

# Obesity Indices as a Risk Factor of Skin Diseases in Mirpur AJK

Asma Qayyum<sup>1</sup>, Muhammad Sadiq<sup>2</sup>, Iftikhar Ahmad Chaudary<sup>4</sup> and Asnad<sup>3</sup>

## ABSTRACT

**Objective:** The aim of the study was to determine the most prevalent skin diseases among the studied over-weight and obese patients and to examine if overweight and obesity are risk factors for skin diseases

**Study Design:** Case control study

**Place and Duration of Study:** This study was conducted at the City Hospital of Mirpur AJK from March 2016 to February 2017

**Materials and Methods:** A case-control was carried out on 100 overweight and obese patients compared with another 100 normal weight patients as controls. The participants were selected from the outpatient dermatology clinic of City hospital Mirpur AJK

**Results:** The most common disease were found included striae (69.2%), planter hyperkeratosis (62.4%), skin tags (63.3%), acanthosis nigricans, intertrigo (54.4%), tinea pedis (40.9%) and acne (12.2%). The risk factors of some skin diseases are found overweight and obesity.

**Conclusion:** Dermatologists must work with primary health care physicians and nutritional specialists to reduce incidence of obesity or reduce the effects of obesity on the skin.

**Key Words:** Obesity, risk factors, Skin diseases, Case-control study, Mirpur AJK

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## INTRODUCTION

Obesity is dangerous for health. It is defined by World Health Organization (WHO) the excessive lipid accumulation or abnormality of fat deposition which effect Body mass index (BMI).<sup>1</sup>

If Body mass index (BMI) is equal to or more than 25, it is in the range of overweight and if Body mass index (BMI) is equal to or more than 30 it is in the range of obesity by World Health Organization (WHO).<sup>1</sup>

Over weight are more than 1.4 billion including (adults, 18 years and older) as per World Health Organization (WHO) global 2008 results. It is also explains the results of obesity and also prevalence of obese that is more than half billion. It is also observed that prevalence of obesity is doubled globally in year of (1980-2008). In low income and middle income countries also prevalent of obesity.<sup>1</sup> Result showed that in high income countries and middle income countries have high probability of overweight and obese people.<sup>2</sup>

<sup>1</sup>. Department of Community Medicine / Pathology<sup>2</sup> / Biochemistry<sup>3</sup>, Mohtarma Benazir Bhutto Shaheed Medical College, Mirpur, AJK.

<sup>4</sup>. Department of Community Medicine, Poonch Medical College Rawalak, AJK.

Correspondence: Dr. Asnad, Assistant Professor, Biochemistry, Mohtarma Benazir Bhutto Shaheed Medical College, Mirpur, AJK.

Contact No: 0332-3698204

Email: drasnadkhan@gmail.com

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This overweight and obese people ratio will be increased year by year and it said it would be 2.16 billion in 2030 (overweight) and 1.12 billion (obese) people.<sup>3</sup> Obesity is now an alarming all over the world. WHO put a risk in many countries for long term as term non-communicable diseases (NCD). The results are showed its probability is increased in adults and children both.<sup>4</sup>

Women are 44.5% compared to 21.4% for male (obesity). It is showed in In Egypt 2010 by WHO.<sup>5</sup> The study are also showed that obesity also cause some dermatological changes (acanthosis nigricans and skin tags) and (changes in the foot anatomy due to excess load).<sup>6</sup>

The aim of the present to determine overweight and obesity are risk factors for skin diseases among people of Mirpur AJK.

## MATERIALS AND METHODS

A case-control study was conducted during the period from March 2016 to February 2017. This study was carried out on 100 overweight or obese patients as a cases group and another 100 normal weight patients were included as a control group. This study was conduct in department of biochemistry and pathological department of Mohtarma Benazir Butto Shaheed Medical College Mirpur AJK and patents were selected from new city hospital Mirpur AJK. A simple random sampling technique was applied for control and case. All chemical tests were performed by chemical analyzer. Lipid profile test was conducted for obese

people and also sugar level checked. Data analyze was done by community medicine department. SPSS 21 was used for analyze the data.

## RESULTS

All patients were examined for medical history, obesity, BMI and skin diseases Table no.1. Biochemical profile is present in Table .2 The most common diseases were found included striae (69.2%) ,planter hyperkeratosis (62.4%), skin tags (63.3%), acanthosis nigricans (52.9%), intertrigo (54.4%), tinea pedis (40.9%) and acne (12.2%). Table no 3. The risk factors of some skin diseases are found overweight and obesity.

**Table No.1: Baseline characteristics of obese and normal person**

	Obese or overweight (n=100)	Normal cases (n=20)
Age (years)	51.2 ± 9.3	51.5 ± 9.2
Male / Female (%)	44.1 / 56.6	42.0 / 52.0
Body weight (Kg)	80.9 ± 13.5	71.2 ± 12.2
BMI (kg/m <sup>2</sup> )	30.5 ± 3.8	21.8 ± 3.4

**Table No.2: Biochemical profile of obese people**

Biochemical test	Results
Fasting Blood Glucose(mg/dl)	97.4 ± 11.5
Total Cholesterol (mg/dl)	197.2 ± 43.2
LDL - Cholesterol (mg\dl)	114.4 ± 34.1
HDL - Cholesterol (mg\dl)	52.9 ± 13.1
Triglycerides (mg\dl)	137.2 ± 88.5

**Table No.3: Prevalence of skin disease in Mirpur AJk**

S. No	Skin diseases	Prevalence (%)
1	Striae	69.2%
2	planter hyperkeratosis	62.4%
3	skin tags	63.3%
4	acanthosis nigricans	52.9%
5	intertrigo	54.4%
6	tinea pedis	40.9%
7	acne	12.2%

## DISCUSSION

The present study found that the most prevalent skin diseases among cases group included striae (69.2%) ,planter hyperkeratosis (62.4%), skin tags (63.3%), acanthosis nigricans (52.9among controls), intertrigo (54.4%), tinea pedis (40.9%) and acne (12.2%) The striae (69.2%), is most causing skin diseases which was due to tension and it is high prvelent.<sup>7</sup> 89% observed in Mexico obese adults<sup>8</sup>. It is observed in low rate in other countries which mean it have some difference it found in Taiwan (40%)<sup>9</sup>. but in other side in some country it is also occurred in low rate in

Kuwait (23.3%)<sup>10</sup>. The prevalence of planter hyperkeratosis found in Mexico (75.2%)<sup>8</sup> in obese adult person in our study we found (62.4%) in obese adult people. The result showed that the prevalence rate of planter hyperkeratosis is low as compare to Mexico study. The prevalence of planter hyperkeratosis found in Kuwait ( 45.1%)<sup>10</sup> in obese adult person in our study we found (62.4%) in obese adult people. The result showed that the prevalence rate of planter hyperkeratosis is higher as compare to Kuwait stud .The prevalence of planter hyperkeratosis found in Brazil ( 46.7%)<sup>11</sup> in obese adult person in our study we found (62.4%) in obese adult people. The result showed that the prevalence rate of planter hyperkeratosis is higher as compare to Brazil study.

The prevalence of Skin tags found in Kuwait ( 30%)<sup>10</sup> in obese adult person in our study we found (63.3%) in obese adult people. The result showed that the prevalence rate of Skin tags is higher as compare to Kuwait study. The prevalence of Skin tags found in Brazil ( 47.94%)<sup>11</sup> in obese adult person in our study we found (63.3%) in obese adult people. The result showed that the prevalence rate of Skin tags is higher as compare to Brazil study.

The prevalence of Skin tags found in USA ( 74%)<sup>12</sup> in obese adult person. In our study we found (63.3%) in obese adult people. The result showed that the prevalence rate of Skin tags is lower as compare to USA study. The prevalence of striae found in Mexico ( 89 %) <sup>8</sup> in obese adult person. In our study we found (69.2%) in obese adult people. The result showed that the prevalence rate of Skin tags is lower as compare to Mexico study. The prevalence of striae found in Taiwan (40 %) <sup>9</sup> in obese adult person. In our study we found (69.2%) in obese adult people. The result showed that the prevalence rate of Skin tags is higher as compare to Taiwan study. The prevalence of striae found in Kuwait (40 %) <sup>10</sup> in obese adult person. In our study we found (69.2%) in obese adult people. The result showed that the prevalence rate of Skin tags is higher as compare to Kuwait study. The prevalence of acne found in Kuwait (89 %) <sup>10</sup> in obese adult person. In our study we found (12.2 %),) in obese adult people. The result showed that the prevalence rate of acne is lower as compare to Kuwait study. The prevalence of acne found in Mexico ( 25.1 %) <sup>6</sup> in obese adult person. In our study we found (12.2 %),) in obese adult people. The result showed that the prevalence rate of acne is lower as compare to Mexico study.

The prevalence of acne found in Saudi ( 19.4 %) <sup>13</sup> in obese adult person. In our study we found (12.2 %),) in obese adult people. The result showed that the prevalence rate of acne is lower as compare to Saudi study.

There is also ported that BMI is related with some extend the PASI (Psoriasis Area and Severity Index).<sup>14,15</sup> In one study which was done in French that positive correlation was found between obesity and lymphedema.<sup>16</sup>

## CONCLUSION

Most common skin diseases found in present study are included striae (69.2%), planter hyperkeratosis (62.4%), skin tags (63.3%), acanthosis nigricans, intertrigo (54.4%), tinea pedis (40.9%) and acne (12.2%). The risk factors of some skin diseases are found overweight and obesity.

Asma Qayyum, Muhammad Sadiq, Iftikhar Ahmad Chaudary, Asnad

### Author's Contribution:

Concept & Design of Study: Asma Qayyum  
 Drafting: Muhammad Sadiq & Asma Qayyum  
 Data Analysis: Iftikhar Ahmad Chaudary & Asnad  
 Revisiting Critically: Asnad & Asma Qayyum  
 Final Approval of version: Asma Qayyum & Asnad

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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