



## REVIEW ON ANATOMY OF SKIN & COMMON SKIN DISORDER

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### ABSTRACT

Skin diseases are a big health issue that affects a large number of people in India. These conditions can cause serious emotional and mental stress to patients, which might be more troubling than the physical effects. As people, especially the younger generation, become more aware of their appearance and how it affects their self-esteem, their anxiety can get worse. Skin disorders happen when there is a problem with the skin's parts or layers. They can affect anyone, no matter their age, gender, race, or how much money they have. Most people experience some kind of skin issue, and the main types are dry skin, acne, and hyperpigmentation. Because of how widely skin problems affect people around the world, this paper looks at the three most common types that have been the focus of many studies. Skin structure is explained with a focus on the layers like the outer skin layer called the epidermis and the deeper layer called the dermis. It also covers how skin renews itself over time and looks at different ways people study skin, along with its physical features such as how it handles stress, stretches, and absorbs things. When looking at skin issues, the most papers written about dry skin were found, which matches what other research has shown. Three skin problems — dry skin, acne, and dark spots — were closely examined based on how they look and their unique features. The causes of these skin issues were also looked at carefully using tools.

**KEYWORD:** Skin, skin disorder, acne, dry skin, pigmentation.

## I. INTRODUCTION

Dermatology is a medical field that focuses on diagnosing and treating skin, hair, and nail problems in both children and adults. Doctors who specialize in this area are called dermatologists. Changes in the population are leading to more people being older and living longer around the world.

There are several areas within dermatology, such as:

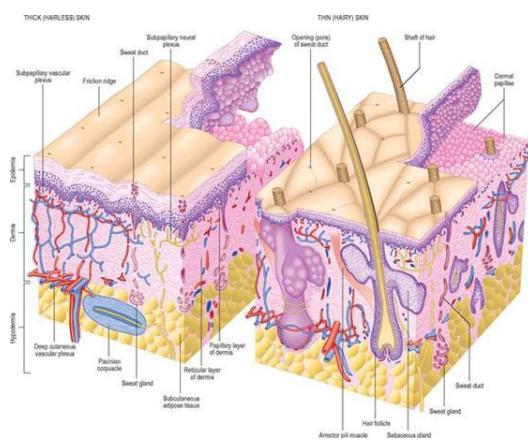
1. Medical dermatology: This covers illnesses like eczema, psoriasis, hives, connective tissue diseases, skin infections, issues with skin color, skin problems linked to other health conditions, acne and rosacea in both children and adults.
2. Surgical dermatology – this focuses on removing or treating skin growths like melanoma, non-melanoma skin cancer, and other non-cancerous skin growths using different methods.
3. Cosmetic dermatology – this area is about improving the appearance of the skin, hair, and nails through cosmetic treatments.

Many things affect how common and what kind of skin problems young people get, like their gender, race, how clean they are, how well they take care of their skin, the environment they live in, and what they eat. Sometimes, people may develop skin issues as a way to show stress from problems with others or from unresolved feelings. Even though skin diseases can look very different, most of them fall into just a few main groups. This information helps create better education and prevention programs for university students. Taking care of these issues early and teaching students about them is important to stop serious problems and mental health issues later in life. But there aren't many studies in India about skin diseases. So, there's a need for more research on skin problems in countries like India. Because of this, this study was done to understand the types and seriousness of skin conditions and how they are connected to different social and personal factors.

## II. Discussion

The current research on skin disorders helps us understand how important this topic is and how much interest the research community has shown over time. Skin disorders are connected to problems in the skin's parts or issues in the layers of the skin. No matter a person's age, gender, or race, many people around the world are affected by skin disorders. These include not only those who suffer from them but also those who take care of others

with these conditions. There are some important facts about the skin that help us better understand and appreciate it. The skin is the largest part of the human body, covering the whole body. Its surface area is around 2 square meters, it is usually about 1.2 millimetres thick, and has an average volume of 3.5 Liters. The skin makes up about 16% of the body's weight (Agache and Humbert, 2004). The skin has different functions, some of which are done alone and others with other organs. The skin's main functions include protecting the body from harmful things, such as physical, mechanical, and chemical damage. One way it does this is by acting as a barrier that stops foreign substances from entering, and prevents the loss of water and body fluids. Another interesting fact is the skin's ability to heal itself over time, except for areas like hair, nails, sweat glands, and oil glands. Other functions of the skin, which happen together with other organs, include making vitamin D, supporting the immune system, sensing touch, and helping control body temperature. In general, the skin can be divided into two types: Glabrous skin and hair-bearing skin, as shown in Figure 1 ("Classifications of Skin," 2015). Glabrous skin, which is hairless, is usually found on the palms and soles and is thick. It has a type of skin called stratified squamous epithelium, which makes it strong and helps it resist wear and tear. Hair-bearing skin has both hair follicles and oil glands. In this review, we focus on hair-bearing skin because most skin disorders occur in this type.



**Figure 1: Two classification of Skins: (a) Glabrous skin and (b) Hair-bearing skin.**

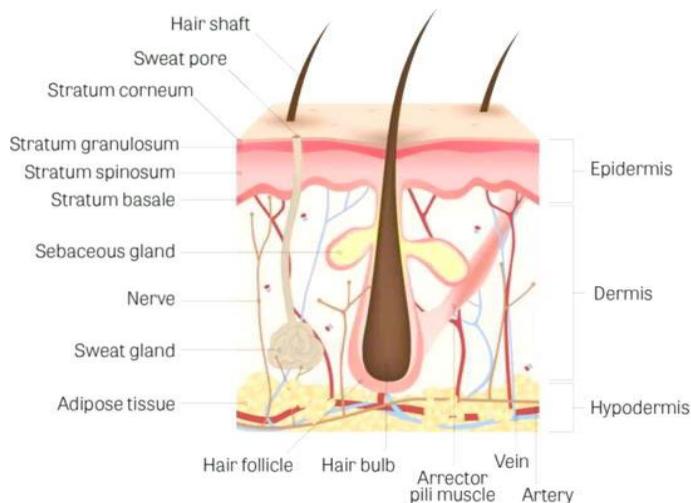
## SKIN ANATOMY

Skin has its own unique anatomy and that describes and determines its behavior and explains how it functions the way it does. Understanding skin anatomy also helps to put in context and clarify the common skin disorders reviewed in later section of this paper. It also helps to identify skin components which are dysfunctional and to plan for the right treatment. It

performs many vital functions, physical, chemical, as well as prevention of excess water loss from the body and a role in thermoregulation.

Three layers of skin:

1. Epidermis
2. Dermis
3. Hypodermis



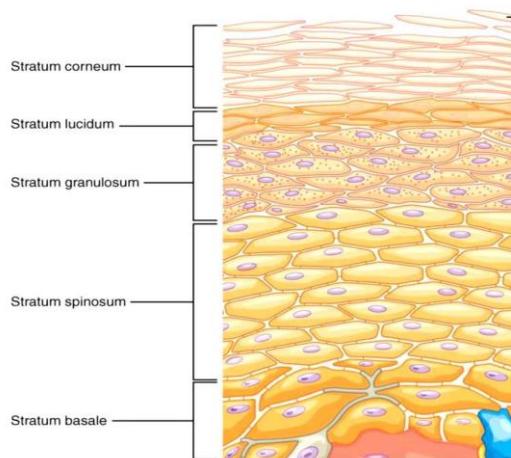
**Figure 2: Microscopic cross-section of skin.**

### **A. Epidermis**

Epidermis is primarily made up of stratified squamous. Epidermis doesn't contain any blood vessels. Epidermis thickness ranges from less than 0.1mm (on mm (on palm and sole), the thickness is kept constant by cells dividing in the deepest layer (basal or germinative layer).

Layers of Epidermis

- a. Stratum corneum
- b. Stratum lucidum
- c. Stratum granulosum
- d. Stratum spinosum
- e. Stratum basale (Stratum germinativum)



**Figure 3: Microscopic layers of epidermis.**

## B. Dermis

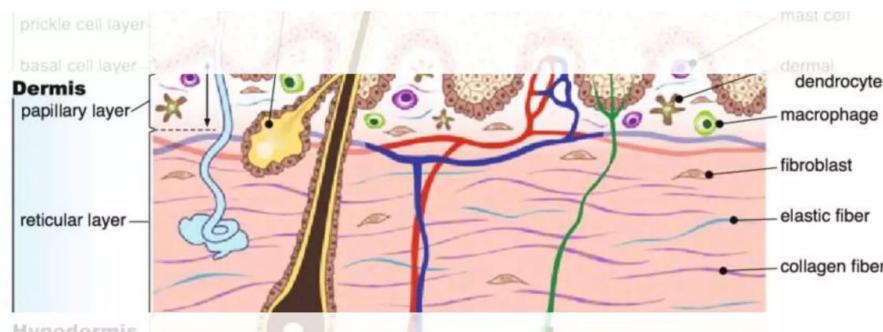
Dermis lies between the epidermis and subcutaneous layer and contains many types of sensory receptor for touch, pressure, vibration, pain, temperature etc.

The type of cells located in the dermis is:

- Fibroblasts, Mast cells, Histiocytes.
- Hair follicles, nerves.
- Lymphatic vessels and blood vessels.
- Sweat glands and oil glands.

Dermis contains two layers:

- Papillary layer
- Reticular layer



**Figure 4: Microscopic layers of dermis.**

- Papillary layer: It's composed of loose connective tissue with small surface projections called "Dermal papilla". It contains: Capillaries

- b. Pain receptors
- c. Touch receptors (Meissner's corpuscles) - Dermal ridges (pattern called fingerprints)

b. Reticular layer: Its dense irregular in nature. It contains collagen fibres and offer strength. It holds water to provide hydration.

### C. Hypodermis

It's known as subcutaneous tissue or Sub-Q. It consists of loose connective tissue with collagen and elastic fibres. Main type of cells in hypodermis is:

- a. Fibroblast
- b. Adipose tissue
- c. Macrophages

## COMMON SKIN DISORDERS

Skin disorders are related to the dysfunction of skin components or the layer's defect of human skin which can manifest as irritation and itchiness in some cases. Specific defects in enzymes, structural proteins or lipid metabolism have been identified as the root cause of skin disorders for most of the cases. On an outward perspective, skin diseases can be categorized into three: Dry Skin (Eczema, Xerosis, Atopic Dermatitis and Psoriasis), Hyperpigmentation (Post-Inflammatory, Vitiligo and Melasma) and Acne. The profile of research focus on three main categories of skin disorders has been produced using Science Direct Searched Engine in order understand not only the direction of interests among research but also to appreciate the weight of the problems specific to the skin categories. This trend is based on keywords search namely common skin disorders of dry skin, acne skin and hyperpigmented skin.

### A. Dry Skin

Dry skin has less oil and can be sensitive. It feels rough or flaky and isn't as flexible as normal skin. Dry skin can happen to people of all ages, but it's more common in older people. The outer layer of the skin, called the stratum corneum, holds a lot of water, which helps keep the skin looking healthy and smooth. Dry skin often looks dull, especially on the cheeks and around the eyes.

#### Causes

- a. Eating poorly or not getting enough nutrients, especially vitamins A and B, can cause dry skin.

- b. Using harsh soaps, wearing scratchy clothes, being in the sun, cold weather, using chemicals, or taking long hot showers can make skin dry.
- c. If the oil glands don't produce enough natural oils to protect the skin, dryness can happen.
- d. Taking certain medicines or having health problems like diabetes, an underactive thyroid, or poor nutrition can cause serious dry skin.

**Care for dry skin:**

- a. Avoid long hot showers because hot water can remove natural oils faster than warm water.
- b. Use a gentle cleanser or a shower gel that also has moisturizer.
- c. Choose soap-free or mild soaps instead of strong ones.
- d. Put moisturizer on while the skin is still wet, as it helps the skin hold more water and makes it feel.

**B. Acne:**

Acne is a skin problem that happens when oil and dead skin cells get stuck in the pores, leading to a buildup of sebum inside.

**Causes:**

- a. Genetics is the main reason for acne in most cases, affecting about 80% of people.
- b. Hormones, like those that change during periods or puberty, can also lead to acne.
- c. Stress can cause acne or make it worse.
- d. Some medicines can make existing acne worse. Examples include hydantoin, isoniazid, and testosterone.

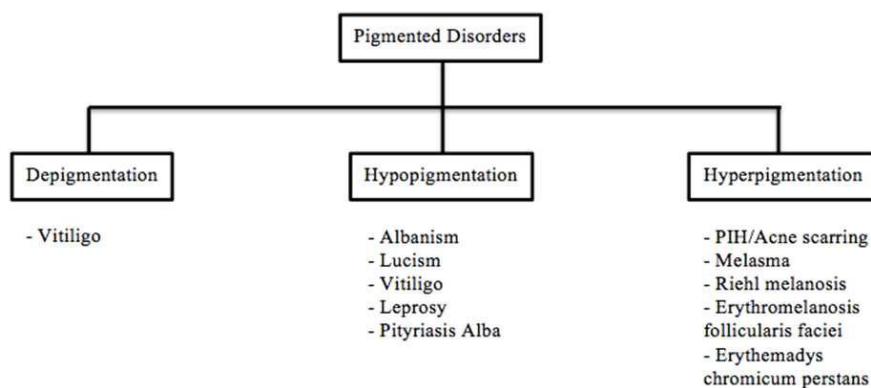
**Care for acne:**

- a. Use cleansers and toners made for oily skin to remove extra oil.
- b. Avoid using products that are high in fat; choose non-comedogenic products, which are designed not to clog pores.
- c. Don't use strong or harsh products on acne-prone skin, as this can cause more inflammation.
- d. Use treatments like antiandrogens or antibiotics such as tetracycline or cotrimoxazole to kill bacteria and reduce inflammation.

### C. Pigmentation

Pigment skins disorders can be defined as the loss or reduction of skin colour. Sun protection, inflammation and other processes are involved in the pigmented skin. Pigmentation is related to melanin production inability or inability to transport melanosomes correctly. It is not only affected by keratinocytes but also by mast cells, Langerhans cells and lymphocytes. There are three major classifications of pigmented skin: depigmentation, hypopigmentation and hyperpigmentation

In this paper, the focus is more on hyperpigmentation, as it is more common cases compared to depigmentation and hypopigmentation



**Figure 5: Classification of pigmented disorders.**

Hyperpigmentation is a benign skin condition characterized by darker patches on the skin compared to the surrounding area, resulting from an excessive production of melanin. This condition is quite prevalent among individuals with skin of color, which includes African Americans, Native Americans, Latinos, those of Middle Eastern descent, and Asians.

### Causes

- i. Eczema
- ii. Psoriasis
- iii. Skin allergies (contact dermatitis)
- iv. Injury To the skin
- v. Insect bites
- vi. Acne

## Treatment

- i. Topical prescription medication such as 4% hydroquinone are often used to treat Hyperpigmentation.
- ii. Aloe Vera contain aloin, a natural depigmenting compound.
- iii. Over the counter brightening product that contain licorice root, pine tree, vitamin E, vitamin C.

## CONCLUSION

Skin issues are a major worry, and the top three problems people face are dryness, acne, and hyperpigmentation. There has been a lot more interest in dry skin in recent years, especially over the past five years, with a big rise in studies being published. Many reasons can cause dry and acne-prone skin, such as environmental factors, genetics, and hormones. Exposure to chemicals, the sun, and injuries can lead to hyperpigmentation. These common skin problems are linked together; for example, acne can cause post-inflammatory hyperpigmentation. Very dry skin can also lead to acne because the skin becomes irritated, leading the body to produce more oil, even though the skin looks rough and flaky. Skin problems can be very troublesome for many people because they are not only uncomfortable but can also have a negative effect on mental health and can be expensive to treat. Over time, they can greatly affect a person's quality of life. This review paper provides a foundation for current research on skin tribology and aims to increase understanding of skin disorders. A better understanding helps people make informed choices about how to care for their skin, what treatments and products work best for them, and which parts of their skin might be more likely to malfunction. It also helps them recognize the factors that trigger specific skin problems, which is important for creating and choosing the right treatments that meet individual needs.

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