Introduction

Skin disease is also called dermatoses and encompass a diverse range of disorders that the skin, The body's largest organ. These state can definite in many ways, from mild irritations to severe and debilitating ailments. Skin diseases can be caused by a a lot of parts, included familial, autoimmune responses, and allergies. They can cause individuals of all ages their indicator may includes redness, itching, rashes, blisters, scaling, and discoloration. Powerful treatment of skin diseases are critical not only for the relief of uncomfort but also for maintains skin health and overall well-being. Medical experts concentrate in skin problems, play a important role in detect and managing these conditions, attempts to improve the quality of life for those peoples are affected by them. Some skin diseases are temperory and harmless like mild sunburn. Some skin disease treatments are using creams, oral medications, surgical procedures. Dermatologists are medical experts ready to treat various skin diseases, providing relief and solutions. Due to sun inadequate skincare can contribute to the development of skin diseases, Focus the importance of sun protection and good hygiene. By the help of research about skin diseases, continue to improve our understanding about skin diseases and develop new treatments to save human by these treatments. Further more skin disease causes aur health as well. When human affected by skin disease it doesn’t mean it affect only their skin it will affect inside the body as well that means a lot for humans. We must should take prevention whatever it can be so that we can save ourselves as well as others those are connected with us.

Literature review

There are lots of microbial communities present in the human intestine that palys main role in preserving gut-skin equilibrium. When the immune system interconnection with the gut microbiota is compromised at that time skin-related outcomes get activated and it results in accelerating the start of skin illness. To find new approaches for treating human skin diseases we need to improve our perception for the relationship between the skin and gut flora. in this skin disease review, they tell us about the latest information on maicrobial ecology of skin and gut health, food, antiboitics, and gut microbiome on skin health. They discuss the potential mechanisms about the gut-skin and the link between gut and skin-related diseases, some as psoriasis, rosacea, alopecia areata, and hidradenitis suppurativa. The review which mention above will help us to increase our standing about the impact of gut microbiome on the basis of skin conditions and to aid them by discovery new medications for skin associated diseases.[1]

In this learning, the author discussed about lumpy skin disease (LSD). The virus lumpy skin disease virus is responsible for this lumpy skin disease(LSD) and is related to the Capripoxvirus genus of the Poxviridae family. It can be mentioned as a translational illnes with serious economic implication that affects cattle and water buffaloes. Arthropod vectors are responsible for spreading this disease and it results in high morbidity and low death rate. In India lumpy skin desease had been seen first time with a morbidity rate of 7.1% among the cattle. This output in abortion, infertility and death as well. At this times it starts to extend in Asia and other continents but lately it was common to countries like Africa and Middle East. Recently it has also be seen in China and Bangladesh. this study tries to summarize the latest developments in epidemiology with focus on transboundary distribution, origin and transmission, diagnostics and illness treatment.[2]

The article relates to the study of skin disease using Deep Learning Neural Networks with MobileNet V2 and LSTM. If we want to learn features that assist in understanding complex patterns with more precise then deep learning models help us a lot. This study proposed that MobileNet V2 and LSTM system, which are based on deep learning, can be used for computerizing skin disease classification. Portable computer systems, which can run MobileNet V2 model, has proven to be more effective and accurate. The suggested model is effective in maintaining stateful information to make accurate predictions. A grey-level co-occurrence matrix is used to evaluate the progression of sick growth. The effectiveness of the model has been easily compared to other cutting-edge models, including Convolutional Neural Network (CNN), extremely deep convolutional networks (CNN) for large-scale image recognition developed by Visual Geometry Group, and fine-tuned neural networks (FTNN).[3]

The article relates to the study of most widespread illnesses i.e. skin problem. Regardless of its popularity it is mush difficult to explain it the complexity of skin tones, hair colors, and haircuts . Globally, skin diseases constitutes a serious public health danger. They become harmful on reaching the invasive phase. Medical professionals are extremely concerned about the dermatological disorders. Because of increasing pollution and dirst food, the number of people suffering from skin illness is increasing at very high rate. People usually ignores the starting indications of skin conditions. Currently doctors are using a biopsy procedure, examined and carried out by them only, in order to diagnose and treat skin diseases. An approach can avoid human judgment, producing positive results very fast. This research helps us to develop a system to analyze skin diseases with the help of MobileNetV2 and LSTM. This system’s major goal is accuracy in skin disease forecasting.[4]

The study tells about the people with autoimmune diseases, such as inflammatory skin conditions like psoriasis and hidradenitis suppurativa, affective disorder including anxiety and depression are most common. On study it has been seen that in several patient , a dysregulated immune reaction and it has been related to onset of depression. . Small study has been done on relationship between depression and the inflammatory processes of skin disease, which leads to subsequent reduction in quality of life. Talking about the context in skin pathology , previous five years of the published literature have been examined to check for the evidence of a connection between depression and inflammatory processes. The results, especially the data from interventinal clinical studies of targeted anti-cytokine therapy, implies that pro-inflammatory cytokines are connected to a number of skin illness which are casually related to the co-occurring depressed symptomology.[5]

In this study the author discussed about the burden of skin diseases in United States. . After the publication of the last US national burden of skin disease study in 2006 the practice of dermatology and the US healthcare system have undergone significant changes. These include the creation of novel therapeutic modalities, significant price increase for prescription drugs, more intricate prayer laws and regulations and aging US population. A new report on the national burden of skin disease has been recently published by The American Academy of Dermatology. It is published in response to the need for current information to educate academics, policy makers, stakeholders in public, and healthcare professionals about the effects of skin disease on patients and US society. The present research examined the prevalence, expense, and mortality associated with 24 types of skin diseases in 2013. This research has claimed its records from private and public insurance providers.[6]

This articles tells us the miscellaneous skin disease and the metabolic syndrome. The relation between skin illness and the metabolic syndrome (MetS) is becoming mchu more significant after the emerging of new connections between them. The alliance between metabolic syndrome(MetS) and psoriasis and hidradenitis suppurativa is widely organized, although the link between MetS and some autoimmune or inflammatory disorders has received attention currently. There could be some relations between Mets and some inflammatory skin conditions, including vitiligo, scleredema, recurrent aphthous stomatitis, Behcet illness, necrobiosis lipoidica, granuloma annulare, skin tags,knuckle pads, rosacea, and eruptive xanthomas.Through this study, people will look at the current understanding of the connection between MetS and various dermatological conditions.[7]

In this study the author discussed about the adverse affects of airborne particulate matter on various skin diseases. There are many partiles matters (PMs) in environment which can cause air pollution issues but one of the most serious environmental pollution issues is the rise in atmospheric PM brought on by industrialization and urbanization, which will strongly lead to sickness and globally death. The main topics of this article is the relationship between PM and skin conditions as well as related immunological structures. Due to the environmental pollution skin diseases spreading quickly. It is going hard to stop environmental pollution due to increasing the number of factories day by day due to which skin disease cases are also increasing day by day and effecting human lives.[8]

Reference:

[1] Mahmud R. et al., “Impact of gut microbiome on skin health: gut-skin axis observed through the lenses of therapeutics and skin diseases,” Gut Microbes, vol. 14, no. 1, p. 2096995, 2022.

[2] Gupta et al., “A review: Lumpy skin disease and its emergence in India,” Vet. Res. Commun., vol. 44, pp. 111--118, 2020.

[3] Srinivasu et al., “Classification of Skin Disease Using Deep Learning Neural Networks with MobileNet V2 and LSTM,” Sensors, vol. 21, no. 8, p. 2852, 2021.

[4] Kshirsagar et al., “Deep Learning Approaches for Prognosis of Automated Skin Disease,” Life, vol. 12, no. 3, p. 426, 2022.

[5] Farzanfar et al., “Inflammation: A Contributor to Depressive Comorbidity in Inflammatory Skin Disease,” Skin Pharmacol. Physiol., vol. 31, no. 5, pp. 246--251, 2018.

[6] Lim et al., “The burden of skin disease in the United States,” Clin. Exp. Dermatol., vol. 76, no. 5, pp. 958--972, 2017.

[7] Seremet, Gurel, And, Sila, Salih, and Mehmet, “Miscellaneous skin disease and the metabolic syndrome,” Clin. Dermatol., vol. 36, no. 1, pp. 94--100, 2018.

[8] Kim et al., “Air pollution and skin diseases: Adverse effects of airborne particulate matter on various skin diseases,” Life Sci., vol. 152, pp. 126--134, 2016.

Result

Table 1

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |
|  | 612 | 78 | 77 | 3 | 67 | 49 |
|  | 23 | 654 | 3 | 3 | 61 | 34 |
|  | 47 | 54 | 600 | 44 | 60 | 56 |
|  | 87 | 50 | 12 | 601 | 63 | 41 |
|  | 88 | 4 | 23 | 55 | 687 | 24 |
|  | 79 | 75 | 31 | 46 | 23 | 980 |
| Truth overall | 936 | 915 | 746 | 752 | 961 | 1184 |
| Precision in % | 65.38 | 71.48 | 80.43 | 79.92 | 71.49 | 82.77 |

Table 2

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Precision | Recall | F1-score | Support | Support proportion | Accuracy |
|  | 65.38 | 69.07 | 67.18 | 886 | 0.16 | 0.89 |
|  | 71.48 | 84.06 | 77.26 | 778 | 0.14 | 0.93 |
|  | 80.43 | 69.69 | 74.67 | 861 | 0.16 | 0.93 |
|  | 79.92 | 70.37 | 74.84 | 854 | 0.16 | 0.93 |
|  | 71.49 | 77.98 | 74.59 | 881 | 0.16 | 0.91 |
|  | 82.77 | 79.42 | 91.06 | 1234 | 0.22 | 0.92 |
| Macro average | 75.24 | 75.10 | 74.93 |  |  |  |
| Average | 75.25 | 75.25 | 75.28 |  |  |  |
| Micro average | 75.25 | 75.25 | 75.25 |  |  |  |

Table 3

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | True positive | False positive | False negative |  |
|  | 612 | 324 | 274 |  |
|  | 654 | 261 | 124 |  |
|  | 600 | 146 | 261 |  |
|  | 601 | 151 | 253 |  |
|  | 687 | 274 | 194 |  |
|  | 980 | 204 | 254 |  |
| Sum | 4134 | 1360 | 1360 |  |