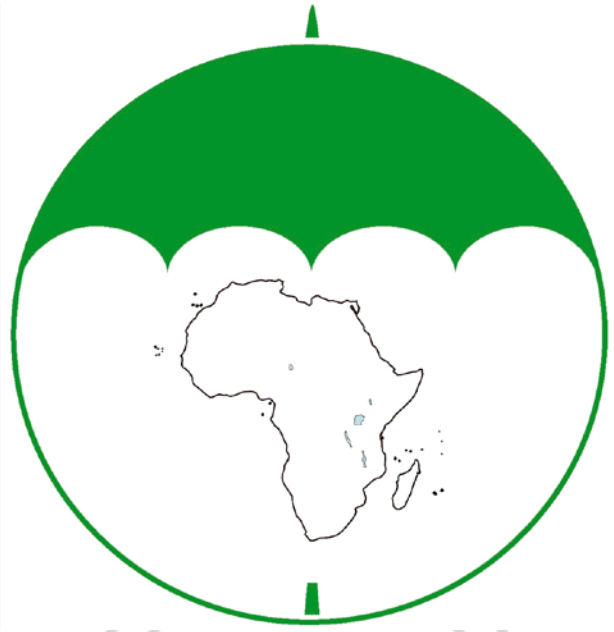
Sector Standardization Needs Review #12-1



Cosmetology and Wellness: A Review of Practices, Products, Risks and the Standardization Needs for Africa

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Introduction

Cosmetology is the treatment of skin, hair and nails and includes, but is not limited to, manicures, pedicures, application of artificial nails, special occasion hairstyling, shampooing hair, cosmetic application, body hair removal, chemical hair relaxers or straighteners, permanent waves, colouring and highlighting of hair, and hair extensions or wig treatments (Gonzalez, 2007).

In basic terms, WHO defines wellness as 'a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity'. This is expanded by other definitions as 'a state of health featuring the harmony of body, mind and spirit with self-responsibility, physical fitness/beauty care, healthy nutrition/diet, relaxations/meditation, mental activity/education and environmental sensitivity/social contacts as fundamental elements'. Summatively, wellness is dynamic and results in a continuous awakening and evolution of consciousness and is the state where you look, feel, perform, and stay "well" and, therefore, experience the greatest fulfilment and enjoyment from life and achieve the greatest longevity'.

The review in this document demonstrates that the cosmetology and wellness have not taken root as professional areas in many African countries despite contributing significantly to their revenue streams and employment creation. Their intricate interlinkages with tourism as value additions or indeed themselves being at the core of tourism in terms of the spa and wellness industry are underestimated in a majority of African countries which continue to rely on animal tourism as their core advantage. Rich touristic attractions such as spiritual and soul healing physical features and environments abound, thermal/mineral springs treated as curiosities exist in abundance in Africa, yet their utilisation as income generating sites or medical tourist sites are not even explored. Claims of difficulty environments without road networks are often exaggerated since most tourists seeking wellness would pay to be airlifted to places completely isolated from modern hustles which contribute to stress and un-wellness in the first place. In this age of satellite communications tourists seeking complete rest with only emergence contact without the noisy and unsustainable consumerism advertisements passing as news or twisted ideological propaganda fronted as progressive civilization would assure that our pristine sites attract high-end tourists paying commensurate premiums.

Cosmetology, other than being a big revenue and employment creator, is an activity involving intimate body manipulations which should raise utmost public health concerns expressed through exacting regulatory frameworks approaching the extent of regulation in the medical field. Unsafe or unhygienic practices can lead to the spread of infectious diseases that can affect the health of the client as well as jeopardise the health of the operator. Illnesses such as hepatitis B, hepatitis C and HIV/AIDS can spread by blood-to-blood contact, so it is essential for staff to understand the precautions required for any procedure that may involve skin penetration and possible blood contamination. The industry is a major consumer of cosmetic products from around the world. Many of these cosmetic products have subscribed to the colourism ideology of the superiority of the whitened skin and are encouraging the utmost dangerous practices of skin bleaching among people of coloured skin leading to health complications and disease burdens to their communities and countries. Some arguments on the basis of personal choice cannot be sustained considering that the onset on organ failures, e.g., kidney failure will lead to seeking dialysis resulting in depletion of family resources as well as stressing the public health services. Complications affecting the mental and cognitive development of the unborn are clear human, social and national burdens which cannot be allowed on arguments of conceited short-term colourism apism. The body of research in this subject clearly calls for regulation supported by objective standards and conformity assessment regimes.

We need harmonized standards to mainstream cosmetology and wellness into the formal economies of African countries and to give the sectors the impetus for consideration as viable economic activities. The standards will further stimulate informed cosmetic product consumption as well as facilitate building of professionals who can trade their services beyond their localities.

Cosmetology and Wellness: A Review of Practices, Products, Risks and the Standardization Needs for Africa

1. The African Roots of Cosmetology

Cosmetology is defined as the art and science of beautifying and improving the skin, nails and hair and includes the study of cosmetics and their application. The term comes from the Greek word *kosmetikos*, meaning skilled in the use of cosmetics (Frangie *et al.*, 2012). Although cosmetology seems to have gained more visibility in recent times, archaeological evidence shows that ancient people around the world practised cosmetology in the form of colouring matter on their hair, skin, and nails, and they practiced tattooing. Pigments were made from berries, tree bark, minerals, insects, nuts, herbs, leaves, and other materials. Many of these colorants are still used today.

Frangie *et al.* (2012) state that the Egyptians were the first to cultivate beauty in an extravagant fashion. They used cosmetics as part of their personal beautification habits, religious ceremonies, and preparation of the deceased for burial. As early as 3000 BC, Egyptians used minerals, insects, and berries to create makeup for their eyes, lips, and skin. Henna was used to stain their hair and nails a rich, warm red. They were also the first civilization to infuse essential oils from the leaves, bark, and blossoms of plants for use as perfumes and for purification purposes. Queen Nefertiti (circa 1400 BC) stained her nails red by dipping her fingertips in henna, wore lavish makeup designs, and used custom-blended essential oils as signature scents. Queen Cleopatra (circa 50 BC) took this dedication to beauty to an entirely new level by erecting a personal cosmetics factory next to the Dead Sea. Ancient Egyptians are also credited with creating kohl makeup—originally made from a mixture of ground galena (a black mineral), sulfur, and animal fat—to heavily line the eyes, alleviate eye inflammation, and protect the eyes from the glare of the sun.

Figure 1: (a) Egyptians wore elaborate hairstyles and cosmetics (Frangie *et al.*, 2012) (b) Africans groomed their hair with intricately carved combs and ornamental beads, clay, and coloured bands (Scali-Sheahan, 2011).

During the golden age of Greece (circa 500 BC), hairstyling became a highly developed art. The ancient Greeks made lavish use of perfumes and cosmetics in their religious rites, in grooming, and for medicinal purposes. They built elaborate baths and developed excellent methods of dressing the hair and caring for the skin and nails. Greek women applied preparations of white lead onto their faces, kohl around their eyes, and vermillion upon their cheeks and lips. Vermillion is a brilliant red pigment, made by grinding cinnabar (a mineral that is the chief source of mercury) to a fine powder. It was mixed with ointment or dusted on the skin in the same way cosmetics are applied today (**Figure 2**).

Roman women lavishly used fragrances and cosmetics. Facials made of milk and bread or fine wine were popular. Other facials were made of corn with flour and milk, or from flour and fresh

butter. A mixture of chalk and white lead was used as a facial cosmetic. Women used hair colour to indicate their class in society. Noblewomen tinted their hair red, middle-class women coloured their hair blond, and poor women dyed their hair black (**Figure 3**).

Figure 2: The Greeks advanced grooming and skin care (Frangie *et al.*, 2012)

Figure 3: The Romans applied various preparations to the skin (Frangie *et al.*, 2012)

2. Cosmetology in the Twenty-First Century and Career Paths

2.1 Status in the Twenty-First Century

Today, hairstylists have far gentler, no-fade haircolour. Aestheticians can noticeably rejuvenate the skin, as well as keep disorders such as sunspots and mild acne at bay. The beauty industry has also entered the age of specialization. Now cosmetologists frequently specialize either in haircolour or in haircutting; aestheticians specialize in aesthetic or medical-aesthetic services; and nail technicians either offer a full array of services or specialize in artificial nail enhancements, natural nail care, or even pedicures.

Since the late 1980s, the salon industry has evolved to include day spas, a name that was first coined by beauty legend Noel DeCaprio. Day spas now represent an excellent employment opportunity for beauty practitioners. By 1999 Spas hit their stride as big business. According to the International Spa Association (ISPA), consumers spent $14.2 billion in about 15,000 destination and day spas.

Men-only specialty spas and barber spas have also grown in popularity. These spas provide exciting new opportunities for men's hair, nail, and skin-care specialists.

By 2007 haircolor become the largest hair care category in terms of in-salon, back bar, and take-home colour refresher product sales. The green movement took off in salons, with many positioning themselves as eco salons and spas striving for sustainability.

2.2 Career Options for Cosmetologists

Within the industry there are numerous specialties, such as the following:

(i) **Haircolor specialist:** Performing hair colouring; training others; work for a product manufacturer; hair colour product research and development (Frangie *et al.*, 2012).

(ii) **Hair stylist:** Includes various stylings and texturizing and curly hair specialists.

(iii) **Beauty therapist:** performing: facials — cleansing, massaging and toning the skin; applying and advising about make-up; eyebrow shaping and eyelash colouring; manicures, pedicures and other nail treatments like extensions and nail art; removal of unwanted facial and body hair; electro-therapy treatments to improve body tone and shape; non-surgical skin improvement treatments; UV (ultraviolet) and spray tanning (NCS, 2012).

(iv) **Barbering**

(v) Spa therapist:

(vi) **Aromatherapist:** treat a variety of physical conditions, illnesses and psychological disorders with essential aromatic oils that are extracted or distilled from flowers, trees, spices, fruits or herbs.

(vii) Massage therapists:

(viii) Electrical epilators:

(ix) Spa and salon management

(x) Reflexologists

(xi) **Nail technician:** Manicurist/pedicurist, nail artist

(xii) **Hair cutting specialist**

(xiii) **Salon trainer**

(xiv) **Distributor sales consultant**

(xv) **Cosmetics manufacturer educator**

(xvi) **Cosmetology instructor**

(xvii) **Media, film or theatrical hairstylist and editorial stylist**

3. Overview of Practices and Procedures

3.1 Hair Care

3.1.1 Principles of Hair Design

An understanding of design and art principles is necessary to develop the artistic skill and judgment needed to create the best possible design for hair care clients (Frangie *et al.*, 2012). A good designer must envision the end result before beginning work on the client. A hair style designer needs to develop a visual understanding of which hairstyles work best on different face shapes and body types. The five basic elements of three-dimensional design, *viz.* line, form, space, texture and colour must be taken into account.

A good understanding of the five important principles in art and design—proportion, balance, rhythm, emphasis, and harmony—is necessary for a satisfactory hair design. The client's hair type will also be an important factor to consider in choosing a hair style. A hair stylist must be familiar with the seven basic facial shapes: oval, round, square, triangle (pear-shaped), oblong, diamond, and inverted triangle (heart-shaped) in order to achieve harmony between hairstyle and facial structure.

With respect to designs for men, professional hair stylists should be able to recommend styles that are both flattering and appropriate for the client's lifestyle, career, and hair type.

3.1.2 Scalp Care, Shampooing, and Conditioning

A shampoo acts as a cleansing and hair care product demanding very delicate adjustment of the balance of a formulation, taking into account a number of factors: in particular (Bouillon & Wilkinson, 2005):

(i) Hair type (dry, oily, bleached, permanent-waved, short, long, curly, smooth, European, African, Asian, etc.) and scalp condition (dandruff, seborrhoea, etc.).

(ii) The consumers age, lifestyle and habits (frequency of application and use of other hair products such as conditioners and hair-styling products).

(iii) Hair-styling techniques.

The shampoo service offers the hair care professional an opportunity to examine, identify, and address hair and scalp conditions that do not require a physician's care and be able to refer clients to a physician if a more serious issue is identified (Frangie *et al.*, 2012).

Conditioner is a special chemical agent applied to the hair to deposit protein or moisturizer to help restore the hair's strength, to give hair body, and to protect hair against possible breakage. Conditioners are a temporary remedy or cosmetic fix for hair that feels dry or appears damaged.

Conditioners are available in the following three basic types:

(i) **Rinse-out conditioner.** Finishing rinses or cream rinses that are rinsed out after they are worked through the hair for detangling.

(ii) **Treatment or repair conditioner.** Deep, penetrating conditioners that restore protein and moisture and sometimes require longer processing time or the application of heat.

(iii) **Leave-in conditioner**. Applied to the hair and not rinsed out.

A good understanding of the right quality of shampoos and conditioners is necessary for satisfactory results.

3.1.3 Haircutting

Haircutting is a basic, foundational skill upon which all other hair design is built. Good haircuts begin with an understanding of the shape of the head, referred to as the head form, also known as head shape. Hair responds differently on various areas of the head, depending on the length and the cutting technique used. Key considerations include the following:

(i) Basic Principles of Haircutting

(ii) Client Consultation

(iii) Haircutting Tools

(iv) Posture and Body Position

(v) Safety in Haircutting

(vi) Basic Haircuts

(vii) Other Cutting Techniques

(viii) Clippers and Trimmers

3.1.4 Hairstyling

Hairstyling is an important, foundational skill that allows the professional to articulate creativity and deliver a specific outcome desired by the client. Key considerations in hairstyling include the following:

(i) Client Consultation

(ii) Wet Hairstyling Basics

(iii) Finger Waving

(iv) Pin Curls

(v) Roller Curls

(vi) Comb-Out Techniques

(vii) Hair Wrapping

(viii) Blowdry Styling

(ix) Thermal Hairstyling

(x) Thermal Hair Straightening (Hair Pressing)

(xi) Styling Long Hair

(xii) Formal Styling

(xiii) The Artistry of Hairstyling

3.1.5 Braiding and Braid Extensions

These services are very popular and consumers are interested in wearing styles specific to their hair texture. Historically, the first highly decorative braids were seen among African tribes. Many of these tribes were and still are identified by their distinctive hairstyles. As early as 3000 BC, Egyptian women wore braids or plaits decorated with shells, sequins, and glass or gold beads (Frangie *et al.*, 2012).

Figure 4: Various types of braids for women (Frangie *et al.*, 2012)

3.1.6 Wigs and Hair Additions

From the beginning of recorded history, wigs have played an important role in the world of fashion. The ancient Egyptians shaved their heads with bronze razors and wore heavy black wigs to protect themselves from the sun. In ancient Rome, women wore wigs made from the prized

blond hair of barbarians captured from the north. In eighteenth-century England, men wore wigs, called *perukes,* to indicate that they were in the army or navy, or engaged in the practice of law (Frangie *et al.*, 2012).

Hair additions range from clip-on hairpieces that salons retail, such as ponytails, chignons, bangs, and even extensions, to elaborately applied extensions in which addition strands are attached individually. In the newest technique, single strands of hair are meticulously hand-tied onto individual strands of the client's hair. In any case, moving beyond clip-in hair additions requires specialized training. Key considerations include:

(i) Human versus Synthetic Hair

(ii) Wigs

(iii) Hairpieces

(iv) Hair Extensions

3.1.7 Chemical Texture Services

Chemical texture services are problem solvers for stylists and clients in that they change the texture of the hair and can allow a person to wear just about any conceivable hair texture (Frangie *et al.*, 2012). Chemical texture services are hair services that cause a chemical change that alters the natural wave pattern of the hair. They include the following:

(i) Permanent waving: adding wave or curl to the hair

(ii) Relaxing: removing curl, leaving the hair smooth and wave-free

(iii) Curl re-forming (soft curl permanents): loosening overly curly hair, such as when tight curls are turned into loose curls or waves

3.1.8 Haircoloring

There is a growing desire by clients to have their hair coloured for various reasons such as:

(a) Cover up or blend grey (unpigmented) hair

(b) Enhance an existing haircolour

(c) Create a fashion statement or statement of self-expression

(d) Correct unwanted tones in hair caused by environmental exposure such as sun or chlorine

(e) Accentuate a particular haircut

The following considerations will be important in order to provide satisfactory hair colouring services:

(i) Identifying Natural Hair Colour and Tone

(ii) Types of Haircolour

(iii) Haircolour Formulation

(iv) Haircolour Applications

(v) Using Lighteners

(vi) Using Toners

(vii) Special Effects Haircolouring

(viii) Special Challenges in Haircolour/Corrective Solutions

(ix) Haircolouring Safety Precautions

(x) Procedures

3.2 Skin Care

3.2.1 Hair Removal

Details are provided in **3.9**. Key aspects include: Contraindications for Hair Removal; Permanent Hair Removal; Temporary Hair Removal; Procedures.

3.2.2 Facials

Good skin care can make a big difference in the way skin looks and in the way a client feels about his or her appearance and helps clients to feel better than themselves (Frangie *et al.*, 2012). Besides being very relaxing, facial treatments can offer many improvements to the appearance of the skin. Key considerations in offering facial services include:

(i) Skin Analysis and Consultation

(ii) Determining Skin Type

(iii) Skin Care Products

(iv) Client Consultation

(v) Facial Massage

(vi) Facial Equipment

(vii) Electrotherapy and Light Therapy

(viii) Facial Treatments

(ix) Aromatherapy

(x) Procedures

3.2.3 Facial Makeup

Makeup products are used to groom, colour, or beautify the face and to cover or focus attention away from facial flaws and accent good facial features of clients (Heavilin, 2002; Frangie *et al.*, 2012). Application of makeup can vary greatly among clients, and the needs of each client can be very different. The following considerations are important:

(i) Cosmetics for Facial Makeup

(ii) Makeup Colour Theory

(iii) Basic Professional Makeup Application

(iv) Special-Occasion Makeup

(v) Corrective Makeup

(vi) Artificial Eyelashes

(vii) Procedures

3.3 Nail Care

The nail as an anatomic structure protects the terminal phalanx of the digit from injury. Historically, it has served as a tool for protection and for survival. As civilizations developed, it attained the additional function of adornment. Nail beautification is a big industry today, with various nail cosmetics available, ranging from nail hardeners, polishes, extensions, artificial/sculpted nails, and nail decorations. Adverse events may occur either during the nail-grooming procedure or as a reaction to the individual components of the nail cosmetics. This holds true for both the client and the nail technician. Typically, any of the procedures involves several steps and a series of products. Separate "nail-bars" have been set up dedicated to serve women and men interested in nail beautification. (Schoon, 1996; Botero, 2011; Madnani & Khan, 2012). Nail care will encompass both manicure and pedicure services as well as procedures and related products. The following aspects will be covered:

(i) Nail Technology Tools
(ii) Professional Cosmetic Products
(iii) The Basic Manicure
(iv) A Man's Manicure Service
(v) Hand & Arm and Foot & Leg Massage
(vi) Spa Manicures
(vii) Aromatherapy
(viii) Paraffin Wax Treatments
(ix) Nail Art
(x) Health, Safety and Sanitary Considerations
(xi) About Pedicures
(xii) Disinfection
(xiii) Nail Tips and Wraps
(xiv) Nail Wrap Maintenance, Repair, and Removal
(xv) Monomer Liquid and Polymer Powder Nail Enhancements
(xvi) Nail Enhancements
(xvii) Enhancement Supplies
(xviii) Enhancement Maintenance, Crack Repair, and Removal
(xix) Odourless Monomer Liquid and Polymer
(xx) Powder Products
(xxi) Coloured Polymer Powder Products
(xxii) UV Gels and Supplies
(xxiii) When to Use UV Gels
(xxiv) Choosing the Proper UV Gel
(xxv) UV Light Units and Lamps
(xxvi) UV Gel Polish
(xxvii) UV Gel Maintenance and Removal
(xxviii) Procedures

3.4 Barbering

Egyptian pyramids from around 7000 BC have yielded flint-bladed razors that were used by the ruling classes to shave their heads as well as their faces, and by 4000 BC a form of tweezers was also used. It stands to reason that the nomadic nature of many early groups would help to spread the practice of shaving throughout the rest of the world. Mesopotamians of 3000 BC were shaving with obsidian blades and by 2800 BC the Sumerians were also clean-shaven. Artwork also shows us that Greek men of 1000 BC were visiting the local barber for shaving services. Scali-Sheahan (2011) gives a time-line historical account of the barbering profession from ancient times to current times. The following subtitles indicate the aspects of concern to be taken into account:

3.4.1 Implements, Tools and Equipment

(1) Combs
(2) Haircutting Shears
(3) Palming the Shears and Comb

(4) Clippers and Trimmers
(5) Straight Razors
(6) Additional Barbering Implements, Tools, and Equipment

3.4.2 Treatment of the Hair and Scalp

(7) Shampoos and Conditioners
(8) Draping
(9) The Shampoo Service
(10) Scalp and Hair Treatments
(11) Hair Tonic Treatments

3.4.3 Men's Facial Massage and Treatments

(12) Subdermal Systems and Facial Massage
(13) Theory of Massage
(14) Facial Equipment and Applications
(15) Facial Treatments

3.4.4 Shaving and Facial Hair Design

(16) Fundamentals of Shaving
(17) Introduction to Facial Hair Design
(18) The Mustache
(19) The Beard

3.4.5 Men's Haircutting and Styling

(20) The Client Consultation
(21) Basic Principles of Haircutting and Styling
(22) Fundamentals of Haircutting
(23) Introduction to Men's Hairstyling
(24) Safety Precautions for Haircutting and Styling

3.4.6 Men's Hair Replacement

(25) Hair Replacement Systems
(26) Measuring for Hair Replacement Systems
(27) Cleaning and Styling Hair Replacement Systems
(28) Selling Hair Replacement Systems
(29) Alternative Hair Replacement Methods

3.4.7 Hair Colouring and Lightening

(30) Characteristics and Structure of Hair
(31) Colour Theory
(32) Haircoloring Products
(33) Haircoloring Procedures Terminology
(34) Haircoloring Product Applications
(35) Special-Effects Haircoloring and Lightening
(36) Special Problems and Corrective Haircolor
(37) Coloring Mustaches and Beards
(38) Haircoloring and Lightening Safety Precautions

3.5 Massage Therapy

Massage has been practised throughout the centuries since the earliest civilisations. It has been used medically as a therapeutic healing treatment and also for invigorating, soothing and beautifying the body. Massage or rubbing is an instinctive act for relieving pain and discomfort, and for soothing and calming. The use of fats and aromatic oils for anointing and lubricating the body is referred to in the Bible and the Koran. The word 'massage' has its origin in the Arabic word *mass* or *mass'h*, which means 'to press gently'. The Greek word *massage* means 'to knead' and the French word *masser* means 'to massage' (Rosser, 2004).

There are many different styles of massage. The most common is the Swedish massage, which is a whole-body therapeutic massage designed to relax the muscles and joints. Other popular types include deep tissue, shiatsu, hot stone, reflexology, and Thai massage (Ostrom, 1918).

The following outline indicates aspects to be considered in offering massage services:

3.5.1 Massage routines

(1) Basic guidelines
(2) Leg
(3) Arm
(4) Chest and abdomen
(5) Back
(6) Face and head
(7) Equipment, Environment and Safety Practices
(8) Professional standards, ethics, business and legal practices

3.5.2 Adapting massage for specific conditions

(9) Conditions that benefit from massage
(10) Reducing stress and tension
(11) Combating mental and physical fatigue
(12) Relieving oedema
(13) Reducing cellulite
(14) Male clients
(15) Evaluation of treatment
(16) Home advice
(17) Diet
(18) Relaxation
(19) Posture
(20) Breathing exercises
(21) Evaluation of own performance

3.5.3 Additional techniques

(22) Massage techniques for musculo-skeletal problems
(23) Neuromuscular-skeletal techniques
(24) Passive movements
(25) Body brushing
(26) Therapeutic massage techniques
(27) Maternity, infant and paediatric massage
(28) Spa therapy: Peace, beauty and massage

3.5.4 Mechanical massage

(29) Gyratory vibrator
(30) Percussion vibrator
(31) Audio-sonic vibrator
(32) Heat treatment

3.5.5 Sports massage

(33) Training
(34) Benefits of sports massage
(35) Use of massage in sport
(36) Pre-event massage
(37) Post-event massage
(38) Training massage
(39) Treatment massage
(40) Contra-indications to sports massage

3.6 Reflexology

The oldest documentation depicting the practice of reflexology was discovered in the tomb of an Egyptian physician called Ankmahor, dated around 2500 BCE. Ankmahor was considered one of the most influential people at that time, second only to the king. Within his tomb were found

many medically related paintings, and the one shown here is believed to be the earliest example of reflexology. Two patients are receiving reflexology on their hands and feet. 'Don't hurt me', one patient says in the inscription; and the practitioner's reply is, 'I shall act so you praise me' (Keet, 2008).

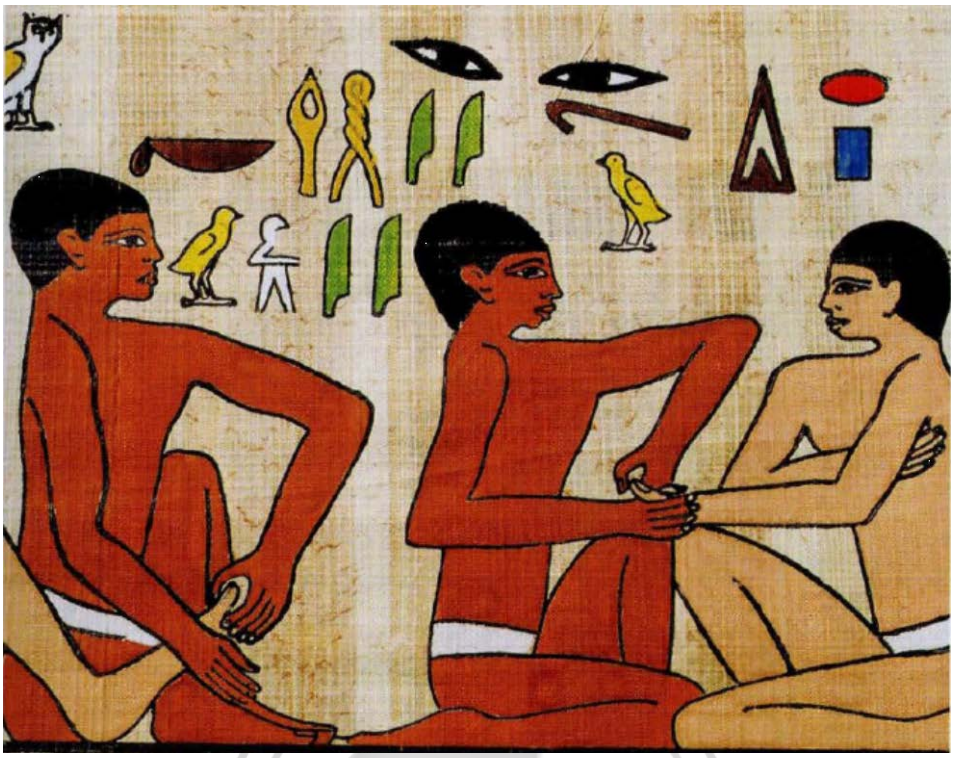


Figure 5 — Translation of the hieroglyphics: *"Please don't hurt me"* and the practitioner replies, *"I shall act so you praise me"* (Keet, 2008)

Reflexology is the technique of applying gentle pressure to reflex areas on the feet or hands to bring about a state of deep relaxation and to stimulate the body's own healing processes. It is a natural therapy that can also facilitate more vital energy, help boost the immune system and create a stronger body and calmer mind. Reflexology is a safe, natural therapy that helps to give your body what it needs — that might be conceiving or carrying a baby to full term, a reduction in the symptoms of irritable bowel syndrome, assistance in losing weight or in feeling younger and looking healthier; (Kunz & Kunz, 2007).

The theory underlying reflexology is that the organs, nerves, glands and other parts of the body are connected to reflex areas or reflex points on the feet and hands. These areas are found on the soles of the feet and palms of the hands, as well as on the top and sides of the feet and hands (Keet, 2008; Perez & BarCharts, 2008). By stimulating these areas using a compression technique and a form of massage with your thumbs, fingers and hands, you can create a direct response in a related body area. For example, by working on the head reflex (which is found on the big toe, you can activate the body's own healing processes to help alleviate headaches.

The right foot and hand represent the right side of the body, while the left foot and hand represent the left side; and according to 'zone therapy', there are ten different zones in the body. The feet are most commonly worked on in reflexology, because practitioners feel they are normally more responsive to treatment than the hands, since they contain a larger treatment area and so the reflex points are easier to identify; and, because the feet are usually protected by shoes and socks, they are more sensitive to treatment. However, the hands can be used for treatments just as effectively and are great to work on, especially when giving yourself reflexology.

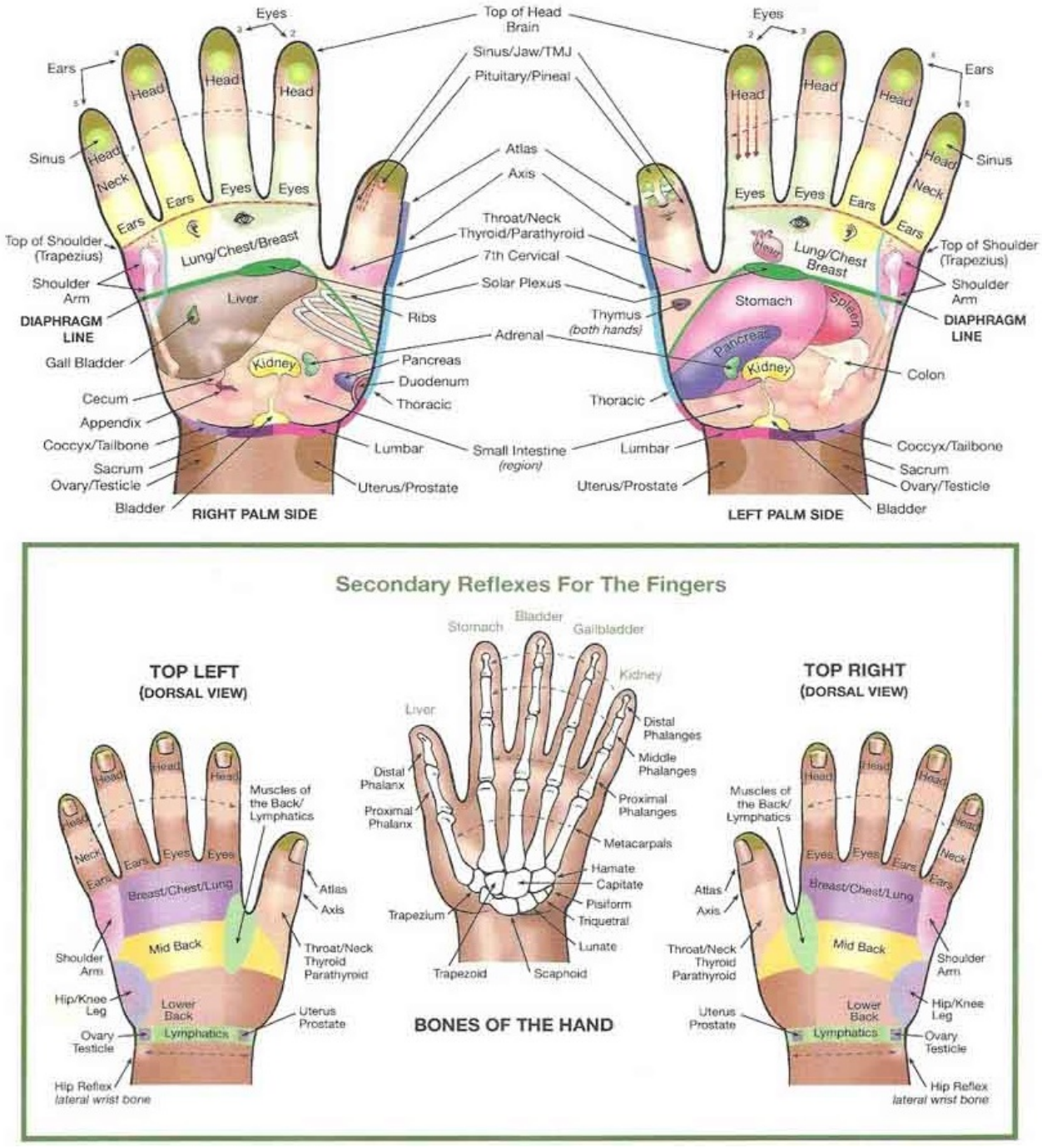


Figure 6: Reflexology points on hands (Brower, 2009)

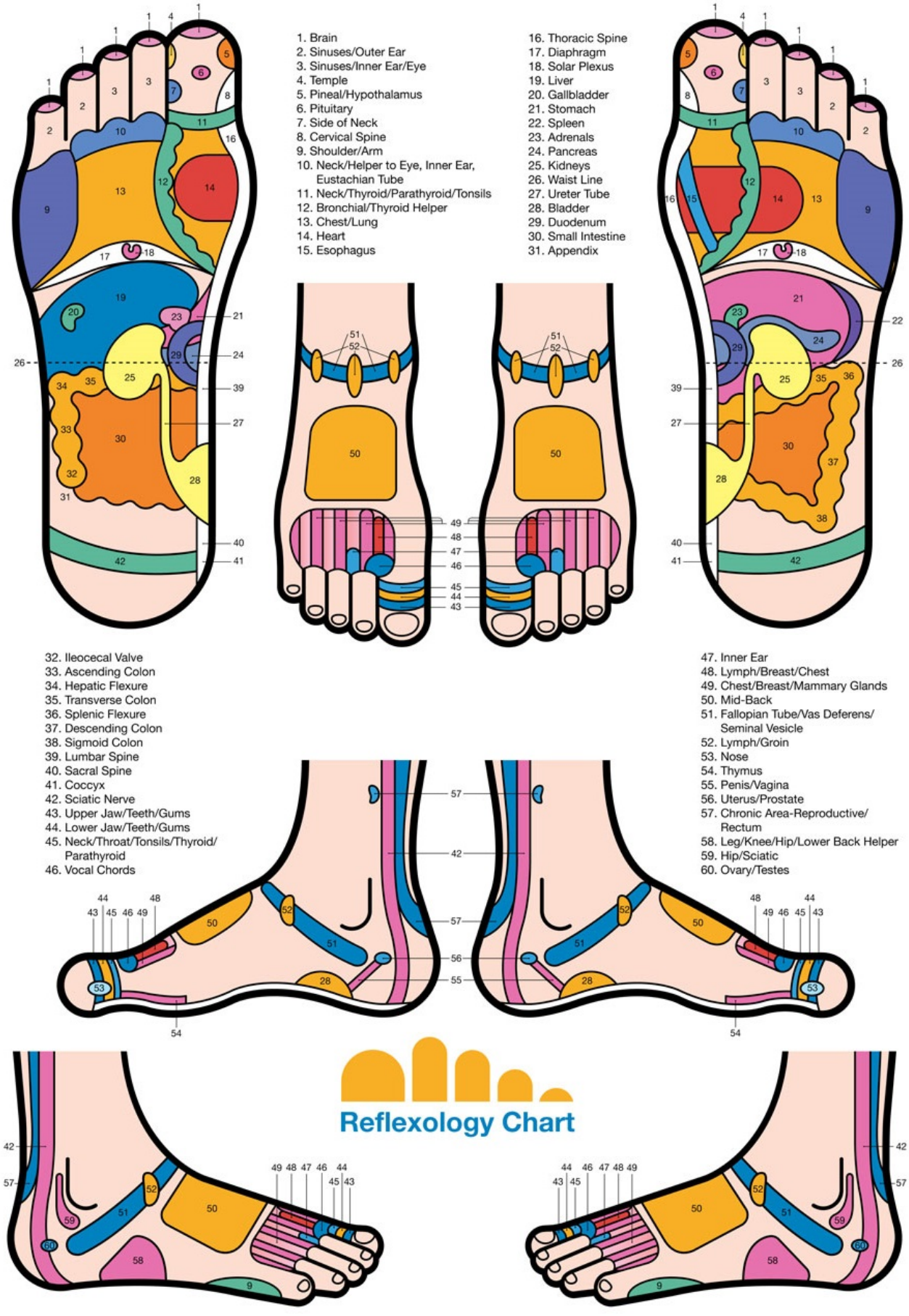


Figure 7: Illustration of Foot Reflexology (Whittington, 2012)

The key considerations for this area of focus will include the following:

(i) **Principles of reflexology:** How reflexology works; Reflexology and zones.

(ii) **Benefits for life:** The healing touch; Reflexology as a stress-buster; Building physical awareness; Aiming for healthy aging; Self-help reflexology; Reflexology research

(iii) **Reflexology techniques and sequences**.

(iv) **Reflexology for every life stage:** Babies, infants, teenagers, senior citizens, women, men, pregnancy.

(v) **Health concerns:** Using reflexology for health; Common health concerns; The cardiovascular system; The digestive system; The endocrine system; The musculoskeletal system; The nervous system; The respiratory system; The reproductive system; The urinary system

3.7 Aromatherapy

Aromatherapy can be defined as the systematic use of essential oils in holistic treatments to help improve physical and emotional well-being (McGuinness, 2003). Aromatherapy is a truly holistic therapy, as it aims to treat the whole person by taking account not only of their physical state but also their emotions, which can have a profound effect on general well-being. It works on the principle that the most effective way to promote health and prevent illness is to strengthen the body's immune system; in so doing, it helps to restore the harmony between mind and body. The primary form of aromatherapy applications involves using essential oils in the following ways:

(a) topically to the skin via massage, diluted in a carrier oil
(b) inhalations
(c) compresses
(d) aromatic baths.

An essential oil is the highly concentrated volatile substance obtained from various parts of the aromatic plant. This oil may contain vitamins, hormones, antibiotics and/or antiseptics (Hess, 1996). Buckle (2015) provides an overview of the history of aromatherapy to the present times. It is noted that among the many countries that have a documented history of using aromatic plants in their healing traditions are China, Egypt, France, Greece, India, Iraq, Syria (was part of Mesopotamia), Switzerland, Tibet, UK, and the United States (Native Americans). Early aromatics were used in the form of steams, smokes, inhalants, fumigants, snuffs, salves, lotions, compresses, poultices, waters, colognes, perfumes, and baths.

Buckle (2015) reports that one of the most famous manuscripts concerning aromatic medicines is the Papyrus Ebers manuscript written around 2800 BC. Another document, written about 800 years later, mentions "fine oils and choice perfumes." These manuscripts, written while the Great Pyramid was being built, show that frankincense, myrtle, galbanum, and eaglewood were used as medicines during the time of Moses (from the Old Testament) and myrrh was used to treat hay fever. When Tutankhamun's tomb was opened in 1922, thirty-five alabaster jars of perfume were found in his burial chamber and they were still faintly aromatic. All of them were broken or empty and the contents—frankincense and myrrh (highly valued commodities)—stolen.

Aromatherapy is categorized into three types: aesthetic, clinical and holistic (Buckle, 2015).

(a) **Aesthetic Aromatherapy:** Aesthetic aromatherapy is about using an essential oil for the pleasure of its aroma.

(b) **Clinical Aromatherapy:** Clinical aromatherapy is about targeting a specific clinical symptom (e.g., nausea) and measuring the outcome. Clinical aromatherapy can be subdivided into Medical aromatherapy (this includes oral use) and Nursing aromatherapy (this covers internal skin use but not oral use).

(c) **Holistic Aromatherapy:** Holistic means mind, body, and spirit. Holistic aromatherapy usually involves mixtures of essential oils. For many therapists, aromatherapy may be a simple add-on using a ready-made mixture to relax or energize their client.

The following outline illustrates the aspects of standardization concern for aromatherapy:

3.7.1 How Essential Oils Work. (Goldstein *et al.*, 2006; McGuinness, 2003; Başer & Buchbauer, 2010; Buckle, 2015)

3.7.2 The Physiology of Aromatherapy

(1) The Physiology of Aromatherapy (McGuinness, 2003)
(2) The Absorption of Essential Oils into the Bloodstream
(3) The Theory of Olfaction
(4) The Limbic System
(5) The Circulatory System
(6) The Lymphatic System
(7) The Endocrine System
(8) The Nervous System
(9) The Musculo-skeletal System

3.7.3 Contraindications and Safety in Aromatherapy (Goldstein *et al.*, 2006; McGuinness, 2003; Başer & Buchbauer, 2010; Buckle, 2015)

(10) Safety in Aromatherapy
(11) Hair and Scalp Care Contraindications
(12) Facial Skin Care Contraindications
(13) Nail and Basic Skin Care Contraindications
(14) Contraindications and Cautions for Aromatherapy Massage
(15) Toxicity; Irritation; Sensitization
(16) Safety Evaluation and Precautions when Using Essential Oils
(17) Adulteration of Essential Oils
(18) Safe Handling and Storage

3.7.4 Aromatherapy Products and Applications

(19) Aromatherapy Shampoo Treatment
(20) Aromatherapy with Essential Oils
(21) Essential Oils, Perfumes, Fragrances and Frankincense
(22) Central Nervous System Effects of Essential Oils in Humans
(23) Psychopharmacology of Essential Oils
(24) Phytotherapeutic Uses of Essential Oils
(25) Aromatherapy Head Massage
(26) Clinical Use of Aromatherapy: Infection, Insomnia; Nausea & Vomiting; Pain & Inflammation; Stress & Well-Being

3.7.5 Specific Hair Conditions and Formulas

(27) The Purpose of Multiple Formulas
(28) Alopecia
(29) Brittle Hair
(30) Chemical Buildup
(31) Dandruff
(32) Dry Hair
(33) Itchy Scalp
(34) Oily Hair
(35) Overprocessed/Damaged Hair; Sun-damaged Hair

3.7.6 Specific Skin Care Formulas and Recipes

(36) Essential Oils and Skin Care
(37) The Skin and Its Functions
(38) Facials
(39) Standard Manual Cleansing Facial
(40) The Positive Practitioner
(41) Aromatherapy Facial
(42) Post-Evaluation Aromatherapy Facial Treatment

(43) Scheduling Follow-up Appointments
(44) Skin Care Formulas: Cleansers and Tonics
(45) Aromatherapy Cleansing Formulas
(46) Formulas for Skin Care Tonics and Rinses
(47) Aromatherapy Masks

3.7.7 Specific Skin Conditions and Formulas

(48) Dry, Flaky Skin
(49) The Hard Part: Getting on a "Water Schedule"
(50) Nature's Alternative Moisture
(51) Excessively Oily Skin and Texture
(52) Aromatherapy and Brain Waves
(53) Mature, Lined Skin
(54) Sun-damaged Skin
(55) Acne; Moisturizing Acne Skin

3.7.8 Nail Care Formulas and Recipes

(56) Nail Condition and Appearance
(57) Manicures; Standard Manicure
(58) Creating the Perfect Aromatherapy Manicure

3.7.9 Specific Nail Conditions and Formulas

(59) Brittle Nails and Cuticles; Rough, Coarse, Skin-damaged Hands; Damaged Nail Beds; Ingrown Nails; Fungus Growth

3.7.10 Aromatherapy Pedicures

(60) Feet and Physical Condition
(61) Pedicure Chair/Bath Types
(62) Sterilization
(63) Standard Pedicure Equipment and Supplies
(64) Standard Pedicure Process
(65) Creating the Perfect Aromatherapy Pedicure
(66) Aromatherapy Formulas that Replace Standard (Massage) Hand Cream

3.7.11 Aromatherapy Massage

(67) Functions of Aromatherapy Massage
(68) Criteria for Performing Massages
(69) Characteristics of Aromatherapy Massage
(70) Choosing Essential Oils for Massage
(71) Creating the Proper Atmosphere
(72) Standard Massage Movements
(73) Beginning and Performing Massage
(74) Massaging Specific Areas
(75) Preparing the "Holistic You"
(76) Aromatherapy Body Massage Oil Formulas
(77) Special Tips and Tricks for the Client Who is "Allergic to Everything"
(78) Aromatherapy Massage and Other Forms of Treatment
(79) Aromatherapy Massage Techniques
(80) Preparing for the Aromatherapy Massage
(81) Health, Safety and Hygiene
(82) Relaxation Techniques
(83) Aromatherapy Massage Procedure
(84) Other Forms of Treatment

3.8 Spa and Wellness Therapies

3.8.1 The emergent new global industry

The spa industry is an emergent global phenomenon representing a convergence of industries, renaissance of ancient traditions and therapeutic practices. The spa industry integrates a wide range of aligned industries including beauty, massage, hospitality, tourism, architecture, property development, landscape design, fashion, food and beverage, fitness and leisure, personal

development, as well as complementary, conventional and traditional medicine (Cohen & Bodeker, 2009). It combines features from regions around the globe, including American commercialism with its emphasis on beauty, pampering and destination experiences; Asian service ethics, holistic therapies and spiritual practices; European medical traditions and clinical acumen; and the indigenous knowledge and environmental consciousness of various tribal cultures. It employs a variety of professionals that may include physicians, chiropractors, Ayurvedic doctors, massage therapists, aestheticians, life coaches, counsellors, dietitians, yoga instructors, spiritual leaders, cosmetologists, dermatologists, cosmetic surgeons, naturopathic doctors, hypnotherapists, fitness trainers, and others (Williams, 2015). The convergence of these influences has seen spas being taken up by the international hospitality industry, fuelled by the merging of the travel economy with the health economy. Thus, spas are now springing up all over the world and have become a standard feature of luxury hotels and resorts.

Cohen & Bodeker (2009) take cognizance that with the spa industry fast becoming the world's largest leisure industry, an accompanying need for information arises. The industry is naturally looking to define best practice, determine successful business models, prioritise human resource issues develop standards of quality control, create effective marketing strategies and examine past and future trends. Yet, while the services, products and profits of the industry have grown exponentially, the information gap has grown wider.

3.8.2 Types of Spas

The broad categories of spas are as follows (Miller, 1996; Williams, 2015):

Destination Spas
This is a hotel property geared specifically to the spa guest and spa program. Outside guests are not normally part of the program. Everything is geared around the spa and its program. Guests visit a destination spa for a weekend, a 4-day program or longer to make significant lifestyle changes or to relax completely. Spa programs focus on fitness, healthy diet, detoxification, and lifestyle education. Some destination spas offer classes and services geared toward spiritual as well as physical renewal. Many destination spas offer a full menu of beauty services in addition to the spa program.

Resort Spas
These are located on the property of a hotel, normally in a resort where other sports and activities are also offered besides the spa program itself. Spa guests and hotel guests intermingle. A resort spa offers different recreational opportunities such as hiking, rock climbing, water sports, shopping, tennis, golf, and horseback riding as well as spa services. Often, it is the beautiful natural landscape around a resort that is the primary reason for the visit, and the spa itself is just one of many activities offered to the resort or hotel guest. Some resort spas are a cross between the destination and hotel spa where health programs are on offer, and guests can choose from low-fat spa cuisine or more traditional fare.

Amenity Spas
These are similar to the resort spa concept except that the actual goal of the management is to add the spa as an amenity to the hotel. Many hotels now view spa services as an important contributor to the bottom line, so they have started to offer full-service facilities. Keeping pace with this trend, smaller hotels, bed-and-breakfasts establishments, and even some time-shares have moved toward offering in-room massage or mobile spa services if they do not have room for a full-service spa.

Medical Spas
The medical spa offers health care services in a relaxing and beautiful natural setting. Some hospitals are adding spas to ease the discomfort of the terminally ill and to help with pain management. Three different types of medical spas distinguished:

The first type is the aesthetics-oriented medical spa, which includes services such as Botox or collagen injections, chemical skin peels, laser hair removal, laser skin treatments, liposuction, plastic surgery, and sclerotherapy (spider vein elimination). In this type of spa, medical cosmetic and clinical esthetics procedures are offered together with revitalizing treatments (such as massage) to support the recovery process. Skin health and beauty are addressed with anti-aging and skin damage treatments, Botox injections, liposuction, and breast augmentation. The body–

mind connection and its effect on health are treated using hypnotherapy, psychotherapy, fitness training, and nutritional consultations.

The second type of medical spa is the complementary or alternative medicine spa, where the program designed for each guest is based on one of the alternative medicine systems such as ayurveda or Chinese traditional medicine. Naturopathic medicine, nutrition therapy, herbal medicine, and acupuncture all fall into this category. Traditional diagnostic procedures such as Vedic pulse diagnosis are used in designing the treatment and spa regime.

The third type of medical spa is the preventive health care spa in which medical staff carry out a number of tests (blood tests, bone density screening, etc.) before designing the treatment program. Sometimes, the spa specializes in general areas such as weight loss, pain management, or prenatal or postnatal care. They may also offer specific programs for particular conditions such as diabetes, high blood pressure, or chronic insomnia.

Day Spas
Day spas are mini-retreats with services delivered à la carte or in half-day to full-day packages. A day spa offers a full range of treatments including massage, body treatments, hydrotherapy treatments, aesthetic services, weight management, yoga, or meditation, with hair care, manicures, and pedicures. Many business owners are using the term *day spa* loosely to indicate an establishment that focuses on beauty and/or wellness. Clients can choose a half-day or full-day retreat that begins with a conversation about health, diet, relationships, and exercise goals. Conscious breathing exercises progress to a full-body massage and full-body polish. After lunch, the client can choose between a facial, reflexology, hand and foot treatment, or body wrap for their final service.

Thermal/Hot/Mineral Spring Spas
Hot springs spas use the natural thermal waters from hot springs in their spa regime or treatments. Spa treatments may include facials, massage, and body wraps.

Mobile Spas
Mobile spas bring day services directly to clients at their home, office, hotel room, or at a party. The treatments are designed to be set up and delivered on-site and are popular as a feature at bachelorette parties, prom parties, and corporate retreats. Treatments include seated massage, manicures, pedicures, reflexology, facials, and diet consultations.

Spas for Women
The primary client for spa services is still predominantly female accounting for over 70 % of clients with male clients accounting for 29 % and rising (Williams, 2015). A spa for women might offer expensive high-tech skin care or detoxification, vegetarian cuisine, and yoga. A spa might cater to brides, to mothers and babies, to athletes, or to grandmothers. The program at the spa may be based on a philosophy that addresses nutrition, endurance, strength, flexibility, self-awareness, education, relaxation and a “just for women” experience. Manicures, pedicures, and massage are available, but rock climbing lessons and hiking replace other normal spa services.

Spas for Men
Spas can target men by linking spa treatments to health and fitness, and by using spa treatments as interesting giveaways at business meetings and conventions.

Spas for Families
Spas that target families offer services that fit every member’s needs. There may be a full spa offering services for men and women as well as programs geared toward teens. Child care facilities for the younger members of the family might be offered with programs designed to get everyone together such as horseback riding or hiking.

Spars for Teens
A number of day spas focus on the needs of teenagers with treatments that address oily skin, acne, and sports injury. Teens enjoy the chance of preparing for big events surrounded by a group of friends getting manicures, pedicures, facials, and body wraps.

Other Spars
Spas may be further broken down in to a number of categories according to the programs, such as a beauty spa, health and fitness spa, holistic spa and other thematic philosophies. A destination spa might be a weight loss spa, or it might be a spiritual retreat. A resort spa might be an adventure spa focusing on healthy athletes. Spas might be luxury spas with expensive treatments and high-tech equipment or budget spas with moderately priced services and a relaxed décor.

3.8.3 Spa Equipment and Products

3.8.3.1 Dry Room Equipment
The term **dry room** refers to a treatment room in which there is no shower or hydrotherapy equipment. Instead, hot towels are used to remove spa products from the client's body, or clients take showers in a different area. Essential dry room equipment includes (1) massage tables, (2) essential linens, (3) hot towel heating units, (4) product warmers, (5) paraffin warmers, (6) body wrap materials, (7) body-warming equipment, and (8) other treatment room supplies (Figure 3.1) (Williams, 2015).

Figure 8: Examples of spa dry room equipment (a) Stationary massage table. (b) Arm shelf. (c) Side extenders. (d) Bolsters. (e) Massage tool. (f) Step stool. (g) Hot towel cabinet. (h) Product warmer. (i) Body wrap materials including a wool blanket, thermal space blanket, wet wrap sheet, and plastic body-wrap sheet. (j) Treatment bar. (k) Paraffin warmer. (l) Fomentek water bottle. (m) Electric (thermal) booties and mitts. (n) Free-standing heat lamp. (After Williams, 2015)

3.8.3.2 Wet Room Equipment

The term **wet room** refers to a treatment room that contains specialized hydrotherapy equipment such as professional grade tubs, showers, and wet tables. Often, wet rooms will be tiled and have

drains in the floor for easy cleaning. The unique pieces of equipment that might be found in wet room environments can be broken into three categories: tubs, showers, and specialized environments.

Tubs: Therapeutic baths (balneotherapy) use a variety of tubs in different sizes with different features to provide clients with a relaxing and beneficial experience. Essential oils (aromatherapy bath), herbs (herbal bath), seaweed, seawater or algae (thalassotherapy or algotherapy), and mud or clay (fangotherapy) are common additives that increase the therapeutic benefit of the water treatment. The types of tubs commonly used at spas include: (a) **Foot soaking tubs, (b) Soaking tub, (c) Whirlpool tub, (d) Hydrotherapy tub.**

Showers: Therapeutic showers are used to remove a product from the client, to facilitate a desired physiological effect, to warm the body in preparation for another treatment, or to cool the body at the end of a treatment. In a spa wet room, five main types of showers are used: (a) **Handheld shower and wet table, (b) Standard shower, (c) Swiss shower, (d) Vichy shower, (e) Scotch hose.**

Specialized Environments: Specialized environments are used at spas to produce a specific therapeutic effect by forcing the body to maintain homeostasis in response to calculated environmental influences. The types of therapeutic rooms or adaptations often found at spas include: (a) **Steam room, (b) Steam showers, (c) Steam cabinet, (d) Steam canopy, (e) Sauna.**

3.8.3.3 Spa Products

Spa products fall into basic categories including cleansers, toners or astringents, exfoliation products, treatment products (sometimes called masks), and moisturizers (Williams, 2015).

Cleansers rid the skin of dead cells, excess sebum, dirt, and other impurities. An effective cleanser removes impurities from both the skin's surface and the pores. Soaps are not considered as cleansers.

Toners complete the cleansing process and help to restore the skin's acid mantle. They are usually glycerine based and do not contain alcohol, so they are suitable for dry skin types. **Astringents** are a stronger form of toner containing alcohol to dissolve excess oil from oily skin.

Exfoliation products are used to remove trapped debris while sloughing off dead skin cells, smoothing the skin's surface, stimulating circulation in the local region, and relaxing or invigorating the body. The salt glow is a classic exfoliation treatment that was first developed as a "friction" technique in traditional hydrotherapy. Now, it is a popular and refreshing body treatment offered at most spas. Overexfoliation on a regular basis can lead to an increase in epidermal thickness resulting in a "leathery" skin appearance. The skin should not be exfoliated more than once a week except by aestheticians for a specific treatment goal.

Treatment products, sometimes referred to as "masks" are usually applied with a specific purpose or treatment goal in mind. An aesthetician will apply a mask to the facial or body skin to tighten sagging skin, absorb excess oil, hydrate and moisturize the skin, soothe irritated skin, and beautify the skin.

Moisturizers are usually applied at the end of a session to replace any natural skin oils and moisture lost during the other steps of the treatment. Moisturizing components can be broken into three areas: **Occlusives, Humectants** and **Emollients**. Moisturizers can be classified depending on their oil, water, and wax content. In general, from heavier to lighter, you will find:

(i) **Balms or butters:** Water free and contain mixtures of oil and beeswax that are very heavy and protective.

(ii) **Creams:** Combinations of oil and water but tend to have more oil than lotions.

(iii) **Lotions:** Lower emollient content than a cream and may be water based or *Aloe vera* based. It feels lighter on the skin because it is less occlusive.

3.8.3.4 Spa Environment

A spa environment must pay attention to what the client sees, hears, smells, tastes, and feels during the session (Williams, 2015).

What the Client Sees—Décor: Colour psychology and colour symbolism will be particularly important in making décor decisions. Window treatments, adjustable lighting levels, consummate wall decorations and decorative items on shelves, side tables, and windowsills help create interest and define the room's style.

What the Client Hears: The auditory environment is also important because it sets the tone for the session and may mask outside noise. Consider the treatment room flooring. The right music can evoke strong feelings and beneficial physiological changes in the client. Research shows that music decreases anxiety, decreases systolic blood pressure, and decreases heart rate even when the person is actively stressed. Music also exerts complex influences on the central nervous system and can, in a short period of time, change brain waves associated with an alert state to brain waves associated with a relaxed state. Research also shows that the positive physiological benefits of music are increased when patients can choose their own music. It is a good idea to have a variety of musical styles available and to ask clients about their musical preferences during the client consultation. Clients can also be encouraged to bring their own appropriate music for the session.

What the Client Smells: Good ventilation and fresh air are important in the spa treatment space. In a therapeutic setting, the good smells from natural essential oils used in aromatherapy can promote relaxation and a pleasant mood. This is important because stress is at the core of many modern diseases, and studies suggest that decreasing stress improves one's health and immunity. Smells can evoke intense emotional reactions and can even be used to change behavioural patterns. Credible evidence shows agreeable aromas can improve our mood and sense of well-being. This is not surprising because olfactory receptors are directly connected to the limbic system, the oldest and most emotional part of the human brain. Therapists can use gentle, soft aromas to enhance the client's perception of the business and to provide an emotionally satisfying experience. For example, diffusing citrus essential oils throughout an area can purify the air, repel insects, enhance mood, and make the area smell clean and fresh.

What the Client Tastes: Incorporating small food items in the session is a pleasant and smart practice. Clients can sometimes get up from a session and feel shaky and dizzy from low blood sugar. A small snack provides an opportunity for the client to wake up and come back to the "real world" before venturing back out into the busy world. Fresh, filtered water should be provided before, during, and after the session. Food and drink should be simple and manageable but focus on the intention of the offering: to welcome; to nourish on a spiritual level; and to show care, thoughtfulness, and appreciation.

What the Client Feels: Once on the treatment table, the client should be enveloped in warm, soft textures whenever possible. Bolsters support the joints in a relaxed position. Blankets, warm packs, Fomentek water bottles, and heat lamps help keep clients warm throughout the session. Lotion warmers heat massage oil or spa products so that it does not feel cold when applied.

3.8.3.5 Accessibility and Functionality

When designing spa space, due consideration must be given about each area of the business and its accessibility and functionality. Consider the entrance and reception area, dressing area, and the bathroom.

3.8.3.6 Planning Spa Treatment Rooms

When planning a spa business, think about how each treatment room can be organized and equipped to allow for the delivery of multiple treatments.

3.8.4 Client and Therapist Safety

Issues to be considered include the following:

3.8.4.1 Spa Ethics

(1) Commitment to Personal and Professional
(2) Boundaries
(3) Scope of Practice
(4) Spa Sanitation and Hygiene

3.8.4.2 Diseases

(5) How Diseases Are Transmitted
(6) Preventing the Transmission of Disease
(7) Sanitation of the Facility, Equipment, and Supplies
(8) Universal Precautions

3.8.4.3 Creating a Safe Environment

(9) Safety of the Facility
(10) Safety of the Client
(11) Safety of the Therapist

3.8.4.4 Cautions and Contraindications

(12) Spa-Specific Considerations
(13) Common Conditions That Require Caution
(14) Critical Thinking and Contraindications

3.8.4.5 Documentation of Sessions in a Spa

3.8.5 Spa Massage

3.8.6 Foundation Skills for Spa Treatment Delivery

3.8.7 Water Therapies

3.8.8 Aromatherapy for Spa

Services in this category may include the following:

(i) Inhalations
(ii) Aromatic Exfoliations and Body Shampoos
(iii) Aromatherapy Massage
(iv) Aromatherapy Baths
(v) Aromatherapy Wraps
(vi) Aroma Mists and Aura Mists
(vii) Support Lotions

3.8.9 Spa Exfoliation Treatments

3.8.10 Body Wraps

3.8.11 Spa Foot Treatments

3.8.12 Fangotherapy

Fangotherapy is the use of **mud**, **peat** and **clay** for healing purposes. The word ***fango*** is the Italian word for mud, so, strictly speaking, peat and clay should not be labelled as fango treatments. However, most spas use the term *fango* loosely, so to avoid confusion, the more general meaning of the word is adopted here (Williams, 2015). Considerations in this therapy include the following outline:

(i) Types of Products Used in Fangotherapy: Clay; Mud; Peat

(ii) General Treatment Considerations: Contraindicated Individuals; Broken or Inflamed Skin; Fango Temperature; Mixing and Storing Fango Products; Preventing Dry Out

(iii) The Full-Body Fango Cocoon

(iv) The Fango Back Treatment Procedure

(v) The Fango Scalp and Neck Treatment Procedure

(vi) Fango Applications for Musculoskeletal Injury and Disorder

3.8.13 Thalassotherapy

Thalassotherapy is the use of marine environments and sea products, particularly seaweed, for healing and wellness. The mystique of the sea may be one reason that treatments featuring seaweed are held in such high regard by spa clients. It is probable that the reliable results achieved by the use of seaweed in slimming treatments, revitalization treatments, aesthetics, and relaxation treatments are the other reason for its popularity (Williams, 2015). Considerations in this therapy include the following outlines:

(i) The Therapeutic Benefits of Seaweed for the Body

(ii) General Treatment Considerations: Contraindications; Sensitive Skin; Product Form and Application Considerations; Seaweed Odour; Cellulite and Cellulite Products.

(iii) The Slimming Seaweed Cocoon Procedure

(iv) The Seaweed Breast Treatment

(v) Other Seaweed Treatments

3.8.14 Stone Massage

In stone massage, both hot and cold stones are combined with various massage techniques to produce a unique treatment that can be adapted to meet the needs of each client. Stone massage is used for relaxation, injury rehabilitation, energy balance, deep tissue work, reflexology application, and many other types of massage. It can also be incorporated into spa treatments as an accent or to provide textural variety (Williams, 2015). Considerations in this therapy include the following outlines:

(i) **General Treatment Considerations:** Contraindications; Stone Temperatures; Therapist Safety; Draping and Insulation for Placement Stones; Essential Oils

(ii) **Equipment and Setup:** Stones; Heating Units; Equipment Organization

(iii) **Core Techniques:** Introduction of the Stones to the Client's Body; Stone Flipping; Stone Transitions; Bad Stone Body Mechanics; Heating Unit Speed versus Body Speed; Remove Enough Stones; Draping; Stones on the Face

(iv) **Basic Strokes:** Long Strokes with the Stone Flat; Stone Pétrissage; Wringing with Stones; Stone Stripping; Rotation of a Stone with Compression; Stone Vibration; Deep Tissue with the Edge of a Stone; Deep Tissue with the Flat of the Stone; Friction with Stones; Stone Tapotement; Vascular Flush with Stones; Stone Strokes for Specific Areas

(v) **A Basic Full-Body Stone Massage Procedure**.

3.8.15 Culturally Inspired Spa Treatments

Ayurvedic-inspired spa treatments and Indonesian-inspired spa treatments are based in countries that have rich histories and complex cultures. The environment, the people, the traditional medical systems, and the myths from India and Indonesia come alive through these massage methods, natural spa products, and unique treatments (Williams, 2015). Considerations in this therapy include the following outlines:

(i) **Ayurvedic-Inspired Spa Treatments:** Core Concepts in Ayurveda; General Treatment Considerations; Indian Head Massage; Abhyanga; Udvartana; Shirodhara

(ii) **Indonesian-Inspired Spa Treatments:** Indonesian Spa Products; Treatment Considerations; Indonesian-Inspired Massage; Indonesian-Inspired Exfoliation and Body Wrap; Treatments; Balinese Boreh–Inspired Treatment; Javanese Lulur Ritual

3.9 Hair Removal Techniques

A number of methods for temporary or permanent removal of unwanted hair are outlined with emphasis on efficacy and safety (Bickmore, 2004); (Haedersdal & Wulf, 2006); (D. J. Goldberg, Bialoglow, & Mulholland, 2008); (Frangie *et al.*, 2012); (Thorpe, 1951). Considerations for hair removal may include the following aspects:

(i) Anatomy and Physiology of the Hair and Skin

(ii) Skin Disorders and Diseases

(iii) The Endocrine System

(iv) Home Hair-Removal Methods: Threading; Sugaring

(v) Waxing: Hard Depilatory Wax, The Nonstrip Method; Hot Wax Strip Method.

(vi) Electrolysis: Thermolysis; Galvanic Electrolysis; The Blend Method

(vii) Laser Hair-Removal Treatment

(viii) Photoepilation (Intense Pulsed Light (IPL))

(ix) Professional Ethics, Professional Organizations, and Continuing Education

4. Risks Associated with Cosmetology Practices

4.1 Health and Safety Concerns on Cosmetics

Concerns about the harmful effects of some cosmetics on women were highlighted in the 1930s as the cosmetics industry started registering huge growth and entering into the daily of an immense number of women and therefore drawing interest to consider their potentialities for good or ill (Carleton, 1933). A review of cosmetic powders, lipsticks, cold creams, vanishing creams, depilatories, wrinkle removers, hair dyes and hair lotions indicated that most of the cosmetics used at the time had unacceptable levels of toxic substances such as lead, bismuth, eosin, mercury, radioactive substances, copper, silver, nickel, cobalt, paraphenylendiamine and resorcin among others (Carleton, 1933).

Hypersensitivity reactions: Often cosmetics are the cause of many side effects, mainly hypersensitivity reactions. Common groups of cosmetic components responsible for side effects are fragrances, preservatives and dyes (Zukiewicz-Sobczak *et al.*, 2013).

Abraded skin irritation: A study on the effect of commonly used cosmetic products in Ethiopia concluded that the application of cosmetics on abraded skin under sunny condition worsens the irritation. Hence, those users who have abraded skin are advised not to apply those cosmetics on continuous basis specifically under sun exposure (Amasa *et al.*, 2012).

Use of bleaching cosmetics: There is an observed practice for African men and women to chemically alter their natural skin tone for aesthetic purposes. This is realized by the use of cosmetic skin-bleaching agents, which are sold without regulation. These products have potential for adverse health effects, including nephrotoxicity, neurologic symptoms, and suppression of the hypothalamic-pituitary-adrenal (HPA) axis (Rozen, Alseddeeqi, & Rivera, 2012).

Hazardous Chemicals in Cosmetics: AHT (2004) reports that of the more than 10,000 ingredients are used in personal care products, some are linked to cancer, birth defects, developmental and reproductive harm, and other health problems that are on the rise. Table 1 shows a sample of ingredients contained in some cosmetics and associated health impacts.

Table 1: Hazardous Chemicals in Cosmetics (AHT, 2004)

Chemical	Products	Health Impacts
Coal Tar Colours	Make-up and hair-dye	Some FD&C colours are carcinogenic or contain impurities that have been shown to cause cancer when applied to the skin. Allergens and irritants.
Diethanolamine (DEA)	Widely used in shampoo	A suspected carcinogen, its compounds and derivatives include triethanolamine (TEA), which can be contaminated with nitrosamines shown to cause cancer in laboratory animals. [Suggestive animal evidence]
Formaldehyde and its releasers [(a)]	Eye shadow, mascara, nail polish, shampoo, blush, etc.	Carcinogen, reproductive toxin, shown to cause or exacerbate asthma and other respiratory ailments. [Strong animal and human evidence]
Glycol Ethers	Nail polish, deodorant, perfume	Hazardous to the reproductive system. Other effects include anaemia and irritation of the skin, eyes, nose and throat. EGPE, EGME, EGEE, DEGBE, PGME, DPGME and others with "methyl" in their names. [Strong animal and human evidence]
Lead	Hair dyes (e.g. Grecian formula) and in eye makeup (as a preservative)	Lead damages the nervous system, leading to decreased learning ability and behavioural deficits. Reproductive toxin. Carcinogen. [Strong animal, human and children evidence]
Mercury	Skin-lightening cream and in eye makeup (as a preservative).	Mercury is toxic to development, as well as to the nervous system and is suspected to have harmful effects on the respiratory system, the kidneys and gastrointestinal and reproductive systems. [Strong animal, human and children evidence]
Parabens	Hair products (shampoo, conditioners, styling products), soaps, body washes, moisturizers, shaving cream, gels, cosmetics/makeup, toothpastes.	Methyl-, ethyl-, propyl-, butyl-, isobutyl- and other parabens, have shown hormonal activity. The most common preservatives used in cosmetics. Recently found in tissue samples from human breast tumours. Propylparaben affects sperm production in juvenile rats. [Suggestive animal and human evidence]
Phenylenediamine (PPD)	Hair dyes (oxidation dyes, amino dyes para dyes, or peroxide dyes)	PPD is mutagenic and reasonably anticipated to be a human carcinogen. It has been banned in Europe. It is also linked with skin irritations, and respiratory disorders. [Compelling animal evidence]
Phthalates Most used in cosmetics: DBP, DMP, and DEP.	Fragrance, perfume, deodorant, nail polishes, various hair products, cream and lotion, etc.	Liver and kidney lesions: reproductive abnormalities, including testicular atrophy, altered development of reproductive tissues and subtle effects on sperm production (maybe through endocrine disruption); cell line transformations; and cancers, including those of the liver, kidney, and mononuclear cell leukaemia. These effects are generally *quantitatively* though not *qualitatively* different between phthalates. The developing male reproductive system appears to be the sensitive organs. [Strong animal evidence; suggestive human evidence; some children evidence through exposure via medical devices]
[(a)] Formaldehyde releasers include: Paraformaldehyde, benzylhemiformal, 2-bromo-2-nitropropane-1,3-diol, 5-bromo-5-nitro-1,3-dioxane, diazolidinyl urea, imidazolidinyl urea, Quaternium-15, DMDM Hydantoin, sodium hydroxymethyl glycinate, and Methenamine		

While other jurisdictions like the EU have a comprehensive list of prohibited and restricted substances for cosmetics by way of binding regulations (EC., 2009), other jurisdictions which are big players in the international market have limited prohibitions and flexible regulations. Carleton (1933) reports that while countries in Europe had banned the use of certain substances in cosmetics as far back as 1900, they were still considered perfectly safe in countries like the USA.

A number of studies across the world indicate varying levels of toxic substances present in cosmetics often higher than those considered safe or present whereas they are prohibited. This review highlights a few examples.

A study evaluating the content of cadmium (Cd), lead (Pb) and nickel (Ni) in 105 hair care products commercially available in Turkey detected their presence in 40%, 21.91%, and 94.29% of the samples, respectively yet these substances are listed as prohibited in the EU Directive and Turkish Cosmetic Legislation (Sipahi *et al.*, 2014). Moreover, Ni content of 17.14% of the samples

was above the limit of allergic contact dermatitis and of particularly serious concern for susceptible groups of the population like the paediatric group.

A study to investigate the content of lead and cadmium in lipstick and eye shadow in Iran found higher levels of the heavy metals in the eye shadows than that of the lipsticks and concluded that increased and continuous use of these products can increase the absorption of heavy metals, especially Cd and Pb, in the body when swallowing lipsticks or through dermal cosmetic absorption (Nourmoradi *et al.*, 2013). The effects of heavy metals such as lead can be harmful, especially for pregnant women and children.

Skin creams that have skin bleaching properties and are reputed to improve the complexion are much sought after by women of colour (black, coloured and Asian). The most common agents used include mercury-containing compounds, hydroquinone (p-dihydroxybenzene) (HQ) and its derivatives, resorcinol, and topical steroids of various potency. Most frequently, more than one agent is used at a time. Numerous studies on different populations of African men and women have demonstrated the occurrence of harmful long-term side effects from the use of skin-lightening cosmetics. Mercury compounds have been banned in cosmetics in several countries owing to nephrotoxicity and neurotoxicity (Denton, Lerner, & Fitzpatrick, 1952); (Barr *et al.*, 1972); (Findlay, 1982); (Ajose, 2005); (Bongiorno & Aricò, 2005); (Pitché, Kombaté, & Tchangai-Walla, 2005); (Ly *et al.*, 2007); (Morand, Ly, Lightburn, & Mahé, 2007); (Barja, Berdeal, Vares, & Carballo, 2010); (Rab, Hanif, Bari, & Faruquee, 2012). Some of the adverse effects include dermatologic disorders such as dyschromia, exogenous ochronosis, acne and hypertrichosis, prominent striae, tinea corporis, pyoderma, erysipelas, scabies, and contact dermatitis and systemic complications such as hypertension, hypercorticism or surrenal deficiency, and mercurial nephropathy.

A study on the skin lightening cream used in Durban, South Africa found that of the 10 top-selling skin lightening creams nine (90%) contained banned or illegal compounds. Six (60%) of them were manufactured in South Africa and the rest were illegally imported from Taiwan (1 - 10%), Italy (1-10%), and the UK (1 - 10%). Four products (40%) contained mercury as an active ingredient, two (20%) contained corticosteroids, two (20%) resorcinol, and one (10%) a derivative of HQ. The majority of products contained banned substances (Dlova *et al.*, 2012).

A study to evaluate the extent of the practice of skin lightening (SL) in Kigali, Rwanda, found that a total of 27 creams containing ingredients known to be depigmenting agents were available and 35% of the surveyed population were found to use products with skin-bleaching properties, but only 27% stated that they used the products specifically for these depigmenting properties (Kamagaju *et al.*, 2015. Whenever side effects appear, consumers opt either to stop bleaching practices for a short period or to switch from their commercial topical product to another one with, presumably, a different composition. Albeit that many people acknowledge that there are possible side effects of using preparations commonly used in SL, the practice is generally continued. Although it is important to question the rationale behind the practice of SL, it is equally important to develop and propose safer products (Kamagaju *et al.*, 2015).

Studies on the negative effects or availability of harmful cosmetics have been conducted in several countries in Africa and globally such as: **Kenya** (Barr *et al.*, 1972); (Harada *et al.*, 2001); (Terer, Magut, & Mule, 2013); (Hibbert & Crisp, 2014); **Malawi** (Brown, Abrahams, & Meyers, 1977); **Nigeria** (Adebajo, 2002); (Ajose, 2005); (N. E. Nnoruka, 2005); (E. Nnoruka & Okoye, 2006); (Imani, 2013); (Orisakwe & Otaraku, 2013); (Durasaro, Ajiboye, & Oniye, 2012); (Iwegbue *et al.*, 2015); **Senegal** (Gras & Mondain, 1981); (del Giudice & Yves, 2002); (Ly *et al.*, 2007); (Barja *et al.*, 2010); (Ly, Vasseur, Fecky, & Verschoore, 2012); (Diongue *et al.*, 2013); **Ghana** (Doe *et al.*, 2001); (Amponsah, 2010); (Amponsah, Sebiawu, & Voegborlo, 2014); **Ethiopia** (Amasa *et al.*, 2012); **South Africa** (Findlay, 1982); (Phillips, Isaacson, & Carman, 1986); (N. C. Dlova *et al.*, 2012); (Thomas, 2005); (Dlova *et al.*, 2014); (Singh, 2011); (Neilson, 2014); **Togo** (Pitché *et al.*, 2005); (Kombaté *et al.*, 2012); (Kpanake, Muñoz Sastre, & Mullet, 2010); **Cote D'Ivoire** (Thacker, 2015); **Mali** (Bremmer, Gardner, & Driscoll, 2011); **Rwanda** (Kamagaju *et al.*, 2015); **Somalia** (Adawe & Oberg, 2013); **Sudan** (Abdu, Shakkak, Abdel-Hameed, & Said, 2010); (Yousif, Ahmed, Idris, Elmustafa, & Ahmed, 2014); **Tanzania** (Lewis et al., 2012); (Maregesi, Kagashe, & Felix, 2014); **Zimbabwe** (Muchadeyi, Thompson, & Baker, 1983); (Gwaravanda, 2011); **China** (Wang & Zhang, 2015); **India** (Verma, 2010); **Iran** (Nourmoradi *et al.*, 2013); **Jordan** (Hamed, Tayyem, Nimer, & AlKhatib, 2010); **Saudi Arabia** (I. al-Saleh & al-Doush, 1997); (Iman Al-Saleh *et al.*, 2005); **UK** (Boyle & Kennedy, 1986)

It appears that skin lightening cosmetics are not limited to the skin only but there are now products designed for intricate parts of the human anatomy as well (Drrubidium, 2012); (London, 2012); (Eldorado, 2012); (Tilak, 2012); (Chaipraditkul, 2013).

4.2 Health and Safety Concerns Related to Hair Care

4.2.1 Hair Care and Hair Loss

Although there are many causes for hair loss (alopecia) among women and men, our review shall address those which are mediated by skin care products and practices. Some hair care practices result in "traumatic alopecias" and include braids, extensions, weaves, chemical straighteners and curls, hot combs, and pressing (Borovicka *et al.*, 2009).

4.2.1.1 Traction Alopecia

Traction alopecia results from tension applied persistently to hair, such as in the case of certain hairstyles including tight ponytails and braids, dread locks, and also from hair styling devices like hot rollers and hair straighteners. Affected areas correspond to areas under the greatest amounts of pressure, and usually hair loss occurs at scalp margins. Traction alopecia is usually transient, although scarring or signs of inflammation may be observed. With early detection and management, reversal of symptoms generally occurs within a few months. Because of the association between specific hairstyles and cultures, certain populations are especially vulnerable to this condition; for instance, braiding and weaving in African females increase the prevalence of traction alopecia in this group.

To prevent permanent alopecia, patients are advised to switch to more relaxed hairstyles as soon as possible to relieve the stress on their hair. Pharmacological treatments include minoxidil, which has been beneficial for some patients, as well as antibiotics and corticosteroids in the event of folliculitis or inflammation, respectively. Surgical intervention remains an option for patients with advanced hair loss (Callender, McMichael, & Cohen, 2004).

Traction hair loss can be evidenced from the following illustrations.

Figure 9: Traction alopecia produced by tight braiding of the hair (after: Price & Mirmirani, 2011; Goldberg, 2009; Borovicka *et al.*, 2009; Nnoruka, 2005)

Figure 10: Traction alopecia produced by dread locks of the hair after (after: Price & Mirmirani, 2011; Goldberg, 2009; Nnoruka, 2005)

Figure 11: Traction alopecia produced by braiding of the hair of infants (after: Price & Mirmirani, 2011; Goldberg, 2009; Nnoruka, 2005)

Figure 12: Traction alopecia produced by high tension in hairstyles (after: Price & Mirmirani, 2011; Goldberg, 2009)

Figure 13: Traction alopecia produced by tight ponytails of the hair (after: Price & Mirmirani, 2011; Goldberg, 2009; Nnoruka, 2005)

Figure 14: Diffuse alopecia involving the frontal, parietal, and occipital scalp in a patient who practiced many traumatic hairstyling techniques (Borovicka *et al.*, 2009)

4.2.1.2 Occipital alopecia

Some hair styles can cause hair loss at the occipital area of the head due to traction. In many cases, it is still categorized as traction alopecia. We illustrate a few of these hair styles and effects in this review.

Figure 15: The chignon worn by newly married women is related to occipital alopecia (after: Keita *et al.*, 2005)

(a) (b)

Figure 16: (a) Marked hair loss extending from the pre-auricular scalp margin to the occiput and (b) extensive occipital hair loss, with occasional retained hairs (Goldberg, 2009)

Figure 17: Hair braids and hair extensions and weaves (a) The occipital pressure ulcer, shortly after diagnoses and the scalp was cleaned (b) & (c) The ulcer approximately 3 months after diagnosis, the patient wearing loose (not tight cornrow) braids (d) Hair loss by traction alopecia and CCCA due to weave/extension (after: Dixon & Ratliff, 2011; Javed, Nelson, & Graham, 2012; Salibi, Souéid, & Dancey, 2014)

4.2.1.3 Central centrifugal cicatricial alopecias (CCCAs)

The term "cicatricial alopecia" describes a poorly understood group of disorders characterized by a common final pathway of replacement of follicular structure by fibrous tissue and irreversible hair loss (Price & Mirmirani, 2011; Ngwanya, 2005). The mechanism of pathology of CCCA has only been postulated and not proven. However, one theory involves pressure exerted on the internal root sheath leading to damage, which leads to the recruitment of inflammatory cells and the end result of scarring. African Americans are found to be at increased risk either because of the curled hair shaft, distinct styling practices, moisturizing hair products, or chemical processing techniques (especially in the youth population). Some have hypothesized that CCCA represents an end stage of traction alopecia. However, this theory does not ring true as many patients lack a report of traction hairstyling.

CCCA was originally called "hot-comb alopecia" as it thought that heated combs used to straighten to straighten hair were responsible for the condition. This procedure consisted of passing a hot comb through hair that already had petroleum jelly applied to it. This was thought to result in heated oil tracking down the scalp and causing damage to the hair follicles, which would result in scarring.

There are distinctive groups clinically such as central centrifugal cicatricial alopecia, lichen planopilaris, chronic cutaneous lupus erythematosus, frontal fibrosing alopecia, folliculitis decalvans, dissecting folliculitis. These above groups show different inflammatory infiltrate.

A study in Nigeria found that the duration of hair care practice and hair styling were relevant to hair loss, particularly for women with central centrifugal cicatricial alopecias (CCCAs), which resulted in scarring (Nnoruka, 2005).

The following illustrations give examples of CCCAs.

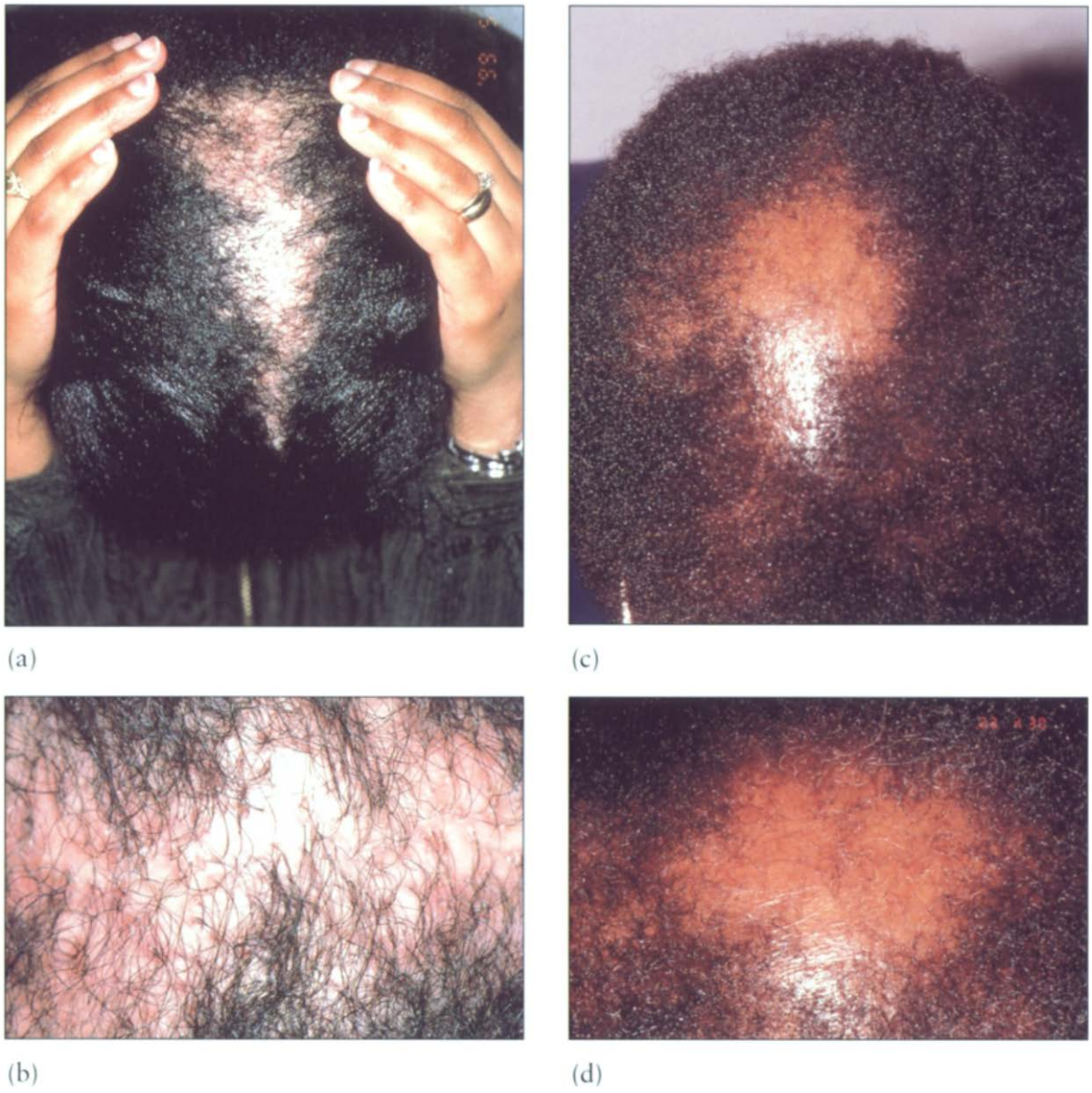


Figure 18: Central centrifugal scarring alopecia (follicular degeneration syndrome) in African-Americans due to different hair care styles. (a) Black female with significant alopecia. (b) Close-up showing obliteration of follicular ostia. (c) Black male with significant alopecia. (d) Close-up of patient illustrating lack of follicular ostia (Shapiro, 2002).

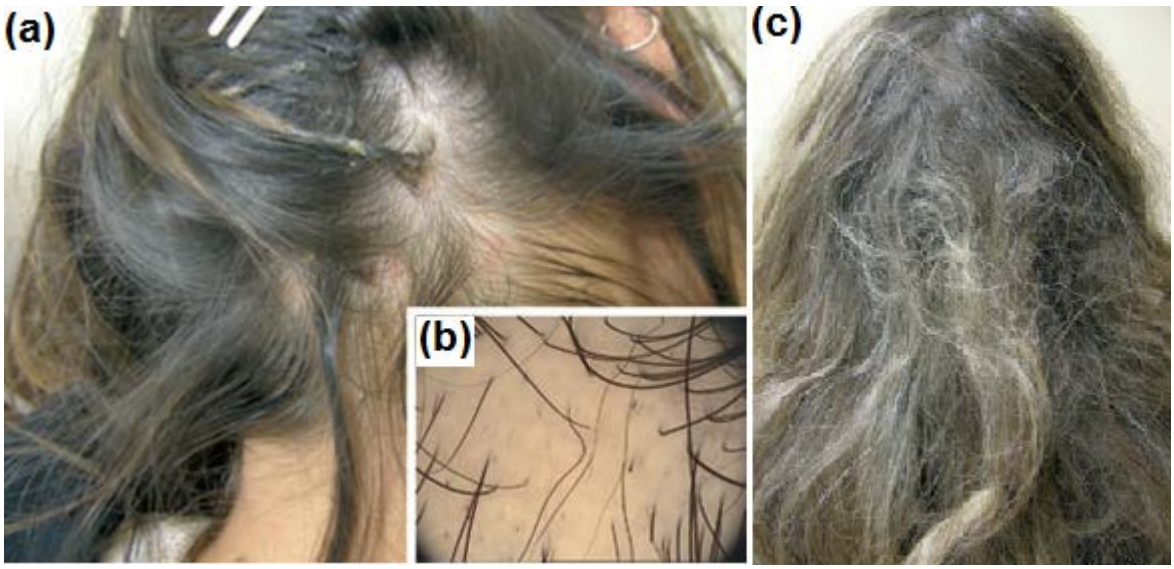


Figure 19: Multiple small alopecic erythematous patches at the site of attachment of current and previous hair extensions (a). Dermatoscopic findings of traction alopecia show nonscarring hair loss with multiple broken hairs (b). Hair matting in the occipital region: the site of attachment of hair extensions (c) (Yang, Iorizzo, Vincenzi, & Tosti, 2009);

4.2.2 Hair bleaching, skin burning and chemical treatments

Cases have been reported of hair getting bleached and skin burnt while clients' hair are dyed and placed under a dryer to accelerate the highlighting procedure. Forster *et al.* (2012) report one such case where the client suffered superficial burns to the occiput with the wound on the nape requiring surgical debridement and skin grafting. In some cases the hair dyes cause allergic reactions causing swelling and burns to the adjacent parts of the body.

Figure 20: Woman's hair dye horror (Linton, 2009)

The chemistries involved in perms, bleaches and relaxers are designed to cause permanent changes to the fibre. If left on too long, at too high concentration, or with heat, all of these processes are capable of breaking or completely dissolving the hair fibre. It is also common for salon reagents to be bought in quantity and stored in part used bottles with a large head space. The reagents used in perms and bleaches will self-oxidize and lose efficacy over time making their use in a salon more of an art than a well-controlled science. There is therefore a potential risk in moving to fresh, more active stocks of reagents. Bleaching with hydrogen peroxide is subject to metal catalysis. In rare cases, excessive surface deposits of metals e.g. copper, iron from water supplies may cause rapid heating with the production of steam or smoke from the clients hair. Rapid action is essential to minimize damage.

Figure 21: Hair breakage, presenting as hair loss, caused by incorrect salon use of a permanent wave (Gummer, 2002).

4.2.3 Hair Cosmetics and Alteration of Menarche

Guarneri *et al.* (2008) report a case of a 36-month-old girl who presented with vaginal bleeding, uterus enlargement, and thelarche. It was revealed that the child's mother had used hormone-based hair lotions on her own scalp and that the child was in the habit of playing with her mother's hair while falling asleep, and that the girl played with her mother's combs and the empty lotion vials. The onset of hyperestrogenic syndrome was temporally related to the handling of lotions containing ethynylestradiol 0.5%. Analysis of long scalp hairs from the girl and her mother identified ethynylestradiol in concentrations of 10.6 and 46.6 μg/g, respectively. Six months after the mother discontinued use of the estrogencontaining hair lotion, the girl's hyperestrogenic signs resolved. James-Todd *et al.* (2011) established that African-Americans were more likely to use hair products and reached menarche earlier than other racial/ethnic groups. Women reporting childhood hair oil use had a risk ratio of 1.4 (95% confidence interval [CI]: 1.1–1.9) for earlier menarche, adjusting for race/ethnicity and year of birth. Hair perm users had an increased risk for earlier menarche (adjusted risk ratio = 1.4, 95% CI: 1.1–1.8). Other types of hair products assessed in this study were not associated with earlier menarche. The researchers concluded that childhood hair oil and perm use were associated with earlier menarche. If replicated, these results suggest that hair product use may be important to measure in evaluating earlier age at menarche. De Coster & van Larebeke (2012) report that rats that exposure during early puberty to the estrogenic chemicals 17-ethinylestradiol (EE) and bisphenol-A (BPA) has a distinctive effect on ER-*a*-expressing neurons, in key brain areas involved in reproductive behaviour. The report also indicates that, exposure to hormonally active substances such as exogenous endocrine-disrupting chemicals (EDCs), may result in improper hypothalamic programming, thereby decreasing reproductive success in adulthood.

4.2.4 Effects of hair straighteners, chemical relaxers and other hair treatments

4.2.4.1 Mechanical thermal straighteners

Hair straighteners using high temperatures pose serious burn risks due to the long durations (typically 44 minutes) taken to cool from high operating temperature (typically from 122 to over 220 °C) to a safe low temperature of 40 °C (Breuning & Papini, 2008; Sarginson, Estela, & Pomeroy, 2014). The two studies quoted above reported cases of burns to infants resulting from unattended hot hair straighteners in households. The majority of the burns were caused by a 'touch/grab' (49%) or 'stepped-into' (14%) mechanism. The area most frequently burnt was the hand with 60% of the injuries. 8 out of the 155 required excision and grafting. Conclusion: Hair straightening devices can reach temperatures of over 220°C and can cause significant full thickness injuries. The authors recommend the use of heat-resistant pouches and closure clips on the devices to help minimise the risk of injury.

Figure 22: Burn injuries from hot hair straighteners (after: Breuning & Papini, 2008; Sarginson, Estela, & Pomeroy, 2014)

4.2.4.2 Chemical hair straighteners

With respect to chemical treatments of the hair, it is argued that a reasonable knowledge of the hair anatomy and structure is critical in understanding the physical and chemical reactions underlying hair cosmetics (Bolduc & Shapiro, 2001). Details of the hair structure are provided in scientific literature elsewhere (McMichael & Hordinsky, 2008; Blume-Peytavi, Tosti, Whiting, & Trüeb, 2008).

Miranda-Vilela *et al.* (2013) reflect that hair straightening consists of temporary or permanent breaks in the chemical bonds that maintain the three-dimensional structure of keratin protein in its original rigid form, followed by straightening and mechanical fixing of the new form. Temporary straightening, using physicochemical techniques such as dryer, flat iron and the old hot comb, lasts only until the next wash. Hair has to be pre-wetted, to break the hydrogen bonds of keratin, thus permitting temporary opening of its original structure. With this, the strand straightens. Rapid drying with the hair dryer maintains the flat shape of the strand. The application of a hot iron shapes the strand (scales), providing the desired end-look. The strand gets smooth and shiny, to reflect more light.

More permanent straightening of hair is affected by altering the disulphide bonds of keratin. It can be achieved with alkaline creams containing up to 3.5% sodium hydroxide (lye-based straighteners), or else guanidine hydroxide, potassium hydroxide, or lithium hydroxide in place of sodium hydroxide (non-lye straighteners). Guanidine hydroxide needs to be activated by adding 4–7% calcium hydroxide to produce calcium carbonate and guanidine hydroxide, the active agent. The aforementioned reagents cause lanthionization of hair and irreversible hair straightening. Chemical straightening can be also accomplished by ammonium or ethanolamine thioglycolate or bisulphite creams. In the procedure with ammonium thioglycolate, the disulphide bonds are converted to sulphhydryl groups to allow the mechanical relaxation of the protein structure of hair fibres. After relaxation, free sulphhydryl groups are reoxidized (neutralized) to reform the disulphide bonds, thus looking in the desired conformation. In principle, the treatment can be seen as a combination of reverse and gradual redirection of these disulphide bonds processes, with softening of the keratin, moulding into the desired shape and stabilizing the newly given geometry.

If mechanical straightening is carried out at a high temperature (use of flat iron, for example), it can occur with a much lower conversion of sulphhydryl groups to disulphide. If at these high temperatures the density of the sulphhydryl groups formed is low, returning to room temperature will be sufficient to stabilize the curvature of the hair fibres. This eliminates the need to reoxidize the sulphhydryl groups back to disulphide and results saving time and lesser degradation of fibre.

All chemical straighteners (pH 13.2–13.5) use chemical reactions to change about 35% of cysteine content of the hair to lanthionine, along with minor hydrolysis of peptide bonds. When the hair is treated with hydroxide, disulphide bonds undergo rearrangement and cysteine is ultimately converted to lanthionine. This monosulphide thio ether analogue of cystine (containing only one sulphur atom) helps stabilize the hair's straight configuration. The difference between a cystine

and a lanthionine is the loss of one sulphur atom. The conversion of cystine to lanthionine weakens hair fibres, a loss of strength that can be measured readily through tensile measurements. As lanthionine is the main product of the reaction between alkali and cystine, these chemical straightening processes are known as lanthionization.

Besides the mentioned chemical straighteners, one of the most popular and dangerous is formaldehyde (solution 37%) and, more recently, glutaraldehyde. Formaldehyde, despite being a banned substance at any concentration for hair straightening, became frequent in this procedure, because besides being cheaper, it is a quick process and leaves the strands shiny. It can cause serious damage to the tissues of the upper respiratory tract for the user and for the professional who applies the product and has carcinogenic and teratogenic potential. When absorbed in the body by inhalation, and mainly by prolonged exposure, it presents a risk of developing cancers of the mouth, nostrils, lungs and blood to the head. Formaldehyde can irritate the eyes and nose, cause allergic reactions of the skin, eyes and lungs and is a cancer hazard.

Glutaraldehyde is a saturated dialdehyde, slightly acidic in its natural state, and it has been used as a straightener since the prohibition of formaldehyde. It is a relatively common preservative in cosmetics and can be used in concentrations up to 0.2%. Its disinfectant activity is due to its reactivity with sulphhydryl, hydroxyl, carboxyl and amino groups, altering DNA, RNA and protein synthesis. Glutaraldehyde mutagenicity is extremely similar to that of formaldehyde. However, glutaraldehyde is six to eight times stronger than formaldehyde in producing cross-links in the DNA and about ten times more intense than formaldehyde in the production of tissue damage inside the nose after inhalation.

The use of sodium hydroxide based hair straighteners can have the following effects:

(i) Sodium hydroxide is very corrosive and can cause severe burns in all tissues that come in contact with it. Inhalation of low levels of sodium hydroxide as dusts, mists or aerosols may cause irritation of the nose, throat, and respiratory airways. Inhalation of higher levels can produce swelling or spasms of the upper airway leading to obstruction and loss of measurable pulse; inflammation of the lungs and accumulation of fluid in the lungs may also occur." (ATSDR. Report.2009)

(ii) It can easily dissolve through surfaces like fabric, plastic and even the skin. When it seeps through the hair, it breaks the natural bonds that are meant to protect the hair, altering its natural structure.

(iii) Continual use of a relaxer can cause alopecia where hair follicles are damaged beyond repair or completely wiped out. This can lead to one being completely bald.

(iv) Scalp irritation, skin burns, permanent scarring, deep ulcerations, skin drying and cracking, dermatitis, irreversible baldness, eye damage including blindness and weak, dry, broken and damaged hair.

According to Madnani & Khan (2013), hair straightening can be very damaging to the hair and even when performed correctly, can result in loss of up to 20% of the tensile strength of virgin hair. It results in physical damage to the hair with loss of proteins and moisture resulting in dry, brittle hair. Many patients experience hair fall and breakage and may present to the clinic with alopecia.

4.2.4.3 Hair dyes

For hair coloring cosmetics, there are three major types of hair dyes, namely, the temporary, semi-permanent and permanent hair dyes (Lee, Chen, Lin, & Chen, 2015). In general, temporary hair dyes are water-soluble dyes of high molecular weight, which cannot penetrate the hair shaft. The dyes are only temporarily dropped on hair and can be washed off via normal cleaning procedure. Some of the temporary hair dyes can be obtained from natural resources, such as henna from *Lawsonia inermis* Linn. Semi-permanent hair dyes are generally synthetic and are typically composed of relatively low molecular weight coal tar materials. These dyes can diffuse freely in and out of the cortex and remain on the hair longer than a temporary dye. Permanent hair dyes are the most frequently used on hair; this is due to the persistence and darkness effects it has on the hair. For permanent hair dyes, the oxidation procedures are dependent on three main components, *i.e.*, primary intermediates, couplers and oxidants. Thus, during the hair dying

process, the hair must firstly be bleached with a mixture containing ammonium/sodium persulfate and hydrogen peroxide. After the hairs are bleached, the dye formation reactions will occur by primary intermediates (such as *p*-phenylenediamines) with couplers to attain the final hair color. The commonly used couplers are resorcinol and *m*-aminophenols. These steps may have adverse effects that can damage both the hair and the skin cells. Therefore, the effects of such components of hair dyes on cells are very important for their safety. From their analysis on the effects of hair dyes — ammonium persulfate, sodium persulfate, resorcinol and lawsone, on the melanogenesis in B16-F10 cells, (Lee *et al.*, 2015) concluded that hair dyes resorcinol and lawsone have the ability to reduce the production of melanin. They confirmed that resorcinol and lawsone could both inhibit mushroom and cellular tyrosinase activities. Resorcinol and lawsone can downregulate the expression of tyrosinase and MITF proteins in B16-F10 cells. Therefore, this indicates that some commonly used hair dyes may have the risk to decrease the naturally produced melanin in melanocyte of hair follicles.

Another study in southern India has implicated a cheap and freely available hair dye, Super-Vasmol, as a major cause of suicidal poisoning in India (Chrispal, Begum, Ramya, & Zachariah, 2010). It contains potential toxins including paraphenylene diamine, resorcinol, sodium ethylenediaminetetraacetic acid and propylene glycol which can result in multi-organ failure.

4.2.5 Reproductive outcome among female hairdressers and male infertility

A study conducted in Sweden concluded that hairdressers have a slight increased risk of having intrauterine growth retarded infants and infants with major malformation compared with women from the general population (Rylander, Axmon, Torén, & Albin, 2002).

Based on the Centers for Disease Control and Prevention (CDC) findings that male reproductive problems, including undescended testicles and hypospadias, doubled between 1970 and 1993 due to strong links to environmental chemicals and in particular potential reproductive or developmental toxicants, particularly phthalates in cosmetics and personal care products, Barrett (2005) draws an analogy that the presence of phthalates in cosmetics and personal care products has negative implications on reproductive health. This is reinforced by earlier studies which indicated that makeup, shampoo, skin lotion, nail polish, and other personal care products contained chemical ingredients had been linked in animal studies to male genital birth defects, decreased sperm counts, and altered pregnancy outcomes. The main phthalates in cosmetics and personal care products are dibutyl phthalate in nail polish, diethyl phthalate in perfumes and lotions, and dimethyl phthalate in hair spray. Barrett (2005) reports that a preliminary study conducted at the Harvard School of Public Health in July 2003 showed a correlation between urinary phthalate metabolite concentrations and DNA damage in human sperm.

Chen *et al.* (2007) conducted a study which demonstrated that some widely used antimicrobial parabens-containing compounds in personal care products (e.g., antibacterial soaps, gels, creams) have antiandrogenic properties and recommended further research to fully understand their potential impact on human reproductive health. Among the common antimicrobial compounds tested included tricosan and thymol which were shown to be strongly antiandrogenic.

Frustrated over FDA's loose control over cosmetic safety California enacted the California Safe Cosmetics Act of 2005 requiring manufacturers to report the use of potentially hazardous ingredients to the state Department of Health Services (DHS), which in turn will alert consumers (Washam, 2006). The impetus for the law arose from consumers' concerns over long-term exposure to certain cosmetic products containing carcinogens (such as formaldehyde, used in nail treatments), teratogens (such as lead acetate, used in two hair dyes), and other reproductive toxicants (such as di-n-butyl phthalate, used in nail treatments and dandruff shampoos).

A study in Hordaland, Norway reported that female hairdressers have an increased risk of infertility and spontaneous abortions that might be due to their occupational chemical exposure (Baste, Moen, Riise, Hollund, & Øyen, 2008).

A cross sectional study in Alicante, Spain recorded menstrual disorders and subfertility incidences in equal numbers of participants aged below 50 years (n=310) working in registered hairdressing salons and a control group comprising female shop assistants and office workers (n=310). The results suggested an increased risk of subfertility and menstrual disorders in

hairdressers compared to a control group of office workers and shop assistants (Ronda, García, Sánchez-Paya, & Moen, 2009).

More research is needed to understand possible occupational reproductive risks for cosmetologists, specifically hairdressers and nail technicians, two occupations that often share workspace and exposure to hair dyes and nail polish. Cosmetologists are predominantly females of reproductive age; thus, they may be at higher risk for the effects of exposure to reproductive toxins. The purpose of this article is to inform nurses and public health professionals about occupational exposures for cosmetologists and discuss interventions to reduce the risks of reproductive disorders among susceptible worker populations.

A study in Finland set out to assess whether work as a hairdresser and cosmetologist during pregnancy increases the risk of low birth weight, preterm delivery, small for gestational age (SGA) and perinatal death. The 1990-2004 Finnish Medical Birth Registry was used to identify all singletons of hairdressers (n = 10 622) and cosmetologists (n = 2490) and those of teachers (n = 18 594) as the reference group. The main outcomes were sexual differentiation measured as the probability of female gender, low birth weight, preterm delivery, SGA and perinatal death. Logistic regression analysis was used to estimate odds ratios (ORs) adjusted for maternal age, parity, marital status and maternal smoking during pregnancy. The results showed that work as a hairdresser or cosmetologist may reduce foetal growth. Work as a hairdresser may also increase the risk of preterm delivery and perinatal death (Halliday-Bell, Gissler, & Jaakkola, 2009).

4.2.6 Health effects on hair care workers

A study was conducted in Iran to describe the mercury concentrations in female hairdressers associated with occupational and environmental exposure through cosmetic products and amalgam fillings (Fakour & Esmaili-Sari, 2014). The Hg levels in about one-third of the studied samples were higher than the USEPA-recommended 1 ug/g, which represents a serious health risk. Hairdressers with continuous use of cosmetics and a high number of amalgam fillings had significantly elevated mercury concentrations in their hair and nails, suggesting the importance of mercury exposure assessment in hidden, less-explored sources of Hg in the workplace.

Pak, Powers, & Liu (2013) observed that more research is needed to understand possible occupational reproductive risks for cosmetologists, specifically hairdressers and nail technicians, two occupations that often share workspace and exposure to hair dyes and nail polish. Cosmetologists are predominantly females of reproductive age; thus, they may be at higher risk for the effects of exposure to reproductive toxins.

Omokhodion, Balogun, & Ola-Olorun (2009) carried out a cross sectional study to identify workplace hazards and health problems of workers in this trade. With respect to work conditions, hairdressers complained of long working hours, poor earnings and prolonged standing. Occupational hazards identified included needles used for fixing hair attachments, 157 (44%), hair relaxing creams, 114 (32%), blades, 38 (11%), handling hot water, 16 (4%) and electrical equipment, 8 (2%). Types of accidents reported were needle pricks, cuts, accidents involving hot water and electric shock. Joint pains (21%) and low back pain (19%) were the most frequently reported illnesses among hairdressers. Hand dermatitis was reported by 5% of hairdressers. The researchers concluded that the hairdressers' work environment has predominantly mechanical and chemical hazards. Long working hours and poor earnings in a physically demanding job are characteristic of small scale enterprises. The regulation of work conditions in this sector continues to pose a challenge to occupational health authorities in developing countries.

Nemer, Kristensen, Nijem, Bjertness, & Skogstad (2013) carried out a cross sectional study to characterize respiratory symptoms, lung function, and knowledge of exposure to hazards among female Palestinian hairdressers. A total of 170 hairdressers from 56 salons and 170 controls participated. 19 % of the hairdressers reported wheezing versus 11% in the control group. A small number of hairdressers used respiratory protective equipment, and satisfactory ventilation in salons were lacking. The study found that female hairdressers had higher prevalence of reported asthma and respiratory symptoms than the controls. They had lower lung function measurements than the control group. Increasing the awareness of occupational health hazards and improving the work conditions for the hairdressers in Palestine is needed.

Ma *et al.* (2010) set out to investigate whether or not exposure to VOCs was associated with autonomic dysfunction, inflammation and oxidative stress in hairdressing assistants in Taipei. The study found that occupational exposure to VOCs in hair salons can lead to increases in serum CRP and 8-OHdG levels and decreases in HRV indices. Time spent away from the workplace could modify the effects these exposures have on the health parameters described above in these assistants.

Espuga *et al.* (2011) conducted a study to determine the prevalence of possible occupational asthma (OA) in hairdressers. They found that hairdressing employment can induce asthma. Episodes of rhinitis or dermatitis seem to be risk factors for the development of OA in this population.

Ferrari, Moscato, & Imbriani (2005) observe that hairdressers are commonly exposed to water, irritants, sensitizers, and are at risk of occupational skin diseases with several cases of allergic contact dermatitis and contact urticaria in hairdressers being reported. Hairdressing carries a high risk of skin damage, especially for the hands. Allergic contact dermatitis is the most common disorder. Training represents a risk factor, while the role of atopy and nickel sensitivity as etiological agents is controversial. A great number of chemicals may induce allergic cutaneous diseases in hairdressers, such as nickel, thioglycolate, p-phenylendiamine (and other dye-related substances), persulphates, quaternary ammonium compounds, protein hydrolysates, surfactants, cyanoacrylates, latex, rubber haptens and others. Avoidance of further contact with the identified causal sensitizer(s) is the most important measure for management and prevention; to this end, a number of specific preventive strategies should be implemented.

Carlin *et al.* (2013) carried out a study was to comparatively evaluate genomic damage (micronucleus) and cellular death (pyknosis, karyolysis and karyorrhexis) in exfoliated oral mucosa cells from hairdressers using two different anatomic buccal sites: cheek mucosa and lateral border of the tongue. A total of 28 hairdressers and 30 health controls (non-exposed individuals) were included in this setting. Individuals had epithelial cells from the cheek and lateral border of the tongue mechanically exfoliated, placed in fixative and dropped in clean slides that were checked for the previously mentioned nuclear phenotypes. The results pointed out statistically significant differences ($p < 0.05$) of micronucleated oral mucosa cells from hairdressers in the lateral border of the tongue. Exposure to hair dyes caused an increase of other nuclear alterations closely related to cytotoxicity, such as karrhyorexis, pyknosis and karyolysis in both the oral sites evaluated. In summary, these data indicate that hairdressers are occupationally exposed to agents that are genotoxic and cytotoxic. It seems that the lateral border of the tongue is a more sensitive site to the genotoxic and cytotoxic effects of hair dyes.

Johansson *et al.* (2015) observe that carcinogenic aromatic amines derived from hair dyes have recently received new attention. One of these is ortho (o)-toluidine, which is classified as carcinogenic to humans. The conducted a study to clarify exposure of hairdressers to potentially carcinogenic aromatic amines, including o-toluidine. Blood samples were taken for analysis of ortho-, meta (m)- and para (p)-toluidine; 2-, 3- and 4-ethylaniline, 2,3- and 3,4-dimethylaniline as haemoglobin adducts. The samples were analysed with gas chromatography-tandem mass spectrometry. Generally, adduct concentrations were in the range of 0-200 pg/g haemoglobin. A comparison of the adduct concentrations found in hairdressers, consumers and controls showed no statistically significant differences. However, for hairdressers, o- and m-toluidine concentrations increased significantly with the weekly number of hair waving ($p=0.020$) and permanent hair dyeing treatments ($p=0.026$), respectively. o-Toluidine and m-Toluidine concentrations also tended ($p=0.076$ and 0.080, respectively) to increase with the frequency of light-colour permanent hair dye treatments. The researchers concluded that hairdressers who use light-colour permanent hair dyes, other permanent hair dyes and hair waving treatments seem to be exposed to o- and m-toluidine as indicated by associations with the number of treatments performed. Analyses of hair waving and hair dye products should be performed to identify the possible sources of exposure to o- and m-toluidine.

4.2.7 Health risks in hair dressing operations

Anecdotal reports suggest that certain scalp disorders that may be associated with hairdressing are more common in individuals of African descent (Khumalo, Jessop, Gumedze, & Ehrlich, 2007a). These are acne (folliculitis) keloidalis nuchae (AKN) – scarring pimples predominantly affecting the back of the scalp; central centrifugal cicatricial alopecia (CCCA) – centrally spreading

permanent hair loss and traction alopecia (TA). We recently reported a prevalence of TA of 17.1% in girls and of AKN of 2.2 % in boys, and found an association between AKN /TA and hairstyles (Khumalo, Jessop, Gumedze, & Ehrlich, 2007b).

Figure 23: Man with established acne (folliculitis) keloidalis nuchae (Khumalo *et al.*, 2007a).

Hair relaxers are used by millions of black women, possibly exposing them to various chemicals through scalp lesions and burns (Wise, Palmer, Reich, Cozier, & Rosenberg, 2012). In the Black Women's Health Study, the authors assessed hair relaxer use in relation to uterine leiomyomata incidence. In 1997, participants reported on hair relaxer use (age at first use, frequency, duration, number of burns, and type of formulation). From 1997 to 2009, 23,580 premenopausal women were followed for incident uterine leiomyomata. Multivariable Cox regression was used to estimate incidence rate ratios and 95% confidence intervals. During 199,991 person-years, 7,146 cases of uterine leiomyomata were reported as confirmed by ultrasound (n = 4,630) or surgery (n = 2,516). The incidence rate ratio comparing ever with never use of relaxers was 1.17 (95% confidence interval (CI): 1.06, 1.30). Positive trends were observed for frequency of use (Ptrend < 0.001), duration of use (Ptrend = 0.015), and number of burns (Ptrend < 0.001). Among long-term users (≥10 years), the incidence rate ratios for frequency of use categories 3–4, 5–6, and ≥7 versus 1–2 times/year were 1.04 (95% CI: 0.92, 1.19), 1.12 (95% CI: 0.99, 1.27), and 1.15 (95% CI: 1.01, 1.31), respectively (Ptrend = 0.002). Risk was unrelated to age at first use or type of formulation. These findings raise the hypothesis that hair relaxer use increases uterine leiomyomata risk.

4.2.8 Ergonomic effects in hair care services

A cross-sectional study was performed to investigate the relationships between physical, psychosocial, and individual characteristics and different endpoints of low back, neck, shoulder, hand/wrist and knee musculoskeletal complaints among cosmetologists in Athens, Greece (Tsigonia, Tanagra, Linos, Merekoulias, & Alexopoulos, 2009). The study population consisted of 95 female and seven male beauty therapists (response rate 90%) with a mean age and duration of employment of 38 and 16 years, respectively. Neck pain was the most prevalent musculoskeletal complaint, reported by 58% of the subjects, while hand/wrist and low back complaints resulted more frequently in self-reported consequences (chronicity, care seeking and absenteeism). Significant relationships were found between self-reported physical risk factors like prolonged sitting, use of vibrating tools, reaching far and awkward body postures and the occurrence of musculoskeletal disorders at various body sites. Among psychosocial variables co-worker support and skill discretion seem to be the most important reflecting organizational problems and cognitive-behavioural aspects. The study results also suggest that effective intervention strategies most likely have to take into account both ergonomic improvements and organizational aspects.

4.3 Health and Safety Concerns Related to Skin Care

Skin care operations generally involve hair removal, general body skin, facials and facial makeups. In this section we shall review general body skin, facials and makeup operations while the hair removal operations are reviewed under 4.10.

4.3.1 Key Contraindications for Facial and Makeup Operations

While facials and makeup are the most noticeable changes easily visible outwardly, key contraindications need to be taken into account as indicated below (Frangie *et al.*, 2012):

(i) **Use of isotretinoin or any skin-thinning or exfoliating drug, including Retin-A®, Renova®, Tazorac®, Differin®, and so on:** Avoid waxing, exfoliation and/or peeling treatments, and stimulating treatments.

(ii) **Pregnancy:** Avoid all electrical treatments and any other questionable treatments without a physician's written permission. Some pregnant clients also experience sensitivities from waxing.

(iii) **Metal bone pins or plates in the body:** Avoid all electrical treatment.

(iv) **Pacemakers or heart irregularities:** Avoid all electrical treatment.

(v) **Allergies:** Strictly avoid any allergic substances listed on the intake form. Clients with multiple allergies should always use nonfragranced products designed for sensitive skin. Food allergies should also be noted, because many skin care products now contain naturally derived food-based extracts such as soy, nut oils, and other ingredients.

(vi) **Seizures or epilepsy:** Avoid all electrical and light treatments.

(vii) **Use of oral steroids such as prednisone:** Avoid any stimulating or exfoliating treatment or waxing. Steroids can cause thinning of the skin which could result in blistering or injury.

(viii) **Autoimmune diseases such as lupus:** Avoid any harsh or stimulating treatments.

(ix) **Diabetes:** Be aware that many diabetics heal very slowly. If you have questions, you should get approval from the client's physician before treatment. The primary services that need approval are waxing, electrolysis, or any treatment for the feet.

(x) **Blood thinners:** No extraction or waxing. To do so may cause bleeding or bruising.

Clients who have obvious skin abnormalities, such as open sores, fever blisters (herpes simplex), or other abnormal-looking signs should be referred to a physician for treatment. They can be rescheduled after they obtain written approval of facial services.

4.3.2 Skin Whitening: The Unrelenting Tragedy of People with Skin of Colour

Historical and Contemporary Notes

Cosmetics have been used from ancient times in religious rituals, to enhance beauty, and to promote good health and other practical considerations such as protection from the sun; class system; or of its conventions of beauty (Mapes, 2008). As far back as 10000 BCE, men and women in Egypt used scented oils and ointments to clean and soften their skin and mask body odour. Cosmetics were an integral part of Egyptian hygiene and health. Oils and creams were used for protection against the hot Egyptian sun and dry winds. Myrrh, thyme, marjoram, chamomile, lavender, lily, peppermint, rosemary, cedar, rose, aloe, olive oil, sesame oil, and almond oil provide the basic ingredients of most perfumes that Egyptians use in religious ritual. Skin whitening started becoming fashionable in Egypt around 3000 BCE and by 1500 BCE it was common practice even among Grecian, Chinese and Japanese women. By 1000 BCE Grecians were whitening their complexion with chalk or lead face powder and fashion crude lipstick out of ochre clays laced with red iron.

Around AD 100 the Romans felt that a white complexion was the most beautiful. They took milk baths and used powdered chalk to make the complexion paler. Soon after, lead and arsenic powders were introduced to whiten the skin. These 'cosmetics' led to many deaths due to poisoning.

Despite lead's health hazards, ranging from skin ruptures to madness to infertility, upper-crust Romans went on to use white lead (or cerussa, the key ingredient in those once-popular lead paints) to lighten their faces, then topped that off with a bit of red lead (or minium, currently used

in the manufacture of batteries and rust-proof paint) for that "healthy" rose glow. Lead was also a major ingredient in the hair dyes of the day, either intentionally or otherwise.

Of course, the use of white lead in ancient Rome paled in comparison to the workout it got during the 15th, 16th, 17th and 18th centuries. The "dead white" look was *tres chic* back then and as a result men and women painted their faces with a mixture of white lead and vinegar, peeled their skin with white lead and sublimate of mercury and used lead sulfate to remove their freckles (and hopefully nothing too vital, like a nose).

According to Kevin Jones, curator at the Fashion Institute of Design and Merchandising Museum in Los Angeles, the use of cosmetics packed with lead, mercury, arsenic and other dangerous elements made for a particularly vicious cycle. "People would put whitening on their skin and over time, it would eat the skin away, causing all sorts of scarring," he says. "And the way they covered that up was to apply thicker amounts of the makeup, which would then exacerbate the situation. It was a horrible process — once you got started you couldn't stop." One way some people finally stopped was by dying, which eventually prompted members of the medical community and the press to sound the alarm about the dangers of certain cosmetics (Mapes, 2008).

In a case study looking at the preference for lighter skin colour in India, Nigeria and Thailand, Imani (2013) finds that colonization was primarily responsible for the development of colourism in India and Nigeria, while contemporary foreign media has been most influential in shaping Thailand's colourist preferences. The global association of whiteness with deep material and social privilege is the overarching factor that ultimately fuels colourism in the developing world.

A number of studies have attempted to link skin whitening with various rationales. Thappa & Malathi (2014) argue that colourism also known as skin colour stratification, defined as the preference for lighter skin and the ranking of individual worth according to skin tone has dominated a broad range of societies and historical periods, specifically in parts of Africa, Eastern Asia, India, Latin America, and the United States. The abundance of colourism is a result of the global prevalence of "pigmentocracy," a term to describe societies in which wealth and social status are determined by skin colour. Throughout the numerous pigmentocracies across the world, the lightest-skinned peoples have the highest social status, followed by the brown-skinned, and finally the black-skinned who are at the bottom of the social hierarchy. This form of prejudice often results in reduced opportunities for those who are discriminated against on the basis of skin colour. While acknowledging that dark-skinned people are typically regarded as more ethnically authentic or legitimate, it is quite common in India to associate "fairness" of skin with comparative wealth, desirability, prestige, and attractiveness and for women increased matrimonial prospects with lesser dowry.

Nadeem (2014) reports that skin-lightening or 'fairness' creams – with their troubling colonial overtones – are big business in India, an over $200 million industry that comprises the largest segment of the country's skin cream market. Western corporations have been widely criticized for profiting on colourism and they continue to produce advertisements that equate light skin with beauty, success, and empowerment.

Quoting various sources, Julien (2014) argues that although skin bleaching in South Africa cannot be attributed exclusively to colonialism or apartheid, both concepts play an important role in determining the reasons for self-hatred and low self-esteem that push some Africans to bleach their skin. It is argued that the residual racism left after colonization is an important factor in understanding some South Africans' preference for Eurocentric standard of beauty and lighter skin tones. Although many men bleach their skin in some regions of Africa, skin bleaching is more prevalent amongst women (Ajose, 2005). There is a high rate of skin bleaching across Africa and other parts of the world (Street *et al.*, 2014; Blay, 2011; Dadzie & Petit, 2009; Giovanna & Castellani, 2009; Adebajo, 2002; Hamed *et al.*, 2010; Bissek *et al.*, 2011; Chohan *et al.*, 2014; Atadokpédé *et al.*, 2015): 80 % in **Cote D'Ivoire**; 77.3 % in **Nigeria**; 65 % in **Cameroon**; 62.7 % in **Senegal**; 60-65 % in **India**; 60.7 % in **Jordan**; 60 % in **Zambia**; 58.9 % in **Togo**; 58 % in **Thailand**; 50 % in **Mali**; 50 % in **Pakistan**; 44.3 % in **Burkina Faso**; 36.6 % in **Benin**; 35 % in **South Africa**; 30 % in **Ghana**; 30 % in **East Africa**; 24 % in **Japan**. Julien (2014) proposes that the high rates of skin bleaching in South Africa could be resulting from the way in which the South African media, including billboards, portrays attractiveness panders to women's motivation to lighten their skin. In their research in Tanzania, Lewis *et al.* (2012) identified six key motivators

why people, particularly women, bleach their skin. The authors reported that people, may bleach their skin: to remove skin imperfections such as rashes, dark spots, and pimples; to make or maintain softer skin; to whiten their complexion so they can meet the westernized standard of beauty; to correct uneven skin tone or excessive damages caused by skin bleaching; to make themselves look more attractive to current or potential partners; and to impress and meet their friends' approval.

This article investigates the extent to which the emerging trend of do-it-yourself anti-ageing skin-whitening products represents a re-articulation of Western colonial concerns with environmental pollution and racial degeneracy into concern with gendered vulnerability. This emerging market is a multibillion dollar industry anchored in the USA, but expanding globally. Do-it-yourself anti-ageing skin-whitening products purport to address the needs of those looking to fight the visible signs of ageing, often promising to remove hyper-pigmented age spots from women's skin, and replace it with ageless skin, free from pigmentation. In order to contextualize the investigation of do-it-yourself anti-ageing skin-whitening practice and discourse, this article draws from the literature in colonial commodity culture, colonial tropical medicine, the contemporary anti-ageing discourse, and advertisements for anti-ageing skin-whitening products. First, it argues that the framing of the biomedicalization of ageing as a pigmentation problem caused by deteriorating environmental conditions and unhealthy lifestyle draws tacitly from European colonial concerns with the European body's susceptibility to tropical diseases, pigmentation disorders, and racial degeneration. Second, the article argues that the rise of do-it-yourself anti-ageing skin-whitening commodities that promise to whiten, brighten, and purify the ageing skin of women and frames the visible signs of ageing in terms of pigmentation pathology (Mire, 2014).

Studies indicate that the use of skin whitening products is growing fastest among young, urban, educated women in the global south where light skin operates as a form of symbolic capital. Scholars believe that the racial legacy of colonialism alone is not a sufficient explanation for the recent rise in the use of skin-lighteners. It is considered that capitalism, western consumer culture and persisting white/western supremacy ideals are among the motives driving this practice (Hugo & CAI, 2012).

Shrestha (2013) uses a circumspect description of the overlapping conditions of transnational commercialized beauty culture and industry within which western white/light beauty standards and skin-whitening products flourish.

4.3.3 Complications Arising From Skin Whitening/Lightening

Use of cosmetic products to bleach or lighten the skin is common among dark-skinned women in some sub-Saharan African countries. Long-term use of some pharmacologic compounds (e.g. hydroquinone, glucocorticoids and mercury) can cause adverse effects including dermatologic disorders such as dyschromia, exogenous ochronosis, acne and hypertrichosis, prominent striae, tinea corporis, pyoderma, erysipelas, scabies, and contact dermatitis and systemic complications such as hypertension, hypercorticism or surrenal deficiency, and mercurial nephropathy (Morand *et al.*, 2007).

Skin-lightening cosmetics are used by many women and men around the world. The products contain a variety of substances, which are often unknown to the users. Most of these products include topical corticosteroids, hydroquinone and mercury salts. Many other substances may be added. Several surveys and cohort studies, including several thousand individuals, have shown that regular application of skin-lightening cosmetics to large surface areas can have irreversible cutaneous adverse effects, such as patchy hyper- or hypopigmentation, skin atrophy, stretch marks and delayed wound healing, and can also mask or, on the contrary, promote or reactivate skin infections. Cases of skin cancer have been attributed to skin-lightening cosmetics. A Senegalese cohort study of 147 women showed a statistically significant increase in the risk of hypertension and diabetes linked to the use of skin-lightening agents. Other systemic adverse effects attributed to skin-lightening cosmetics include Cushing's syndrome, adrenal insufficiency, nephrotic syndrome, neurological disorders, and ocular disorders. Hypersensitivity reactions, including anaphylaxis, have also been attributed to these products. Many skin-lightening cosmetics contain substances that can harm the unborn child. For example, tretinoin is teratogenic while salicylic acid is feto-toxic. In practice, users are often unaware of the risk of severe adverse effects associated with skin-lightening cosmetics. Users should be informed of

these adverse effects and encouraged to stop using these products, especially when skin disorders appear (Anon3, 2011).

Numerous potentially life-threatening consequences of skin bleaching have been identified in the literature (Mire, 2014). Dermatologic consequences include: skin lesions, epidermal atrophy (thinning of the skin), exogenous ochronosis (bluish black tissue discoloration), eczema, bacterial and fungal infections, dermatitis (skin inflammation), scabies (contagious skin disease), warts, acne, sun damage and body odour (Ajose, 2005; Mahé *et al.*, 2003). Further, skin bleaching can lead to fragile skin, poor wound healing, scarring and the need for corrective surgery (Ajose, 2005). Other more serious health risks include hypertension, diabetes, infertility, leukaemia (blood cancer), skin cancer, foetal toxicity (foetal poisoning), immunosuppression (suppression of a healthy immune response), renal and liver impairment and failure, Cushing's syndrome (hormone disorder), insomnia, memory loss, tremors, speech and hearing impairment (Ajose, 2005; Mahé, Ly, & Perret, 2005; Lewis *et al.*, 2010; Mahé *et al.*, 2003; Petit *et al.*, 2006; Dadzie & Petit, 2009; Pitché *et al.*, 2005). These harms extend from the acute or chronic long-term exposure to the often hazardous chemical agents that are present in bleaching products. In addition, the damage from bleaching products is often exacerbated when users mix bleaching products with household chemicals such as toothpaste, laundry bleach, detergents and even automotive battery acid, a very common practice in some settings, to try to enhance their effect (Ajose, 2005; Pitché *et al.*, 2005; Lewis *et al.*, 2010; Ramsay *et al.*, 2003). However, this remains an extremely understudied practice (Lewis *et al.*, 2012; Street *et al.*, 2014).

Figure 24: Typical billboard advert for skin whitening products (Thacker, 2015)

Figure 25: Sample of available skin bleaching creams (Thacker, 2015)

Figure 26: Sample of available skin bleaching creams (Giovanna & Castellani, 2009)

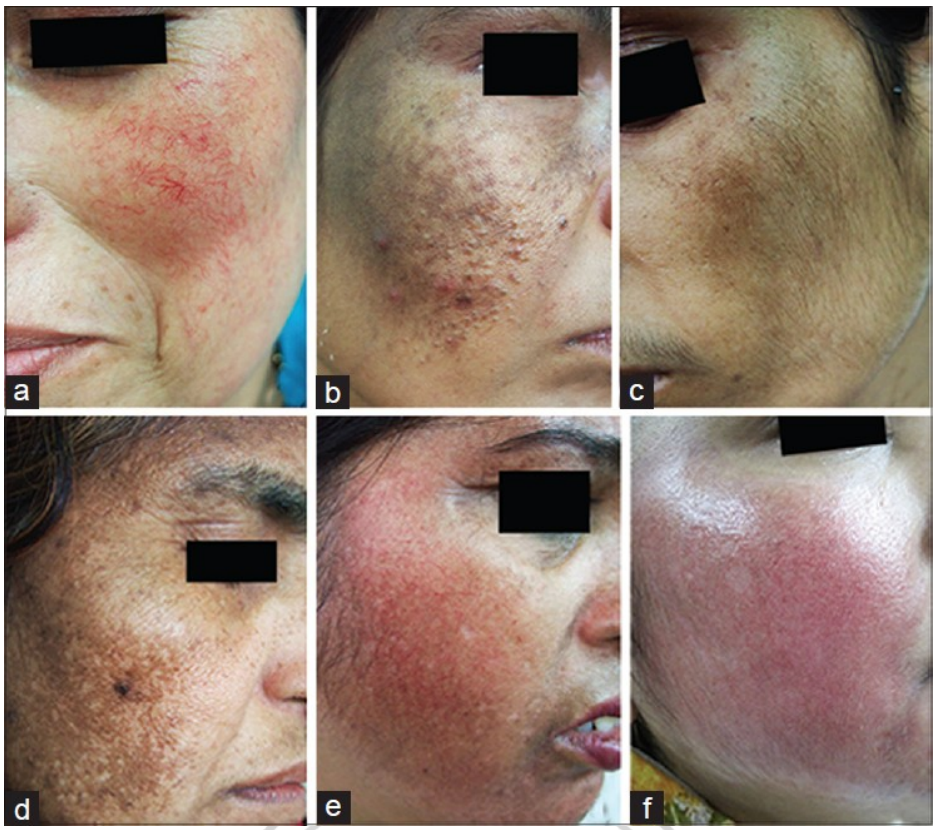


Figure 27: Side effects due to the use of skin lightening agents; (a) Telangiectasias, (b) Acneiform eruptions, (c) Hypertrichosis, (d) Confetti-like depigmentation, (e) Rosacea-like eruption. (f) Erythema (Kandhari & Khunger, 2013)

Figure 28: Ochronosis resulting from use of hydroquinone-containing whitening creams (after: Adebajo, 2002; Findlay, 1982; Dadzie & Petit, 2009)

Figure 29: Skin dermatitis and atrophy (after: Csanady, 2014; Nnoruka & Okoye, 2006; Barja *et al.*, 2010; Bremmer *et al.*, 2011; Ly *et al.*, 2007; A. Mahé, Ly, Aymard, & Dangou, 2003; Olumide *et al.*, 2008)

4.3.4 Safety and Health Issues from Fragrances and Antiperspirants

Clinical studies dating back decades report a disproportionately high number of female breast cancers originating in the upper outer quadrant of the breast, and although this is attributed to a greater amount of epithelial tissue in that region, it is also the area to which underarm cosmetic products are applied. Early studies reported 31% of cancers in the upper outer quadrant, but later studies in the 1990s report up to 61%. The annually recorded quadrant incidence of breast cancer in Britain documents a rise in England and Wales from 47.9% in the upper outer quadrant in 1979 to 53.3% in 2000, and in Scotland a rise from 38.3% in the upper outer quadrant in 1980 to 54.7% in 2001. Any increase in the disproportionality of breast cancer in the upper outer

quadrant would be inconsistent with an explanation relating to the greater amount of target epithelial tissue in that region but does parallel the increasing use of cosmetics in the underarm area (Darbre, 2009).

Using an antiperspirant with aluminum salts may put women at higher risk of breast cancer (Dr. Mercola, 2011).

In an era in which cosmetics are commonly used, their often prolonged contact with the human body should determine the safety of their use. Often cosmetics are the cause of many side effects, mainly hypersensitivity reactions. Common groups of cosmetic components responsible for side effects are fragrances, preservatives and dyes. This paper focuses on the most allergenic components (Zukiewicz-Sobczak *et al.*, 2013).

Fragrances and preservative agents are the most important contact allergens, but reactions also occur to category-specific products such as hair dyes and other hair-care products, nail cosmetics, sunscreens, as well as to antioxidants, vehicles, emulsifiers, and, in fact, any possible cosmetic ingredient. Patch and prick testing to detect the respective culprits remains the golden standard for diagnosis, although additional tests might be useful as well. Once the specific allergens are identified, the patients should be informed of which products can be safely used in the future (Goossens, 2011).

Many common cosmetic products contain complex mixtures of endocrine disruptor compounds (EDCs) and asthma-related compounds which most often are not listed in the labels (Dodson et al., 2012) with possible negative consequences to the bodily and mental function.

A screening study in Germany found that most fragrances showed estrogenic effects with estradiol equivalence factors (EEFs) similar to parabens, a group of 4-hydroxybenzoic acid esters commonly used as preservatives in personal care products, which are known to have a slight estrogenic effect. Thus, these fragrances are obviously responsible to a substantial degree for the observed estrogenic activity of the deodorants (Lange, Kuch, & Metzger, 2014).

Sarantis (2010) reports that a survey in the USA found that an average fragrance product contained 14 secret chemicals not listed on the label. Among them are chemicals associated with hormone disruption and allergic reactions, and many substances that have not been assessed for safety in personal care products. Also in the ranks of undisclosed ingredients are chemicals with troubling hazardous properties or with a propensity to accumulate in human tissues. These include diethyl phthalate linked to sperm damage in human epidemiological studies (Swan, 2008) and musk ketone, a synthetic fragrance ingredient that concentrates in human fat tissue and breast milk (Hutter *et al.*, 2009; Reiner, Wong, Arcaro, & Kannan, 2007).

Even fragrances from some natural plants have been shown to have the potential to cause male infertility. A study on the effect of *Boswellia papyrifera* (*B. papyrifera*) and *Boswellia carterii* (*B. carterii*) smoke exposure on spermatogenesis and sperm parameters in male albino rats showed significant disturbances in spermatogenetic patterns and changes in sperm kinetics compared to unexposed rats (Ahmed *et al.*, 2013). Atrophied seminiferous tubules with dynamic changes were also noticed. The boundaries of intercellular and intracellular vacuoles were seen in the Sertoli cells. Furthermore, in spermatids acrosomal vesicles were not fully formed. Degenerating spermatids were devoid of their nuclear membrane with electron dense matrix and vacuolization. Structural changes in Leydig cells were observed. Sperm analysis in exposed rats exhibited significant decrease in the sperm count, motility, speed and an increase in sperm anomalies when compare to controls. These findings demonstrate that the B. papyrifera and B. carterii smoke affects the process of spermatogenesis and sperm parameters and indicate the detrimental effects of these incense materials on human reproductive system.

4.3.5 Deaths in Search of Beauty

Mapes (2008) reports that among the earliest deaths reported was when famous Irish beauty Marie Gunning (aka the Countess of Coventry) died in 1760, and the press called her a “victim of cosmetics.” In 1869, the American Medical Association published a paper entitled “Three Cases of Lead Palsy from the Use of a Cosmetic Called ‘Laird’s Bloom of Youth’” which outlined the symptoms (fatigue, weight loss, nausea, headaches, muscle atrophy, paralysis, etc.) caused by the regular use of the much-touted skin whitening lotion, advertised as a “delightful and harmless

toilet preparation" which, incidentally, contained lead acetate and carbonate. Other popular blooms, balms, powders and potions of the 19th and early 20th century such as Berry's Freckle Ointment, Milk of Roses, Snow White Enamel and Flake White contained mercury, lead, carbolic acid, mercuric chloride and a handful of other "delightful" corrosives.

A young beauty queen thought her pageant prize of free plastic surgery was to die for — until it actually killed her, the girl's family claims. Catherine Cando Cornejo — a gorgeous 19-year-old who … (O'Neill, 2015)

The tragic death of a mother-of-two caused by an allergic reaction to hair dye has raised serious questions about its use in conjunction with henna tattooing. Estate agent Julie McCabe, 38, went into a coma in October 2011 after she suffered a massive allergic reaction to a chemical in her L'Oréal dye and died a year later. North Yorkshire coroner Geoff Fell heard expert evidence that a black henna tattoo that Mrs McCabe had had in Dubai in 2007 could have contributed to her death. Henna contains large quantities of paraphenylenediamine (PPD) – the chemical in the hair dye which is thought to have caused her reaction. Exposure to the compound through tattoos can increase susceptibility. Mrs McCabe's husband Russell said in a statement to the inquest that he had heard his wife scream before saying to him: "I'm struggling to breathe, I think I'm going to die," before lapsing into a coma, in October 2011. Concluding the inquest into Mrs McCabe's death, Mr Fell urged L'Oréal and the cosmetics industry to do more to encourage customers to report any adverse reactions, adding that the industry should carry out further research into the issue (Higgens, 2015).

In June, a dance teacher Lee Ka-ying reportedly died while undergoing liposuction at a private clinic in Tsim Sha Tsui. The 32-year-old fell into a coma during the treatment and never woke up (Gonzales, 2014).

Wong (2014) reports to two specific deaths in Hong Kong with one occurring at the hands of a medical practitioner administering a contaminated homemade blood preparation to a patient for the purpose of rejuvenating her appearance. Another concerned another practitioner performing liposuction on a client that resulted in death on table.

4.4 Health and Safety Concerns Related to Nail Care

4.4.1 Hazardous Chemicals Found in Nail Salon Products

Nail products, such as polishes, strengtheners, removers, and artificial nail liquids, can contain many chemicals. Some of these chemicals are more harmful than others. Over time with repeated use or exposure to high concentrations, these chemicals could damage your body or cause an allergic reaction. Every person is different and not everyone who breathes in these chemicals or gets them on their skin will experience these effects now or in the future.

Some potentially hazardous chemicals, the types of products they can be found in, and how they can affect your body include (LOHP, UCB, & CHNSC, 2012):

(a) **Acetone** (nail polish remover): headaches; dizziness; and irritated eyes, skin, and throat.

(b) **Acetonitrile** (fingernail glue remover): irritated nose and throat; breathing problems; nausea; vomiting; weakness; and exhaustion.

(c) **Butyl acetate** (nail polish, nail polish remover): headaches and irritated eyes, skin, nose, mouth, and throat.

(d) **Dibutyl phthalate (DBP)** (nail polish): nausea and irritated eyes, skin, nose, mouth, and throat. Long-term exposures to high concentrations may cause other serious effects.

(e) **Ethyl acetate** (nail polish, nail polish remover, fingernail glue): irritated eyes, stomach, skin, nose, mouth, and throat; high concentrations can cause fainting.

(f) **Ethyl methacrylate (EMA)** (artificial nail liquid): asthma; irritated eyes, skin, nose, and mouth; difficulty concentrating. Exposures while pregnant may affect your child.

(g) **Formaldehyde** (nail polish, nail hardener): difficulty breathing, including coughing, asthma-like attacks, and wheezing; allergic reactions; irritated eyes, skin, and throat. Formaldehyde can cause cancer.

(h) **Isopropyl acetate** (nail polish, nail polish remover): sleepiness, and irritated eyes, nose, and throat.

(i) **Methacrylic acid** (nail primer): skin burns and irritated eyes, skin, nose, mouth, and throat. At higher concentrations, this chemical can cause difficulty breathing.

(j) **Methyl methacrylate (MMA)** (artificial nail products, though banned for use in many states): asthma; irritated eyes, skin, nose, and mouth; difficulty concentrating; loss of smell.

(k) **Quaternary ammonium compounds** (disinfectants): irritated skin and nose and may cause asthma.

(l) **Toluene** (nail polish, fingernail glue): dry or cracked skin; headaches, dizziness, and numbness; irritated eyes, nose, throat, and lungs; damage to liver and kidneys; and harm to unborn children during pregnancy.

4.4.2 Risks of Infection in Manicure and Pedicure Procedures

Risks of infection exist due to the work environment, the chemical substances utilized, cuts from tools used in service and cross-contamination from technicians and from clients. Key risks are highlighted below (Botero, 2011).

Bloodborne Pathogens
Main risks in this respect include hepatitis and HIV. The spread of bloodborne pathogens is possible through shaving, nipping, clipping, facial treatments, waxing, tweezing, or any time the skin is broken. Nail technicians are not allowed to trim or cut the skin around the nail plate. Cutting hardened tissue and removing a callus are both considered medical procedures. Even if the client insists, nail technicians may not intentionally cut any living skin for any reason.

Hepatitis
A bloodborne virus causes hepatitis, a disease that damages the liver. In general, it is difficult to contract hepatitis, but hepatitis is easier to contract than HIV, because it can be present in all body fluids of those who are infected. Unlike HIV, hepatitis can live on a surface outside the body for long periods of time. It is vital that all surfaces that contact a client are thoroughly cleaned.

There are three types of hepatitis that are of concern within the salon: hepatitis A, hepatitis B, and hepatitis C. Hepatitis B is the most difficult to kill on a surface, so check the label of the disinfectant you use to be sure that the product is effective against it. Hepatitis B and C are spread from person to person through blood and less often through other body fluids, such as semen and vaginal secretions. Those who work closely with the public can be vaccinated against hepatitis B.

HIV/AIDS
Human immunodeficiency virus (HIV) is the virus that causes acquired immunodeficiency syndrome (AIDS). AIDS is a disease that breaks down the body's immune system. HIV is spread from person to person through blood and through other body fluids, such as semen and vaginal secretions. A person can be infected with HIV for many years without having symptoms, but testing can determine if a person is infected within six months after exposure to the virus. Sometimes, people who are HIV-positive have never been tested and do not know they are infecting other people.

If you accidentally cut a client who is HIV-positive and you continue to use the implement without cleaning and disinfecting it, you risk puncturing your skin or cutting another client with a contaminated tool.

Fungal Infections
Nail infections can be spread by using dirty implements or by not properly preparing the surface of the natural nail before enhancement products are applied. Nail infections can occur on both hands and feet. Fungal infections are much more common on the feet than hands, but bacterial infections can occur on both. Both bacterial and fungal infections can be spread to other nails, or to other clients, unless everything that touches the client is either properly disposed of (disposable or single-use items) or properly cleaned and disinfected before reuse.

Figure 30: Examples of nail mycobacterial infections (after: Botero, 2011)

Parasites
Scabies is a contagious skin disease that is caused by the itch mite, which burrows under the skin. Contagious diseases and conditions caused by parasites should only be treated by a doctor. Contaminated countertops, tools, and equipment should be thoroughly cleaned and then disinfected for 10 minutes with a registered disinfectant or 10% bleach solution.

4.4.3 Reported Incidences of Infection in Manicure and Pedicure Procedures

In 2000, an outbreak of *Mycobacterium fortuitum* furunculosis affected customers using whirlpool footbaths at a nail salon. An investigation of 30 footbaths in 18 nail salons from 5 California counties found mycobacteria in 29 (97%); *M. fortuitum* was the most common (Vugia *et al.*, 2005).

A systematic surveillance for pedicure-associated nontuberculous mycobacterial furunculosis conducted in North Carolina concluded that suboptimal footbath cleaning may have contributed to these infections, which suggests straightforward means of potential prevention (Stout *et al.*, 2011). Wertman *et al.* (2011) provide clinical cases reported in North Carolina.

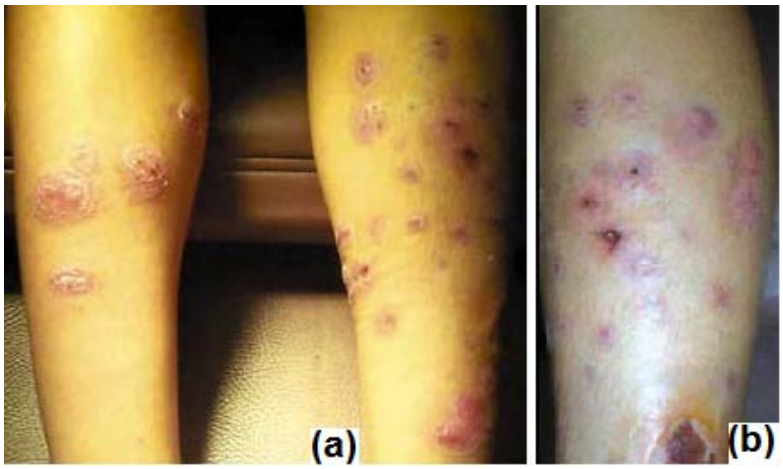
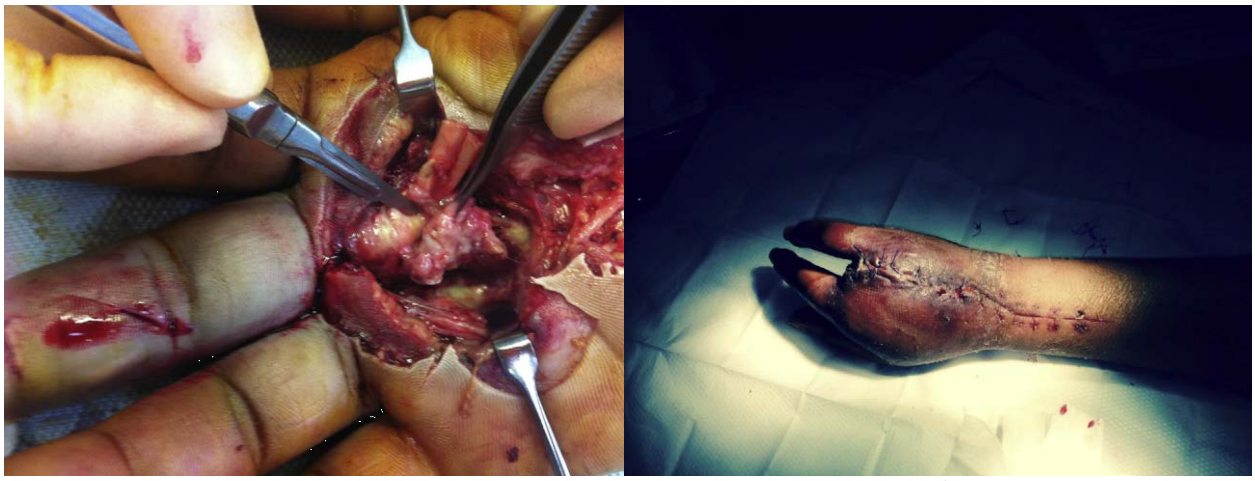


Figure 31: Panel A shows the legs of a 14-year-old girl with typical disease presentation. Panel B shows lesion ulceration and scarring (Winthrop *et al.*, 2002)

Akter & Ibanez (2015) report a case in Britain of severe salon infection with *Streptococcus milleri* leading to the amputation of three fingers. This report underscored the importance of observing strict hygiene in the salon environment as well as ensuring that any infection exposure or skin cutting incidence is addressed at the earliest opportunity to avoid extreme harm.



(a) (b)

Figure 32: (a) Exploration of hand with evidence of necrosis and pus on day 5 following admission. (b) Follow up of hand 3 days post discharge by the plastic surgery specialist nurses (Akter & Ibanez, 2015)

4.5 Health and Safety Concerns Related to Barbering

4.5.1 Regulatory Status of Barber Shops

The barber shop has long been recognized as a source of public health concerns due to its early association with dentistry, surgery and blood-letting (Thorpe, 1951). Hygiene and sanitary levels were considered very crucial to avoid infections in the barbering process. Labelling the barbershop as a menace to public health, Suiter (1897) illustrates the barber shop as a crucible of infectious diseases due to the unregulated nature of the industry at that time. In his visit to the local barbershop, he realized as he was waiting his turn to be shaved that the immediate client was a patient he had prescribed treatment one hour earlier. The patient was suffering from syphilis, his face was literally covered with eruptions and his mouth and lips were ulcerous in a high degree with the form of manifestation known as "mucous patches." His hair was fast falling, and, in short, he was a perfect focus of infection. As a routine, the barber would finish with the client, shake off the towels, wipe the clippers with a less than clean towel and proceed to attend to the next client.

In 2015, Suiter (1897) description defines the roadside ramshackle that masquerades a barbershop typical in many landscapes across Africa. In many African countries, barbering and salons have been designated as occupations for unskilled and uneducated labour meriting neither regulation nor formal mainstreaming into the formal economy. Most often the only interaction with government is the acquisition of the business premises licence for the operation of the kiosk as a revenue collection requirement without any pretence on public health and safety concerns.

4.5.2 Blood-Borne and Viral Disease Transmission in Barbering

4.5.2.1 HIV/AIDS Transmission

HIV transmissions through sharing of non-sterile sharp instruments such as those used for barbering, circumcision, facial scarification, incision, tattooing, ear perforation, bloodletting, injections and acupuncture have always been vaguely classified as 'others' and given less attention in the campaign against the spread of HIV. Barbers are cosmetic workers that undertake skin-piercing practices involving re-useable sharp instruments, which present risks for transmission of HIV and other blood-borne pathogens from one client to the other. Though barbers do not carry out procedures that deliberately penetrate the skin, the procedures can

inadvertently damage the skin through abrasion or minor accidental cuts. A simple nick caused by clipper or razor blade is enough for infection to occur. Due to the lipid envelope that protects HIV from dehydration, the virus can survive on the surfaces of barbering instruments for a period long enough for transmission to occur, particularly in busy commercial barber shops.

Standardized procedures for disinfection and sterilization of barbering equipment can eliminated the risk of HIV transmissions. However, recent studies in Africa and elsewhere indicate that disinfection products and sterilization equipment are either absent, inappropriately deployed or ignored (Khaliq & Smego, 2005); (Arulogun & Adesoro, 2009); (Biadgelegn et al., 2012). Although the surveys indicate high levels of awareness that cutting instruments can cause disease transmissions, their level of understanding on what constitutes disinfection and sterilization varies. Furthermore, most barbers deal with the mass of people who cannot afford to pay more than 1 USD per session, making investment in disinfection and sterilisation appear to be expensive. Lack of mandatory minimum equipment standards and procedures also leaves the sector to its own determination of what just works.

4.5.2.2 Hepatitis virus transmission

Studies confirm that razors, barber's scissors, nail files and body piercing instruments are risk factors for transmission of hepatitis B and C. Surveys indicate that the levels of awareness among barbers on the modes of transmission of hepatitis is low. In some cases, less than 1% of barbers were aware of HBV or HCV as causative agents of liver disease or jaundice.

4.5.3 Occupational Safety and Health Risks for Barbers

Most occupation safety and health risks to barbers are similar to those faced by hairdressers and are addressed in 4.2. This is not exceptional since most of the work, chemicals and equipment share properties with those of hairdressers.

4.5.4 Hair, Scalp and Dermatological Disorders Arising from Barbershops

(a) (b)

Figure 33: (a) Barbershop Folliculitis (Sterling, 2013). (b) Tinea capitis (Winge, Chryssanthou, & Wahlgren, 2009)

4.6 Health and Safety Concerns Related to Massage Therapy

4.6.1 Health, Safety and Welfare of Work Environment

The following considerations should be addressed among others (Rosser, 2004):

(i) **Adequate ventilation**: Removing stale air and drawing in fresh clean air without draughts.

(ii) **Comfortable working temperature:** Around 16°C is recommended.

(iii) **Adequate lighting:** Lighting must be adequate to enable people to work and move around safely.

(iv) **Cleanliness and hygiene**: Premises must be cleaned regularly to the highest standard. Floors, walls and ceilings together with furniture and fittings should be washed and disinfected where possible. All towels and sheets used should be boil-washed after each client.

(v) **Waste:** Waste must be stored in suitable, covered bins and disposed of in accordance with regulations. Disposable needles must be placed in a 'sharps box' for collection.

(vi) **Adequate space for working:** Cubicles containing a couch, trolley, chair, stools and waste bin should be large enough for the therapist and client to move around in easily.

(vii) **Maintenance of equipment:** Everything in the workplace, the equipment and systems, should be maintained in efficient working order.

(viii) **Floors and traffic routes:** Floors should be sound and even, with a non-slippery surface and must be kept free of obstacles. Doors should be wide enough for easy access and exit; stairs should be sound and well lit. A handrail should be provided on at least one side of the stairs.

(ix) **Falls and falling objects:** Every effort must be made to prevent anyone falling on the premises. Objects should be stored and stacked safely in such a way that they are not likely to fall. Shelves should not be overloaded and should have maximum load notices.

(x) **Windows:** These should be clean and open easily.

(xi) **Sanitary conveniences:** Toilets and washing facilities should be available to all persons. These rooms should be clean (cleaned and disinfected regularly), well lit and ventilated.

(xii) **Drinking water:** An adequate supply of fresh drinking water must be provided, either direct mains water, a chilled water dispenser or bottled water.

(xiii) **Changing rooms:** These rooms must be clean, suitable and secure, where outer garments can be removed and uniforms put on.

(xiv) **Facilities for resting and eating:** Food and drink should not be consumed in the treatment cubicles or in the salon. A clean room should be allocated for eating. Adequate comfortable chairs should be provided as well as a table or tables on which to place food and drink.

4.6.2 Health and Safety Risks

(i) Hazardous substances found in the salon include: cleaning agents; disinfectants; massage products – oils, creams, lotions and talcum powder; powders or dust; micro-organisms, i.e. bacteria, viruses, fungi, protozoa; parasites; ozone.

(ii) Substances hazardous to health may cause the following: skin burn; skin allergic reaction such as dermatitis; skin irritation; irritation of nasal passages and lungs or allergies to products, especially fine powder or dust, resulting in the development of asthma; breathing difficulties; nausea and vomiting if swallowed; eye damage.

(iii) Electrical equipment which poses shock and electrocution hazards.

(iv) Fire hazards from inflammable and combustible materials.

(v) Risks of infections and infestations due to hygiene issues of the work environment and health status of the therapists or clients. This can result from blood or body fluids.

4.6.3 Disease Transmissions in Massage Services

(a) By droplet infection: an infected person coughing and sneezing or spitting will expel organisms into the air where they may be inhaled by others.

(b) By handling contaminated articles such as clothing, towels and equipment, when microorganisms may be transmitted to the handler.

(c) Dirty surfaces or dusty atmospheres will contain micro-organisms, which may be inhaled or may enter via the eyes or ears.

(d) Organisms present in faeces and urine may be transferred to others if the hands are not thoroughly washed after use of the toilet.

(e) Food may become contaminated by handling with unwashed hands and flies carrying contamination from excreta and rubbish. Water may become contaminated and then organisms will be transmitted through eating and drinking these foods.

(f) Organisms may be spread through contact with animals.

(g) Through direct contact with others, hand contact or touching.

(h) Organisms may be spread through an intermediary host such as fleas and blood-sucking insects.

(i) Organisms can be transmitted through blood transfusion, infected needles or at any time when the blood of the carrier (infected person) enters the body of the recipient. Hepatitis B and the HIV virus, which causes AIDS, are transmitted in this way. Any blood spots should be dealt with by wearing gloves and using strong disinfectant, e.g. household bleach. Needles and ear piercing equipment must be carefully disposed of into a 'sharps box'.

(j) Fungal infections such as ringworm (*Tinea pedis*, *Tinea corporis*, *Tinea capitis* or *Tinea ungulum*) and thrush (*Candida albicans*) are among common infections in unhygienic salon environment

(k) Ectoparasites such as head lice (*Pediculus capitis*), body lice (*Pediculus corporis*), itch mites (*Sarcoptes scabies*) and fleas of the order Siphonaptera, e.g., cat flea (*Ctenocephalides felis*), dog flea (*Ctenocephalides canis*) and human flea (*Pulex irritans*) are likely to be a risk in unhygienic massage salons.

4.6.4 Restrictions in Massage Services

The practice of massage therapy does not include the diagnosis of illness or disease, medical procedures, naturopathic manipulative medicine, osteopathic manipulative medicine, chiropractic adjustive procedures, homeopathic neuromuscular integration, electrical stimulation, ultrasound, prescription of medicines or the use of modalities for which a license to practice medicine, chiropractic, nursing, occupational therapy, athletic training, physical therapy, acupuncture or podiatry is required by law. In brief, there three primary restrictions to scope of practice: Massage therapists cannot *diagnose* a patient's condition, *prescribe* a medication or treatment, or *adjust* a client's bones (Williams, 2015).

4.6.5 Sexual Abuse in Massage Services

A general lack of understanding on the part of the public is blamed for associating massage services with sexual transactions (Cohen & Bodeker, 2009). This calls for a code of conduct outlining the expectations of the client as well as outlining the obligations of the therapist in discouraging notions and innuendos of clients oriented towards undesirable expectations of sexual services. Williams (2015) highlights the power advantage massage therapists enjoy as care givers to sexually abuse clients. Reports of sexual abuse continue to tarnish the reputation of the profession across the world initiated by therapists as well as clients (Held & Kiekow, 2015; Diamant, 2014; Adeoye, 2014; Peterson, 2014; Editor, 2015).

4.6.6 Contra-Indications in Massage Services

Massage should never be given if there is any risk of harming the client or making any condition worse. The following conditions are contra-indicated in massage (Rosser, 2004):

(i) Cancer: any client with cancer or a history of cancer must not be massaged, as cancer cells may be spread through the lymphatic system.

(ii) Acute infectious disease and fever: if the client feels hot, feverish, is perspiring and generally unwell.

(iii) Nausea: if the client is feeling sick or has a severe headache.

(iv) Dysfunction or disorders of the nervous system: e.g. multiple sclerosis, strokes, Parkinson's disease etc., where muscles may exhibit increased tone (spasticity), which may be made worse by massage. These clients should be treated under medical supervision.

(v) Drink or drugs: massage must not be given to anyone under the influence of drink or drugs, as such clients may not be in control of their faculties.

(vi) Inflammatory disease: when the client is in the active phase of any inflammatory disease such as rheumatoid arthritis or when any area is red, hot and swollen.

(vii) Pregnancy: in the late stages of pregnancy; if the client is experiencing any problems with her pregnancy seek medical advice.

(viii) Haemophilia: a condition of diminished or absence of blood clotting. Anyone suffering from this condition will bruise and bleed easily, and should not be massaged.

(ix) Phlebitis and thrombosis: phlebitis is a painful condition where the lining of the vein becomes inflamed and may result in a clot forming on the vein wall, known as thrombosis. Any pressure applied to the vein or increase in the force of the circulation may dislodge the clot with potentially fatal consequences.

4.7 Health and Safety Concerns Related to Reflexology

4.7.1 Conditions Strictly Contra-Indicated

The following conditions are contra-indicated in reflexology (James, 2002; Kunz & Kunz, 2007; Keet, 2008):

(1) Any contagious skin disease i.e., impetigo, scabies, chicken pox, mumps etc.
(2) Severe psoriasis or eczema on foot (foot will be too sore to work)
(3) Any untreated severe medical condition, or acute pain (Reflexology may hide a condition which needs medical attention)
(4) Undesirable characters
(5) Anyone under influence of alcohol or recreational drugs
(6) Internal bleeding
(7) Severe varicose veins i.e. phlebitis (Reflexology may increase pressure of blood to veins)
(8) Any form of infection, disease or fever (can make client feel worse and spread infection to the therapist)
(9) Diarrhoea and vomiting – cross infection
(10) Bruising on feet
(11) Cuts, grazes, open skin, rashes, bites, burns, fractures
(12) First few days of menstruation (Reflexology may make period heavier)
(13) Immediately after a heavy meal – leave 2 hours
(14) Athletes foot or verruaes
(15) Localised swelling/inflammation
(16) Scar tissue (2 years for major operation, and 6 months small scar)

(17) Sunburn
(18) Hormonal implants
(19) Recent fractures (minimum 3 months)
(20) Cervical spondylitis
(21) Haematoma

4.7.2 Contraindications That Require Specialist Permission

Some reflexology books list conditions that theoretically may be negatively affected by Reflexology treatment, although scientific research is limited (James, 2002; Kunz & Kunz, 2007; Keet, 2008):

(1) Medication for serious conditions (Reflexology may alter the level of drug in body)
(2) Cancer (within 5 years of surgery, as rogue cells may spread through lymph system)
(3) Recent operative patients/recent operations
(4) Post-natal
(5) Severe swelling
(6) Cardiovascular conditions such as thrombosis, phlebitis, hypertension, hypotension, heart conditions.
(7) Any condition already being treated by a GP or other complimentary therapist.
(8) Nervous/Psychotic conditions
(9) Arthritis
(10) Osteoporosis may speed up decalcification)
(11) Acute rheumatism
(12) Recent operations
(13) Epilepsy
(14) Asthma
(15) Medical oedema
(16) Pregnancy (not to treat in the first trimester – 3 months)
(17) Cancer
(18) Spastic conditions
(19) Kidney infections
(20) Trapped/pinched nerve (sciatica) inflamed nerve
(21) Any dysfunction of the nervous system, e.g., multiple sclerosis, Parkinson's disease, motor neurone disease

4.8 Health and Safety Concerns Related to Aromatherapy

4.8.1 Conditions that are contra-indicated to aromatherapy massage

The following conditions are contra-indicated for aromatherapy massage (McGuinness, 2003):

Fever in the case of a fever there is a risk of spreading infection due to the increased circulation created by a massage. During fever, body temperature rises as a result of infection.

Infectious diseases (colds, flu, measles, tuberculosis, scarlet fever) these are contra-indicated due to the fact they are contagious.

Skin diseases care should be taken to avoid the risk of cross infection and of spreading the infection.

Recent haemorrhage haemorrhaging is excessive bleeding, which may be either internal or external. Massage should be avoided due to the risk of increasing blood spillage from blood vessels. If in any doubt, medical advice should be sought.

Skin disorders some conditions may be exacerbated by aromatherapy massage. Some skin conditions, if inflamed, may need to be treated as a localised contra-indication.

Recent scar tissue aromatherapy massage should only be applied to scar tissue once it has fully healed and can withstand pressure.

Severe bruising localised massage is contra-indicated in order to avoid discomfort and pain.

Varicose veins care should be taken to avoid direct pressure with massage on or around a varicose vein. If severe, medical clearance may be necessary as the client may be prone to thrombosis. Gentle aromatherapy massage given proximally to the areas may help to reduce oedema and prevent venous and lymphatic stasis.

Cuts and abrasions these should be avoided as aromatherapy massage could further damage the healing tissue and expose the client and therapist to infection.

Recent fractures and sprains it is important to seek medical clearance before massaging a sprain or injury, due to the risk of increased vascular bleeding.

Undiagnosed lumps, bumps and swellings clients should be referred to their GP for a diagnosis. Aromatherapy massage may increase the susceptibility to damage in the area by virtue of pressure and motion.

4.8.2 Contraindications That Require Specialist Permission and an Adaptation

Severe circulatory disorders and heart conditions medical clearance should be sought as there is a risk that the increased circulation from the aromatherapy massage may overburden the heart and increase the risk of a thrombus or embolus.

Thrombosis medical clearance should be sought as there is a risk that the increased circulation from the aromatherapy massage may move a clot to the heart.

High blood pressure clients with high blood pressure should have a medical referral prior to aromatherapy massage even if they are on prescribed medication, due to their susceptibility to form clots. Clients taking anti-hypertensive medication may be prone to postural hypotension and may feel light-headed and dizzy after treatment. Care should therefore be taken to assist a client off the couch and ensure that they get up slowly.

Low blood pressure care should be taken with a client suffering from low blood pressure when sitting or standing after massage due to the fact they may experience dizziness and could fall.

Epilepsy medical advice should always be sought prior to massaging a client with a history of epilepsy.

Diabetes clients with diabetes require medical referral as they may also be prone to arteriosclerosis, high blood pressure and oedema. Pressure should be carefully monitored due to any loss in sensory nerve function resulting in the client being unable to give accurate feedback regarding pressure. If the client is receiving injections, care should be taken to avoid aromatherapy massage on recent injection sites. Clients should also have their necessary medications with them when they attend for treatment, in the event of an emergency.

Cancer medical advice and guidance should always be sought before carrying out an aromatherapy treatment on a client who has a cancerous condition. There is a theoretical risk that certain types of cancer may spread through the lymphatic system and that aromatherapy massage may aid in the metasis of the cancer. When massaging a cancer patient, care should be taken to avoid areas of the body receiving radiation therapy, close to tumour sites or lymph glands and areas of skin cancer.

Asthma: in general the use of specific essential oils with aromatherapy massage may help breathing difficulties such as asthma. Care would need to be taken to avoid allergies to essential oils or carrier oils and care may be needed in the positioning of the client.

Allergies and skin intolerances: a patch test would need to be carried out before treatment commences in order to eliminate the risk of adverse reaction to the essential oils proposed for use.

Medication: the use of certain essential oils may exacerbate the excretion of drugs by speeding up the detoxification of the liver.

Homeopathic preparations: If a client is undergoing homeopathic treatment at the time of an aromatherapy massage then it is sensible for the client to consult their homeopath to ensure that the proposed treatment you intend to offer is in synergy with the homeopathic preparations.

Abdominal treatment for women during menstruation: the abdominal area may be omitted from the aromatherapy massage during menstruation to avoid discomfort.

Pregnancy: as essential oils will cross the placental barrier they have the potential to affect the foetus. Safe guidelines for treating pregnant women include:

- avoid treating any women with a poor obstetric history (bleeding, miscarriages) without advice from the client's GP/obstetrician
- avoid any form of treatment during the first trimester of the pregnancy
- use lower dilutions of essential oils (usually 1 per cent or less)
- avoid all oils considered to be emmenagogues and research known safety data to avoid potentially toxic essential oils that may be harmful to mother and foetus.

Migraine: some strong or heavy odours may precipitate or exacerbate the effects of a migraine.

Children and babies: require special care and handling. A lower dilution of oils (1 per cent or less) should be used and care should be taken to avoid all toxic oils (recommended oils for children include Roman Chamomile, Lavender, Rose and gentle citrus oils such as Mandarin).

4.8.3 Hazards Associated with Essential Oils Used in Aromatherapy

It's important to exercise caution and discretion in the use of aromatic oils and essences, as they have the potential to cause complications due to their complex chemical natures and because they are extremely concentrated and volatile. Always consult with a qualified practitioner and follow accepted safety guidelines. There are three main types of hazard associated with essential oils: toxicity, irritation and sensitisation (McGuinness, 2003; Goldstein *et al.*, 2006; Lis-Balchin, 2006).

4.8.3.1 The use of essential oils is not recommended in conjunction with the following conditions:

- Asthma
- Heart conditions
- High blood pressure
- Cancer
- Undergoing chemotherapy
- Epilepsy
- Pregnancy
- Kidney disease
- Neurological disorders

4.8.3.2 Improper use can result in:

- Allergic reactions
- Headache
- Nausea
- Skin irritations, including burns
- Spontaneous abortion
- Excessive diuretic effect
- Teratogenic effects
- Fertility impairment
- Genotoxic effects
- Neurotoxicity
- Negative emotions
- Hypersensitivity of skin to sunlight

4.8.3.3 Safety precautions include:

- Proper dilution of the concentrated essences before use
- Not using on children under age 5
- Use with extreme caution for children over 5

— Preliminary skin patch test
— Not using in or near eyes or mucous membranes
— Staying out of sunlight for a minimum of 4 hours after application

Aromatic essential oils may be derived from Nature, but simply being natural does not guarantee their safety. High or improper doses and uses may not be lethal, but the potential for toxicity can lead to undesirable results. Always consult with a professional who is knowledgeable in the uses and proper application of each compound.

4.9 Health and Safety Concerns Related to Spa and Wellness Therapies

4.9.1 Spa Sanitation and Hygiene

Spa facilities and operations need to comply with health standards and professional ethics to provide a clean environment for clients that ensures they don't pick up any diseases while they are at a spa or massage clinic (Williams, 2015). Sanitation protocols include therapist hygiene; the sanitation of the treatment room, equipment, and product containers; and general cleanness of the facility. Key considerations shall include:

(a) Preventing the transmission of disease, focusing on therapist hygiene practices

(b) Sanitation of the facility, equipment and supplies

(c) Sanitation of the treatment room and equipment

(d) Taking universal precautions for prevention of contracting or transmitting diseases such as hepatitis A, B or C and HIV/AIDS.

4.9.2 Hazards in Spa Pools and Water Therapy Sites

The following risks exist in the spa pools and other water therapy sites (WHO, 2003a; WHO, 2003b; Pond, 2005):

(a) **Drowning:** Swimmers under the influence of alcohol, poor swimming ability, no supervision, poor pool design and maintenance

(b) **Impact injuries**: Impact against hard surfaces. The impact may be driven by the participant (diving, accidents arising from the use of water slides, collision, treading on broken glass and jagged metal – especially in outdoor pool surroundings).

(c) **Physiological** Acute exposure to heat and ultraviolet (UV) radiation in sunlight. Cumulative exposure to sun for outdoor pool users. Heat exposure in hot tubs or natural spas (using thermal water) or cold exposure in plunge pools.

(d) **Infection** Ingestion of, inhalation of or contact with pathogenic bacteria, viruses, fungi and protozoa, which may be present in water and pool surroundings as a result of faecal contamination, carried by participants or animals using the water or naturally present.

(e) **Poisoning, toxicoses and other conditions that may arise from long-term chemical exposures:** Contact with, inhalation of or ingestion of chemically contaminated water, ingestion of algal toxins and inhalation of chemically contaminated air.

4.9.3 Contra-Indications in Fangotherapy

(a) **Contra-Indicated Individuals:** Clients with heart or circulatory conditions; who are pregnant; or have a fever, diabetic neuropathy, or neurological disorders should not receive full-body hot fango treatments.

(b) **Broken or Inflamed Skin:** The use of peat and mud is not advised on broken or inflamed skin.

(c) **Fango Temperature:** Fango can be applied from room temperature up to 46 °C (115 °F).

(d) **Mixing and Storing Fango Products:** When using mud, clay, or peat, they should not be mixed or stored in metal containers because they may react chemically with the metal.

(e) **Preventing Dry Out:** Mud and peat are not commonly allowed to dry out on the body. They are covered in plastic or with a hot, damp towel during the treatment to keep them moist.

4.10 Contra-Indications in Hair Removal Techniques

One of the main purposes of a client consultation is to determine the presence of any contraindications for hair removal. Some medical conditions and medications may cause thinning of the skin or make the skin more vulnerable to injury. Waxing clients with these conditions could cause unnecessary inflammation or severe injuries to the skin (Frangie *et al.*, 2012).

(a) Clients should not have any waxing or hair removal performed anywhere on the body if one or more of the following is the case, without first obtaining written permission from their physician:

(i) Client is using or has used isotretinoin (Accutane) in the last six months.

(ii) Client is taking blood-thinning medications.

(iii) Client is taking drugs for autoimmune diseases, including lupus.

(iv) Client is taking predisone or steroids.

(v) Client has psoriasis, eczema, or other chronic skin diseases.

(vi) Client has a sunburn.

(vii) Client has pustules or papules in area to be waxed.

(viii) Client has recently had cosmetic or reconstructive surgery within the previous three months.

(ix) Client has recently had a laser skin treatment on the body.

(x) Client has severe varicose leg veins.

(xi) Client has any other questionable medical condition.

(b) Facial waxing should not be performed on clients with any of the following conditions, without first obtaining permission from their physician:

(i) Client has rosacea or very sensitive skin.

(ii) Client has a history of fever blisters or cold sores. (Waxing can cause a flare-up of this condition without medical pre-treatment.)

(iii) Client has had a recent chemical peel using glycolic, alpha hydroxy, or salicylic acid, or other acid-based products.

(iv) Client has recently had microdermabrasion.

(v) Client uses any exfoliating topical medication, including Retin-A®, Renova®, Tazorac®, Differin®, Azelex®, or other medical peeling agent.

(vi) Client has recently had laser skin treatment or surgical peel.

(vii) Client uses hydroquinone for skin lightening.

5. Socioeconomic Significance of Cosmetology

5.1 The Global Economic Value and Structure of the Cosmetic Industry

The cosmetic industry (aka beauty industry or personal care industry) was estimated to be worth US$ 430 B and can be broken down into 5 categories with sales distributed as follows (TBC, 2012; Steib, Giraldo, & Eggleton, 2013):

Hair Care: Constituting 20 % of sales, shampoos make up the vast majority of this market since almost everyone uses shampoo. Other significant market segments include conditioners, styling products, hair colour, and relaxers.

Facial and Skin Care at 27 %: The range of products that are offered for the skin care market are much more diverse than the hair care market. Skin care includes skin moisturizers, cleansers, facial products, anti-acne, and anti-aging products.

Personal Care: The "personal care" category represents 23% of the cosmetic industry and is made up of things like toothpaste, deodorants, sunscreens, depilatories, and other personal care products not yet mentioned.

Makeup at 20 %: The colour cosmetic market includes anything from lipstick to nail polish. Included are things like blush, eyeshadow, foundation, etc. The array of products is vast and the number of colour variations are practically infinite. The market is highly segmented so there isn't really one dominant player.

Fragrances: This market segment has really taken a hit in the last few years but it still makes up about 10% of the cosmetic industry. This is the highest profit segment of the cosmetic industry but consumers are fickle. Only a few brands can last for a long time. Fine fragrances come and go like fashion and companies have to continue to reformulate just to compete.

While production of many beauty and personal care products can be found in many countries, the global market is dominated by a few companies from Europe and the United States of America. The biggest global market has traditionally been within the same production regions but there is increasing growth in emerging markets in Asia, Asia-Pacific, Africa and Latin America. Market estimates indicate that the personal care products will be worth US$630 B (€487 B) by 2017 (Yeomans, 2012). There is a paucity of data on current African production and consumption of beauty and personal care products.

5.2 The Global Economic Value of the Spa and Wellness Industry

The Global Wellness Summit reports that the global wellness industry was worth $3.4 trillion, or 3.4 times larger than the worldwide pharmaceutical industry in 2013 (GWI, 2014). The key sectors include the following:

(a) Healthy Eating/Nutrition/Weight Loss ($574.2 bil.)

(b) Fitness & Mind/Body ($446.4 bil.)

(c) Beauty & Anti-Aging ($1.025 tril.)

(d) Preventative/Personalized Health ($432.7 bil.)

(e) Complementary/Alternative Medicine ($186.7 bil.)

(f) Workplace wellness ($40.7 bil.)

(g) Wellness Lifestyle Real Estate ($100 bil.)

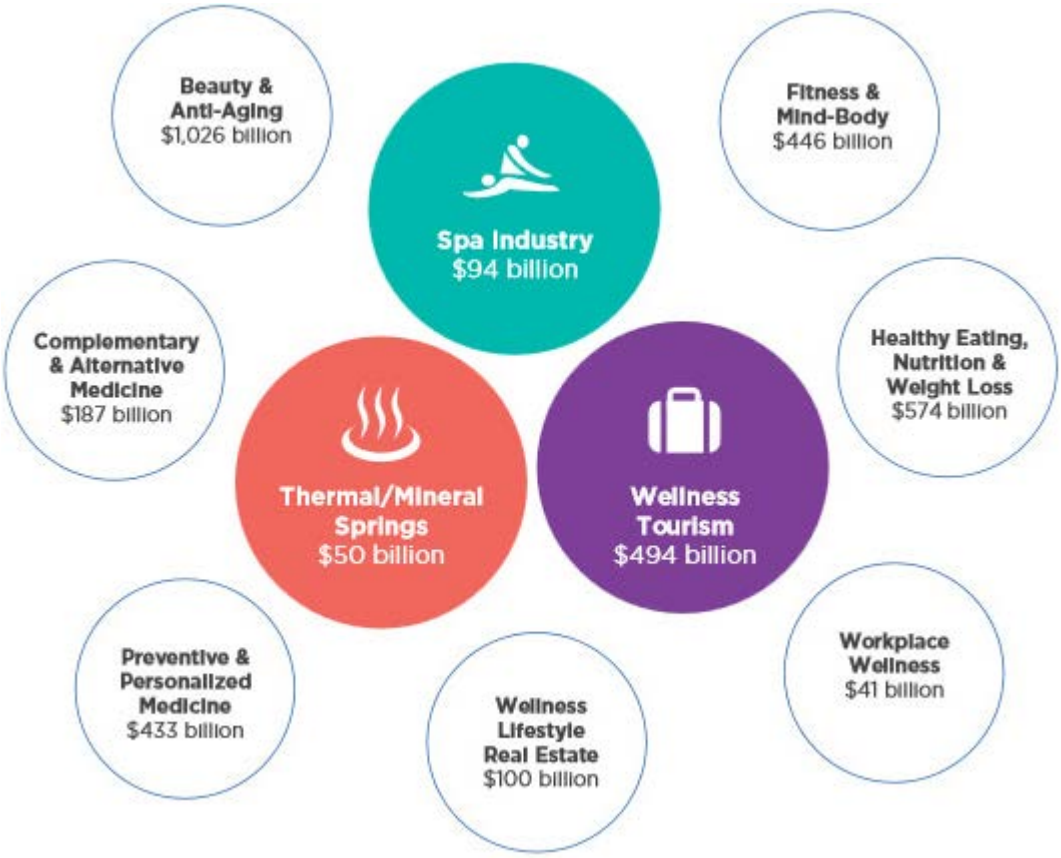


Figure 34: Global Wellness Economy: $3.4 trillion in 2013 (GWI, 2014)

5.2.1 Global Tourism and Wellness Tourism

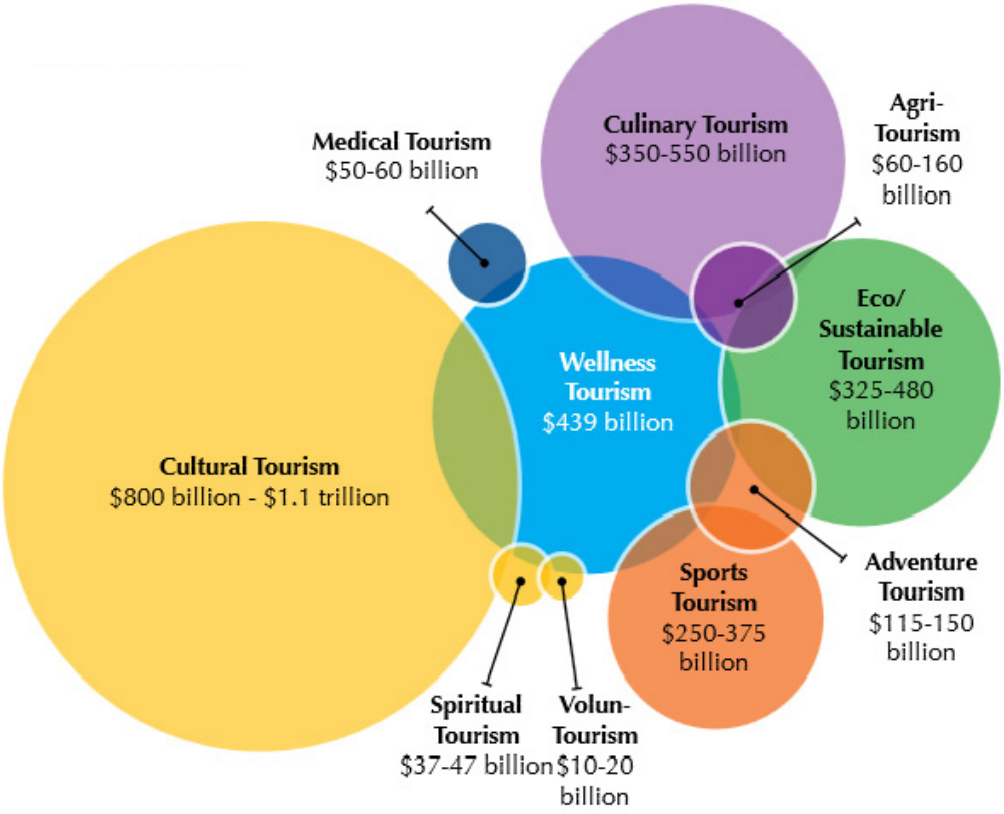


Figure 35: The global tourism industry mix (GWI & SRI, 2012b)

The wellness tourism economy is all expenditures made by tourists who seek to improve or maintain their well-being during or as a result of their trip. There are two types of wellness travellers: those who take a trip entirely for wellness purposes *(primary wellness travellers)* and those who engage in wellness activities as part of a trip *(secondary wellness travellers)*. Two types of expenditures are distinguished (GWI, 2014):

(1) **International Wellness Tourism Receipts**: All receipts earned by a country from inbound wellness tourists, with an overnight stay.

(2) **Domestic Wellness Tourism Expenditures**: All expenditures in a country made by wellness tourists who are traveling within their own country of residence, with an overnight stay.

Secondary wellness travellers—those who seek wellness experiences as part of their trips—constitute the largest segment and account for 87% of wellness tourism trips and 84% of expenditures. ***Domestic wellness travellers*** (both primary and secondary) represent 84% of all wellness tourism trips and 68% of expenditures. Because wellness travellers tend to be wealthier and more educated, their tourism spending is significantly higher than the average tourist, making them ***"high-yield" tourists***. International wellness tourists spend 59% more and domestic wellness tourists spend 159% more than the average tourist (GWI, 2014).

GWI (2014) reports that the wellness tourism industry was worth US$494 B in 2013 and constituted of the segments illustrated in the figure below.

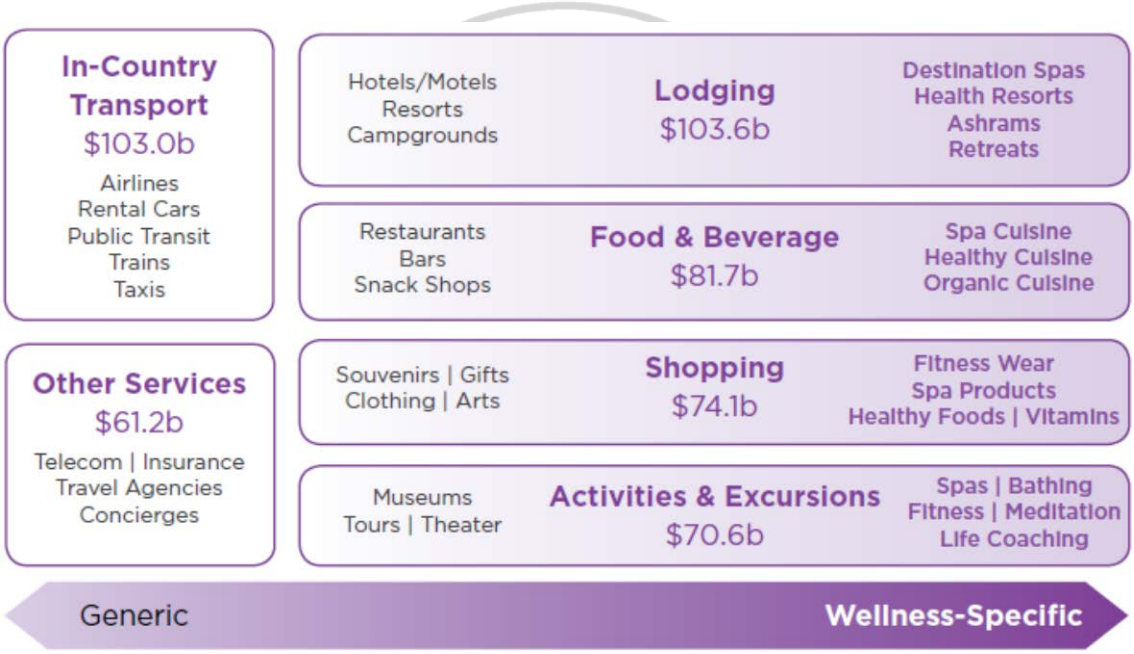


Figure 36: Structure of the Global Wellness Tourism Economy 2013 (GWI, 2014)

Table 2: Wellness Tourism Trips and Expenditures, 2012 and 2013 (GWI, 2014)

	Number of Trips (Millions)		**Expenditures (US$ Billions)**	
	2012	2013	2012	2013
International/Inbound Wellness Tourism	86.2	95.3	$139.5	$156.3
Domestic Wellness Tourism	438.3	491.2	$299.1	$337.8
Total Wellness Tourism Industry	524.4	586.5	$438.6	$494.1
NOTE Figures may not sum due to rounding.				

Table 3: Wellness Tourism by Region, 2012 and 2013 (GWI, 2014)

	Number of Trips (Millions)		Expenditures (US$ Billions)	
	2012	2013	2012	2013
North America	163.0	171.7	$181.0	$195.5
Europe	202.7	216.2	$158.4	$178.1
Asia-Pacific	120.0	151.9	$69.4	$84.1
Latin America-Caribbean	31.7	35.5	$22.4	$25.9
Middle East-North Africa	4.8	7.0	$5.3	$7.3
Sub-Saharan Africa	2.2	4.2	$2.0	$3.2
Total Wellness Tourism Industry	524.4	586.5	$438.6	$494.1
NOTE Figures may not sum due to rounding.				

Table 4: Top Spa Wellness Tourism Markets in Africa, 2013 (GWI, 2014)

	Number of Trips (Millions)	Expenditures (US$ Millions)
South Africa	2.4	$1,819.2
Morocco	2.2	$1,748.2
Tunisia	0.8	$429.1
Egypt	0.4	$309.5
Kenya	0.3	$260.2
Mauritius	0.1	$181.8
Seychelles	0.1	$170.8
Tanzania	0.1	$156.5
Nigeria	0.1	$69.3
Botswana	0.2	$61.4
Namibia	0.1	$55.4
Madagascar	0.1	$44.9
Zimbabwe	0.1	$43.4

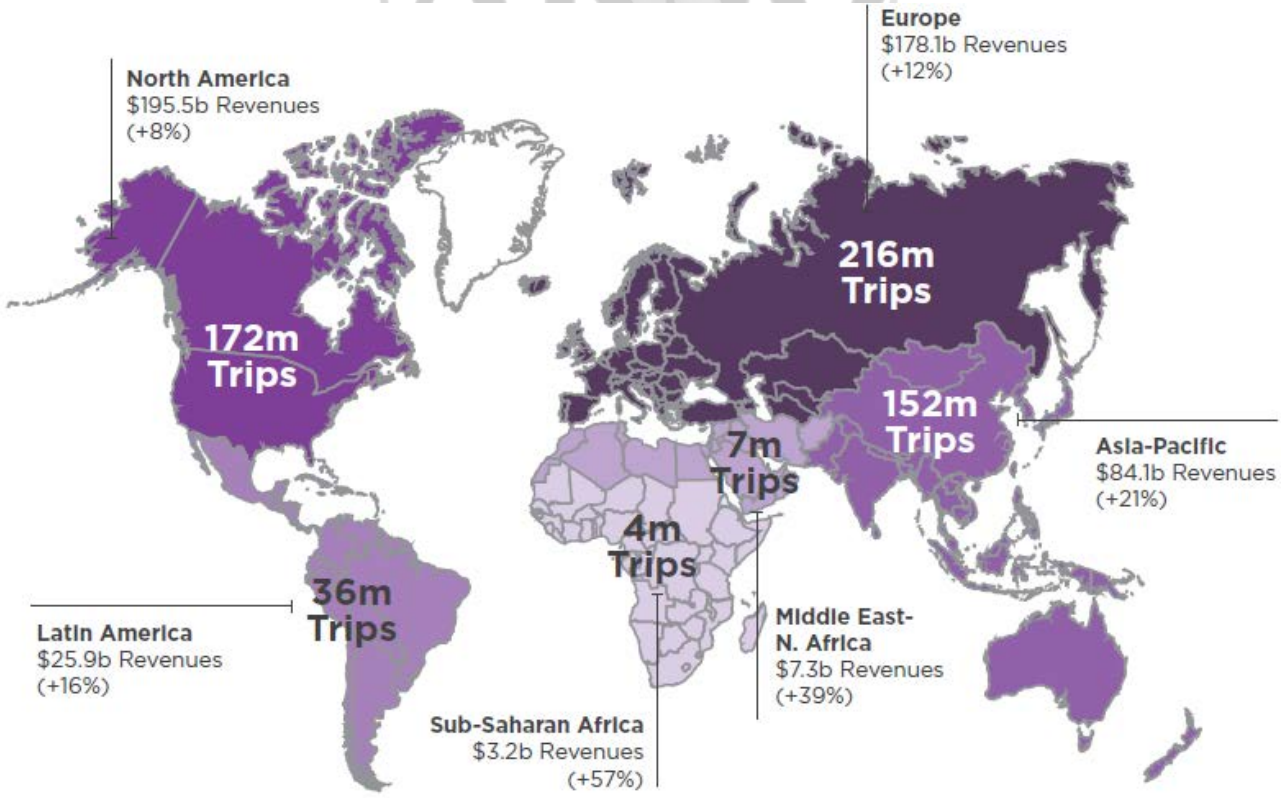


Figure 37: Wellness Tourism by Region, 2013: Number of wellness trips (inbound and domestic), expenditures, and expenditures growth since 2012 (GWI, 2014)

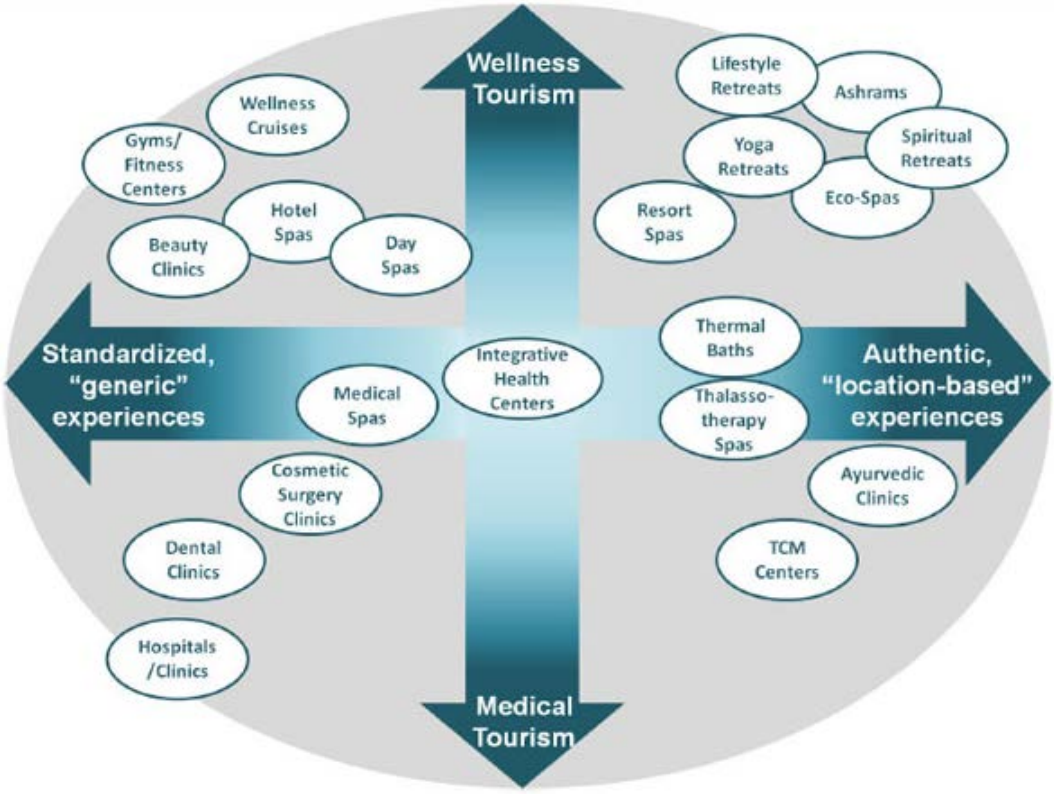


Figure 38: The Wellness Tourism and Medical Tourism Market Spectrum (GWI, 2014)

Europe remains the largest wellness tourism region in terms of trips, while North America is the largest in terms of wellness tourism expenditures. Wellness tourism is growing fastest in in Africa, Middle East, and Asia, reflecting overall strong tourism growth; significant investments in hotels, resorts, and tourism infrastructure; along with a growing middle class that supports growth in spas and other wellness offerings in these regions (GWI, 2014).

The bulk of wellness travel is done by *secondary wellness travellers* who choose a healthy hotel for its on-site yoga classes and healthy menu offerings. *Secondary wellness travellers* accounted for 87% of wellness tourism trips and 84% of expenditures in 2013. *Domestic wellness travellers* represent 84% of wellness tourism trips and two-thirds of wellness tourism spending. This is because many more people travel domestically than internationally—especially those living in large countries (e.g., United States, China, India, Russia)—and domestic trips tend to be shorter in duration (such as weekend getaways) and can be done more frequently and less expensively (GWI, 2014).

5.2.2 The Spa Industry

To recapitulate GWI(2014), Spas are defined as establishments that promote wellness through the provision of therapeutic and other professional services aimed at renewing the body, mind, and spirit. In addition to spas themselves, there are many related businesses that support and enable the operation of spas. These include the spa education, media, associations, events, consulting, and investment sectors. Together with spa operations, this cluster of spa-related sectors was estimated to be $94 billion in 2013, a significant increase over the $60 billion reported for 2007.

Table 5: Global Spa Industry, 2007 and 2013 (GWI, 2014)

US$ B	**2007**	**2013**
Spa Facility Operations	$46.81	$74.05
Spa Capital Investments	$12.99	$18.75
Spa Education	$0.31	$0.82
Spa Media, Associations, & Events	$0.13	$0.22
Spa Consulting	$0.07	$0.11
Total Spa Industry	**$60.31**	**$93.95**

Table 6: Spa Facilities by Type, 2007 and 2013

	Number of Spas		Revenues (US$ Billions)	
	2007	**2013**	**2007**	**2013**
Day/Club/Salon Spas	45,113	59,339	$21.0	$30.5
Hotel/Resort Spas	11,489	22,076	$12.6	$22.2
Destination Spas & Health Resorts	1,485	2,204	$6.2	$8.4
Medical Spas	4,274	5,009	$4.6	$5.4
Thermal/Mineral Springs Spas*	n.a	6,504	n.a.	$4.8
Other Spas	9,311	10,459	$2.4	$2.7
Total Spa Industry	**71,672**	**105,591**	**$46.8**	**$74.1**

* In the 2007 figures, Thermal/Mineral Springs Spas were not included as a separate category, and were instead grouped under the Other Spas and Destination Spas & Health Resorts categories. Note: Revenue figures may not sum due to rounding.

The $74 billion in spa facility revenues in 2013 were earned by 105,591 spas, which include six categories of spas listed below. Because of their large numbers, day/club spas account for the highest share of spa revenues, followed by hotel/resort spas.

Day/club/salon spas offer a variety of spa services (e.g., massage, facials, body treatments, etc.) by trained professionals on a day-use basis. Club spas are similar to day spas, but operate out of facilities whose primary purpose is fitness. Salon spas operate out of facilities that provide beauty services (such as hair, make-up, nails, etc.).

Destination spas and health resorts offer a full-immersion spa experience in which all guests participate. All-inclusive programs typically include, in addition to spa and body treatments, a myriad of other offerings such as: fitness, mind/body, special diets and cleansing, personal coaching, nutrition counselling, weight loss, preventive or curative medical services, etc.

Hotel/resort spas are located within a resort or hotel property, providing spa services on an à la carte basis to hotel guests and outside/local guests. Spa treatments and services generally complement a hotel stay or a wide range of other activities at a resort.

Thermal/mineral springs spas include day-use spa facilities and destination/health resorts that incorporate an on-site source of natural mineral, thermal, or sea water into their spa treatments, as well as thermal and mineral water bathing or recreational establishments that offer spa services such as massage, facials, hydrotherapy, etc.

Medical spas operate under the full-time, on-site supervision of a licensed healthcare professional, providing comprehensive medical and/or wellness care in an environment that integrates spa services with traditional, alternative, or cosmetic medical therapies and treatments.

Other spas include all other facilities that are not captured by the categories described above, such as cruise ship spas, airport spas, mobile spas, as well as historically-/culturally-based facilities (e.g., Japanese onsen, Turkish hammams, Indian Ayurveda centres, etc.) that have incorporated spa-like services into their offerings.

5.2.3 Spa Employment, Workforce Projections and Global Distribution of Spas

The world's 105,591 spas employed an estimated 1.9 million persons in 2013, including about 1.1 million spa therapists and 200,000 spa managers and directors. If the spa industry continues growing at the same rate at which it grew from 2007-2013, then there will be a projected 2.7 million persons employed by spas in 2018. An additional 500,000 trained spa therapists and 80,000 experienced spa managers/directors (above the current levels) will be needed by the industry in 2018.

Spas are found in all corners of the world, distributed across 203 countries. However, the majority of the industry is concentrated in three regions: Europe, Asia-Pacific, and North America, which together account for 86% of the world's spas. Asia has surpassed Europe to rank number one in the number of spas and has risen to second place in terms of spa revenues. Among the world's top 20 largest spa-going countries in terms of revenues, all are located within the three top

regions, with the exception of Mexico and Brazil. The five largest countries in terms of revenues (United States, Germany, Japan, China, France,) account for 49% of industry revenues worldwide. The twenty largest countries, as shown in the following table, account for 80% of world revenues. Fifteen countries in the world have spa revenues over $1 billion annually. Since 2007, China has entered the top five markets in terms of revenues, Russia entered the top ten, and Indonesia, Poland, and Brazil entered the top twenty.

Table 7: Spa Employment by Region, 2007, 2013, and 2018 (Projected) (GWI, 2014)

	2007	2013	Projected Need in 2018
Europe	441,727	678.920	911,400
Asia-Pacific	363,648	614,202	863,400
North America	307,229	397,381	489,100
Latin America-Caribbean	82,694	141,025	214,800
Middle East-North Africa	20,938	57,308	175,700
Sub-Saharan Africa	7,273	20,822	65,700
Total Spa Industry	**1,223,509**	**1,909,658**	**2,720,100**

Table 8: Spa Facilities by Region, 2007 and 2013 (GWI, 2014)

	Number of Spas		Revenues (US$ Billions)	
	2007	2013	2007	2013
Europe	22,607	32,190	18.4	29.8
Asia-Pacific	21,566	32,451	11.4	18.8
North America	20,662	26,510	13.5	18.3
Latin America-Caribbean	5,435	9,007	2.5	4.7
Middle East-North Africa	1,014	3,889	0.7	1.7
Sub-Saharan Africa	388	1,544	0.3	0.8
Total Spa Industry	**71,672**	**105,391**	**46.8**	**74.1**

Table 9: Top Spa Industry Markets in Africa, 2013 (GWI, 2014)

	Number of Spas	Spa Revenues (US$ Millions)	Spa Employment
South Africa	599	$471.0	12,387
Morocco	1,699	$253.1	13,317
Tunisia	176	$95.4	2,817
Egypt	318	65.2	3,219
Kenya	107	$51.1	1,157
Seychelles	43	$44.6	570
Nigeria	151	$32.6	1,155
Tanzania	72	$32.2	639
Mauritius	62	$27.8	675
Namibia	40	$16.3	553
Botswana	33	$13.7	452
Ghana	44	$12.1	370
Madagascar	27	$11.2	250

The spa industry's economic impact includes the direct revenues and employment generated by spa facilities and other associated spa sectors, along with their indirect and induced (or multiplier) effects on the overall economy. Overall, in 2013, the $94.0 billion spa industry generated a total economic impact of $277.1 billion for the world economy, including the direct

indirect, and induced economic impacts of core spa industry activities (spas, consulting, education, media, associations, events, and capital investment).

5.2.4 The Thermal/Mineral Springs Industry

In many countries and regions the modern spa experience is derived from age-old traditions of bathing, rejuvenating, and healing the body and spirit in thermal and mineral waters.

Table 10: Types of Thermal/Mineral Springs Establishments (GWI, 2014)

<table>
<tr><th>Primarily Recreational</th><th>Primarily Wellness</th><th>Primarily Therapeutic or Curative</th></tr>
<tr><td>Thermal/mineral water swimming pool facilities</td><td>Thermal/mineral water-based bathing facilities</td><td rowspan="2">Health resorts and sanatoria that use thermal mineral waters for treatments</td></tr>
<tr><td>Thermal/mineral water-based waterparks</td><td>Thermal/mineral water-based spas</td></tr>
<tr><td>Hotels/resorts with thermal/mineral water swimming pools</td><td colspan="2">Thalassotherapy spas and resorts</td></tr>
<tr><td colspan="3">Thermal or hot spring resorts</td></tr>
</table>

GWI (2014) estimates that there are 26,847 facilities built around thermal/mineral springs around the world, across 103 countries. These businesses collectively earned more than $50 billion in revenues in 2013. Only 6,504 of these establishments offer spa-related services. Spa treatments represent a significant value-addition on top of bathing and swimming offerings in terms of revenue potential, because, in most countries, thermal/mineral water bathing and swimming facilities tend to have low admission fees and are often traditional or rustic in nature. Therefore, the thermal/mineral springs establishments offering spa services earn significantly higher revenues, accounting for 64% of industry revenues and representing a $32.0 billion global market.

Table 11: Global Thermal/Mineral Springs Industry, 2013 (GWI, 2014)

	Number of Establishments	Revenues (US$ Billions)	Avg. Revenues per Establishment
With Spa Services	6,504	$32.0	$4,922,555
No Spa Services	20,343	$18.0	$886,147
Total Thermal/Mineral Springs Industry	**26,847**	**$50.0**	**$1,863,990**

NOTE The thermal/mineral springs revenue estimates include all revenues earned by these establishments, from bathing/swimming offerings, spa/wellness services and other treatments, other recreational activities, food & beverage, lodging, and other services.

Table 12: Thermal/Mineral Springs Facilities by Region, 2013 (GWI, 2014)

	Number of Establishments	Revenues (US$ Billions)
Asia-Pacific	20,298	$26.75
Europe	5,035	$21.65
Latin America-Caribbean	961	$0.87
North America	203	$0.49
Middle East-North Africa	315	$0.23
Sub-Saharan Africa	35	$0.05
Total Industry	**26,847**	**$50.04**

Table 13: Top Thermal/Mineral Springs Markets in Africa, 2013 (GWI, 2014)

	Number of Establishments	Revenues (US$ Millions)
Tunisia	67	$60.0
South Africa	30	$48.0
Algeria	163	$36.0
Morocco	11	$14.0
Namibia	2	$3.7

5.2.5 Other Wellness Lifestyle Industries

According to GWI (2014), these include a variety of large industries that help consumers take proactive approaches to integrating wellness into their daily lives – from what they eat to how they exercise and relax, from their homes to their workplaces, and from individual activities to professional services. We estimate the size of these other wellness lifestyle industries at $2.8 trillion in 2013. The seven other wellness lifestyle industries include the following sectors:

Healthy eating, nutrition, and weight loss: Includes vitamins and supplements, functional foods and nutraceuticals, health foods, natural and organic foods, weight-loss and diet services, diet and weight-loss foods and meal services, and anti-obesity prescription and over-the-counter drugs.

Fitness and mind-body: Includes gyms and health clubs; personal training; yoga, Pilates, Tai Chi, and other mind-body practices; fitness and exercise clothing; and fitness and exercise equipment.

Beauty and anti-aging: Includes beauty and salon services; skin, hair, and nail care services and products; cosmetics, toiletries, and other personal care products; dermatology; prescription pharmaceuticals for skin care; as well as products and services that specifically address age-related health and appearance issues, such as cosmetics/cosmeceuticals for skin/face/body care, hair care/growth, and pharmaceuticals/supplements that treat age-related health conditions.

Preventive and personalized health: Includes medical services that focus on treating "well" people, preventing disease, or detecting risk factors—for example, routine physical exams, diagnostic and screening tests, genetic testing, etc. Personalized health uses sophisticated information and data for individual patients (including genetic, molecular, and environmental screening, analysis, and diagnostics; disease management services; electronic health records; and remote patient monitoring) to provide tailored approaches for preventing disease, managing risk factors, or treating conditions.

Complementary and alternative medicine: Encompasses diverse medical, health care, holistic, and mentally or spiritually-based systems, practices, and products that are not generally considered to be part of conventional medicine or the dominant health care system—including homeopathic, naturopathic, chiropractic, traditional Chinese medicine, Ayurveda, energy healing, meditation, herbal remedies, etc.

Workplace wellness: Includes programs offered by companies and businesses aimed at improving the health and wellness of employees, in order to reduce costs and enhance productivity and performance. These programs raise awareness, provide education, and offer incentives that address specific health risk factors and behaviours (e.g., lack of exercise, poor eating habits, stress, obesity, smoking) and encourage employees to adopt healthier lifestyles.

Wellness lifestyle real estate: The construction of residential, hospitality, and mixed-use real estate developments that incorporate wellness facilities and services—including spas, gyms, and other related amenities. Also includes a burgeoning segment of real estate development that focuses on infusing health and wellness factors into the built environment.

Table 14: Other Wellness Lifestyle Industries, 2013 (GWI, 2014)

Global Market Size*	**(US$ billions)**
Healthy Eating, Nutrition, and Weight Loss	$574.2b
Fitness and Mind-body	$446.4b
Beauty and Anti-aging	$1,025.6b
Preventive and Personalized Health	$432.7b
Complementary and Alternative Medicine	$186.7b
Workplace Wellness	$40.7b
Wellness Lifestyle Real Estate	$100.0b

5.3 Manpower Developments to Cater for the Cosmetology and Wellness Industry

The cosmetology and wellness sectors in Africa are not well supported by a formal requisite education and training infrastructure. In most cases, institutions offering the education and training are private-sector operated with their own curricula with accreditations from external bodies.

There is a lot of informality associated with the cosmetology industry across the continent due to underestimation of the potential for professionalism, revenue generation and economic development. It always appears as the last choice for those who have failed to make it in academic institutions and a holding ground for those hoping for a better future to dawn on them.

GWI & SRI (2012a) reports that the spa and wellness industry there is currently a shortage of expertize to manage the facilities and services offered by the sector which constrains prospects for expansion and offering quality services. The report proposes a well-functioning management workforce framework for the spa industry as shown below.

Figure 39: A Well-Functioning Management Workforce System for the Spa Industry Requires the Interaction of Three Key Stakeholders (GWI & SRI, 2012a)

5.4 Status of Cosmetology in Africa

Two recent reports indicate that Africa represents a growing opportunity for the global beauty and personal care products (BPC) due to a number of driving factors (Liduena *et al.*, 2013; BMR, 2015):

(a) **An exploding population:** Africa's population is the world's fastest-growing population and is expected to account for more than 40% of world population growth in 2030. This growing population, set to double over the next 40 years, represents a very attractive consumer base for all major beauty brands. In addition, sales of beauty care products are likely to be stimulated by the young population as 60% of Africans are under 25 years.

(b) **The fastest growing middle class segment in the world:** As defined by the African Development Bank as *"anyone who spends between $2 and $20 a day in purchasing-power parity terms"*, the bank estimates that more than 34% of Africans (more than 300 million

people) fit this description and will grow to 42 % (more than 1 billion people) in 2060. With a 300+ million middle-class segment, the African region almost equals its Indian and Chinese counterparts.

(c) **An increasing urbanization:** Cities attract and concentrate about 40% of the African population and are expected to exceed 500 million individuals by 2016. This urbanization represents a positive trend for the Beauty and Personal Care market, since urban consumers are wealthier), their spending trend is twice as fast as rural spending and they are more easily reached by brands thanks to their concentration.

(d) **An improved business regulation:** There is a marked improvement in the ease of doing business in many African countries with the biggest improvements in business regulatory practices since 2005 (World Bank, 2014). Along with this improvement, Africa has loosened trade barriers thanks to the creation of several trade blocs, within member countries but also with the global economy.

The two reports identify the key vendors of the BPC products in Africa as L'Oreal, Procter&Gamble and Unilever (Liduena *et al.*, 2013; BMR, 2015). In addition, other prominent vendors identified by BMR (2015) include: Africology, Beiersdorf, Biokide, Estee Lauder, Godrej, House of Tara and Suzie Beauty.

6. Standardization in Support of Mainstreaming and Regulation

6.1 The Roadside Hairstylists

Figure 40: (a) The common practice of offering haircare services in Africa. (b) The popular low-maintenance braids (Friedman-Rudovsky, 2014)

(a) (b)

Figure 41: (a) African Hair Braiding Market Senegal West Africa (Relentless, 2014). (b) Getting a "super kanja" (okra) hair braided in The Gambia (Kumba, 2015)

Figure 42: A hairdresser braids the hair of a client in downtown Johannesburg (Reuters, 2014)

Figure 43: Getting your braids done (Vionna, 2014)

Figure 44: Offering braiding services at the doorstep (Kwekudee, 2013; Mwiti, 2013)

Figure 45: (a) Roadside Barbershop In Kenya (Upe, 2011) (b) Roadside Barbershop In Vietnam (AdventureWeSeek, 2010)

6.2 Practices and Procedures

Standards in this category may include the following:

(1) Guideline on the public health standards of practice for hairdressing

(2) Code of practice for Hygiene in Beauty Salons

(3) Sanitation and safety relating to cosmetology and aesthetics services

(4) Code of Practice for Beauty Therapy Clinics, Spas and Training Establishments

(5) Code of conduct - Guidelines for hairdressers

(6) Electrolysis - Code of Practice

(7) Health guidelines for personal care and body art industries

(8) Guidelines on the safe and hygienic practice of skin penetration

(9) Good practices in hair care

(10) Hair blowdrying, tongs, flat iron, treatment services

(11) Laser & non-surgical services (micro-dermabrassion, vibradermabrassion)

(12) Code of Practice for Nail Services

(13) Weight-loss massage (therapeutic) – Ceragem, detoxification

(14) Code of practice for hair cutting

(15) Code of practice for waxing

(16) Code of practice for hair colouring

(17) Spas, pools, hot tubs, rockscapes and other water features — Design, operation and maintenance (saunas, Jacuzzi, steam baths/rooms, steam mechanisms)

(18) Spa services – Code of practice and management

(19) Spa pools — Code of practice

(20) Facial treatments — Code of practice

(21) Fish pedicures — Code of practice

(22) Code of practice for aromatherapy

(23) Code of practice for massage therapy

(24) Guidelines for the safe piercing of skin

(25) Health, safety and sanitary requirements for barber shops

(26) Body piercing code of practice

(27) Code of practice for reflexology

(28) Code of practice for exfoliation

(29) Competence requirements for massage therapists

(30) Guidance on producing a risk assessment and control measures for Spa pools

(31) Good Manufacturing Practices for cosmetics (ISO 22716:2007)

(32) Eco-mark criteria for cosmetics

6.3 Product Standards (Indicative List)

From the review of the various services in the cosmetology and wellness sectors, it is evident that the number of products utilized could be very wide. For ease of coordination, the standards are categorized within the areas of use. It is recognized that some of the products may be multifunctional which may require liaison arrangements with responsible technical harmonization committees.

6.3.1 Face and Nail Product Standards

(1) Products for nail care (including preparations that are applied to the nails to harden or to deter biting of the nails)

(2) Products for make up

(3) Products for colouring or varnishing nails, nail polishes

(4) Tinted bases/foundation (liquids, pastes, powders) with or without sun protection factor, SPF

(5) Products for making-up and removing make-up from the face and eyes

(6) Products with or without SPF that are intended for application to the lips

(7) Face masks and scrubs, powders

6.3.2 Hair care and hairdressing products

(1) Hair tints and dyes and bleaches

(2) Products for waving, straightening, and fixing hair

(3) Hair setting products (e.g. gels, sprays, lotions)

(4) Hair cleansing products such as lotions, powders, shampoos

(5) Hair conditioning products (e.g. lotions, creams, oils)

(6) Hairdressing products (e.g. lotions, lacquers, brilliantines)

(7) Anti-dandruff products

6.3.3 Personal Care Products

(1) Products for care of the teeth and the mouth including dental bleaches/whiteners and denture cleansers and adhesives

(2) Feminine hygiene products

(3) Deodorants

(4) Antiperspirants

(5) Cleansers such as Soap (e.g. toilet, deodorant, astringent, skin washes)

(6) Shaving products (e.g. creams, foams, lotions)

(7) Bath and shower preparations (e.g. salts, foams, oils, gels, etc.)

(8) Depilatories

(9) After-bath powders

(10) Hygienic powders

(11) Sunscreen products (e.g., AS/NZS 2604:2012)

6.3.4 Perfumes and Fragrances

(1) Fragrances. Perfumes

(2) Toilet waters

(3) Eau de colognes

6.3.5 Skin Care Products

(1) Moisturising products for dermal application e.g. creams, lotions, gels, foams (with or without sun protection factor, SPF)

(2) Sunbathing products (without SPF or SPF <4)

(3) Sunbathing products with sun protection for a secondary purpose SPF ≥4 and ≤15

(4) Emollients e.g. creams, emulsions, lotions, gels and oils for the skin (hands, face, feet, etc.)

(5) Products for tanning without sun (without SPF)

(6) Skin-whitening /colouring products (without SPF)

(7) Anti-wrinkle products (without SPF)

(8) Anti-ageing products (without SPF)

(9) Anti-bacterial skin products

(10) Anti-acne skin products

(11) Facial Powder, body powder, baby powder

(12) Makeup products: lipstick, blushes, eyeshadows, foundations, pencils, brushes, lip balms

6.3.6 Aromatherapy Products

(1) Essential, single or blended

(2) Essential oils blended with any other ingredient for example vegetable oils (described as massage oils) and/or bases like creams, lotions, gels, detergents etc.

(3) Essential oils blended with other ingredients in the form of a spray/diffuser not intended to be applied to the skin e.g. a room spray, wardrobe care etc.

(4) Candles containing essential oils

6.3.7 Spa Products

(1) Customer service

(2) Swimming pools and spas

(3) Water quality in public pools and spas

(4) Oils, bases, butters and sprays

6.3.8 Reflexology Therapy Products

(1) Essential oils, lotions and creams

(2) Reflexology pads, socks

(3) Reflexology hand and foot massage sticks, balls

6.3.9 Massage Therapy Products

(1) Tables and related furniture

(2) Textiles in massage therapy

(3) Oils, creams and lotions

6.3.10 Cosmetics

(1) Classification of raw materials and adjuncts for cosmetics

(2) Cosmetic products in relation to cosmetology services listed above

6.4 Regulatory Oriented Standards and Guidelines

Standards in this category will include those aimed at supporting the regulatory authorities in regulating cosmetic products in Member States or Regional Economic Communities (RECs). The standards may include names or references to chemicals that must not be used in cosmetics or must only be used in the limited way specified. Standards in this category may include:

(1) Product Safety Recalls – Beauty, Health

(2) Labelling cosmetics with their ingredients

(3) Cosmetic Products — Safety Requirements

(4) List of substances prohibited in cosmetic products

(5) List of substances which cosmetic products must not contain except subject to the restrictions laid down

(6) Alert procedures for dangerous cosmetic products

(7) Technical opinions on safety of cosmetic products

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