi-structured questionnaire was used to collect information on socio-demographic characteristics, knowledge of health risks associated with BPT and practice of BPT. Knowledge of health risks associated with BPT was assessed on a 39-point scale and scores ≥20 was considered good. Data were analysed using descriptive statistics and Chi-square test at 5% level of significance.

Respondents' age was 21.4±2.3 years and 50.0% were females. Prevalence of BP was 13.2% and tattooing, 1.9%. Majority (96.8%) of pierced respondents were females. Of the pierced respondents, 74.3%, 11.4%, 8.6%, 5.7% reported ear piercing, nose piercing, navel and tongue piercings respectively. Among respondents who practised BP, 87.1% were aged 20- 25 years while 12.9% were aged 16-19 years. More than half (58.1%) of the respondents who practised BP were in higher levels (300-500) and 41.9% in lower levels (100-200) of study. Reported reasons for piercing were fun (45.8%), fashion (33.3%), personal (12.5%) and desire to put on more earrings (8.3%). Half (50.0%) of tattooed respondents were females, of which 50.0% had tattooed their legs, (25.0%) chests and (25.0%) arms. Twenty six percent of respondents had good knowledge of health risks associated with BPT and 60.0% were not aware of hygienic rules regarding BPT such as use of sterilised equipment (26.5%), single use of needle (18.9%), and use of gloves (16.1%). Many respondents were aware of some health complications associated with BPT such as HIV (90.1%), keloid (84.7%), infection of site of piercing and tattoo

(73.4%) and haematoma (67.6%). There was a significant difference between sex and knowledge of health risk associated with BPT.

Prevalence of body piercing and tattooing was low while knowledge of associated health risks was poor among undergraduate students of University of Ibadan. Information on body piercing and tattooing and its associated health risks should be included in life building skills education programmes for the undergraduates.

Keywords: Body piercing, Tattoo, Knowledge of health risks, Undergraduates
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CERTIFICATION

We certify that this work was carried out by Ima-Obong Ita Umoh in the Institute of Child Health, University of Ibadan under our supervision.

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CHAPTER 1

INTRODUCTION

1.1. Background of study

Adolescence is a period between childhood and adulthood. During this period of growth and development, the adolescent is influenced by the society, family and friends and so explores and experiment different things. Adolescents like to distinguished themselves, create their own identity, identify with certain groups of person and copy fashion styles (Carroll, S.T, Riffenburgh, R.H, Roberts, T.A and Myhre, E.B 2002). Though there is no set age for adolescent development, the period of adolescence according to Steinberg, (1996) can be understood within the context in which the adolescent grows biologically, legally, socially, culturally and educationally. Educationally, the period of adolescence can be said to begin with entrance into junior secondary school and ends with attainment of university education (Steinberg, 1996). International bodies like the World Health Organization (WHO), United Nations Children Emergency Fund (UNICEF), Commonwealth of Nations, and United Nations (UN) have various definitions for the term adolescents. The alternative term use for adolescents is "young person" which is a working term.

During adolescence, as the young person grows and try to understand themselves, they are easily influenced by world events. This is due to changes in both educational and economic status where young people are connected to the world at large through communications, information and transportation technologies. These have great impact on the adolescent's lifestyle. One of such lifestyles modifications being copied by young people in Africa and Nigeria today is body piercing and tattooing (Osamudiamen, 2012). This practice is increasing all over the world and with it comes documented health risks and associated risk taking behaviours (Carroll et al; 2002). These health risks should not be ignored as it might lead to an increase in public health problems if not understood and properly addressed. Adolescents are likely to practice body piercing and tattooing either as a form of fashion, as an act of rebellion, for sexual motives or as results of ethnic/tribal influences (Chimenos, Batlle-Travé, Velásquez-Rengijo, García-Carabaño and Viñalss-Iglesias, 2003) and may affect the overall growth and development of the adolescents.

Body piercing and tattooing are also referred to as body art or body modification. Body piercing is the decorative piercing of parts of the body. It is when a hole is made in the skin or through a part of the body (Meltzer, 2005). This is performed using a piercing gun or by use of a hollow needle to create a hole in the body and a piece of jewelry is inserted in it for decoration (Meltzer, 2005). The earlobe is the most common part of the body that is pierced; other parts are auricular cartilage, eyebrow, nose, tongue, lip, navel (belly button), nipples, and genitals (Meltzer, 2005). Tattooing is an indelible design done by inserting pigment in punctures in the skin. Tattoo is created by rapidly and repeatedly injecting ink into the dermal layer of the skin with a small needle to develop a permanent coloration (Meltzer, 2005). Temporary tattoo also exist. It does not involve any permanent alteration of the skin but it produces an appearance similar to a permanent tattoo (Pegas JR, Criad PR, Criado RF, Vasconcellos C, and Pires MC, 2002). It can last from a few days to several weeks.

The most common style of temporary tattoo is a type of body sticker similar to a decal, which is typically transferred to the skin using water (Wen-Hung Chung, Ya-Ching Chang, Lih-Jen Yang, Shuen-Iu Hung, Wen-Rou Wong, Jing-Yi Lin and Heng-Leong Chan, 2002). Although the design is waterproof, it can be removed easily with oil-based creams (PTCL, 2011). It is usually inserted in bubble gum packages or drawn on the face during parties and festival. The American Academy of Dermatology distinguishes five types of tattoos: (1) Traumatic tattoos, also called "natural tattoos", that result from injuries, especially asphalt from road injuries or pencil lead; (2) Amateur tattoos (3) Professional tattoos, made by traditional methods and modern tattoo machines; (4) Cosmetic tattoos, also known as "permanent makeup" and (5) Medical tattoos (American Academy of Dermatology, 2000).

Body piercing and tattooing is an ancient practice. It has a long history; it is alleged to have been practiced during the Victorian era, by Roman centurions and the Mayans for spiritual rituals (Mayor, 1999; Armstrong, 1996; Armstrong, Ekmark and Brooks, 1995). Among the Igbo's of southern Nigeria, body piercing was believed to be practiced by those responsible for the running and management of the land known as Oke Nze (Iroegbu, 2000, Rowanchilde, 1993). Tattooing has been practiced for centuries in many cultures globally, some of which include: The Ainu, who are the indigenous people of Japan, who traditionally had facial tattoos, Berbers of Tamazgha (North Africa), Maori of New Zealand, Hausa people of Northern Nigeria, Arabic

people in East-Turkey, Atayal of Taiwan (facial tattoos), and among certain tribal groups in Africa, North America, South America and Britain (Capland 2000). Tattooing in Igbo land is believed to have various names according to the different group one belongs to and this was done by rubbing pigments into knife slashes on the skin (Tattoo addiction, 2001). In Yoruba land, tattoo has been practiced in the form known as scarification (tribal marks) since 4,000BC mostly made at birth. In the 19th century, this was done as part of ethnic identification (Agbogun, 2011). In the Hausa land the henna tattoo was and is commonly done especially among the Fulani's during adolescence, early manhood and during marriage ceremonies (Agbogun, 2011). A decline in body piercing and tattooing was observed due to the influence of religion and civilization. Despite some taboos surrounding tattooing, the art continues to be popular in many parts of the world.

In the 20th century, piercings at locations other than the ear lobes also increased in frequency and acceptance (Koenig and Carnes, 1999). Tattoos experienced resurgence in popularity in many parts of the world, particularly in North and South America, Japan, and Europe. Since the 1990s, tattoos became a mainstream part of global and Western fashion, common among all gender, all economic classes, and age groups from the later teen years to middle age (Anon. tattoo). It is also becoming increasingly common and well accepted in western society. During the first decade of the 21st century, the presence of tattoos became evident among celebrities like musicians, actors, athletes (Pang, 2008). In many traditional cultures tattooing has also enjoyed resurgence, partially in deference to cultural heritage.

In Nigeria, information on the prevalence of body piercing and tattooing is scarce as few studies has been conducted in this area. However, an observation by Osamudamien, (2012) is that the practice is increasing in many Nigerian cities like Lagos, Port-harcourt, Edo and Warri with more females getting tattooed. Studies conducted by Gold, Schorzman and Murray (2005) in Australia; Mayers, Judelson and Moriarty, (2002) USA; Forbes, (2001); Greif, Hewitt and Armstrong, (1999); shows that the prevalence of body piercing among adolescents and young adults has been increasing and has become common among individuals aged 16 to 25 years. Data from surveys of high school and college students between the ages of 13 to 25 years in the US showed a prevalence of 25 to 35 percent for body piercing this excludes traditional earlobe piercing in males and females (Forbes, 2001; Greif et al 1999; Kohut, Parker and

Keeter, 2007). A study by Gold et al, (2005) reported that nearly one-half of 225 adolescents surveyed at an urban, hospital-based adolescent clinic in US reported piercings (earlobe piercings were excluded in females but not males.

Body piercing and tattooing is not free from complications. The skin and mucous membrane of the body protects the body from infections; body piercing and tattooing procedures involves piercing the skin and mucous membrane with a needle/sharp instrument which exposes the individual to pain, allergic reactions, keloids, granulomas, photosensitivity reactions, psoriasis and benign or malignant tumor. Various skin and blood borne diseases like: impetigo, erysipelas, septicemia, toxic shock syndrome, tetanus, chancroid; syphilis, tuberculosis, leprosy may also occur (Millar and Moore, 2003). As an alternative to permanent tattoo many people prefer temporary tattoo. This however is not free from health complications as contact and lichenoid dermatitis could also be gotten from the chemicals used in making temporary tattoos (Pegas et al, 2002; Wen-Hung Chung et al, 2002).

Dermatologists object to all forms of body piercing, with the exception of the ear lobes. Dentists oppose oral piercing calling it a public health hazard since it can result in multiple dental complications like dental fractures, gum erosion and speech impediment. Jewel aspiration may also occur as a result of tongue piercing (Ram and Peretz, 2000; Scott, 2000; Botchway and Kuc, 1998; Price, 1997; Reichi, 1996). Treatment exist for these complications and complications can be prevented by good hygiene practices, use of sterilized instruments, proper care of piercing and tattoo, avoidance of body piercing and tattooing if the individual has pre-existing health conditions such as congenital heart conditions and obtaining body art from a certified practitioner.

The different perspective people have towards body piercing and tattooing could affect their attitude, practice and knowledge of health risks associated with body piercing and tattooing. A study on perception of health risks associated with body piercing and tattooing showed that adolescents with positive attitudes towards body modification (already having or considering it) were not aware of health implications and were less likely to refer to professional for the body art or seek medical advice in case of complications (Cegolon, Melania and Marca 2010).

In other studies, though majority of the students, had some knowledge of the related infectious diseases and the hygiene requirements, where to go for body art and medical advice, it was reported that majority of the body-arts were performed illegally (in an unauthorized environment or carried out by adolescent themselves or by their friends) (Deschesnes, 2006, Carroll, 2002). Similar studies conducted by Huxley and Grogan (2005), found out that participants had not considered the health risk or were totally unaware. According to Milner (2001) majority of the participants in his studies felt that obtaining body arts in a safe/clean environment remove the health risks, while Schorzman (2007), reported overestimation of health risks by both pierced and non-pierced participants.

Other than health risk, some studies (in Italy, USA and Australia) refer to tattoos and body piercings as indicators of adolescent involvement in risk-taking behaviors and due to increased frequencies and relationship between body piercing and sexual experience among college students researchers have posited that there is an association between body modifications and high risk behaviour among adolescents. These behaviours include: greater premarital sexual activity, eating disorders, use of hard drugs, violence, school problems, alcohol, cigarette, smoking and other psycho-physiological disorders (Carroll et al 2002; Roberts et al 2002; Ronald 2001; Koch, 2007).

Though risk taking behaviours associated with body modification, is not entirely agreed upon by all researchers as some adolescents who possess body arts are well behaved (Meyers et al., 2005), however it is believed to be of public health importance as an adolescent willing to take the risk of modifying his/her body may be willing to engage in other risk taking behaviours which are more common around them (Carroll et al., 2002). Carroll et al., (2002) argued that some of these behaviours may lead to outcomes that affect the normal healthy development of the adolescents. He suggested that body modifications could prompt health care providers in taking good medical histories in cases regarding sexual behavior, drug use, mood disorders and may lead to identification of medical issues. It may also be used as a warning signal/screening device for risk taking behavior and lead to prevention, medical monitoring and counseling (Schorzman et al., 2007, Carroll et al., 2002) and could also serve as warning signs to parents to know if their children require more attention or monitoring

outside the home or if they are suffering from depression and low self esteem (Egan, 2002).

Understanding the motivations for body piercing and tattooing, its practice and perception in Nigeria will help in providing necessary strategies for interventions. These interventions may include creating awareness on the health risk associated with body piercing and tattooing, counseling for young persons' with or considering having body piercing/tattooing and as a marker for providing preventive health care services or rehabilitation programmes. Documentation of data from this study could lead to further research and provide information for national statistics that could lead to legislation and regulation of the practice. Incidence/prevalence of some blood borne infections and non infectious disease related to body piercing and tattooing could also be documented.

This study therefore assessed the perception, prevalence, motivations for body piercing and tattooing. It also assessed the knowledge of health risks associated with body piercing and tattooing among undergraduates in University of Ibadan.

1.2. Rationale for the study

Body piercing and tattooing is becoming very attractive and popular globally. Due to the influence of western culture in developing countries, this practice is being adopted by adults and young adults. The prevalence of body piercing among adolescents is about 25 to 56 percent as reported by (Kohut et al., 2007, Forbes, 2001; Greif et al., 1999 and Schzorman et al., 2007). Body piercing and tattooing is performed in different parts of the body and this include multiple ear piercing, piercing of navel, nipples, nose, eyelids and other sensitive parts of the body. According to an article by source magazine in Nigeria various forms of body piercing and tattooing are by being carried out by both adolescents and adults at an alarming rate and most of the artists do not use sterilized equipment (Osamudiamien, 2012). Body piercing and tattooing, if not done by a professional and in a safe environment endangers the individual and may lead to diseases and infections that affect the individual (Deschesnes, 2006; Carroll et al., 2002). Considering the various documented health complications such as hepatitis, keloid, tetanus, syphilis, dermatitis and risk taking behaviours (substance use, violences, and suicide attempts) associated with body piercing and tattooing (Deschesnes, 2006, Carroll et al., 2002, Pegas et al., 2002, Braithwaite, 1996, Tweeten et al., 1998), this

study seeks to explore and assess the perception and motivations of young persons' towards body piercing/tattooing and their knowledge of its associated health risks.

1.3. Research questions

1) What is the prevalence of body piercing and tattooing?

2) Do young people know what body piercing and tattooing is and do they have knowledge of health risks associated with body piercing and tattooing?

3) What is their perception of body piercing and tattooing?

4) What motivates young people to carry out body piercing and tattooing?

1.4. Objectives of the study

The general objective of this study is to document the prevalence and knowledge of health risks associated with body piercing and tattooing among young persons.

Specific objectives:

The specific objectives include to:

1) Determine the prevalence of body piercing and tattooing among young persons'.

2) Assess their knowledge of health risks associated with body piercing and tattooing.

3) Assess their perception and attitude towards body piercing and tattooing

4) Determine the perceived reasons why young people may carry out body piercing and tattooing.

1.5. Research hypothesis

1 There is no significant association between knowledge of health risk associated with body piercing, tattooing and socio-demographic characteristics of respondents.

2 There is no significant relationship between perception towards body piercing and tattooing and socio-demographic characteristics of respondents

3 There is no significant relationship between socio-demographic characteristics of pierced and tattooed respondents and the practice of body piercing and tattooing.

4 There is no significant difference between having a piercing/tattoo, not having a piercing and tattoo and risk taking behaviour

5 There is no significant association between the practice of body piercing and tattooing, perception and knowledge of health risks associated with body piercing and tattooing.

6 There is no relationship between having a piercing and having a tattoo

1.6. Scope of study

The study obtained information on reported history of body piercing and tattooing either currently or previously excluding single piercing of both earlobes for females.

1.7. Operational definition of terms

Body piercing: It is puncturing the skin or a part of the body so that a piece of jewelry can be added for decoration.

Tattooing: This is an indelible design done by inserting pigment in punctures in the skin. This is done by rapidly and repeatedly injecting ink into the dermal layer of the skin with a small needle to develop a permanent or temporal coloration.

Young Person: An alternative term use for adolescents. According to the UN general assembly a young person is an individual between the ages of 15-24years.

Undergraduates: students in levels 100-500 of study in the university who are between the ages of 16 -25 years.

Period of Adolescence: the period of adolescence can be understood within the context in which the adolescent grows that is biologically, legally, socially, culturally and educationally. For this study, the period of adolescence in the educational context would be used which can be said to begin with entrance into junior secondary school and ends with attainment of university education (Steinberg, 1996).

CHAPTER 2

LITERATURE REVIEW

2.1. Introduction

2.1.1. Who is an adolescent?

An adolescent according to WHO is a person between the ages of 10-19 years. This period is known as adolescence. Adolescence is a period between childhood and adulthood. It is the transitional stages of physical and mental human development, generally occurring between puberty and legal adulthood (age of majority). Often beginning and ending with the teenage stage. It is classified by some organisations as persons between the ages of 13-19 years. Age in which a person is considered a youth varies around the world. The UN general assembly describes youth/young people as persons with age between 15-24 years while the common wealth describes youth pro-young people as aged between 15-29 years. Young person is an adoptive working term used alternatively for the term adolescents.

Also, the period of adolescence according to Steinberg, (1996) can be understood within the context in which the adolescent grows that is biologically, legally socially, culturally and educationally. Educationally, the period of adolescence can be said to begin with entrance into junior secondary school and ends with attainment of university education (Steinberg, 1996).

During this period of growth and development (adolescence), as the young person grows and try to understand themselves, they are easily influenced by society, family, friends and world events. They like to distinguished themselves, create their own identity, and identify with certain groups of person, copy fashion styles etc This is due to increase in educational status and economic changes where young people are connected to the world at large through communications, information and transportation technologies. These have great impact on the adolescent's lifestyle. Undergraduates are young people/students studying in a tertiary institution for their first degrees.

For the purpose of this study, the definition of young person's according to the UN general assembly which is a person's aged between 15-24 (16-25) years would be used.

2.2. Epidemiology of body piercing and tattooing

2.2.1. What is body piercing and tattooing?

Generally body piercing and tattooing is being classified under body modification. According to the American Congress of Obstetrics and Gynaecology in their publication titled body modification in: guidelines for adolescent health care listed other forms of body modification include cutting and body mutilation, genital mutilation, branding and scarification.

- Body piercing is the decorative piercing of parts of the body. It is when a hole is made in the skin or through a part of the body so a piece of jewelry can be added for decoration.
- Tattooing is an indelible design done by inserting pigment in punctures in the skin.

2.2.2. Types of body piercing and tattooing

Body piercing: The earlobe is the most common part of the body that is pierced; other parts are the cartilage (hard part) of the ear, eyebrows, nose, tongue, lips, navel (belly button), nipples, and genitals (Meltzer, 2005). Body piercing can be categorized into two permanent and temporal.

Permanent body piercings are performed by creating an opening in the body using a sharp object through the area to be pierced. This can either be done by puncturing an opening using a needle (usually a hollow medical needle) or scalpel or by removing tissue, either with a dermal punch or through scalpelling.

Temporal piercing involves piercing the skin and inserting a piece of jewelry in it for short period of time in which the hole pierced is no longer used and in some cases may close up.

Tattooing: The American Academy of Dermatology in its article Tattoos, Body Piercings, and Other Skin Adornments distinguishes 5 types of tattoos:

(1) Traumatic tattoos: also called "natural tattoos" this results from injuries gotten from road injuries (from asphalt) or pencil lead. This type of tattoo is usually difficult to

remove as it usually tends to spread across several different layers of skin. Scarring or permanent discoloration may occur depending on the location. Traumatic tattoo may also occur during dental filling placement of the gingival from implantation of amalgam particles. However, removal is possible and not uncommon. A common example of such accidental tattoos is the result of a deliberate or accidental stabbing with a pencil or pen, leaving graphite or ink beneath the skin.

(2) Amateur: these are tattoos that are done by uncertified/non professionals. It is mostly done at home, parties, festivals or by friends. Different types are listed below under professional tattoos.

(3) Professional tattoos: professional tattoos are done by professional/certified practitioners. These tattoos include tattoos made to serve as rites of passage, marks of status and rank, symbols of religious and spiritual devotion, decorations for bravery, sexual lures and marks of fertility, pledges of love, punishment, amulets and talismans, protection, and as the marks of outcasts, slaves and convicts. They are made by traditional methods and modern tattoo machines.

(4) Cosmetic tattoos also known as "permanent makeup"; this is the use of tattoos to enhance eyebrows, lips (liner and/or lipstick), eyes (liner), and even moles, usually with natural colors, to resemble makeup. Cosmetic tattoo also involves hiding or neutralizing skin discolorations through use of tattoo.

(5) Medical tattoos. Medical tattoos are used to ensure instruments are properly located for repeated application of radiotherapy and for the areola in some forms of breast reconstruction. It has also been used to convey medical information about the wearer (e.g. blood group, medical condition, etc). Tattoos are used in skin tones to cover vitiligo, a skin pigmentation disorder.

There are two major groups of tattoo:

(1)Temporary Tattoos: This type of tattoo does not involve any permanent alteration of the skin it produces an appearance similar to a permanent tattoo. It can last from a few days to several weeks. The most common style is a type of body sticker similar to a decal, which is typically transferred to the skin using water. Although the design is waterproof, it can be removed easily with oil-based creams. It is usually inserted in

bubble gum packages, they consisted of a poor quality ink transfer that would easily come off with water or rubbing. Vegetable dye is another type that is common today it can lasts up to 3 weeks due to a layer of glue similar to that found on an adhesive bandage. This type of tattoo is very popular with models and children. Other types of temporary tattoos are Henna tattoos (Mehndi) and silver nitrate(a toxic substance that should not be used on skin) stains that appear when exposed to ultraviolet light and can take up to two weeks to fade from the skin. Temporary airbrush tattoos (TATs) is another form of tattoo. It only lasts about1-2week. The ease of removal is a factor in their growing popularity. Unlike henna tattoos, the cosmetic paints can be rubbed off with isopropyl alcohol (PTCL, 2011).

Permanent Tattoo: This type of tattoo involves permanent alteration of the skin. It is created by rapidly and repeatedly injecting ink into the dermal layer of the skin with a small needle to develop a permanent coloration. It can be done with the use of modern tattoo machines. Removal of this type of tattoo is usually very expensive, painful usually through the use of laser surgery. Although "almost all tattoos can be lightened, Q-switched laser treatment truly clears only about 70% and some inks have proven to be resistant to laser treatment, particularly dark green and yellow varieties" (Armstrong, Stuppy, Gabriel, & Anderson, 1996).

2.3. History of body piercing and tattooing

Body piercing dates back to ancient times (Mayor, 1999, Armstrong, 1996; Armstrong et al, 1995). The history of body piercing has been obscured by misinformation and lack of scholarly reference. The scholarly research of body piercing by archaeologist has been hampered due to lack of material (Angel, 2009). Also in the 20th century a piercing enthusiast Doug Malloy in his pamphlet Body & Genital Piercing in Brief invented commonly reproduced modern myth about Prince Albert and the piercing that shares his name in order to diminish the appearance of his large penis in tight trousers, and that Roman centurions attached their capes to nipple piercings and some of Malloy's myths are reprinted as fact in subsequently published histories of piercing (Angel, 2009). However, historical evidence exists to document that it has been practiced in various forms by both sexes since ancient times throughout the world (Ferguson, Jim and Gauntlet, 1994). The practice of body piercing has waxed and waned in western culture and has experienced an increase in popularity since World War 2. In the 1970s

and 1990s, body piercing gain sub-cultural popularity with sites other than ear. Among the various forms of body piercing ear piercing and nose piercing are more popular and documented in history books. Histories of some types of body piercing include:

2.3.1. Ear piercing

There is considerable written and archaeological evidence of ear piercing. This ancient art practiced all over the world can be dated back to the oldest mummified body discovered to date the Otzi iceman found about 5,300 years ago in a glacier in Austria. The remains had an ear piercing of about 7-11mm in diameter (Hesse, 2007). Other mummified bodies with pierced ears have also been discovered. However, the oldest earrings were found in a grave dating back to 2500 BCE and it was located in the Sumerian city of Ur, home of the biblical patriarch Abraham (Hesse, 2007). Among some religions of the world earrings are mentioned; example in the Bible in Genesis 35:4, Exodus 32 and Deuteronomy 15:12-17 and in the Hindu religion were it is mentioned in connection to the Hindu goddess Lakshmi in the Vedas (Angel, 2009). Earrings for pierced ears were found in a grave in the Ukok region between Russia and China dated between 400 and 300 BCE (Angel, 2009). Earrings were common in the Eighteenth dynasty of Egypt (1550–1292 BCE), and it took different forms such as dangling, gold hoop, gem-studded, golden earrings shaped like asps (reserved for nobility). The ancient Greeks wore paste pendant earrings shaped like sacred birds or demigod, while the women of ancient Rome wore precious gemstones in their ears and Karen women in Burma wore earplugs.

2.3.1.1. Earring use among both sexes

In the 4th and 16th centuries in Europe, earrings for women fell from fashion generally because of change in fashion. It came back in vogue in Italy, Spain, England and France as well to North America after World War I when the clip on earrings was invented and became more fashionable as noted in the book Antiques Roadshow Collectibles, by Prisant C. Although earrings use is common among women, in the book The Anatomie of Abuses by Philip Stubbs, he stated that earrings were even more common among men of the 16th century than women; this was also confirmed by Raphael Holinshed in 1577 that the practice was common among "lusty courtiers" and "gentlemen of courage". The practice of ear piercing among European men spread throughout the time

of Henry III of France and the Elizabethan era in England, where earrings (typically worn in one ear only) and were worn on nobles such as Robert Carr, 1st Earl of Somerset, Shakespeare, Sir Walter Raleigh, and Charles I of England. This practice is said to have originated in Spain. In the middle ages in Europe, a superstitious belief that piercing one ear improved long-distance vision led many sailors and explorers to carry out the practice (Hesse, 2007). Sailors also pierced their ears in the belief that their earrings could pay for a Christian burial if their bodies washed up on shore (Angel, 2009). Other than nobles, common men also wore earrings.

2.3.2. Nose piercing

Nose piercing is documented as far back as 1500 BC (Zold, 2008). The modern practice is believed to have spread from the Middle Eastern nomadic tribes by route of the Mughal emperors in the 16th century to India (DeMello, 2007). In India, the nostril is associated with the female reproductive organs in the Ayurvedic medicine and nose piercing is sometimes done the night before a woman marries. Pitts-Taylor Victoria in her book the Cultural Encyclopedia Of The Body wrote that the Hindu women of child bearing age wear nose stud usually in the left nostril (Demello, 2012). Some religions practice nose piercing such as the Vedas referring to Lakshmi's nose piercings (Angel, 2009) and in the bible, in Genesis 24:22, Abraham's servant gave Rebecca a nose ring. Nose piercing has been practice by many tribes examples include the Bedouin tribes of the Middle East and the Berber and Beja people of Africa, as well as Australian Aborigines (DeMello, 2007, Hastings, 2003) Many Native American and Alaskan tribes practiced septum piercing. It was popular among the Aztecs, the Mayans and the tribes of New Guinea, who adorned their pierced noses with bones and feathers to symbolize wealth and (among men) virility (Hesse, 2007). The Aztecs, Mayans and Incas wore gold septum rings for adornment, with the practice continuing to this day by the Kuna people of Panama. Khond women usually had ear, septum and nostril piercings. Nose piercing also remains popular in Pakistan and Bangladesh and is practiced in a number of Middle Eastern and Arabic countries (DeMello, 2007). King D.C. in his book about The Nez Perce wrote that this tribe got their name from nose piercing though the practice was not common among them.

2.3.3. Piercings of the lip and tongue

Lip piercing and lip stretching were historically found in African and American tribal cultures. Pierced adornments of the lip, or labrets, were worn by the Tlingit, Papua New Guinea, Amazonia, Aztecs and Mayans, the Dogon people of Mali and the Nuba of Ethiopia wore rings (Angel, 2009, Demello, 2007). The lips were also stretched by piercing them and inserting plates or plugs this was practiced throughout Pre-Columbian Mesoamerica and South America as well as among some of the tribes of the Pacific Northwest and in Africa among Mursi women in Ethiopia, (DeMello, 2007). In some parts of Malawi, it was quite common for women to adorn their lips with a lip disc called a "pelele" and with gradual enlargement from childhood could reach several inches of diameter and would eventually alter the occlusion of the jaw. This type of lip stretching is still practiced in some places. Women of the Mursi tribe in Ethiopia wear lip rings on occasion that may reach 15 centimetres in diameter as reported by Phillips & Carillet in their book about Ethiopia & Eritrea. In the illustrated dictionary of anthropology, Lawman D wrote that some Pre-Columbian and North American cultures, labrets were seen as a status symbol. They were the oldest form of high status symbol among the Haida women, though the practice of wearing them died out due to Western influence.

Tongue piercing was practiced by the Aztec, Olmec and Mayan cultures as a ritual symbol (Angel, 2009; Hesse, 2007, Armstrong 1995, Armstrong 1996). McRae and Davies wrote that wall paintings highlight a ritual of the Mayans during which nobility would pierce their tongues with thorns, collecting the blood on bark which would be burned in honor of the Mayan gods. It was also practiced by the Haida, Kwakiutl and Tlingit, as well as the Fakirs and Sufis of the Middle East, (DeMello, 2007).

2.3.4. Nipple, navel and genital piercing

Genital piercing dates back to 320 to 550 CE in ancient India. Genital piercing has been practiced by various cultures. However, the history of these piercings is said to have been misrepresented by Malloy in his work Body & Genital Piercing in Brief and which is widely repeated now (Angel, 2009). Records exist for nipple and genital piercing in various cultures before the 20th century and this was practice for various reasons like for sexual enhancement. Genital piercing was done by inserting pins and other objects into

the foreskin of the penis in India (Angel, 2009) while in Borneo, Dayak tribes men passed a shard of bone through their glans to diminish their sexual activity. Genital piercing for women known as chastity piercing also exist though others believed the piercing was a girdle, in the Talmud religion as noted in the books by Rutty G N, Wagner S M.

Nipple piercing dates back to ancient Rome. Nipple piercing is to have been a sign of masculinity among roman soldiers and a rite of passage among British and American soldiers for bravery at sea (DeMello, 2007). In the 14th century western women sometimes sported pierced as well as rouged nipples left visible by the low-cut dresses fashionable in the day and in the 1890s, nipple rings called "bosom rings" resurfaced as a fashion statement among women of the West, who would wear them on one or both sides, though this is however believed to have been short lived (Hesse, 2007; Demello, 2007).

Navel piercing is believed to have been practiced in Egypt. There are claims that there are no historical records of navel piercing.

2.3.5. History of Piercing in the West

Body Piercing had become uncommon but popular among gay males after the Second World War (Porterfield, 2003). It is believed that even ear piercing was culturally unacceptable even for women at a particular time but grew back in popularity in the 1960s (Porterfield, 2003). In the 1970s, piercing began to expand, as the punk movement embraced it, featuring nontraditional adornment such as safety pins; Fakir Musafar began popularizing it as a form of Modern Primitivism, which incorporated piercing elements from other cultures, such as stretching (Porterfield, 2005).

Body piercing was also heavily popularized in the United States by a group of Californians including Malloy and Ward, who is regarded as "the founding father of modern body piercing" (Angel, 2009). In 1975 and 1978, Ward opened a home-based piercing business in West Hollywood and Gauntlet Enterprises, "the first professional body piercing specialty studio in America." (Angel, 2009) through this Malloys works were distributed and interest in diverse forms of piercing was stimulated among the larger society (Angel, 2009).

In Europe, A significant development in body piercing occurred in England in 1987, when a group of homosexuals including well known body piercer Alan Oversby were convicted of assault for their involvement in consensual sadomasochism over a 10 year period, including acts of body piercing (Angel, 2009;) their case helped in the publicity of body piercing.

Body modification in general became more popular in the United States in the 1990s, as piercing also became more widespread, with growing availability and access to piercings of the navel, nose, eyebrows, lips, tongue, nipples and genitals (Porterfields, 2003). In 1993, a navel piercing was depicted in a musical video which inspired female fans to follow suit; in 2004 a popular musician exposes a part of a pierced nipple during a performance. Some professional body piercers reported considerable increases in business following the heavily publicized event. In 2009, this publicity led to the development of a body piercing industry (Angel, 2009; Currie-McGhee, 2006).

Among the Igbo's of southern Nigeria, body piercing was believed to be practiced by those responsible for the running and management of the land known as Oke Nze (Iroegbu, 2000).

History of tattooing

Tattooing has been linked to early societies such as those in Egypt (found on ancient mummies), and it has been reported on a 2,400-year-old archaeological Russian mummy with a tattoo still clearly visible on her biceps (Polosmak, 1994). Royalties such as Queen Victoria, is frequently mentioned as having had a tattoo (Greif and Hewitt, 1999). Peru, Japan, Philippines, Pre Christian, Europe, Asia and Africa were said to have practiced the art of tattooing. The art of tattooing dates as far back as 2000 B.C. and has transformed from a ritual in many ancient cultures to popular way for an individual to express oneself in today's world.

Tattoo in the western world is believed to have its origins in Polynesia discovered by 18th century explorers (*Tattoo*: Encyclopaedia Britannica). Tattoos have experienced resurgence in popularity in many parts of the world, particularly in North and South America, Japan, and Europe. The growth in tattoo culture has seen an influx of new artists into the industry, many of whom have technical and fine arts training. Coupled with advancements in tattoo pigments and the ongoing refinement of the equipment

used for tattooing, this has led to an improvement in the quality of tattoos being produced. Tattooing in Igbo land is believed to have various names according to the different group one belongs to and this was done by rubbing pigments into knife slashes on the skin (Tattoo addiction, 2001).

Despite some taboos surrounding tattooing, the art continues to be popular in many parts of the world. A decline in body piercing and tattooing was observed due to the influence of religion and civilization. Historically, a decline in traditional tribal tattooing in Europe occurred with the spread of Christianity. However, some Christian groups, such as the Knights of St. John of Malta, sported tattoos to show their allegiance. A decline also occurred in other cultures following European efforts to convert aboriginal and indigenous people to Western religious and cultural practices that held tattooing to be a "pagan" or "heathen" activity. In Ad 330 face tattooing was banned by Emperor Constantine and later all body markings in AD 787.

During the first decade of the 21st century, the presence of tattoos became evident within pop culture, sports stars, rock stars, and movie and TV icons/celebrities even inspiring television shows (Anon. tattoo, 2011, Zold 2008). Formal interest in the art of the tattoo became prominent in the 1990s through the beginning of the 21st century. Contemporary art exhibitions and visual art institutions featured tattoos as art through such means as displaying tattoo flash, examining the works of tattoo artists, or otherwise incorporating examples of body art into mainstream exhibits. An example is the 2009 Chicago exhibition Freaks & Flash featuring examples of historic body art as well as the tattoo artists who produced it.

Modern materials and techniques allow for a range of previously impossible designs and colors within tattoo art. In many traditional cultures tattooing has also enjoyed resurgence, partially in deference to cultural heritage.

2.4. Motivations for carrying out body piercing and tattooing

The reasons for piercing or not piercing are varied. Some people pierce for religious or spiritual reasons, while others pierce for self-expression, for aesthetic value, for sexual pleasure, to conform to their culture or to rebel against it, for bravery and for acceptance. Some forms of piercing remain controversial, particularly when applied to youth. Some people have practiced extreme forms of body piercing, with Guinness

bestowing World Records on individuals with hundreds and even thousands of permanent and temporary piercings. A 2001 survey in Clinical Nursing Research, found that majority of people who pierced had done so in an effort "to express their individuality" (Currie-McGhee, 2006). People also pierce to commemorate landmark events or to overcome traumatic ones (Currie-McGhee, 2006). The Frankfurt University Teaching Hospital for Psychosomatic Medicine and Psychotherapy, states that some sexual abuse survivors choose body piercing as a means of "reclaiming body parts from memories of abuse" (Currie-McGhee, 2006).

Piercing can also be chosen for simple aesthetic value, to highlight particular areas of the body, as a navel piercing may reflect a woman's satisfaction with the shape and condition of her stomach (Currie-McGhee, 2006). However, some may pierce because of low self esteem. A study of "at-risk" (school absenteeism and truancy) adolescent girls showed a positive relationship between body-modification and negative feelings towards the body and self-esteem; a study by Carroll et al., 2006 showed that a strong motive for body-modification was the search for "self and attempts to attain mastery and control over the body in an age of increasing alienation. Some people pierce, permanently or temporarily, to enhance sexual pleasure. Genital and nipple piercings may increase sexual satisfaction (Currie-McGhee, 2006, Meltzer, 2005). Millar J-C in his book the body art book wrote that some people participate in a form of body play known as play piercing, in which piercings may be done temporarily on the genitals or elsewhere on the body for sexual gratification.

Among the Tlingit of the Pacific Northwest of America, earrings were a sign of nobility and wealth, (Gay and Whittington, 2002). Piercing combined with suspension was historically important in the religious ceremonies of some Native Americans, featuring in many variants of the Sun Dance ceremony (Porterfield, 2003); including that practiced by the Crow Nation (American Museum of National History). During the Crow ceremony, men who wished to obtain visions were pierced in the shoulders or chest by men who had undergone the ceremony in the past and then suspended by these piercings from poles in or outside of the Sun Dance Lodge. Some contemporary Southeast Asian rituals also practice body piercing, as a form of spiritual self-mortification. Generally, the subject attempts to enter an analgesic trance prior to the piercing, (Ooi, 2004).

Most body piercing practices were done for spiritual reasons and function for armour before it was modified/practiced by many adolescents to show self expression and individuality (Zold, 2008). According to Musafar, piercing usually use a cultural binding ritual is also a means of rebellion among adolescents in western culture (Currie-McGhee, 2006). A fifteen-year analysis published in 2011 by Romanienko L, titled Body Piercing and Identity Construction found that "public" piercing served as a mechanism of both accelerated camaraderie and political communication, while "private" piercings served to enhance sexuality and contest heteronormativity.

Tattooing

Many tattoos serve as rites of passage (within some traditional indigenous cultures, tattooing takes place within the context of a rite of passage between adolescence and adulthood), marks of status and rank, symbols of religious and spiritual devotion, decorations for bravery, sexual lures and marks of fertility, pledges of love, punishment, amulets and talismans, protection, and as the marks of outcasts, slaves and convicts. The symbolism and impact of tattoos varies in different places and cultures. Tattoos may show how a person feels about a relative (commonly mother/father or daughter/son) or about an unrelated person.

Today, people may choose to be tattooed for cosmetic, sentimental/memorial, religious, and magical reasons, and to symbolize their belonging to or identification with particular groups, including criminal gangs (criminal tattoos) but also a particular ethnic group or law-abiding subculture. For example, in Laos, Cambodia, and Thailand, the yantra tattoo is used for protection against evil and to increase luck; catholic's in Bosnia and Herzegovina use tattoos with Christian symbols for protection against Muslim Turks, females in Papua New guinea use it to indicate attainment of marriageable age. Tattoos have also been used as means of identification example during the holocaust when prisoners were forcibly tattooed, tattoo done on soldiers, slaves or deserters from the army. Tattoo was also used as signatures, or to identify drowned victim. Tattoos are sometimes used by forensic pathologists to help them identify burned, putrefied, or mutilated bodies. Animals were also occasionally tattooed. (Tattoo, 2011)

2.5. Body piercing and tattooing procedures:

Besides traditional piercing techniques, modern body adornment includes variant techniques such as pocketing and flesh stapling, although as of 2007 these were still not widely made available by piercers (DeMello, 2007). Types of body piercing procedures include:

Flesh scalping: this is also known as stapling or pocketing. A scalpel is used to open the skin or mucous membranes, into which the larger end of a piece of jewellery or two ends of a bar are inserted (Demello, 2007); De Cuyper et al., 2010). Piercings like this are difficult to remove, as fibrous tissue can form around the end or ends of the jewellery or the implanted tube into which the jewellery is placed. Stapling technique is frequently done in the form of a ladder. (De Cuyper et al., 2010, Demello 2007).

Usually body piercing is performed using a piercing gun or by use of a hollow needle to create a hole in the body and a piece of jewelry is inserted in it for decoration (Meltzer, 2005). For piercing earlobes, a single-use, sterilized piercing gun is usually used to insert an earring into the earlobe; a hollow needle is however used to pierce a hole in the skin for other parts of the body. The person performing the piercing then inserts a piece of jewelry into the hole.

2.5.1. Piercing tools

Tools used in body piercing include:

The piercing needle: is available in different lengths, gauges and even shapes. Straight needles are useful for many body parts; curved needles are for areas where straight needles are not ideal. Jewellery is often inserted into the hollow end of a needle, so that as the needle pulls through the jewellery is left behind (Angel, 2009).

The Indwelling Cannula: Outside of the United States, many piercers use a needle containing a cannula (or catheter), a hollow plastic tube placed at the end of the needle. In some countries, the piercing needle used in the United States is regarded as a medical device and is illegal for body piercer, (Angel, 2009). The procedure is similar to the piercing needle method, but the initial jewellery is inserted into the back of the cannula

and the cannula and the jewellery are then pulled through the piercing. More bleeding may follow, as the piercing is larger than the jewellery.

The Dermal Punch: A dermal punch is used to remove a circular area of tissue, into which jewellery is placed, and may be useful for larger cartilage piercings. They are popular for use in ears, though not legal for use by nonmedical personnel in some parts of the United States (Angel, 2009).

The Piercing Gun: The majority of women in the west have their ears pierced with a piercing gun, Currie-McGhee, 2006). The safety of piercing guns, which were originally developed for tagging livestock has been, disputed (Angel, 2009). Department of health in Western Australia in 2006 and the Association of Professional Piercers recommended that it should not be used for piercing body parts other than the lobes of ears and that piercing guns not be used for any piercing practice, (Angel, 2009, Currie-McGhee, 2006).

Cork: Cork is placed on the opposite side of the body part being pierced to receive the needle, (Angel, 2009)

Forceps: Forceps or clamps may be used to hold and stabilize the tissue to be pierced. Most piercings that are stabilized with forceps use the triangular-headed "Pennington" forcep, while tongues are usually stabilized with an oval-headed forcep. Some forceps have large enough openings in their jaws to permit the needle and jewellery to pass directly through, though some slotted forceps are designed with a removable segment instead for removal after the piercing. Forceps are not used in the freehand method, in which the piercer supports the tissue by hand, (Angel, 2009)

Needle receiving tubes: This is a hollow tube made of metal, shatter-resistant glass or plastic. There are used to support the tissue at the piercing site and are common in septum and some cartilage piercings. They also receive the needle once it has passed through the tissue, offering protection from the sharp point. Needle receiving tubes are not used in the freehand piercing method, (Angel, 2009).

Anaesthesia: this is supplied by some piercers, particularly in the United Kingdom and Europe. The anaesthesia may be topical or injected. Piercers and other non-medical

personnel are not legally permitted to administer anaesthetics in the United States, (Angel, 2009).

Tattooing procedure

Tattoo is created by rapidly and repeatedly injecting ink into the dermal layer of the skin with a small needle to develop a permanent coloration. A modern tattoo machine exists, it is outfitted with a 5-needle setup, and the number of needles depends on size and shading desired.

Tattooing involves the placement of pigment into the skin's dermis, the layer of dermal tissue underlying the epidermis. After initial injection, pigment is dispersed throughout a homogenized damaged layer down through the epidermis and upper dermis, in both of which the presence of foreign material activates the immune system's phagocytes to engulf the pigment particles. As healing proceeds, the damaged epidermis flakes away (eliminating surface pigment) while deeper in the skin granulation tissue forms, which is later converted to connective tissue by collagen growth. This mends the upper dermis, where pigment remains trapped within fibroblasts, ultimately concentrating in a layer just below the dermis/epidermis boundary. Its presence there is stable, but in the long term (decades) the pigment tends to migrate deeper into the dermis, accounting for the degraded detail of old tattoos. (Kilmer emedicine) The pigment for the tattoo is injected into the skin "50 to 3,000 times per minute up to, or into the dermis at a depth of 1/64 to 1/16 of an inch" (Armstrong. 1991). Although many of the ingredients in tattoo pigments were approved as cosmetics for topical use by the FDA in 1938. They have not been approved for invasive procedures, with some pigments containing lead, mercury, and trace amounts of arsenic (Tope, 1995). In addition, many of these tattoo pigments do not contain standardized Ingredients. (Anderson, 1992)

Some tribal cultures traditionally created tattoos by cutting designs into the skin and rubbing the resulting wound with ink, ashes or other agents; Some cultures create tattooed marks by hand-tapping the ink into the skin using sharpened sticks or animal bones (made like needles) with clay formed disks or, in modern times, needles. Traditional Japanese tattoos (Horimono) are made through a method known as “tebori” are still "hand-poked," that is, the ink is inserted beneath the skin using non-electrical, hand-made and hand held tools with needles of sharpened bamboo or steel.

Traditional Hawaiian hand-tapped tattoos are experiencing a renaissance, after the practice was nearly extinguished in the years following Western contact. The process involves lengthy protocols and prayers and is considered a sacred rite more than an application of artwork. The tattooist chooses the design, rather than the wearer, based on genealogical information. Each design is symbolic of the wearer's personal responsibility and role in the community. Tools are hand-carved from bone or tusk without the use of metal.

The most common method of tattooing in modern times is the use of electric tattoo machine, which inserts ink into the skin via a single needle or a group of needles that are soldered onto a bar, which is attached to an oscillating unit. The unit rapidly and repeatedly drives the needles in and out of the skin, usually 80 to 150 times a second. The time it takes to get a tattoo is in proportion with its size and complexity. A small one of simple design might take fifteen minutes, whereas an elaborate sleeve tattoo or back piece requires multiple sessions of several hours each which is done without anesthetics and may last up to several hours for a large tattoo it may cause a small amount of bleeding and slight to potentially significant pain (Mayo Foundation for Medical Education and Research (MFMER), 2011).

2.6. Hygienic rules regarding body piercing and tattooing:

The person carrying out piercing should wash his or her hands with a germicidal soap before doing the piercing, wear disposable gloves, use disposable or sterilized tools and use a new needle to do the piercing. The sterilization machines should be tested often to assure accuracy (Angel, 2009, Schmidt et al., 2011; Meltzer, 2005). Piercers/tattoo artist should not accept clients who are not sober as many kids get piercings/tattoos when they are drunk, and alcohol in the system can lead to heavy bleeding.

Piercing should not be performed with a piercing gun on any other part of the body except the ear. Doing so can crush the skin and cause more injury than a piercing performed with a hollow needle. Those interested in piercing should not pierce themselves or let anyone pierce them who are not professionals. This will help prevent infection. Selection of the body site and jewelry should be done carefully. Jewelry made or nickel or brass should be avoided as it can cause allergic reactions. Jewelry made of titanium, 14-carat gold or surgical-grade steel should be use (Meltzer, 2005, Grief et al., 2000). When carrying body piercing the type of material use for the jewelry is usually considered as most of the jewelry are likely to cause allergic reactions. It is generally adviced that body piercing jewelry should be hypoallergenic (Meltzer, 2005)

Body jewelry is usually of a different size than ear jewelry, and smaller jewelry can become embedded in other areas of the body. Holes in noses and near the top ridge of the ears are vulnerable to problems if the cartilage is pierced instead of the soft tissues. Belly-button piercing takes up to a year to heal and should be done only after great consideration. Teenage girls should be especially careful because the belly button is just a few inches from the fallopian tubes and it is not a good place for infections. The National Institute for Occupational Health and Safety, USA (NIOHS), 2007), states that disposable piercing needles, tattoo needles, should be discarded into a sharps disposal container. This container should also be emptied often and marked clearly. Each piercing shop should have an "exposure control plan" and limit the amount of contact with pricked. The Association of Professional Piercers also recommends that classes in First Aid in blood-borne pathogens be undertaken as part of professional training, (Currie-McGhee, 2006).

Tattooing

The tattoo artist must wash his or her hands, and the area that will be tattooed. Gloves must be worn at all times and the wound must be wiped frequently with a wet disposable towel of some kind. The equipment must be sterilized in a certified autoclave before and after every use. Tattoo artists should not dip into contaminated bottles of ink; they should use small, disposable containers of ink, and any ointments should be removed from containers with sterile spreaders.

2.7. Care of post body piercing and tattooing:

Body piercing is an invasive procedure with risks but precautions as sanitary piercing procedures and careful aftercare are emphasized to minimize the likelihood of encountering serious problems. After getting a body piercing, the person obtaining the piercing should make sure he/she carefully follows all instructions given by the piercer to prevent any complication. Holes from piercing usually close up if the jewelry is no longer worn. Scaring can occur if one does not properly take care of a piercing after the individual takes out the piercing (Zold, 2008). Pierced areas should be washed at least twice a day with a surgical scrub/water solution as well as using a liquid medicated cleanser and gently moving the piercing around. For a tongue or lip piercing, an antibacterial mouth rinse after meals to prevent infection is recommended.

The healing process after piercing is divided into three stages:

- The inflammatory phase:- during which the wound is open and bleeding, inflammation and tenderness are all to be expected;
- The growth or proliferative phase: - during which the body produces cells and protein to heal the puncture and the edges contract around the piercing, forming a tunnel of scar tissue called a fistula. This phase may last weeks, months, or longer than a year.
- The maturation or remodeling phase: - as the cells lining the piercing strengthens and stabilizes. This stage takes months or years to complete (Angel, 2009).

It is normal for a white or slightly yellow discharge to be noticeable on the jewellery, as the sebaceous glands produce an oily substance meant to protect and moisturize the wound. While these sebum deposits may be expected for some time, only a small amount of pus, which is a sign of inflammation or infection, should be expected, and only within the initial phase. While sometimes difficult to distinguish, sebum is "more solid and cheese like and has a distinctive rotten odor", according to The Piercing Bible (Angel, 2009).

The amount of time it typically takes a piercing to heal varies widely according to the placement of the piercing. Genital piercings can be among the quicker to heal, with piercings of the clitoral hood and Prince Albert piercings healing in as little as a month, though some may take longer. Navel piercings can be the slowest to heal, with one source reporting a range of six months to two full years, The prolonged healing of navel piercings may be connected to clothing friction, (Meltzer, 2005).

Tattooing

There are two ways to take care of a tattoo after getting inked, a “dry process” and a “wet process.” The dry process, though it runs the risk of scabbing, allows the color of the tattoo to stay brighter and is a good idea for individuals who have breakouts. Tattoo artists, and people with tattoos, vary widely in their preferred methods of caring for new tattoos. Some artists recommend keeping a new tattoo wrapped for the first twenty-four hours, while others suggest removing temporary bandaging after two hours or less to allow the skin to 'breathe'. Many tattooists advise against allowing too much contact with hot tub or pool water, or soaking in a tub for the first two weeks. This is to prevent the tattoo ink from washing out or fading due to over-hydration and to avoid infection from exposure to bacteria. In contrast, other artists suggest that a new tattoo be bathed in very hot water early.

General consensus for care advises against removing the scab that may form on a new tattoo, and avoiding exposing one's tattoo to the sun for extended periods for at least 3 weeks; both of these can contribute to fading of the image. Furthermore, it is agreed that a new tattoo needs to be kept clean. Various products may be recommended for application to the skin, ranging from antibacterial cream, those intended for the treatment of cuts, burns and scrapes (Medline Plus, 2011).

2.8. Health risk associated with body piercing and tattooing

Body piercing/tattooing is an invasive procedure with some risks, People who get body piercings/tattoo run the same kind of health risks as anyone sharing needles The skin and mucous membrane of the mouth, nose protect from infections Body piercing/tattoo procedures involves piercing the skin and mucous membrane with a needle/sharp instrument which exposes the individual to pain, allergic reactions, excessive

scarring/keloids (thick scars), unanticipated injuries, granulomas, photosensitivity reactions, psoriasis and benign or malignant tumor and MRI complications. Various skin and blood borne diseases like: Bacterial infections: (impetigo, erysipelas, septicemia, toxic shock syndrome, tetanus, (Millar et al., 2004; Meltzer, 2005; FDA, 2007). Others include local infections, bleeding, tearing, hypersensitivity reactions; transfusion transmitted diseases example hepatitis B and C, HIV and syphilis, Chagas disease and infective endocarditis), bruise/hematoma may occur if a blood vessel is punctured.

Millar et al., 2004; CDC, 1999 & 2009, Kilmer emedicine, mayoclinic.com, 2008, FDA, 2007 (U.S.A. Food and Drug Administration) in a 2005 survey in England of people aged over 16, complications were reported in some piercings/tattoo, with professional help being necessary in about a quarter and a few had complications serious enough to require hospitalization, (Bone et al., 2008).

Some risks are explained below:

- Allergic reaction to the metal in the piercing jewellery, particularly nickel.
- Infection, bacterial or viral, particularly from *Staphylococcus aureus*, *group A streptococcus* and *Pseudomonas spp*
- Excess scar tissue, including hypertrophic scar and keloid formation.
- Physical trauma including tearing, friction or bumping of the piercing site, which may cause edema and delay healing.
- Oral trauma, including recession of gingival tissue and dental fracture and wear.

Allergic reactions can be minimized by using high quality jewellery manufactured from Titanium or Niobium or similar inert metals (Koenig and Carnes 1999; Brody, 2000). While piercings/tattooing can be removed, they may leave a hole, mark or scar. (Koenig and Carnes 1999; Mayo clinic staff, 2008). Physical trauma can be minimized by wearing properly sized jewellery and not changing it unnecessarily, by not touching the piercing more than required for aftercare, and by being conscious of environmental factors (such as clothing) that may impact the piercing (Angel, 2009; Mayo Clinic staff, 2008). Oral trauma like recession of gingival tissue affects 19% to 68% of subjects with

lip and/or intra-oral ornaments (Levin, Zadik and Becker, 2005, Levin and Zadik, 2007). In some cases, the alveolar tooth-bearing bone is also involved, jeopardizing the stability and durability of the teeth in place and requiring a periodontal regeneration surgery (Zadik and Sandler, 2007, Levin, 2007). Dental fracture and wear affects 14% to 41% of subjects with lip and/or intra-oral ornaments (Levin and Zadik, 2007).

Reports at the 16th European Congress of Clinical Microbiology and Infectious Diseases in 2006 indicated that bacterial infections are seldom serious, but that between 10–20% of piercings/tattoos result in local benign bacterial infection and the Mayo clinic estimates about 30% (Medical News today, 2006; Currie-McGhee, 2006). Risk of infection is greatest among those with congenital heart disease, who have a much higher chance of developing life-threatening infective endocarditis, hemophiliacs and diabetics as well as those taking Corticosteroids or blood thinners as their immune system is low and they have low ability to fight infections, such people have to consult their doctors before undertaking body modification (Currie-McGhee, 2006; Meltzer, 2005). In an article on Ndri.com titled Body art or piercing can lead to even heart infarction it stated that urethral rupture and a serious infection of the penis foreskin can lead to severe disability or even death:.

Viral infections may include hepatitis B and C and potentially HIV. However, Centre for disease control and Prevention (CDC) USA has not discovered HIV as one of the complications of piercing/tattoo mostly because the AIDS virus last only 12minutes on the surface before it dies but hepatitis virus can last up to 10days. Two brief reports have raised the question of human immunodeficiency virus (HIV) transmission in both types of body art (Pugatch, Mileno, & Rich, 1998). Although as of 2009 there had been no documented cases of HIV caused by piercing (Angel, 2009 and Koenig and Carnes, 1999) a BBC news report in 1999 on navel piercing reported that rare infection due to piercing of the tongue can be fatal. In a study by Zadik et al., 2010, higher prevalence of colonization of Candida albicans was reported in young individuals with tongue piercing, in comparison to non-tongue-pierced matched individuals.

Piercing through ear cartilage has more risk of infection than piercing the earlobe. This is because there is little blood flow to the cartilage. Ear cartilage infections are difficult to treat and may require surgery resulting in permanent disfigurement of the ear (Meltzer, 2005; Tweeten, 1998; More, 1999).

Piercing has become more and more popular among adolescents. The procedure is generally performed by unqualified professionals and carries plenty of risk. Non-sterilized material or inappropiate hygiene increases the possibility of perichondritis and celulitis. The disease is characterized by erythema of the auricula pinna, unbearable pain and fever. If left untreated, the condition progresses with edema along the auricula and abscess formation that may result in ischemic necrosis and a cauliflower anesthetic deformation. The most common bacteria is Pseudomonas aeruginosa. In cases with abscesses, drainage is necessary along with antibiotic therapy guided by cultures and antibiogram.

Dermatologists object to all forms of body piercing, with the exception of the ear lobes, dentists oppose oral piercing referring to as a public health hazard because it can result in multiple dental complications like dental fractures, gum erosion, speech impediment, jewel aspiration (Botchway et al., 1998; Ram et al., 2000; Price 1997; Scott, 2000). Other health complications associated with body piercing include prolonged bleeding, scarring, tetanus, abscesses, boils and chronic infections such as halitosis (bad breath) from tongue rings. Also the naval area which is moist and warm and can be easily irritated by things rubbing against it, for example a belt. A study by the Texas Tech University Health Sciences Center suggested that, naval piercings get infected most often at a 45% infection rate.

Research conducted in various countries has shown that body piercing/tattoo is a risk factor for the different infection and diseases listed above. A study conducted in Italy, studied the perception of health risks associated with body modifications. It discovered that adolescents with positive attitudes towards body modification (already having or considering it) were not aware of health implications and were less likely to refer to professional for the body art or seek medical advice in case of complications (Cegolon et al., 2010). Though majority of the students, had some knowledge of the related infectious diseases and the hygiene requirements, where to go for body art and medical advice (Deschesnes, 2006; Carroll 2002; Houghton, 1996), it was reported that majority of the body-arts were performed illegally (in an unauthorized environment or carried out by adolescent themselves or by their friends). Similar studies conducted by Huxley et al., 2005, found out participants had not considered the health risk or were totally unaware. Milner, 2001 discovered that majority of participants felt that obtaining body

arts in a safe/clean environment remove the health risks, while Schorzman, 2007, reported overestimation of health risks by pierced participants and non-pierced participants..

Treatment exist for these complications and complications can be prevented by good hygiene practices, use of sterilized instruments, proper care of new tattoos and piercing, avoidance of body piercing if the individual has pre-existing health conditions such as congenital heart conditions and obtaining body art from a certified practitioner.

A study by Greif et al., (1999) among college students in America and Australia reported only three cases of hepatitis. This however, could not be verified. Although some studies have found an association between tattooing and HCV infection it is in selected populations, it is not known if these results can be generalized to the whole population. Any per-cutaneous exposure has the potential for transferring infectious blood and potentially transmitting blood borne pathogens (e.g., HBV, HCV, or HIV); however, no data exist in the United States indicating that persons with exposures to tattooing alone are at increased risk for HCV infection." (CDC.gov, 2008; Zold, 2008; Long & Rickman, 1994; Shimokura & Gully, 1995; Sperry, 1992; Tweeten & Rickman, 1998).

In the last 20 years only about 1% of people with hepatitis C reported to CDC's sentinel surveillance system gave a history of being tattooed. (Zold, 2008).

Infection is the largest risk when getting pierced or tattooed with dirty needles, many allergies as well as granulomas which are small bumps that can form around the tattoo or piercing because the body detects a foreign object (FDA, 2007).

The biggest risk when investing in a body piercing is the development of keloids, which are large scars of overgrown tissue around the site of a piercing. These often are removed with surgery or injections of steroids. When gauging a piercing too quickly a "blow out" can occur which is when the area around the piercing becomes infected and there is a layer around the piercing of blood and puss, often resulting in incredible pain.

Temporary paint-on tattoos have become increasingly popular as a safe alternative to permanent tattoos in Asia and other regions. The most common dye use for the temporary tattoos is henna (a vegetable dye) because it has low allergenicity and

incidence of allergic contact dermatitis has rarely been reported. However, a study by Pegas et al., 2002 observed that though tattoo makers explain that they use natural henna paint, black henna which includes a mixture of many substances, among them p-phenylenediamine (PPD) is actually used. And they reported a new case of temporary tattoo with black henna with an extensive reaction, in which a 12-year-old boy showed contact dermatitis from PPD, followed by cutaneous eruption after corticosteroid topical treatment. A similar study conducted by Wen Hung et al., 2002 in south East Asia observed that ten patients developed inflamed skin eruptions after receiving temporary paint-on tattoos in either Thailand or Indonesia. And patients showed strong positive reactions that recently to p-phenylenediamine (1% in petrolatum) and commercial black henna obtained from Thailand. A skin biopsy specimen showed lichenoid dermatitis.

2.9. Prevalence of body piercing and tattooing

In Nigeria, the prevalence of body piercing/tattooing is not known has very little work has been published in this area. Socially, as of 2009, the Guinness book of World records shows that Elaine Davidson of Scotland holds the Guinness world record for the most permanent piercing she is reported to have 6,005 different piercings with majority being on her head and face. The most pierced man is Luis Antonio Aguero who had 230 permanent piercings, with 175 rings adorning his face alone. For temporal piercing Kam Ma in 2006 holds the record of having 1,015 temporary metal rings, other temporal piercers include Brent Moffat from Canada and Robert Jesus Rubio.

A population-based study among adolescents reported a prevalence of 7.2% among females and 1.5% among male, (Roberts et al 2004). Braithwaite et al 2001 reported prevalence close to 70%. Different studies report that body piercing has been increasing in the age group 16 to 25 years (Mayers et al., 2002, Forbes et al 2001, Greif et al 1999, Gold et al., 2005). Body piercing at locations other than the ear lobes has also been increasing in frequency and acceptance (Koenig et al., 1999). A 2005 survey in England of people over the age of 16 found that approximately 10% had body piercings in sites other than the earlobe, with more women between the ages of 16–24 years having it, (De Cuyper et al., 2010). Among the most common body sites pierced, the navel was the most common, followed by the nose, ear (other than lobe), tongue, nipple, eyebrow, lip and genital (De Cuyper, 2010). Among females eyebrow piercing was more common than nipple piercing but other sites follow as listed above. For male

respondents the common sites were the nipple, eyebrow, ear, tongue, nose, lip and genitals. (De Cuyper, 2010).

Data from surveys of high school and college students between the ages of 13-25 years indicates a prevalence of 25-35 percent for body piercing (excluding traditional earlobe piercing in males and females) as reported by Forbes et al, Greif et al., (1996) and Kohut et al., (2007). In a survey at a hospital-based adolescent clinic by Gold et al., (2005) most adolescents reported piercings (earlobe piercings were excluded in females but not males. Similarly, a 2007 Pew Research Center report examining how young people view their lives, showed that 30 percent of 18-25-year-olds and 22 percent of 26-40-year-olds have at least one piercing other than earlobe sites (Kohut et al., 2007). For tattooing Ten percent to 13% of adolescent's age 12-18 and 3% to 8% of the general populations in the USA have tattoos according to Armstrong et al., (1997). A study by Fisher, (2002) showed that in the last decade about 62% of young generation in the USA did not have any tattoos and (75%) of Australians under 30 did not have any tattoos which has increased in number as at 2003 according to a Harris Poll which showed that 15% of Americans (which is about forty million residents) have a tattoo. Thus challenging and changing the rebellious image people usually associate associated with having a tattoo or piercing and also showing that those who had a tattoo did not regret having it (Swan, 2006) and that regardless of race, age, or political standing, tattooing is an art that is a common interest among all people (Zold, 2008).

In June 2006 the Journal of the American Academy of Dermatology published the results of a telephone survey which took place in 2004. It found that 36% of Americans ages 18–29, 24% of those 30-40 and 15% of those 41-51 had a tattoo (Laumann, 2006). In September 2006, the Pew Research Center conducted a telephone survey which found that 36% of Americans ages 18–25, 40% of those 26-40 and 10% of those 41-64 had a tattoo. In January 2008, a survey conducted online by Harris Interactive estimated that 14% of all adults in the United States have a tattoo, just slightly down from 2003, when 16% had a tattoo. Among age groups, 9% of those ages 18–24, 32% of those 25-29, 25% of those 30-39 and 12% of those 40-49 have tattoos, as do 8% of those 50-64. Men are just slightly more likely to have a tattoo than women (15% versus 13%)

2.10. Perceptions associated with body piercing and tattooing

Body piercing has grown more widespread, it has remained controversial, particularly in youth. There are different perspectives surrounding Body piercing. Due to these different views, the display or placements of piercings have been restricted by schools, employers and religious groups. Body modification as a whole, including piercing/tattooing is often linked to rebellious lifestyles, abrasive personalities and delinquency. Individuals often associate body piercings with gang members, prisoners, military personnel, or rebellious teenagers (Schmidt et al., 2011, Greif et al., 1999).

Some countries impose age of consent laws requiring parental permission for minors to receive body piercings/tattoo. For example the BBC in 2011 reported that Scotland requires parental consent for youths below 16, while in 2011 Wales began considering a similar law. In addition to imposing parental consent requirements, the authorities in Western Australia prohibited the piercing of private areas of minors, including genitals and nipples, and a penalty of fine and imprisonment was given for the piercer (Children and community services, 2004). Many states in the US also require parental consent to pierce minors, with some also requiring the physical presence of the parents during the act. The state of Idaho in the US also kept the minimum age for obtaining body piercing at 14 (National Conference of State Legislature (NCSL), 2012).

Socially, displaying of body piercings as created controversy in some schools and lead to suspension of students in others, (Millar, 2004). Employers limit display of body piercings as part of corporate dress code example in the USA, Starbucks limited piercings to two per ear and jewellery to small, matched earrings and employees of Walt Disney Parks and Resorts were not permitted to display piercings at all (Currie-McGhee, 2006). Body piercing in some religions is held to be destructive to the body. Some passages of the Bible such as Leviticus 19:28, have been interpreted as prohibiting body modification because the body is held to be the property of God, (Currie-McGhee, 2006, Angel, 2009). The Church of Jesus Christ of Latter-day Saints is reported to be official against most piercings unless for medical reasons, although they accept piercings for women as long as there is only one set of piercings in the lower lobe of the ears and no other place on the body, (Church of Jesus Christ of latter day saint, 2009). Wearing of very large nose rings on Shabbat is forbidden by the Talmud, for the Muslims (Hastings, 2003).

Tattooing

Various perspectives surrounding tattooing include

Religious perspectives

Christianity There is no consistent Christian position on tattooing. The early Christian Montanist movement practiced tattooing as putting signs or seals of God's name according to Rev. 7:3; 9:4; 13:16; 14:1; 20:4; 22:4.The majority of Christians do not take issue with the practice, while a minority uphold the Hebrew view against tattoos based on Leviticus 19:28. Tattoos of Christian symbols are common. When on pilgrimage, some Christians get a small tattoo dating the year and a small cross. This is usually done on the forearm in the Catholic Church, provided that the tattoo is not an image that is sacrilegious, blasphemous, or obscene. At the Catholic council of Calcuth in Northumberland in A.D. 786, Christians who received a tattoo "for the sake of God" (i.e., a religious tattoo in the form of a cross, a monogramme of Christ, or a saint's name or image) were commended as praiseworthy. In the history of Croats in Bosnia and Herzegovina Zubrinic D writes that Catholic Croats of Bosnia and Herzegovina used tattooing, especially of children, for perceived protection against forced conversion to Islam during Turkish occupation of Bosnia and Herzegovina (1463-1878). This form of tattooing continued long past its original motivation, though it was forbidden during Yugoslavian communism. Tattooing was performed during spring time or during special religious celebrations such as the Feast of St. Joseph, and consisted mostly of Christian crosses on hands, fingers, forearms, and below the neck and on the chest. Coptic Christians who live in Egypt tattoo themselves with the symbols of Coptic crosses on their right wrists.

Mormonism: The Church of Jesus Christ of Latter-day Saints (often referred to as "Latter-day Saints" or "Mormons") advises its members not tattoo their bodies. In the Articles of Faith of The Church of Jesus Christ of Latter-Day Saints it states that the Latter-day Saints accept the Bible to be the word of God therefore, the church believes that the body is a sacred temple as preached in the New Testament, and that they should keep it clean, inside and out. Tattooing, among other things, is discouraged.

Islam: Permanent tattoos are forbidden in Sunni Islam, though their permissibility in Shia Islam is debated. Tattoos are considered forbidden in Sunni Islam. According to

the book of Sunni traditions, Sahih Bukhari, "The Prophet forbade mutilation (or maiming) of bodies." Sunni Muslims believe tattooing is forbidden and a sin because it involves changing the creation of God (Surah 4 Verse 117-120), and because the Prophet cursed the one who does tattoos and the one for whom that is done. There is, however, difference of scholarly Sunni Muslim opinion as to the reason why tattoos are forbidden. The use of temporary tattoos made with henna is very common and is considered permissible in Muslim Morocco, and Tunisia and other predominantly Muslim nations such as Bangladesh, Indonesia and Malaysia. The permissibility of tattoos is debated in Shi'a Islam, with some Shi'a pointing to a ruling by Ayatollah Sistani stating they are permitted.

Judaism: Tattoos are forbidden in Judaism based on the Torah (Leviticus 19:28): "You shall not make gashes in your flesh for the dead, or incise any marks on yourselves: I am the Lord." The prohibition is explained by contemporary rabbis as part of a general prohibition on body modification that does not serve a medical purpose (such as to correct a deformity). Maimonides, a leading 12th century scholar of Jewish law and thought, explains the prohibition against tattoos as a Jewish response to paganism. Since it was common practice for ancient pagan worshipers to tattoo themselves with religious iconography and names of gods, Judaism prohibited tattoos entirely in order to disassociate from other religions. In modern times, the association of tattoos with Nazi concentration camps and the Holocaust has given an additional level for revulsion to the practice of tattooing, even among many otherwise fairly secular Jews. It is a common misconception that anyone bearing a tattoo is not permitted to be buried in a Jewish cemetery.

Neopagan: Neopagans use the process and the outcome of tattooing as an expression or representation of their beliefs. Many tattooists' websites offer pagan images as examples of the kinds of artwork they provide.

Other perceptions about tattooing showed that people perceive tattoo. Conspicuous tattoos and other body modification can make gainful employment difficult in many fields. In the general population, tattoos are still associated with criminality. Tattoos on the face in the shape of teardrops are usually associated with how many people a person has murdered. Although the general acceptance of tattoos is on the rise in Western

society, they still carry a heavy stigma among certain social groups. Tattoos are generally considered an important part of the culture of the Russian mafia.

Tattoos in Japan are strongly associated with organized crime organizations known as the *yakuza*, particularly full body tattoos done the traditional Japanese way (Tebori). Many public Japanese bathhouses (sentō) and gymnasiums often openly ban those bearing large or graphic tattoos The Government of Meiji Japan had outlawed tattoos in the 19th century, a prohibition that stood for 70 years before being repealed in 1948(Ito, 2010;)

In the United States many prisoners and criminal gangs use distinctive tattoos to indicate facts about their criminal behavior, prison sentences, and organizational affiliation (Ito, 2010). A tear tattoo, for example, can be symbolic of murder, with each tear representing the death of a friend. However, in the U.S/ British military there is a well established and longstanding history of tattooing to indicate military units, battles, kills, etc., an association which remains widespread among older Americans. Tattooing was also used by the Nazi regime in Nazi concentration camps to tag prisoners.

The prevalence of women in the tattoo industry, along with larger numbers of women bearing tattoos, appears to be changing negative perceptions.

2.11. Risk taking behaviours associated with body piercing/tattooing

Other than health risk, some studies have posited that there is an association between body modifications and high risk behaviour among adolescents. These behaviours include: greater premarital sexual activity, eating disorders, use of hard drugs, violence and school problems, alcohol, cigarette, smoking and other psycho-physiological disorders (Carroll et al., 2002; Roberts et al., 2002; Koch, 2007).

Psychosocial risks with body art are also documented and include embarrassment, low self esteem, and disappointment (Armstrong, 1991; Armstrong & McConnell, 1994; Armstrong & Pace Murphy, 1997; Armstrong et al., 1995). The American Academy of Child and Adolescent Psychiatry released a statement in 1999 in which they listed 'excessive piercing' along with tattooing, picking, burning, head-banging and cutting as possible forms of self-injury. In mainstream professional journals, including The Journal of Psychosomatic Research (2006, volume 6, issue 4), Adolescence (2002,

volume 37, issue 147), The Journal of Adolescent Health (2005, volume 36, issue 4), Deviant Behavior (2009, volume 30, issue 6) and Pediatrics (2002, volume 109, issue 60), body piercing and tattooing have been associated with dangerous and sometimes lethal risk-taking behaviour, eating disorders, self-loathing, substance abuse, depression and social alienation (Rubin and Brody 2009). Individuals often associate tattoos and body piercings with gang members, prisoners, military personnel, or rebellious teenagers (Schmidt, 2011; Armstrong, 2009,).

The risky behaviours associated with body art, is not entirely agreed upon by all researchers they claims results from the fact that some adolescents who possess body arts are well behaved (Mayers et al., 2003). Despite this, this association is believed to be of public health importance as an adolescent willing to take the risk of modifying his/her body will be willing to engage in other risky behaviours which are more common around them (Carroll et al., 2002). In different but similar studies, researchers reported that young persons who had body modifications engaged in significantly higher premarital sexual activity (Koch, 2007), had more disordered eating behaviours, used more gateway drugs and hard drug, engage in sexual activity and were more likely to commit suicide (Carroll, 2002; Roberts et al 2002) than their peers who did not have their bodies modified. The researchers argued that some of these behaviours may lead to outcomes that affect the normal healthy development of the adolescents. They suggested that body modifications could prompt health care providers in taking good medical histories in cases regarding sexual behavior, drug use, mood disorders and may lead to identification of medical issues like gynaecologic health needs or provide accurate information about dangers of illicit drug. It may also be used as a warning signal/screening device for risk taking behavior and lead to medical monitoring and counseling (Carroll et al., 2002). Body piercings/tattoo can alert practitioners to the possibility of other risk-taking behaviors in adolescents, leading to preventive measures, including counselling. Carroll et al., 2002 anticipated that body piercing discovery should be an important part of a health maintenance visit to best direct adolescent medical care. Schorzman et al., 2007 suggested that it should be a routine topic addressed by family physicians at physical examinations for adolescents and young adults.

CHAPTER 3

METHODOLOGY

3.1. Study design

This is a descriptive cross sectional study. It collected primary data using quantitative data collection method.

3.2. Study area

Ibadan is located in south-western Nigeria. It is the largest by geographical area and the third largest city by population in Nigeria. It is 128 km inland northeast of Lagos and 530 km southwest of Abuja, the federal capital and is a prominent transit point between the coastal region and the areas to the north. In the old Western region of Nigeria, Ibadan had been the centre of administration since the days of the British colonial rule. Parts of the city's ancient protective walls still stand to this day. The principal inhabitants of the city are Yoruba-speaking people.

The Ibadan North Local Government was founded by the Federal Military Government of Nigeria on the 27th September, 1991. It was carved out of the defunct Ibadan Municipal Local Government along with others. The population of Ibadan North is 306795 (National Population Commission, 2006), covering an area of 128 km^2. Majority of the population of Ibadan North Local Government are in the private sector. They are mainly traders and artisans. A good number of their workers are Civil Servants. Educational institutions in the Ibadan north include the University of Ibadan, University College Hospital and the Polytechnic, Ibadan both institutions having a population of undergraduates and postgraduate students. There are also numerous public and private primary and secondary schools located in the city.

3.3. Study site

The University of Ibadan is the oldest Nigerian university, and is located five miles (8 kilometres) from the centre of the city of Ibadan in Western Nigeria. The university has 13 faculties with a population of over 20,000 students. The faculties include arts, education, law, basic medical science, clinic sciences, pharmacy, public health,

dentistry veterinary medicine, technology, agricultural science, sciences and social sciences (University of Ibadan PG school prospectus, 2009)

The university also has residential hostels for both undergraduate and Post Graduate (PG) students. There are 12 halls of residence within the institution, nine for undergraduates and three for PG. Post graduates hostel include New PG hall (Abdulsalami Abubakar), Tafewa Balewa hall and Obafemi Awolowo Hall. New PG hall and Tafewa Balewa hall are mixed (male and female) whilst the Obafemi Awolowo hall is mainly for females (under graduate and post graduate). Undergraduate Halls include Alexander brown Hall (ABH) for medical and physiotherapy students (male and female). Tedder hall, Kuti hall, Mellanby, Nnamdi Azikiwe hall, Ahamadu Bello hall and Independence hall for males while Queen Idia, Queen Elizabeth and Obafemi Awolowo hall for females. Each hall of residence consists of several blocks lettered A-E and up to I in some halls like Queen Elizabeth hall. Each hall consists of rooms accommodating two to three persons per room.

3.4. Study population

The study population is undergraduate students of the University of Ibadan who are between the ages of 16 -25 years old enrolled in regular programme in the university.

3.5. Sample size

The number of participants in the study was derived from an estimate of 50% prevalence which is an assumed prevalence since the prevalence of body piercing and tattooing among young persons in Nigeria is not documented. At 95% confidence interval and error margin of 5%, the following sample size estimation presented below was made:

$$\frac{Z^2pq}{d^2}$$

Where Z is standard normal deviate set at 1.96 corresponding to 95% Confidence interval

P - is assume prevalence 50% (0.50)
Q - is 1-p
d^2 - is precision set at 5% (0.05)

$$\frac{1.96 \text{ X } 1.96 \text{ X } 0.5 \text{ X } 0.5}{0.05 \text{ X } 0.05} = 385$$

The sample size is 385. However, if response rate is assumed to be 90%, adjusting for 10% non- response brought the sample size to 424.

3.6. Sampling technique

A multi stage sampling technique was use

Stage I: - random sampling was used to select two male hostels out of five and two female hostels out of three.

Stage II: - Four blocks were then randomly selected from each of the selected hostel.

Stage III: - A total of 106 students were systematically selected from every odd numbered room (34 rooms) in each of the four hostels (212 males and 212 females) i.e about 26 persons from each block in a particular hostel totalling 424 students.

3.6.1. Inclusion criteria

Undergraduate students of the University of Ibadan who were between the ages of 16-25 years and residing in the hostel were included in the study.

3.6.2. Exclusion criteria

- Students who were not between the ages 16-25years.
- Students not residing in the hostel.
- Students who decline consent.

3.7. Data collection instrument

A self-administered questionnaire (Appendix 11) was used to obtain information from the selected participants. Information was collected on socio-demographic characteristic, knowledge and perception of body piercings and tattooing, knowledge of health risk associated with body piercing and tattooing, prevalence of body piercing and tattooing; attitude towards body piercing, involvement in risk taking behaviours and motivations for body piercing and tattooing. The various items in the questionnaire were adapted from previously published related studies.

3.8. Assessment of knowledge of health risks

Thirty nine questions were used to assess the knowledge of respondents about health risks associated with body piercing and tattooing. The questions assess the knowledge of hygienic rules about body piercing and tattooing and knowledge of health complications associated with body piercing and tattooing. The correct responses were scored as one and the incorrect responses were scored as zero. Aggregate score was computed for each respondent. A mean score of 12.4±9.9 was obtained. The maximum attainable score on the knowledge scale was 39.0 and the minimum was zero. Respondents scoring ≥20 were categorized as having good knowledge and those scoring <20.0 as having poor knowledge.

3.8.1. Assessment of perception

Thirty one questions were used to assess the perception of respondents towards body piercing and tattooing. The questions assessed their perception on societal acceptability of body piercing and tattooing, the parts of the body they think is normally pierced and tattooed, what they think piercing and tattooing is related to and why they think people pierce and tattoo their bodies, if they would like body piercing and tattooing on others/themselves and if those practicing body piercing and tattooing are likely to be involved in risk taking behaviours. The correct responses were scored as one and incorrect responses as zero. Aggregate score was computed for each respondent. The maximum attainable score on the perception scale was 31.0 and the minimum was zero. The cutoff point for good perception was set at 16.0. Respondents scoring ≥16.0 were considered as having good perception while those scores < 16.0 were considered as having poor perception.

3.9. Data management and statistical analysis

Data was entered and analysed using the Statistical Package for Social Sciences (SPSS) version 15. The main outcome variables that were measured are the prevalence of body piercing and tattooing, knowledge of health risk associated with body piercing and tattooing and perception of body piercing and tattooing. The independent variable is the socio-demographic characteristics. Descriptive statistics was computed and test of association was carried out using Chi-square test between the dependent and

independent categorical variables. Logistic regression was used to adjust for confounding factors and identify the factors responsible for acquiring body piercing and tattooing. Statistical level of significance was at $p = 0.05$.

3.10. Ethical considerations

Approval for the study (Appendix 111) was obtained from University College Hospital UI/UCH joint Institutional Review Committee (IRC), University of Ibadan, Ibadan. Respondents were informed (Appendix 1) of the purpose of the study and that it is relatively risk free. They were assured of their confidentiality through the use serial numbers on the questionnaire instead of names as well as their freedom to withdraw their participation at any point.

CHAPTER 4

RESULTS

4.0. Socio-demographic characteristics

A total of 424 respondents participated in the study of which half (50.0%) of respondents were females. The age of respondents ranged from 16 to 25 years with a mean age of 21.4±2.3years. Majority 261(61.7%) of respondents were between the ages of 21-25 years while only 38.3% of all the participants were in the age group 16-20 years.

As regards respondents tribe, majority 328(77.4%) were Yoruba's while other tribes made up (n=21, 4.7%, consisting of non Nigerians, Efiks', Ibibio's, Tivs', Deltans' and Edo indigenes) as shown in figure 4.1. The demographic characteristics of respondents are summarized in Table 4.1 below

Table 4.1. Demographic characteristic of respondents

Characteristics	N	%
Sex		
Male	212	50.0
Female	212	50.0
Age Group		
16-20 years	163	38.3
21-25years	261	61.7
Marital Status		
Single	406	97.6
Married	12	2.4
Divorced	1	0.2
Separated	1	0.2
Religion		
Christianity	354	83.5
Islam	68	16.0
Others (traditional etc)	2	0.5
Nationality		
Nigerian	409	99.0
Others(South African, Ghanaian, French)	4	1
Tribe		
Igbo	69	16.3
Hausa	6	1.4
Yoruba	328	77.4
Others(e.g. Efiks, Ibibios, Tivs etc and non-Nigerians)	21	4.7
Level of Study		
100-200	131	30.5
300-500	293	69.5
Mothers level of education		
Primary	32	7.5
Secondary	88	20.8
Tertiary	261	61.6
Others(no education)	43	10.1
Fathers level of education		
Primary	19	4.0
Secondary	61	14.4
Tertiary	302	71.2
Others(no education)	44	10.3
Total	424	100

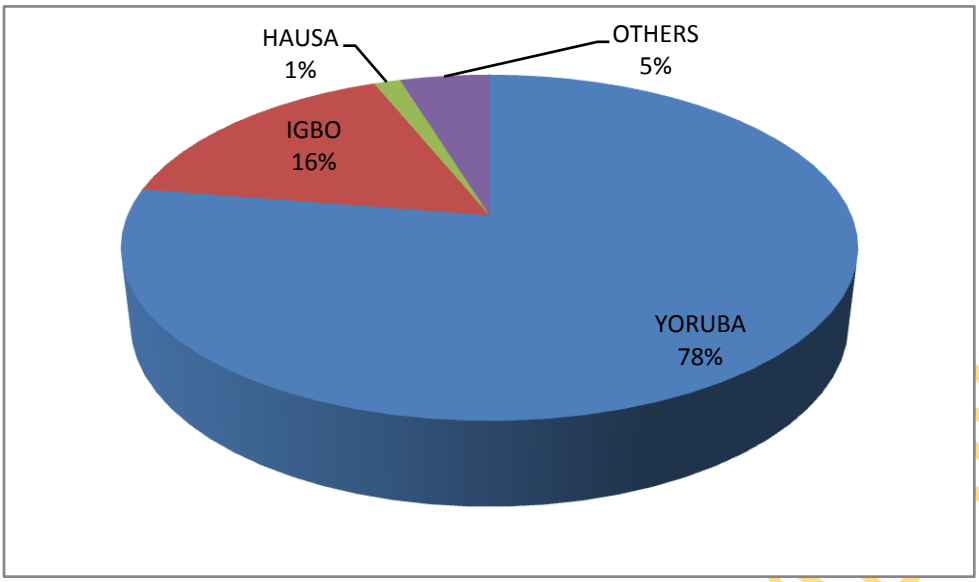

Figure 1. Pie chart showing the different tribes of respondents

4.1. Prevalence of body art

Prevalence of body piercing: Respondents (n=35) had one form of body piercing or the other making a prevalence of 13.2%. Among pierced respondents, majority reported 26(74.3%) multiple ear piercing as shown in figure 2 below. The age at which most respondents got their first ear piercings was at birth (n=21; 84.0%), 13years and 18 years (n=2; 8.0%) respectively). However, the age at which respondents carried out the additional piercings on the ear was: 20 years- (n=6; 23.1%) additional years and other forms of piercing and the age at which the piercing was acquired is shown on table 4.1 below. Complications reported as a result of the piercings were injury (9.1%), pain (81.8%) and both injury and pain (9.1%) to the site of modifications.

Prevalence of tattooing: Four respondents had tattoo on their body making a prevalence of 1.9%. Two respondents (50.0%) had tattooed their leg, (n=1; 25.0%) their chest and (n=1; 25.0%) tattooed their arm. The age at which the tattoos were obtained by respondents was 23years (n=2; 50.0%), 15years (n=1; 25.0%) and 17years (n=1; 25.0%). Pain 1(100%) was the only complication reported as a result of tattooing.

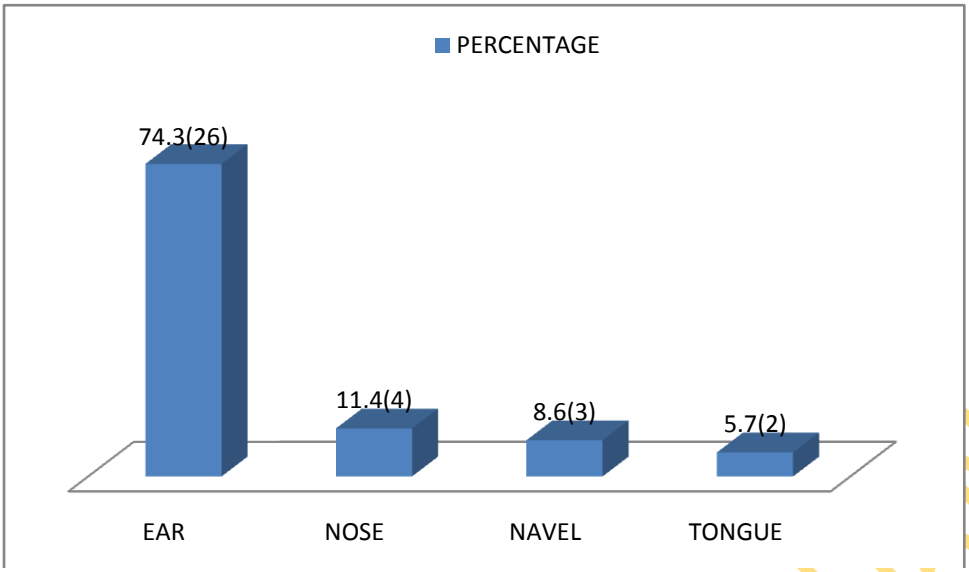

Figure 2. Bar chart showing the different types of body piercing carried out by respondents

Table 4.2. Types of piercing and age at which additional piercings was acquired

Types of piercing	Age (Yrs)	N (%)	Total
Tongue	23	2(100)	100
Navel	17	2(66.7)	100
	18	1(33.3)	
Nose	20	3(75.0)	100
	18	1(33.3)	
Ear	20	6(23.1)	100
	17	5(19.2)	
	18	4(15.4)	
	19	3(11.5)	
	23	2(7.7)	
	13	2(7.7)	
	12	2(7.7)	
	16	1(3.8)	

4.1.1. Body arts, tools used for the modification

Number of body piercings on a particular site: The number of piercings reported on each pierced site by respondents was: two holes (61.3%), three holes (32.1%) and six holes (3.6%) for ear piercing. Respondents who reported piercing their tongue, navel and nose reported one hole pierced on each of the site.

Tools use for piercing: Different tools were used by respondents for their piercings. For piercing the ear, most 18(72.0%) of the respondents used an earring while piercing machine and needle was used by 5(20%) and 2(8%) of respondents respectively. Piercing machine was reported as the tool used for piercing the navel by all respondents and earring for piercing the nose.

Places where body piercing was done: The different places that respondents had their piercings done were at the salon (n=9; 32.1%), at home (n=16; 57.1%), the spa (n=2; 7.1%), and at both the salon and home (n=1; 3.6%).
Among the respondents who had piercing, 12(40.0%) had their piercing done for them by their friends, 13(43.3%) reported that they had theirs done by a professional while 2(6.7%) claimed their parents did it for them. Similarly, 2(6.7%) reported piercing themselves and 1(3.3%) reported having a professional do some of the piercing while they did some.

Number of tattoos: Respondents with tattoo reported having just one type of tattoo on the different parts of the body tattooed.

Tools used for tattooing: The tools use in designing the tattoos was lale 2(63.3%) and ink machine 1(33.3%).

Places where tattoo was obtained: Among tattooed respondents, 2(66.7%) said they had the tattoo done by a Hausa girl in the hostel and 1(33.3%) said it was done for them by a professional.

4.2. Knowledge of body piercing and tattooing

General knowledge of body piercing: On their general knowledge about body piercing most respondents 353(88.9%) knew what body piercing is. More than half 144(50.9%) of respondents could correctly defined body piercing. The correct definitions described body piercing as the use of machines or instrument to create a hole in the skin in different parts of the body in order to insert jewelry. The nose 168(45.7%), the navel 32(7.5%), the tongue 28(6.6%) the private part 15(3.5%), the breast 10(2.4%) and the eyebrow 4(0.9%) were listed by respondents as parts of the body most commonly pierced by females other than the earlobe. Some 89(21.5%) respondents also mentioned that females could pierce more than two parts of their face example piercing the eyebrow, nose and the lips while 22(5.2%) said females could pierce various parts of their face and bodies example piercing their navel, nose, eyebrow and nipples. Males were reported by majority 265(75.9%) of respondents normally to pierce their ears and few 84(24.1%) respondents reported that the nose, tongue, eyebrow and two or more of any of these parts of the body are also pierced by males.

With respect to knowledge of the actual locations where body piercing can be carried out, only 97(26.9%) of respondents knew where body piercing was done. Majority 161(67.4%) of respondents said professionals were the ones licensed to perform body piercing while 37(15.3%) said it could be done by friends, 21(8.8%) said the individuals could do it for themselves and 7(2.9%) said parents could do the modification

General knowledge of tattoo: On their general knowledge about tattooing, most respondents 363(93.6%) knew what tattooing is. More than half 255(60.1%) of respondents could correctly defined tattooing. Tattooing was defined as the art of drawing various designs on the body for various purposes. Respondents 97(27.9%) also reported that most females liked to tattoo their breast, 88(25.3%) said back or buttocks, 35(10.1%) said their whole body and 75(21.5%) said other parts of the body like shoulder, limbs, stomach while males were said by more than half 207(58.0%) respondents to normally tattoo their arms, 40(11.2%) said the whole body, and 59(30.8%) said chest or shoulder.

Respondents got to know about body piercing and tattooing from various sources, 210(49.5%) of respondents reported that they got their information from the television

and 180(42.5%) from their friends. Other sources of information regarding body piercing and tattooing for the respondents included 152(35.8%) from the internet, 144(34.0%) from the newspaper and magazine, 39(9.2%) from the radio and 18(4.2%) said they got their information from the environment. With respect to knowledge of the actual locations where tattooing can be carried out, only 106(30.1%) of respondents knew where tattooing was done. Majority 176(75.6%) of respondents said professionals were the ones licensed to perform tattoo while 26(11.3%) said it could be done by friends, 15(6.4%) said the individuals could do it for themselves and 4(1.9%) said parents could do the modification

4.2.1. Respondents knowledge of health risk associated with body piercing and tattooing: Respondents' knowledge of health risks associated with body piercing and tattooing was assessed. Only (n=110) twenty six percent of respondents demonstrated good knowledge of health risk associated with body piercing and tattooing while 314(74.0%) reported poor knowledge. Knowledge of health risks associated with body piercing and tattooing was assessed using respondents knowledge of hygienic rules regarding body piercing and tattooing represented in table 4.3a below and knowledge of infectious disease that can arise due to body piercing and tattooing shown in table 4.3b below. Table 4.3a shows that about a third of respondents 151(41.8%) were aware of hygienic rules regarding body piercing and tattooing. This rules included use of sterilized needle 136(32.1%), proper handwashing 95(22.4%) and single needle use 97(22.9%).

Table 4.3b showed that majority of respondents reported that HIV 301(90.1%), haematoma 166(67.2%), infection of site 157(74.3%), keloid 232(84.7%), cyst 170(68.0%) can arise as a result of body piercing and HIV 247(80.2%), haematoma 146(57.0%), infection of site 146(72.6%), keloid 192(77.7%), cyst 158(65.8%) can arise as a result of tattooing.

Table 4.3a Respondent's knowledge of hygienic rules regarding body piercing and tattooing

N = 424	Correct responses %(n)	Incorrect response %(n)
Awareness of hygienic rules	41.8(151)	58.2(210)
How it looks	93.2(395)	6.8(29)
Use of sterilized equipment	32.1(136)	67.9(288)
Proper handwashing	22.4(95)	77.6(329)
Single use of needle	22.9(97)	77.1(327)
Use of latex gloves	19.6(83)	80.4(341)
Use of skin disinfectant	17.5(74)	82.5(350)

Table 4.3b Respondent's knowledge of complications and or infectious diseases that can arise due to Body piercing and tattooing

Disease	**Body piercing**	**Tattooing**
N = 424	**Good knowledge (%)n**	**Good knowledge (%)n**
HIV	90.1(301)	80.2(247)
Hepatitis	43.0(116)	47.2(125)
Syphilis	47.9(128)	44.0(111)
Herpes	60.0(36.8)	49.6(119)
Glandular fever	37.2(90)	35.9(79)
Erysipelas	68.2(167)	68.4(156)
Toxic Shock Syndrome	55.7(136)	52.7(125)
Photosensitivity Reaction	47.9(113)	62.1(144)
Septiceamia	55.5(127)	57.0(126)
Psoriasis	65.3(154)	62.1(141)
Haematoma	67.2(166)	57.0(130)
Endorcarditis	37.5(87)	32.5(68)
Condylomata and warts	56.3(129)	55.1(114)
Infection of site of piercing and tattooing	73.4(157)	72.6(146)
Keloid	84.7(232)	77.7(192)
Cyst	68.0(170)	65.8(158)

* Multiple responses. Responses shown are only of those that reported yes that this complication can arise as a result of body piercing and tattooing

4.3. Perception of body piercing/tattooing and risk taking behaviour

The perception of respondents towards body piercing and tattooing was assessed. Most 316(74.5%) respondents had poor perception towards body piercing and tattooing.

Perception towards body piercing: Only 100(27.2%) felt that body piercing was a socially acceptable practice. Socially, 137(59.6%) of respondents felt that only one site was acceptable to be pierced on the body. However, few 37(16.1%) respondents said two, 1(0.4%) said three, 15(6.5%) said four and above, 20(8.7%) said none and 20(41.7%) and did not know for body piercing. Interestingly, 254(69.2%) of respondents felt body piercing was not common on campus and 261(71.3%) felt that other than earlobe pierced at birth for females multiple ear piercing was common.

Perception towards tattooing: Only 57(15.7%) felt that tattooing was a socially acceptable practice. Socially, 49(24.3%) of respondents felt that only one site was acceptable to be tattooed on the body. However, few 12(5.9%) respondents said two, 3(1.5%) said three, 27(13.4%) said four and above, 90(44.6%) said none and 21(50%) did not know.

Perception on complications as a result of body piercing/tattooing and risk taking behaviour: Respondents thought the following complications may occur as a result of piercing and tattooing: bleeding 159 (37.5%), scars 158(37.3%), infection 238(56.1%), allergic reaction 131(30.9%), bruising 110(25.9%), others 21(5%) while 159(37.5%) felt that these complications may lead to death depending on the severity. Respondents who felt that body piercing and tattooing should be done by a professional were 225(53.1%), others 50(11.8%) said medical personnel, 12(2.8%) and 10(2.4%), 4(0.9%) said self, nobody and parent, respectively while 120(28.3%) gave no response. Respondents felt the practice of body piercing and tattooing was as a result of and related to various practices such as fashion 280(66.0%), self expression/identity 225(53.1%), rebellion 194(45.8%), religion 82(19.3%) and sects/fraternities 180(42.5%).

Thirty seven percent(n=157) of respondents said those who had body piercing and tattooing were likely to be involved in risk taking behaviours such as use of drugs 34(38.2%), cultism and prostitution 29(32.6%) rebellious and violent behaviour 23(25.8%), and the likelihood to become smokers 3(3.4%).

4.3.1. Attitude of respondents towards body piercing and tattooing

The attitude of respondents towards body piercing/tattooing was sought. Reasons given by respondents who did not have body piercing and tattoo for their lack of interest in body piercing and tattooing included opposing the practice 86(20.3%), disliking it 168(39.6%), being afraid of infection 7(1.7%), it is unattractive 8(1.9%) and it is difficult to remove 12(2.8%). Other reasons include: their parent would not agree 14(3.3%), they couldn't afford it 2(0.5%, they are afraid 5(1.2%) and 6(1.4%) said their doctor advised against it.

Before carrying out a piercing and tattooing, respondents (N=424) attitude towards what they considered to be very important to ask about was sought: 192(45.3%) considered going to a certified professional as very important, 131(30.9%) considered the consequences for their health to be very important, 75(17.7%) considered referring to their friends, 55(13.0%) how it can be removed. 43(10.1%) if it would be physically painful, 40(9.4%) how much it costs and 37(8.7%) of respondents thought who will carry out the procedure was very important, and 27(6.4%) and an equipped lab as very important respectively. In case of complications 37(8.7%) said they would ask a friend for help, 172(40.6%) would to go to a doctor, 9(2.1%) use some disinfectant, 73(17.2%) go to a hospital and 126(31.6%) gave no response

Majority 170(40.1%) of respondents consider themselves to be risk takers (N=424). Regarding information on risk taking behaviour of respondents, 36(8.5%) of respondents reported having ever smoked, 132(31.1%) had ever been involved in a physical fight, 17(4.0%) had ever contemplated suicide and 129(30.4%) had ever been depressed. Only 37(8.7%) had ever had an eating disorder, 94(22.2%) had ever engaged in a sexual activity, 36(8.5%) had ever handle weapons, 27(6.4%) had ever used drugs and 79(18.6%) had ever drunk alcohol.

Respondents (N=424) had the following attitude towards the practice of body piercing. Most 83(19.6%) were indifferent, 47(11.1%) felt it was a personal choice, 102(24.1%) said it was bad and 24(5.7%) felt they were irresponsible. Few respondents 31(7.3%) said it was normal/okay and 137(32.3%) gave no response. Only 74(17.5%) of respondents said they like body piercing on others. Pierced respondents' opinion was also sought on if they like body piercing on themselves 16(3.8% said yes.

Respondents (N=424) had the following attitude towards the practice of tattooing. Some 75(17.7) were indifferent, 43(10.1%) felt it was a personal choice, 85(20.0%) said it was bad and 36(8.5%) felt they were irresponsible. Few 27(6.4%) said it was normal/okay and 158(37.3%) gave no response.

Only few 67(15.8% of respondents like tattooing on others. Respondents' opinion was also sought on if they like body piercing on themselves 33(7.8%) said yes for tattoo. About 7(2%) of respondents said they would like a permanent tattoo and 82(19.3% said temporal tattoo because it would be easy to remove.

4.4. Reasons for modification

Reasons given by pierced respondents on why they pierced their bodies were: for fashion 8(33.3%), depression/boredom 5(12.5%), for fun of it and they like it 11(11%), personal reasons like tear on the previous hole 5(12.5%), and desire to put on more earrings 7(8.8%).

Perceived reasons on why people pierce and tattoo their bodies given by majority 299(70.5%) of respondents (N=424) was that many practice it in order to be fashionable, 213(50.2%) felt that they did it to catch attention, 198(46.7%) felt that maybe they like the way it looks, 160(37.7%) said they may do it to feel different and to make a personal statement 137(32.3%). Other reasons include to be daring 144(34.0%), to fit in 157(37.0%), parents don't want them to have one (15.8%), religious reasons (12.7%) and because their friends want them to have one 108(25.5%) and 12(2.8%) gave other reasons. Interestingly, respondents (n=368, 86.8%) without piercing and (n=42, 98.1%) tattooing gave the following reasons why they may carry out the practice; 87(20.5%) reported out of curiosity, 24(5.7%) rebellion and 33(7.8%) said to emulate someone famous. Few 19(4.8%) of respondents cited peer pressure, a desire to improve their looks 63(14.9%), 6(1.4%) said fad and 13(3.1% gave other reasons such as religious beliefs and that they were not interested.

4.5. Association between socio-demographic characteristics and knowledge of health risk associated with body piercing and tattooing

Null hypothesis H_0: there is no significant relationship between respondent's socio demographic characteristics and knowledge of health risk associated with body piercing and tattooing.

Table 4.4 below shows the relationship between socio demographic characteristics of respondents and knowledge of health risk associated with body piercing and tattooing. There was a significant relationship between sex, level of study, parent's educational status and knowledge of health risk associated with body piercing and tattooing. Females 64(58.1%) significantly had good knowledge of health risks compared to males 46(41.9%). Respondents in levels 300-500 (n=68; 61.8%) significantly had good knowledge of health risks compared to those in 100-200 level of study (n=42; 38.2%) while respondents whose parent had tertiary education, 77(77.8%) (mothers educational status) and 88(88.9%) for fathers educational status significantly had good knowledge of health risks compared to respondents' whose parents had secondary, primary or no education for both father and mother respectively. However, adjusting for confounding factors there was no significant association between, sex level of study, parent's level of education and respondents knowledge of health risk as shown in table 4.4b. There was no significant association between respondents' age, tribe, religion, marital status and employment status of parent associated with body piercing and tattooing therefore the null hypothesis is accepted.

Table 4.4. Relationship between socio-demographic characteristics of respondents' and knowledge of health risk associated with body piercing and tattooing.

Socio-demographic characteristics	Knowledge of health risk		X^2	Pvalue
	Poor (<20)	Good (≥20)		
	n (%)	n (%)		
SEX				
Female	148(47.1)	64(58.2)	3.977	0.046*
Male	166(52.9)	46(41.8)		
Age	114(36.3)	48(44.0)	2.046	0.153*
16-20	200(63.7)	61(56.0)		
21-25				
Level of study	86(27.7)	42(38.2)	4.176	0.041*
100-200	224(72.3)	68(61.8)		
300-500				
TRIBE	48(15.5)	21(19.1)		
Igbo	5(1.6)	1(0.9)	6.474	0.692
Hausa	245(79.0)	83(75.5)		
Yoruba	12(3.9)	5(4.5)		
Others				
			1.262	0.261
RELIGION	258(82.7)	96(87.3)		
Christianity	54(17.3)	14(12.7)		
Islam				
			1.043	0.791
Marital Status	30.1(96.8)	105(96.3)		
Single	8(2.6)	4(3.7)		
Married	1(0.3)	0		
Divorced	1(0.3)	0		
Separated				
Mothers education	30(10.1)	2(2.0)		
Primary	73(24.7)	5(15.2)	12.626	0.006*
Secondary	62.2(62.2)	77(77.8)		
Tertiary	9(3.0)	5(5.1)		
Others				
Fathers education	16(5.5)	1(1.0)		
Primary	36(19.1)	5(5.1)	16.909	0.001*
Secondary	214(73.0)	88(88.9)		
Tertiary	7(2.4)	5(5.1)		
Other				
Employment status (mother)				
Self employed	149(50.2)	50(45.9)		
Employed	132(44.4)	51(46.8)	2.043	0.563
Unemployed	5(1.7)	1(0.9)		
Other	11(3.7)	7(6.4)		
Employment status father)				
Self employed	131(45.3)	50(48.5)		
Employed	134(46.4)	43(41.7)	1.162	0.762
Unemployed	1(0.3)	0(0)		
Other	23(8.0)	10(9.7)		

*significant p=0.05

Table 4.4b Shows logistic regression model of socio demographic characteristics and knowledge of health risk associated with body piercing

	P value	Odds ratio	95% confidence interval Lower	Upper
SEX				
Female				
Male (reference)	0.669	1.113	0.681	1.818
Level of study				
100-200	0.034	1.734	1.042	2.885
300-500(reference)				
Educational status mother	0.999	+008	0	
Educational status father	0.999	0	0	

4.6. Association between socio-demographic characteristics of respondents and perception of body piercing and tattooing

Null hypothesis: H_0 there is no significant relationship between socio demographic characteristics of respondents and perception of body piercing and tattooing.

The association between socio-demographic characteristics of respondents and perception of body piercing and tattooing is shown in table 4.5a. There was a significant association between sex, age, religion, parental educational and employment status and perception of body piercing and tattooing. Respondents between 16-20years 57(52.8%) had good perception compared to those between 21-25years (n=51; 47.2%). Female 72(66.7%) respondents significantly had good perception of body piercing and tattooing compared to males 36(33.3%). Respondents' in the Christian religion 97(89.8%) had good perception towards body piercing and tattooing than those in Islamic faith 11(10.2%).

Table 4.5b shows that adjusting for significant factors, females were one time more likely to have good perception compare to males (OR=1.830, 95%CI= 1.091-3.070) while the odds of respondents having good perception was two times higher in the age group 16-20years than those aged 21-25years (OR=1.928, 95%CI=1.168-3.185). Therefore the null hypothesis is rejected for age and sex but accepted for other socio-demographic factors

Table 4.5a Association between socio demographic characteristics and perception of body piercing and tattooing

Socio-demographic characteristics	PERCEPTION Poor (<16) n (%)	Good (≥16) n(%)	X^2	Pvalue
SEX				
Female	140(44.3)	72(66.7)	16.1	0.001*
Male	176(55.7)	36(33.3)		
Age				
16-20	105(33.3)	57(52.8)	12.8	0.001*
21-25	210(66.7)	51(47.2)		
Level of study				
100-200	90(28.8)	38(35.2)	1.5	0.217
300-500	222(71.2)	70(64.80)		
TRIBE				
Igbo	46(14.7)	23(21.3)	13.2	0.152
Hausa	5(1.6)	1(0.9)		
Yoruba	250(79.0)	78(73.2)		
Others	4(3.9)	2(4.7)		
RELIGION				
Christianity	257(81.8)	97(89.8)	3.774	0.032*
Islam	57(18.2)	11(10.2)		
Marital Status				
Single	300(96.2)	106(98.1)		
Married	11(3.5)	1(0.9)	5.1	0.160
Divorced	0	1(0.9)		
Separated	1(0.3)	0		
Mothers education				
Primary	31(10.7)	1(1.0)		
Secondary	74(25.4)	14(13.3)	23.8	0.000*
Tertiary	173(59.5)	88(84.6)		
Other	13(4.3)	1(1.0)		
Fathers education				
Primary	15(5.2)	2(1.9)		
Secondary	5.1(17.8)	10(9.6)	9.02	0.024*
Tertiary	210(73.2)	92(87.6)		
Other	11(3.8)	1(1.0)		
Mother's Employment status				
Self employed	160(58.2)	39(37.1)		
Employed	121(40.7)	62(59.0)		
Unemployed	6(2.0)	0	12.4	0.006*
Other	14(4.7)	4(5.8)		
Father's Employment status				
Self employed	144(49.5)	37(36.6)		
Employed	119(40.9)	58(57.1)	8.5	0.036*
Unemployed	1(0.3)	0		
Other	27(9.3)	6(5.9)		

*significant p=0.05

Table 4.5b regression model of socio-demographic factors and perception of body piercing/tattooing

Socio-demographic characteristics	P-value	OR	95.0% C.I. Lower	Upper
Sex				
Female	.022	1.830	1.091	3.070
Male				
Age				
16-20	.010	1.928	1.168	3.185
21-25yrs				
Religion				
Christianity	.596	1.231	.571	2.651
Islam				
mothers level of education				
tertiary				
primary	.999	+0.894	.000	
secondary	.999	+1.330	.000	
Others	.999	+0.444	.000	
Father s level				
Tertiary	.954			
primary	.999	.000	.000	
Secondary	.999	.000	.000	
Others	.999	.000	.000	
Mothers employment				
Employed	.674			
Self employed	.998	.998	.166	5.996
Unemployed	.680	1.449	.249	8.445
Others	.999	.000	.000	
Fathers employment				
Employed	.749			
Self employed	.853	.866	.189	3.969
Unemployed	.822	1.189	.263	5.370
Others	1.000	.000	.000	

4.7. Association between socio-demographic characteristics and the practice of body piercing and tattooing

Null hypothesis: H_0 there is no significant relationship between socio-demographic characteristics and having a piercing.

Table 4.6a shows that Majority 30(96.8%) of pierced respondents were females. Among pierced respondents, 21(67.7%) were aged 20- 25 years while 10(32.3%) were aged 16-19 years. More than half (n=18; 58.1%) of respondents who practiced body piercing were in higher levels (300-500) and 13(41.9%) in lower levels (100-200) of study. Finding the statistical association between having a piercing and socio demographic characteristics it was observed that only sex was significantly associated with having a piercing. With females significantly having more piercings than males p=0.000 the null hypothesis is therefore accepted.

Half 2(50.0%) of tattooed respondents were females and half 2(50.0%) were aged 16-20years. There was a significant relationship between parental education and having a tattoo as respondents whose parent had secondary education 3(75%) were observed to have more tattoos compared to those whose parent had tertiary education 1(25%) this is represented in table 4.6b. However, adjusting for other factors, there was no significant association between parental education and having a tattoo. The null hypothesis is therefore accepted.

Table 4.6a Association between having a piercing and socio-demographic characteristics

Socio demographic characteristics	Do you have body piercing		
	Yes n (%)	X^2	P value
SEX			
Female	30(96.8)	14.238	0.000*
Male	1(3.2)		
AGE			
16-20	10(32.3)	1.031	0.310
21-25	21(67.7)		
LEVEL OF STUDY			
100-200	13(41.9)	0.963	0.329
300-500	18(58.1)		
TRIBE			
Igbo	5(16.7)		
Hausa	2(6.7)	10.328	0.171
Yoruba	22(73.3)		
Others	1(3.3)		
RELIGION			
Christianity	24(77.4)	1.230	0.267
Islam	7(22.6)		
Marital status			
Single	31(100)		
Married	0	0.207	0.976
Divorced	0		
Separated	0		
Mothers level of education			
Primary	0		
Secondary	11(35.5)	4.606	0.203
Tertiary	20(64.5)		
Others	0		
Fathers level of education			
Primary	0		
Secondary	6(19.4)	2.600	0.458
Tertiary	25(80.6)		
Other	0		
Employment status mother			
Self employed	19(61.3)		
Employed	12(38.7)	0.171	0.918
Unemployed	0		
Other	0		
Employment status father			
Self employed	14(45.2)		
Employed	15(48.4)	0.630	0.730
Unemployed	0		
Other	2(6.5)		

* significant p=0.05

Table 4.6b Relationship between socio-demographic characteristics and having a tattoo

Socio-demographic characteristics	Do you have tattoo YES n(%)	X^2	P value
Sex			
Female	2(50)	0.939	0.332
Male	2(50)		
Age			
16-20	2(50)	0.099	0.753
21-25	2(50)		
Level of study			
100-200	2(50)	0.370	0.543
300-500	2(50)		
TRIBE			
Igbo	0	0.875	0.990
Hausa	0		
Yoruba	3(100)		
Others	0		
RELIGION			
Christianity	4(100)	0.714	0.398
Islam	0		
Marital Status			
Single	4(100)		
Married	0	0.207	0.976
Divorced	0		
Separated	0		
Mothers level of education			
Primary	0		
Secondary	2(50)	13.652	0.003*
Tertiary	1(25)		
Others	1(25)		
Fathers level of education			
Primary	0		
Secondary	3(75)		
Tertiary	1(25)	11.815	0.008*
Other	0		
Employment status mother			
Self employed	2(50)		
Employed	2(50)	0.193	0.979
Unemployed	0		
Other	0		
Employment status father			
Self employed	2(50)		
Employed	2(50)	0.171	0.918
Unemployed	0		
Other	0		

*significant p=0.05

4.8. Association between knowledge of health risks associated with body piercing and tattooing and the practice of body modification

Table 4.7a shows that Respondents with tattoo (100.0%) had poor knowledge of health risk associated with body piercing and tattooing. however, this was not statistically significant and null hypothesis is accepted. Table 4.7b shows that majority of pierced respondents 23(74.2%) had poor knowledge of health risks while 8(11.8%) had good knowledge. There was no significant difference between having a piercing and knowledge of health risks. The null hypothesis was accepted.

Table 4.7. Association between knowledge of health risks and the practice of tattooing

N=424		Do you have tattooing		X	P value
		No (%)	**Yes (%)**		
Knowledge of health risks	Poor	143(70.1)	4(100)	1.692	0.193
	Good	61(29.9)	0		
	Total	100	100		

Table 4.7b Association between knowledge of health risks and the practice of tattooing

N=424		Do you have piercing		X	P value
		No (%)	**Yes (%)**		
Knowledge of health risks	Poor	143(70.4)	23(74.2)	0.183	0.668
	Good	60(29.6)	8(11.8)		
	Total	100	100		

Considering risk taking behaviours, table 4.8a and 4.8b shows the relationship of pierced and non-pierced respondents and the relationship between tattooed and non tattooed respondents and the practice of risk taking behaviours. Null hypothesis **H_0**: there is no significant relationship between being pierced and not pierced and being involved in risk taking behaviours.

There was a significant relation between having an eating disorder, being involved in sexual activity and having ever used a weapon and the practice of body piercing. Half of pierced respondents (50%) had an eating disorder and 50% did not, 70.6% were involved in sexual activity and 29.4% were not while 26.7% had ever used a weapon and 73.3% had not. Compared to 19.7% of non-pierced who had eating disorder and80.3% did not 36.4%who were involved in sexual activity and63.6% were not and 9.8% had used a weapon and 90.2 had not.

Adjusting for other factors, only having a sexual relationship was significant. As respondents with piercing (70.6% vs36.4%) were four times more likely to have sexual relations than non pierced respondents (OR=0.280, 95% CI=0.089-1.061) Null hypothesis is accepted for other risks taking behaviour like smoking, fighting, suicide, depression, eating disorder, weapons use, drugs and alcohol use and rejected for involvement in sexual activity.

Table 4.8a Percentages of pierced and non-pierced respondents that have practice risk taking behaviours.

Risk taking Behaviours N=424		(%) non of pierced respondents	(%) of pierced respondents	X	P VALUE
Smoking	**NO**	118(87.4)	13(76.5)	1.517	0.218
	YES	17(12.6)	4(23.5)		
Physical fight	**NO**	67(48.2)	7(41.2)	0.300	0.514
	YES	72(51.8)	10(58.5)		
Suicide	**NO**	112(91.0)	14(93.8)	0.089	0.766
	YES	12(9.0)	1(6.7)		
Depression	**NO**	59(41.3)	9(47.4)	0.257	0.612
	YES	84(58.7)	10(52.6)		
Eating disorder	**NO**	102(80.3)	8(50)	7.356	0.007*
	YES	25(19.7)	8(50)		
Sexual activity	**NO**	84(63.6)	5(29.4)	7.334	0.007*
	YES	48(36.4)	12(70.6)		
Weapons	**NO**	119(90.2)	11(73.3)	3.725	0.054*
	YES	13(9.8)	4(26.7)		
Drugs	**NO**	115(89.1)	12(66.7)	1.080	0.299
	YES	14(10.90	3(33.3)		
Alcohol	**NO**	91(71.1)	9(50.3)	1.477	0.224
	YES	37(28.9)	7(43.8)		
	TOTAL	100	100		

*significant p=0.05

Table 4.8b Regression model of association between having piercing and risk taking behaviour

	Pvalue	OR	95.0% C.I.	
			Lower	Upper
Eating disorder	.062	.308	.089	1.061
Sex	.035	.280	.086	.915
Weapon	.306	.455	.101	2.058

Table 4.8c Percentages of pierced and non-pierced respondents that have practice risk taking behaviours.

Risk taking Behaviours		n(%)Non-tattoo respondents	n(%) of tattoo respondents	X	P VALUE
Smoking	**NO**	117(89.3)	2(66.7)	0.513	0.219
	YES	14(10.7)	1(33.3)		
Physical fight	**NO**	167(49.6)	0	2.899	0.089
	YES	66(52.4)	3(100)		
Suicide	**NO**	117(91.4)	3(100)	0.281	0.596
	YES	11(8.6)	0		
Depression	**NO**	61(43.3)	2(66.7)	0.659	0.419
	YES	80(56.7)	1(53.3)		
Eating disorder	**NO**	98(80.3)	2(50)	3.243	0.072
	YES	28(19.7)	2(50)		
Sexual activity	**NO**	83(62.9)	0	4.8999	0.027*
	YES	49(37.1)	3(100)		
Weapons	**NO**	116(90.6)	3(100)	0.310	0.578
	YES	12(9.4)	0		
Drugs	**NO**	113(89.7)	2(66.7)	1.604	0.205
	YES	13(10.3)	1(33.3)		
Alcohol	**NO**	93(75.0)	2(66.7)	0.108	0.743
	YES	31(25.0)	1(33.3)		
	TOTAL	100	100		

*significant p=0.05

There was a significant association between having a tattoo and also having a piercing as75.0% of those who had tattoo also had a piercing this shown in table 4.9

Table 4.9. Comparison between pierced and tattooed respondents

		Tattooing		X	Pvalue
		No (%)	Yes (%)		
Piercing	No	175(86.2)	1(25)	11.541	0.001*
	Yes	28(13.8)	3(75)		
	total	100	100		

*significant p=0.05

CHAPTER FIVE

5.0. DISCUSSION, CONCLUSION AND RECOMMENDATION

Body piercing and tattooing is becoming very attractive and popular globally (Carroll et al 2002). Due to the influence of western culture in developing countries, this practice is being adopted by adults and young adults. Body piercing and tattooing are performed on different parts of the body and these include multiple ear piercing, piercing of navel, nipples, nose, eyelids and other sensitive parts of the body. Body piercing and tattooing, if not done by a professional and in a safe environment endanger the individual and leads to diseases and infections that will affect the individual (Deschesnes, 2006; Carroll et al, 2002). Body piercing and tattooing has been associated with various health complications such as hepatitis, keloid, tetanus, syphilis and risk taking behaviours (substance use, violence, and suicide attempts) (Deschesnes, 2006, Carroll et al, 2002, Braithwaite, 1996, Tweeten et al 1999). This study thus seeks to explore and assess the perception and motivations of young persons' towards body piercing and tattooing and their knowledge of its associated health risks.

A total of 424 respondents participated in the study of which half of respondents were females. The age of respondents ranged from 16 to 25 years. Majority of respondents were between the ages of 21-25 years while others were in the age group 16-20 years. Most respondents were single while few were married and most were Christians. Majority of respondents were Yoruba's and most were currently in 300-500 levels of study.

Prevalence of body piercing and tattoo

Prevalence of piercing and tattooing in this study was low. The sample size in this study was small compare to that of other studies by Greif, 1999, Cegolon, 2010, Meltzer, 2005 and Carroll, 2006 and this may account for the low prevalence. Similarly, other studies which also recorded high prevalence included studies carried out by Robert et al., (2002), Armstrong et al., (1994); Armstrong et al., (1997), Drews et al., (2000); Farrows, (1991); Houghton, (2006); Braithwaite, (2001); Carroll, (2002) and Armstrong (2009). In these studies their study area and method of data collection could account for the high prevalence. Some collected data from individuals with body art presenting themselves for consultation in school clinics, others collected data from more than one

institution in different parts of the country, still others collected data among adolescents/young person's detainees in juvenile homes having body art.

Late adolescence was the age in which most respondents got their tattoo as observed in this study and they reported tattooing only one part of the body which indicated that the tattooing was gotten while in the tertiary institution and away from parental supervision. A Study by Carroll et al., 2002 had a similar finding but a contrary conclusion the study reported age at first tattoo below 20 years and reported less involvement in risky behaviour suggesting parental involvement in decision to obtain tattoo by teenagers. For pierced respondents in this study, only few had piercings on the nose, navel and tongue gotten between late adolescence and early twenties. Majority of the piercings were additional ear piercings spanning through early adolescence to early twenties. Hesse (2007), and Angel (2009) reported piercings mostly ear piercing among men in the early centuries this was corroborated in the study by Schzorman et al., 2007 who also reported that earlobe and tongue piercing was becoming more common among male respondents. This was different in this study as more females reported piercing their ears and tongue compared to males. More females reported piercing than males a situation also observed by Greif et al, 1999; Armstrong, 1996, Keyes and Block, (1984) and it was suggested that this was because girls mature early than boys. Similarly, a survey in England in 2005 of people over the age of 16 also found that more females than males had piercings on other parts of the body other than the earlobe (Bone et al., 2008).

Health complications reported as a result of being pierced and tattooed in this study were common health complications such as injury/pain. Pain was the only complication reported as a result of tattooing in this study. This is similar to the report by Greif et al., (1999) in the study of tattooing and body piercing: body art among college students. In comparison to other studies it was discovered that these studies had reports of more severe complications due to piercing. Hepatitis was reported in the study by Greif et al., (1999); bleeding, allergic reactions and cyst/keloid formation by Schzorman et al., (2007) and local infections like bleeding and tissue tearing were reported for piercing and pruritus and/or bleeding for tattooing in a study by Antoszewski B, Sitek A, Jedrzejczak M, Kasielska A, and Kruk-Jeromin J., (2006) in which they concluded that body piercing is connected with a higher risk of more serious complications than

tattooing. This difference in severity complications between this study and other studies could be due to the reason that the other studies had more respondents presenting with multiple forms of body piercing and tattooing. In this study, respondents said they would go to a doctor or hospital in case of medical complication although a few said they will ask their friends or use disinfectant. Cegolon, (2010), however discovered that male respondents having a piercing/tattooing in a particular region in his study were not likely to visit a doctor in case of medical complications

Knowledge of body piercing and tattooing

Observations from this study showed that knowledge of health risk associated with body piercing and tattooing was low. This knowledge included knowledge of infectious diseases and hygienic rules regarding body piercing and tattooing. This differs from studies conducted by Deschesnes, (2006), Carroll (2002), Houghton, (1996) which showed that majority of respondents had some knowledge of the related infectious diseases and the hygiene requirements this could be as a result of this studies being conducted in the schools clinics and with use of convenience sampling. A similar study conducted by Huxley et al., (2005), also reported that participants had not considered the health risk or were totally unaware of health risks associated with body piercing and tattooing. Milner, (2001) also discovered that majority of participants felt that obtaining body arts in a safe/clean environment remove the health risks.

In this study, it was discovered that males had low knowledge of health risks associated with body piercing and tattooing compared to female respondents. This could be as result that males are likely to be involved in risky activities without considering the outcome compared to females. This result is similar to the study done by Cegolon et al., (2010) among Italian secondary school students who were males had low information on body piercing and tattooing. Among those with good knowledge of body piercing, Christians had more knowledge of body piercing and tattooing compared to respondents from other religions; this could be due to the fact that it is mentioned in the bible and that they were more Christian respondents than respondents from other religion in this study.

Irrespective of the different sources (television, internet, radio, friends, newspaper and magazine and environment) where respondents got their information, only few

respondents knew the actual places where body piercing and tattooing were done. These differ from the studies by Deschesnes, (2006), Carroll (2002), and Houghton, (1996) which showed that majority of respondents knew where to go for body art and medical advice. This difference could stem from the fact that body piercing and tattooing in the countries of study (Canada and Australia) are regulated and registered for easy legislation/supervision.

In an Italian study, geographical location (provinces) of schools was considered in relation to their knowledge of health risk associated with body piercing and tattooing. This is because these locations had many tertiary institutions which could be responsible for the high level of education of residents and thus lead to increase knowledge about the practice; this could also lead to high practice of body art by people living in the area and among high school students (Cegolon, 2010). In the aforementioned study, some areas were more aware of health risks while others were not. This corresponds to the study done by the Grief et al., (1999) in USA and Australia where race/ethnicity of respondents was considered as well as location of the various universities used for the studies. It was observed that respondents from a particular race example Hispanics and black Americans were likely to have a body piercing/tattooing and universities located in areas with high practice of this art were likely to record a high prevalence and thus suggesting more knowledge about the practice.

Comparing the above findings to this study, tribe/ethnicity could not be use as a representative data for all tribes and states because of the sample size and the university is also not located in an area were body piercing and tattooing is reported to be high like in Lagos and some states in the south-south and south-east regions of the country. However, analyzing the data collected there was no significant association between tribe and knowledge of health risks. Studies by Mayers et al., (2008), Schzorman et al., (2007), Gold, (2005), and Mayers et al., (2002) did not consider geographical location due to the study group being small and spatially restricted. Other studies by Makkai et al., 2001, Bones et al., 2008, Deschesnes et al., 2006) did not also investigate geographical distribution of respondents in relation to body piercing/tattooing.

Likewise unmarried or single respondents reportedly had more knowledge of health risks compared to married respondents suggesting that singles still had more chances to explore compared to the married and more likely to be engaged in the practice. Older

respondents (21-25 years) and those in 300-500 levels of study also showed having more knowledge of health risks compared to respondents below 20 years and those in 100-200 level also suggesting early exposure to body art. A similar observation was also made by Cegolon et al., (2010) showing that respondents in early years of education in high school had less knowledge of health risks. However, in this study, this was not significant indicating that age and level of education does not necessarily translate into having better knowledge; meaning other factors could also be responsible for this knowledge.

In the study by Cegolon et al., 2010, parent's level of education was used as their socio economic status as their employment status could not be used to obtain this and it was found to be significantly associated with knowledge of health risk mostly due to the large sample size of the study. In this study respondents whose parents had tertiary education significantly had more knowledge of body piercing and tattooing compared to respondents whose parents had secondary, primary or no education reasons could be probably due to these set of respondents having more access to information technology. However this could not be used to assess the socio economic status of the respondents as some specific question about their parents education were not specified. Adjusting for other factors like age, sex and tribe there was no significant association between parents level of educational and body piercing and tattooing.

Those without piercing and tattoo had good knowledge of body piercing and tattooing and its associated health risks compared to those with piercing and tattooing although this was not statistically significant, it was also corroborated in the study by Huxley et al., (2005) where pierced/tattooed individuals had not considered or were unaware of health risk associated with body piercing and tattooing. Other studies that also observed good knowledge of health risks among non-pierced/non-tattooed undergraduates and adolescents suggested that the reason for this knowledge could be because young people tend to overestimate their knowledge of risk mostly ones they have no experience and this is due to their typical overestimation of risks in general (Carroll et al., 2002, Schzorman et al., 2007 and Roberts et al., 2004).

There was no significant association between age group, sex, gender, marital status, tribe and religion of respondents and the knowledge of health risks associated with body piercing/tattooing. Schorzman et al., 2007 in the study of body art attitude and practices

regarding body piercing among urban undergraduates and Gold, (2005) in the study body piercing practices and attitude among urban adolescents also found that neither age, sex nor tribe had a significant effect on knowledge of health risk associated with body piercing/tattooing.

Perception of body piercing and tattooing

There are different perspectives surrounding body piercing and tattooing. Findings in this study showed that many respondents associated body piercing and tattooing with cultism, prostitution, drugs, violence and rebellion. Grief et al., (1999) reported that some college students with piercings reported that it limits job possibilities. This is also noted in the works by Schmidt et al., (2011), Ito, (2010), and Ferguson, (1999) where individuals often associate body piercings with gang members, prisoners, military personnel, or rebellious teenagers and risk of carrying blood borne infections and its display is limited in some places even to the number of piercing (Currie-McGhee, 2006).

Majority of respondents in this study were observed to have a poor perception towards body piercing/tattooing. Respondents felt that though the practice was becoming common, it was still not a socially acceptable practice. This differs from the observation made by Schzorman et al., (2007) in Australia where respondents reported that body piercing and tattooing is highly acceptable by the general public. Those aged between 16-20 years had good perception compared to those between 21-25 years. Females significantly had good perception of body piercing and tattooing compared to males. This is in line with the study by Carroll (2002) that the prevalence of women in the tattoo industry, along with larger numbers of women bearing tattoos, appears to be changing negative perceptions towards body art (Carroll, 2002). As earlier stated female respondents in this study had better perception towards body piercing/tattooing than male respondents as more females are prone to practice body piercing a situation similar to this study was also observed by Grief et al., (1999), Shzorman et al., (2007) and Suris et al., (2007).

Religion of respondents was observed to affect perception towards body art as majority of respondents in both religions had poor perception towards body piercing and tattooing. This agrees with findings by Currie-McGhee, (2006), Angel, (2009) that body

piercing in some religions is held to be destructive to the body and is mostly prohibited because the body is held to be the property of God. However, most religions allow this for medical reasons, and they accept piercings for women as long as there is only one set of piercings in the lower lobe of the ears and no other place on the body, (Church of Jesus Christ of latter day saint, 2009; Angel, 2009). This could account for the positive perception recorded among some of the Christian and Islamic respondents in this study. This also aligns with a historical reports that there is no consistent Christian position on tattooing as some early Christians practiced it like the Catholic church and some forbid it while some Islamic nations like Morocco, Tunisia, Bangladesh, Indonesia and Malaysia prefer temporary tattoos made with henna to permanent tattoos.

It was observed in this study that respondents whose parents had tertiary education had good perception towards body piercing and tattooing than respondents whose parent had lower educational status. This could be assumed to be related to the fact that respondents with educated parents were exposed to the world at large and therefore more open minded towards the practice.

Attitude towards body piercing/tattooing in this study was mostly indifference, while some saw it as bad and regarded such people as being irresponsible. More respondents liked body piercing on others than on themselves which is similar to what was reported by Schzorman et al., (2007). Some respondents preferred temporal tattoo to permanent tattoo citing easy removal as their reason a situation also observed by Pegas et al., (2002) and Wen Hung et al., (2002). Furthermore, majority of respondents in this study perceived that only one part of the body is socially acceptable to pierce and also cited the ear as the most acceptable part this could be the reason why majority of respondents who reported being pierced/tattooed modified just one part of the body. A study by Gold, (2005) also found that most site were acceptable to be pierced except the nipple and genitals and that particular sites were considered acceptable according to the race of respondents examples majority of black Americans accepted piercing of the nose while white Americans accepted navel and nipple piercings.

Motivations

The reasons for piercing or not piercing are varied. In this study, reasons given by pierced respondents for practicing body piercing were because they liked it and wanted

to have fun, to be fashionable, personal reasons like tear on the previous hole, depression/boredom and desire to put on more earrings. This is similar to the study by Millner and Eichold (2001) which reported self expression as a major reason why young people carry out body piercing while Armstrong, (1995) and Armstrong, (1996) reported being fashionable, making a "personal statement" and being daring as reasons given by respondents for carrying out body piercing; and "being unique" and "being oneself" respectively as major reasons why young people carry out body piercing/tattooing. A study by Grief et al., (1999) also found that majority of respondents who had nipple and genital piercing reported that they did so to enhance their sexual experience. Other studies observed that self esteem was the reason respondents modified their bodies with Farrows, (1991) and Carroll, (2002) associating having low self esteem with body piercing/tattooing. In contrast, Currie-McGhee, (2006) reported that most adolescents practice body piercing because they have good self esteem and want to show off the part of their body they are proud of example respondents were reported showing off navel piercing and others do so to express their individuality and reclaim parts of their body in some cases of sexual abuse (Currie-McGhee, 2006).This is also found to be similar to findings by Angel, (2009). Tattooed respondents in this study did give reasons why they had a tattoo.

Perceived reasons why people pierced/tattooed their bodies given by respondents in this study included liking the way it looks, to be fashionable, to catch attention, to be different, to be daring, rebelling against parent and peer pressure. This is in agreement with historical records and studies on body piercing on why people pierce this include piercing for religious or spiritual reasons, self-expression, aesthetic value, to commemorate landmark events or to overcome traumatic ones while others pierce for sexual pleasure or to conform to their culture or to rebel against it; in some cultures the use of earrings were a sign of nobility and wealth (Angel, 2009; Hesse, 2007; Currie-McGhee, 2006; Meltzer, 2005; Miller, 2004; Gay and Whittington, 2002).

Respondents in this study who said they decided not to practice body piercing/tattooing cited lack of parental consent, lack of funds, advice from doctors, religion and their dislike for the practice for not practicing it. This agrees to an extent with reports in some states in USA, Scotland and Western Australia in which parental consent was required before piercing/tattooing was done. (NSCL, 2012; Angel, 2009; Currie-McGhee, 2006; Children and Community service Act, 2004). Some researchers also suggest that

piercing/tattooing should not be done if some health complications were observed in the patient (Currie-McGhee, 2006); religions also discouraged body piercing (Church of Jesus Christ of latter day saints, 2009).

Professionals are required to carry out the process of body piercing and tattooing; in this study, respondents also stated this. Friends, parents and the respondents themselves were also cited as those responsible for carrying out the practice for them. The different places that respondents reportedly had their piercings done for them were the salon, home, spa, both salon and home. For tattooing it was reported to have been in the hostel and also by a professional. This is similar to the study by Deschesnes, (2006), and Carroll, (2002) where body arts were carried out illegally (in an unauthorized environment, carried out by adolescents themselves or by their friends) also in the study by Cegolon, 2010, it discovered that adolescent with positive attitude towards body piercing/tattooing (already having or considering it) were less likely to refer to a professional or seek medical advice in case of complication. The study reported that majority of those who had tattoo said they got it from a professional tattoo centre while others got it done for them by their friends. Deschesnes, (2006), in a study carried out in Canada reported that most secondary school students with body modifications indicated that they used the services of a body art professional, similar results were also reported by Carroll (2002) in the study tattoo and body piercing as indicators of risk taking behaviour in adolescents. A study done in Australia by Houghton et al., (1996) found that majority of secondary school students who had been tattooed had self-administered tattoos.

Different tools were used by respondents for their piercings specifically the tools used for piercing the ear were piercing machine, earring and needle. Piercing machine was used for piercing the navel and earring for nose. The tools used to carry out tattooing included ink machine and lale. This does not conform to the findings by Angel, (2009) and Miller, (2004) that piercing needles should be use for piercing. Majority of women in the west have their ears pierced with a piercing gun (Currie-McGhee, 2006). The safety of piercing guns, which was originally developed for tagging livestock has been, disputed (Angel.2009). Department of health in Western Australia in (2006) and the Association of Professional Piercers(www.aap.org) recommended that it should not be used for piercing body parts other than the lobes of ears and that piercing guns not be used for any piercing practice, (Angel, 2009, Currie-McGhee, 2006).

Risk taking behaviours associated with body piercing and tattooing

Armstrong et al., (1997), Houghton, (1996), Carroll, (2002) reported that participants who had amateur tattoo had more significant association with high risk behaviour. This is also similar to the study conducted by Robert et al., (2002) in the study tattooing and high risk behaviour in adolescents in a national representative sample with prevalence of 4.5% though lower than those obtain in other studies conducted in within this period but still suggesting high risk behaviour in adolescent. Observation in this study showed that though non-tattooed respondents also showed tendencies towards high risk behaviour; among tattooed participants majority of them were involved in high risk behaviour. However type of tattoo that is amateur or professional was not considered in this study so type of tattoo could not be said to be the reason for involvement in risky behaviours as reported in the studies listed above.

Carroll et al., (2002), in the study tattoos and body piercing as indicators of adolescent risk taking behaviour reported a strong association with high risk behaviour. In this study, it was observed that more pierced respondents reported to have taken alcohol, having an eating disorder, being involved in sexual activity and having ever used a weapon. And there was high chance of their involvement in sexual activities compared to non pierced respondents. In this study, some tattooed respondents were involved in smoking, eating disorders, drug and alcohol use. All were involved in sexual activity and fighting and none were involved in using weapons and suicide attempts. Tattooed respondents were also likely to be involved in sexual activities compared to non tattooed respondents suggesting that having body art could be responsible for involvement in these risky behaviours.

Other studies reporting similar results with high risk behaviour among tattooed and pierced participants, when compared to pierce and non pierced participants include : Carroll et al., (2002) who reported that more adolescents with tattooing and piercing were involved in drug used and were at greater risk of suicide with females having tattoo more at risk of suicide; violence (physical fight/weapons use) was more with men with tattoos and females with piercing while drugs use was associated with increase in piercing. Another study by (Dhossche et al., 2000) investigated presence of tattoo in suicide and found that a high percentage of suicide victims had tattoo. Rooks et al., (2000) in the study of 16-65year olds in clinic observed that more smokers compared to

non smoker had tattoos. Drews et al., (2000) also had a similar result in study among college men and women were men with tattoos smoked more and had more sexual partners and females with tattoo were involved in drug use, alcohol and shop lifting. This differs with findings from other studies that females were more likely to be involved in risk taking behaviour due to early maturation (Grief et al., 1999, Armstrong, 1997; Keyes et al., 1984, Bone et al., 2008).

In this study, among those that reported practicing risk taking behaviours, non pierced/ non tattooed respondents reported to be more involved in risk taking behaviours compared to pierced/tattooed respondents this could be due to the small proportion of pierced and tattooed respondents, their age and type of piercing. Also it could also be due to the fact most people with piercing/tattooing do not engage in risk taking behavioura view also supported by Mayers et al., 2003 that not all pierced young people participate in risk taking behaviours. Carroll et al., 2002 agreed with this view but also stated that from further researches it was noted that pierced youths were more likely to be involved in risk taking behaviours compared to non pierced youths citing age at first piercing as one of the reasons; the younger the youth, the more willing they are to explore while older adolescents are more likely to make informed decisions.

Studies by Forbes, (2001), Braithwaithe, (2001), Armstrong, (1996), Deschesnes, (2006) reported increase alcohol use, drug use, school truancy, smoking, suicide ideation and attempt among pierced participants compared to non pierced respondents. In this study, there was no statistical significant association between being pierced and un-pierced and taking part in a risk taking behaviour.

5.1. Conclusion

Prevalence of body piercing and tattooing was low among the selected undergraduates in the University of Ibadan. Majority of respondents considered body piercing and tattooing to be less common and not socially acceptable by the public. Generally, respondents had poor perception towards the practice of body piercing and tattooing. Knowledge of health risks associated with body piercing was poor among respondents. Respondents were not aware that normal hygienic practices involved in the use of needles also applied to body piercing and tattooing and most respondents were likely to get the procedure done by themselves or friends and not from a professional there by

increasing their risk of contracting infectious disease. Body piercing and tattooing could be said to be a risk factor for risk taking behaviour but not solely responsible for risk behaviour as some youths with body art are involved in less risky behaviour while those without it are more involved. Males were more likely to be involved in risk taking behaviours than females and were less knowledgeable about health risks associated with body piercing. In addition pierced/tattooed respondents cannot be said to practice risk taking behaviour as the reported behaviours could not be ascertained to have taken place after piercing and tattoo were done. Females were more likely to practice body piercing compared to males and tattooed respondents were likely to have a piercings.

Risk taking behaviours can be practiced by both pierced/tattooed respondents and non pierced and tattooed respondents but pierced/tattooed respondents were more at risks. Respondents in the 16-20years showed more likelihood to practice body as they grow older as they had better perception towards it and more respondents aged 20-25years practice it. Parental educational level and employment status could not be used to determine the influence it had on the practice of body piercing/tattooing as specific information was not sought. This Study gives an insight to the practice of body piercing and tattooing among undergraduates.

5.2. Recommendations

Awareness programmes to sensitized young people on body piercing/tattooing should be included in life building skills programmes for young people. This will help them make informed decisions and as young people are more prone to practice it out of curiosity, rebellion and emulation of someone famous.

Awareness on temporal tattoos should also be carried out among adolescents and their parents/guardians as it is becoming a popular alternative to permanent tattoos. Because of the perceive lack of risk associated with it and is commonly done during festivities, parties shows, cinemas etc. it has however been linked to dermatitis. More studies should be carried out in other states and among out of school youths in order to get a more representative national data.

Information on parental education and occupational status should be collected in order to determine its effect on the practice of body art.

5.3. Limitations of study

1. Use of undergraduates students residing in the school hostels alone affected getting more respondents who practice body piercing and tattooing as undergraduates residing off campus and post graduate students who were within the age range and practicing this body art would have added more information to the data.

2. The study did not consider out of school young person who are likely to adopt body piercing/tattooing and likely to be involved in risk taking behaviour.

3 Data from respondents were self reported so reliability of information cannot be confirmed.

4 Frequency/involvement in risk taking behaviour either before or after piercing/tattooing was not reported so body piercing/tattooing as a risk factor for risk taking behaviour cannot be fully established.

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APPENDIX I

INFORMED CONSENT FORM

IRB Research approval number……NHREC/05/01/2008a……...…..

This approval will elapse on: …..….....20/06/2013.....…….

PREVALENCE OF BODY PIERCING AND TATTOOING AND KNOWLEDGE OF ASSOSICIATED HEALTH RISKS AMONG UNDERGRADUATES IN UNIVERSITY OF IBADAN NIGERIA

This study is being conducted by Umoh, Ima-obong Ita of the Institute of Child Health, University College Hospital, Ibadan, Nigeria. The purpose of the research is to assess and determine the perception and prevalence of body piercing and tattooing among undergraduates in university of Ibadan.

In order to effectively carry out this study, I will obtain Information from you using a semi structured questionnaire. Please note that all questionnaires used to elicit information in this study will be assigned code numbers and as such the information collected cannot be linked to you. Code numbers or any identifier will not be used in any publication or reports from this study.

There are no risks or harm associated with this research. Your participation in this research will cost you nothing other than sincerity of information given. I will greatly appreciate your participation in this study. Your participation in this research is entirely voluntary and if you choose not to participate, it will not affect anything.

Statement of person obtaining informed consent:

I have fully explained this research to the participant and have given sufficient information, including information about risk and benefits, to make an informed decision.

DATE:_____/_____/_____

SIGNATURE: _____

NAME_____

___

Statement of person giving consent:

I have read the description of the research and have fully understood it. I have talked it over with the researcher to my satisfaction. I understand that my participation is voluntary. I know enough about the purpose, methods, risks and benefits of the research study to judge that I want to take part in it. I understand that I may freely stop being part of this study at any time. I have received a copy of this consent form and additional information sheet to keep for myself.

DATE _____/_____/_____

SIGNATURE/THUMBPRINT

_____

NAME

_____

_

Detailed contact information including contact address, fax, e-mail and any other contact information of researcher, institutional HREC and head of the institution:

This research has been approved by the University of Ibadan and University College Hospital Institutional Review Board (IRB), Ibadan, Nigeria and the Chairman of this Committee can be contacted at Biode Building, Room T10, 2nd Floor, Institute of Advanced Medical Research and Training, College of Medicine , University of Ibadan, Telephone:08032397993, E-mail: uiuchirc@yahoo.com. In addition, if you have any question about your participation in this research, you can contact the principal investigator, Umoh, Ima-obong Ita, Institute of Child Health, University College Hospital, Ibadan. The telephone number is 08061330517 and email: imaobong3umoh@yahoo.com. You can also contact Dr. A. Adeyemo through 08053615864 and email: adebolajo@yahoo.com

APPENDIX II

QUESTIONNAIRE ON THE PERCEPTION AND PREVALENCE OF BODY PIERCING AND TATTOOING AMONG UNDERGRADUATES IN THE UNIVERSITY OF IBADAN, IBADAN

Kindly answer the following question as best as you can and tick as appropriate. It is not necessary to write your name.

SECTION A: SOCIO-DEMOGRAPHIC DATA

Q1 Age …….

Q2 Sex ……..

Q3 Hall of residence.....

Q4 Level/year of study ……..

Q5 Nationality ……

Q6 Tribe 1) Igbo 2) Hausa 3) Yoruba 4) others specify ……..

Q7 Religion 1) Christianity 2) Islam 3) Traditional 4) Others specify…….

Q8 Marital Status 1) Single 2) Married 3) Divorce 4) Separated 5) others specify…….

Q9a What is your mother's level of education? 1) primary 2) secondary 3) tertiary 4) other……
Q9b What is your father's level of education? 1) primary 2) secondary 3) tertiary 4) other……

Q10 What is the employment status of your parent? (Please specify type of profession)

Mother 1) self employed……. 2) employed…….. 3) unemployed 4) others…
Father 1) self employed……. 2) employed…….. 3) unemployed 4) others…

SECTION B: KNOWLEDGE AND AWARENESS OF BODY PIERCING AND TATTOOING

Q11 Do you know what body piercing is? 1) Yes 2) No **If yes then Q12**

Q11b Do you know what tattooing is? 1) Yes 2) No **If yes then Q12**

Q12a In your own words what do you understand by body piercing……
Q12b Tattooing…….... ……...

Q13 What part(s) of the body is normally pierced by females other than the earlobes? ….. ……

Q13b What part(s) of the body is normally pierced by Males……..

Q14a What part(s) of the body is normally Tattooed by: (A) males……. (B) females……

Q15 Are you aware of hygienic rules that must be obeyed in body piercing/tattooing? 1) Yes 2) no **if yes then Q16**

Q16 What hygienic practices would you consider during body piercing/tattooing. Tick Y for yes or N for no for each option

a) How good it looks b) use of sterilized equipment c)proper handwashing
d) Single use needles only e) use of latex gloves f)skin disinfection
g) others specify……

Q 17 How did you know about body piercing/tattooing ? (Tick as applied to you)

a) Internet b) television c) radio d) friends e) Newspaper/magazines f) others…….

Q18 Do you know where body piercing is being acquired/done? 1) Yes 2) No **if yes then Q19a**

Q18b Do you know where tattoo is being acquired/done? 1) Yes 2) no **if yes then Q19b**

Q19a Who carries out body piercing? 1) self 2) friends 3) parents 4) certified professional 6) others ……

Q19b Who carries out tattooing? 1) self 2) friends 3) parents 4) certified professional 6) others ……..

Q20 Which of these conditions can occur due to body piercing and tattooing. Tick Y or N for each option for both piercing and tattoo

	Infection/diseases	Description	Piercing		Tattooing	
			Yes	No	Yes	No
A	Hiv	Viral infection that destroys the immune system				
B	Hepatitis	Inflammation of the liver causing fever, abdominal pain and weakness				
C	Syphilis	STD caused by bacteria affects the skin, genitals etc				
D	Herpes	Viral infection causing small painful blister and inflammation at the junction of the skin and mucous membrane of mouth, nose or genitals				
E	Glandular fever	Infectious disease caused by virus causing fever, sore throat				
F	Erysipelas	contagious skin disease caused by bacteria causing Redness and swelling, skin rash, fever, vomiting				
G	Toxic shock syndrome	As a result of poor circulation promotes growth of bacteria				
H	Photosensitivity Reaction	Due to exposure to sunlight causing skin rash, eczema sunburn				
I	Septicemia	Blood disease caused by toxic microorganism				
J	Psoriasis	Skin disease caused marked by red scaly patches				
K	Haematoma	Semi solid mass of blood in the tissue caused by injury				
L	Endocarditis	Inflammation of lining of the heart cavities				
M	Condylomata and warts	Growth on the mucous membrane or skin of the genitalia or anus/a small benign rough lump that grows on hands, feet, genitalia caused by a virus				
N	Infection of specific site of modification					
O	Keloid	Scar tissue at the edges of a				

		wound/incision/an area of raised pink/red fibrous scar				
P	Cyst	A spherical swelling containing fluid. some are formed when glands are blocked and benign				

SECTION C: PREVALENCE OF BODY PIERCING/TATTOOING AND HEALTH COMPLICATIONS

Q21 have you ever pierced any part of your body? I) Yes 2) No **(Please don't** report single earlobe piercing for females) **if yes answer Q22-Q29**

Q22 Indicate area currently or previously pierced. (Tick as many options that apply to you)

a) eyebrow b) earlobe(specify number of holes……) c)cheek d)lip e)tongue F)nipple

G)Navel h)Genitals I)others piercing(s) specify……..

Q23 what was your age at piercing(s) ……

Q24 what is the number of piercings you have on the pierced site(s)……

Q25 what tool did you use for the piercing? ……..

Q26 where did you get your piercing done ……..

Q27 who performed the piercing for you? 1)self 2)friend 3)parents 4) professional 5)others specify……

Q28 what was your reason for having the piercing(s)……

Q29 If you now have or have ever had a body piercing, list any health complications as a result of the piercing if any 1)injury or tearing of skin 2) pain 3)keloid formation 4)allergic reactions 5)infections 6)others specify……

If you have more than one ear piercing please answer **Q30-Q34**
Q30 what was your age at first piercing……..

Q31How old were you when you had the additional piercing(s)……..

Q32 who did the additional piercings for you…….

Q33what was use in piercing……..

Q34 what was your reason for the additional piercings……

Q35 Have you ever had any tattoos? 1) Yes 2) No **if yes answer Q36- 42**

Q36 Indicate area(s) currently or previously tattooed (tick as apply to you)

A)hand/arm B)foot/leg C) Neck D)Chest/breast E)Back F)shoulder

G)Buttock H)Abdomen I)Face J)others specify……..

Q37 What was your age when you first obtained a tattoo? ……..

Q38 How many tattoos do you have on the tattooed site…….

Q39 What tool was used to make the tattoo……

Q40 where was the tattoo done…….

Q41 who did the tattoo for you……..

Q42 If you now have or have ever had a tattoo, list any health complications as a result of the piercing if any 1)scarring 2) pain 3)severe bleeding 4)allergic reactions 5)infections 6)others specify…….

Q43 Indicate the location of your ear piercing. Indicate R for ring on the diagram below

SECTION D: PERCEPTION OF BODY PIERCING AND TATTOO

Q44 Is body piercing a socially acceptable practice in our culture 1) yes 2) no

Q44b Is tattooing a socially acceptable practice in our culture 1) yes 2) no

Q45 What do you think are the perceive complications of piercing/tattooing?(tick as appropriate)
a)bleeding b) scars c)infections d) allergic reaction e)bruising f)others specify…….

Q46 do you think complications from piercing/tattooing can lead to death
1) Yes 2) No

Q47 Who should carry out the procedure of body piercing/tattoos? 1) body piercing/tattoo professionals 2)medical personnel's 3) parents 4)self 5)others specify…….

Q48 Do you think piercing/tattooing is related to (tick Y or N to each option):

a) religion b) fashion c) acts of rebellion d) self expression/identity e) sects/fraternities f) others specify……

Q49 do you think people who pierce/tattoo their bodies are likely to be involved in risk taking behaviours
1) yes 2) No

Q49b if yes give examples……

Q50 how many sites do you think is socially acceptable to pierce……

Q50b how many sites do you think is socially acceptable to tattoo on ones body……..

Q51 Why do you think people have their body pierced/tattooed Y or N for each option
1) they like the way it looks 2) To be fashionable 3) to catch attention
4) to feel different 5) to make a personal statement 6) to be daring 7) to fit in

8) parent(s) don't want them to have one 9) for religious reasons 10) friends want them to have one
11) other reasons ……..

Q52 how common is body piercing among students on campus 1)common 2)not common

Q53 Other than ear pierced at birth for females how common is multiple ear piercing 1)common 2)not common

SECTION E: ATTITUDE AND PRACTICE

Q54 if you are not interested in tattooing or piercing, please give a reason
1) don't like it 2) it's difficult to remove 3)its unattractive 4) I'm afraid of infection 5)I oppose the practice
6Your parents wouldn't agree 7) you can't afford it 8) You are afraid
9) your doctor advised you not to 10) other reasons ……..

Q55 If you decide to have a piercing/tattoo this would be out of
1) Curiosity 2) emulation of someone famous 3) Peer pressure
4) a desire to improve your look 5) Rebellion 6) Fad 7)others specify……..

Q56 Before having a tattoo/piercing which of this are you **most** likely to ask about

1) Who will carry out the procedure 2) how much it costs
3)What are the consequences for your health 4)how it can be removed
5)Would it be physical painful

Q57 Before carrying out body piercing/tattooing, who are you **most** likely to refer to

1) friends 2) certified professional 3) an equipped lab 4) others specify……

Q58 In case of complications following piercing/tattooing what would you do?

1) ask a friend for help 2) go to a doctor 3) use some disinfectant 4) go to a hospital 5)others…….

Q59 Do you consider yourself a risk taker? 1) Yes 2) no

Q60 please tick as many options that may apply to you (Y for yes and N for no)

a) have you ever smoked b) have you ever been involved in a physical fight
c) have you ever contemplated suicide d) have you ever been depressed

e) do you have a eating disorder f)have you ever engaged in any form of sexual activity
g) have you ever handle weapons h) have you ever used drugs i) Do you drink alcohol

Q61 What is your reaction to those that practice body piercing? …….
Q61b tattooing……..

Q62 Do you like body piercing on others? 1) Yes 2) No

Q62b Do you like tattooing on others? 1) Yes 2) No

Q63 If you don't have a body piercing, would you like body piercing on yourself? 1) Yes 2) No

Q63b If you don't have Tattoo, would you like a tattoo on yourself? 1) Yes 2) No

Q64 would you prefer a permanent/temporal tattoo ……

Q65 give reasons for your answer

APPENDIX III

INSTITUTE FOR ADVANCED MEDICAL RESEARCH AND TRAINING (IAMRAT)
COLLEGE OF MEDICINE, UNIVERSITY OF IBADAN. IBADAN, NIGERIA.
Director: **Prof. A. Ogunniyi,** B.Sc(Hons), MBChB, FMCP, FWACP, FRCP (Edin), FRCP (Lond)
Tel: **08023038583, 08038094173**
E-mail: ***aogunniyi@comui.edu.ng***

UI/UCH EC Registration Number: **NHREC/05/01/2008a**

NOTICE OF FULL APPROVAL AFTER FULL COMMITTEE REVIEW

Re: Perception and Prevalence of Body Piercing and Tattooing among Young Persons in Ibadan, Oyo State

UI/UCH Ethics Committee assigned number: UI/EC/12/0037

Name of Principal Investigator: **Ima-Obong I. Umoh**

Address of Principal Investigator: Institute of Child Health
College of Medicine,
University of Ibadan, Ibadan

Date of receipt of valid application: 12/03/2012

Date of meeting when final determination on ethical approval was made: **21/06/2012**

This is to inform you that the research described in the submitted protocol, the consent forms, and other participant information materials have been reviewed and given *full approval by the UI/UCH Ethics Committee.*

This approval dates from 21/06/2012 to 20/06/2013. If there is delay in starting the research, please inform the UI/UCH Ethics Committee so that the dates of approval can be adjusted accordingly. Note that no participant accrual or activity related to this research may be conducted outside of these dates. *All informed consent forms used in this study must carry the* UI/UCH EC *assigned number and duration of* UI/UCH EC *approval of the study.* It is expected that you submit your annual report as well as an annual request for the project renewal to the UI/UCH EC early in order to obtain renewal of your approval to avoid disruption of your research.

The National Code for Health Research Ethics requires you to comply with all institutional guidelines, rules and regulations and with the tenets of the Code including ensuring that all adverse events are reported promptly to the UI/UCH EC. *No changes are permitted in the research without prior approval by the* UI/UCH EC *except in circumstances outlined in the Code. The* UI/UCH EC *reserves the right to conduct compliance visit to your research site without previous notification.*

UI/UCH EC
APPROVED
COLLEGE OF MEDICINE, U.I.

Professor A. Ogunniyi
Director, IAMRAT
Chairman, UI/UCH Ethics Committee
E-mail: uiuchirc@yahoo.com