



## Spectrum Of Skin Dermatoses Among Patients of Substance Use Disorder-A Hospital Based Study

<sup>1</sup>Dr. Mohit Bansal, <sup>2</sup>Dr. Arati Shivhare, <sup>3</sup>Dr. Manish Kumar,  
<sup>4</sup>Dr. Vishavjot, <sup>5</sup>Dr. Vikash Chandra Mishra, <sup>6</sup>Dr. Vinayak Viplav

<sup>1,6</sup>Junior Resident, <sup>2</sup>Associate Professor, <sup>3</sup>Professor And Head, <sup>4</sup>Senior Resident, <sup>5</sup>Assistant Professor,  
<sup>4,6</sup>Department Of Dermatology, <sup>1,2,3,5</sup>Department Of Psychiatry,  
<sup>1,2,3,5,6</sup>Katihar Medical College, Katihar  
<sup>4</sup>Srmsims, Bareilly

**\*Corresponding Author:**

**Dr. Mohit Bansal**

Junior Resident, Department of Psychiatry, Katihar Medical College, Katihar

Type of Publication: Original Research Paper

Conflicts of Interest: Nil

### Abstract

#### Background:

Abuse of various substances is known to cause specific cutaneous manifestations. Cutaneous manifestations are associated with the use of cocaine, methamphetamine, heroin, marijuana, alcohol, anabolic steroids, and general signs of drug abuse, including—stigmata of injection drug use, infectious complications, and vascular complications. However, the literature on the same is very limited for the Indian subcontinent.

#### Aim:

To identify various dermatoses in patients with substance use disorders.

#### Methods:

In the present study, 46 diagnosed cases of substance use disorder according to the Diagnostic and Statistical Manual of mental disorder-5 (DSM-5)<sup>1</sup> were included. Cutaneous examination was performed. Laboratory investigations were performed as required.

#### Results:

Mean age was 42.21±16.64. The majority of the patients were illiterate (41.3%), 26.1% were either graduate or postgraduate, 21.7% were high school students, 6.5% were middle school students, and the minority had primary school education (4.3%). The majority of the patients complained of raised lesions (56.5%), followed by redness (23.9%), pain (19.6%), burning (13%), oozing (13%), discomfort and flaking of skin (10.9%), rash (8.7%), light spots (6.5%), and fluid-filled lesions (4.3%).

#### Conclusion

Few substances are associated with specific dermatoses. However, there is very little data on the same, so this study adds to the minuscule literature on this topic.

**Keywords:** Substance Abuse, Dermatitis, Alcohol, Opioid, Cannabis, Stimulant

### Introduction

The essential features of substance use disorder are the cluster of cognitive, behavioural and physiological symptoms, indicating that an individual

continues to use substances despite significant substance-related problems.

Abuse of various substances is known to cause specific cutaneous manifestations. Cutaneous manifestations associated with the use of cocaine, methamphetamine, heroin, marijuana, alcohol, and anabolic steroids. Examples of general signs of drug abuse include the stigmata of injection drug use, infectious complications, and vascular complications. The most notorious sign of intravenous drug abuse is the injection mark, also known as “track marks.” The linear marks represent post-inflammatory hyperpigmentation at the injection site resulting from damage and subsequent sclerosis of the underlying veins<sup>2, 3</sup>. The antecubital fossa of the non-dominant arm is the most commonly affected site, as it is easily accessible and often disguisable with long sleeved clothing<sup>4</sup>.

There are several dermatologic signs of heroin addiction, including ill-defined areas of induration and thickening in areas of skin popping, multiple scattered atrophic scars, and thrombosed, cord-like superficial veins in the mainliner. Recently, it has been observed that ulcerating nodules are another complication observed in heroin addicts. Cocaine affects the skin as well as other organ system. It is associated with infectious diseases, vasculitis, and other skin conditions. Hallucination of insects under the skin, which leads to delusional parasitosis, is also associated with cocaine use.

Few studies have emphasized cutaneous findings in patients with substance abuse. There is a dearth of recent literature on the Indian subcontinent; hence, this study was conducted in the 90’s, there are no recent data on the same. Hence this study was planned to assess the spectrum of various skin dermatoses, among patients of substance use disorder, presenting in the dermatology or psychiatry departments of KMCH, KATIHAR,

## Methods

This study was conducted among patients attending a Psychiatry and Dermatology outpatient clinic. The patients were diagnosed according to the Diagnostic and Statistical Manual of mental disorder-5 after taking written informed consent. The study was approved by the institutional ethics committee. An 88% prevalence of cutaneous complications among IV drug abusers and a 95% confidence interval revealed a sample size of 41. The present study

included 46 participants. The limitation of this study was its small sample size, which was hospital-based.

## Results

The majority of the patients (37%) were in the elderly group (>50 years) and the minority were young patients (10.9% in the age group < 20 years), with a mean age of  $42.21 \pm 16.64$ . The majority of the patients were illiterate (41.3%), 26.1% were either graduate or postgraduate, 21.7% were high school students, 6.5% were middle school students, and the minority had primary school education (4.3%). The majority of the patients were from the middle class (30%) and lower class (30%), followed by the lower middle class (26%), upper middle class (11%), and upper class (2%).

Symptomatically, the majority of the patients had complaints of raised lesions (56.5%) and itching (45.7%), followed by redness (23.9%), pain (19.6%), burning (13%), oozing (13%), discomfort and flaking of the skin (10.9%), rash (8.7%), light spots (6.5%), and fluid-filled lesions (4.3%). Comparison of the demographic parameters with patient complaints revealed a significant association between skin flaking in elderly individuals aged > 50 years ( $p=0.001$ ). The complaints of rash and flakiness showed significant differences among the socioeconomic categories ( $p$  values 0.04 and 0.02 respectively with increased incidence among the lower and lower middle classes.

Table 1 describes the relationship between substance abuse and morphological type of skin lesions

Among the study subjects, cannabis and opioid abuse was observed in 15.2% of patients, hallucinogen abuse was noticed in 8.7%, and 4.3% of patients reported caffeine and inhalant abuse (spray paints). Tobacco abuse and alcohol abuse were observed in 50% and 56.5% of patients, respectively. Hallucinogens were significantly associated with drug rash compared to other skin dermatoses ( $p=0.002$ )

Legs and the trunk were most commonly involved sites (41.3%) followed by arms and buttocks (34.8%) followed by thigh and oral involvement (30.4%), face (28.3%), axilla (23.9%), dorsa of hands (21.7%), feet (19.6%), neck (17.4%), groin (15.2%), nails and genitalia (8.7%) scalp, webspaces and palms (6.5%) and least involved (soles-2.2%).

- 17% of patients had xerosis, and seborrheic keratoses were present in 2% of patients, whereas idiopathic guttate hypomelanoses and dermatoses papulosa nigra were not found. Correlating these physiological changes with substance abuse revealed a significant association between xerosis and alcohol consumption (p=0.04).

Cutaneous infections were observed in 35% of patients. Most of the patients (22%) had fungal infections. 9% had viral infection and 4% had parasitic infections, whereas bacterial infections were

not found in patients. Table 2 shows the correlation between substance abuse and cutaneous infections.

4% of patients ridging (longitudinal and horizontal) and 2% of patients, along with pits, onychomycosis, subungual hyperkeratosis, onycholysis, and melanonychia.

Black hair was present in 65% of patients, white hair in 26 %, gray hair in 9% had grey hair.17% of the patients had teeth staining in,11%, and plaque in (buccal mucosa and tongue,). 4% had erosions (buccal mucosa, tongue, and lips).

**Table 1: Relationship of substance abuse with morphological skin lesions**

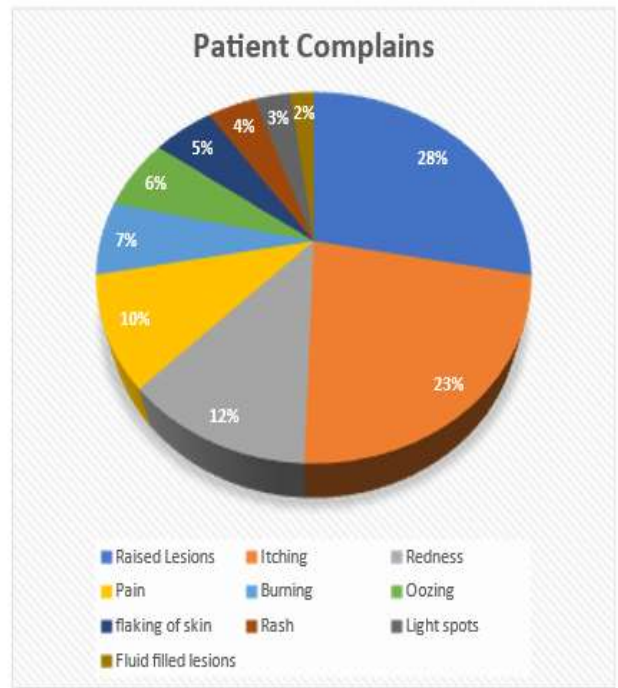
Primary lesions/ substance abuse	Alcohol		Caffeine		Cannabis		Hallucinogen		Opioids		Tobacco		Inhalants		P value
	Number	%	Number	%	Number	%	Number	%	Number	%	number	%	number	%	
Macule	3	12	0	0	1	14	2	50	3	43	3	13	0	0	0.027,0.04
Papule	6	23	0	0	2	29	1	25	3	43	3	13	1	50	0.25
Patch	0	00	1	50	0	0	0	0	0	0	1	4	0	0	0.00
Plaque	14	54	2	100	6	86	2	50	3	43	14	61	1	50	0.23
Nodule	2	8	0	0	3	43	0	0	1	14	2	9	0	0	0.010

<i>Vesicle</i>	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0.38
<i>Pustule</i>	2	8	0	0	2	29	1	25	1	14	4	17	0	0		.04
<i>Purpura</i>	3	12	0	0	0	0	1	25	1	14	1	4	0	0		
<i>Scales</i>	7	27	1	50	1	14	1	25	1	14	1	4	0	0		.015
<i>Crust</i>	3	12	0	0	1	50	0	0	1	14	3	13	0	0		.27
<i>excoriation</i>	4	15	0	0	1	14	0	0	1	14	1	4	1	50		.034
<i>Ulcer</i>	1	4	0	0	0	0	0	0	0	0	1	4	0	0		.38
<i>Erosion</i>	3	12	0	0	0	0	0	0	0	0	1	4	0	0		.12
<i>Scar</i>	2	8	0	0	0	0	0	0	0	0	2	9	0	0		.45
<i>Lichenificat ion</i>	1	4	0	0	1	14	1	25	1	14	0	0	0	0		.66
<i>Wheals</i>	1	4	0	0	0	0	0	0	0	0	0	0	0	0		.00
<i>Target lesion</i>	0	0	0	0	1	14	1	25	0	0	1	4	0	0		.016,.015

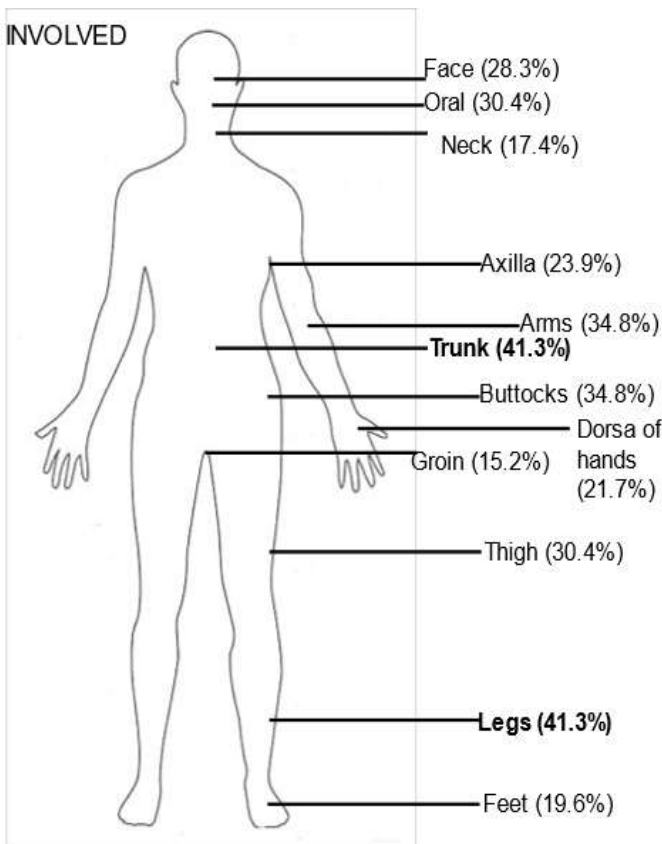
**Table2: Correlation between substance abuse and various cutaneous infections**

<i>Substance abuse/ infections</i>	<i>Viral infections</i>		<i>Fungal infections</i>		<i>Parasitic infections</i>		<i>P value</i>
	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>	
<i>Alcohol</i>	3	12	4	16	2	8	0.2
<i>Caffeine</i>	0	0	2	100	0	0.00	.002
<i>Cannabis</i>	1	14	2	29	1	14	0.16
<i>Hallucinogens</i>	0	0	1	25	0	0.00	0.024
<i>Opioids</i>	0	0	1	14	1	14	0.16
<i>Tobacco</i>	1	4	5	22	1	4	0.28
<i>Inhalants</i>	0	0	0	0.00	1	50	.001
<i>Stimulants</i>	0	0.00	0	0.00	0	0.00	
<i>P value</i>	<i>Caffeine with fungal infection</i>			0.002 (significant)			
<i>P value</i>	<i>Inhalants with parasitic infection</i>			0.001 (significant)			

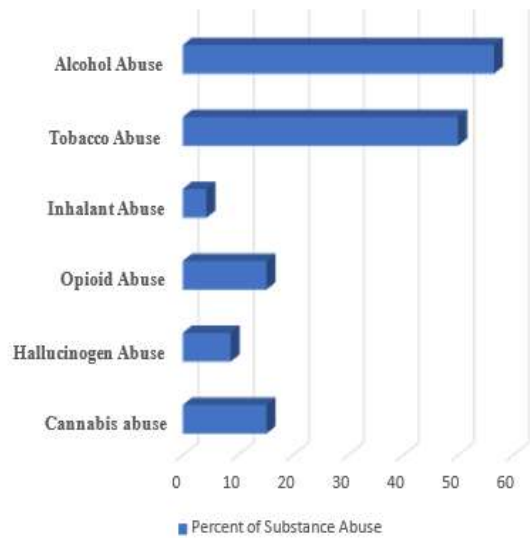
Demographic Profile		
<b>Age</b> (Mean: 42.21 ± 16.64)	<20 years	5 (10.9%)
	21-50 years	24 (52.1%)
	>50 years	17 (37%)
<b>Education</b>	Illiterate	41.3%
	Primary education	4.3%
	Middle school education	6.6%
	High school education	21.7%
	Graduate/ Postgraduate	26.1%
<b>Social Class</b>	Lower Class	30%
	Middle Class	67%
	Upper Class	3%



SITES INVOLVED



Types of Substance abuse among subjects



Hallucinogens were significantly associated with drug rash compared to other skin dermatoses (p=0.002)



## Discussion

Drug abuse is one of the most common problems among all cultures and youth, especially in developed societies, and despite the various efforts being made to reduce it, it is still increasing. Statistical data indicate a significant increase in the number of cases of substance abuse of various kinds of aberrant behaviour between young and old individuals. **Redhwan Riyadh, Haidar Albattal et al<sup>5</sup>** stated that drug abuse in 2017 amounted to approximately 271 million people, or 5.5% of the world's population between the ages of 15 and 64, as these figures are 30% higher than the levels in 2009. However, the report attributed this increase to the growth of the world's population by 10% in this age group. Dermatological manifestations are the earliest changes observed in patients with substance abuse.

The findings of our study correlate with those of a previous study by **Haidar Albattal et al<sup>5</sup>** in terms of age group range. In contrast, **Dorothy et al<sup>6</sup>** stated that patients in their study ranged from 16 to 52 years, but most were in their early 20s. Young individuals were also not very forthcoming about skin problems in the present study. When we compared the demographic parameters with the complaints of patients, a significant association was found between flaking of skin in elderly individuals, which was not found in any of the previous studies. This could be due to xerosis and the loss of elasticity of the skin in elderly individuals.

In our study, the majority of the patients were illiterate (41.3%). Similarly, **Rahime Inci et al<sup>7</sup>** did a study on 136 patients in 2016 who were consuming cannabinoids in the form of smoking and opiates and other substances and majority of them were low educated (either illiterate or primary school).

**Sengotuven K L et al<sup>8</sup>** in 2016 has observed the relationship between alcohol abuse and cutaneous manifestations on 130 patients and majority of them belonged to a low socioeconomic status. This finding is similar to that of the present study. Flakiness of the skin showed a significant difference between the upper middle and upper classes and between the middle and upper classes. This might be due to lower hygienic conditions in the lower socioeconomic class,

because cutaneous infections are more common in them.

In the present study, the majority of the patients were unemployed. These findings are concurrent with those of a previous study by **Sengotuven et al<sup>8</sup>**. Signi association of light spots was observed in unemployed or unskilled study subjects ( $p=0.014$ ). There is no available literature comparing these findings.

Regarding substance abuse, the findings in the present study were similar to those of previous studies in terms of alcohol and tobacco use, where alcohol is the most widely abused substance followed by tobacco (**Sengotuven et al<sup>8</sup>**) This could simply be explained by the availability of various substances in different geographical areas and the cheaper options patients could get in the form of alcohol and tobacco, as the majority of patients had a low socioeconomic status.

**Sengotuven K L et al<sup>8</sup>** reported high incidence of cutaneous fungal infections among substance abusers, which is similar to the present study. Our findings were similar to those of a previous study in which fungal infections were most common with alcohol, followed by viral and parasitic infections (**Sengotuven et al<sup>8</sup>**). However, bacterial infections were comparatively less common in our study because of a lack of investigations, such as bacterial cultures.

As far as infections with individual substance are concerned, in present study few new findings were observed; i.e., occurrence of fungal, viral as well as parasitic infections with various substances individually example tobacco, opiates, inhalants, stimulants. Significant difference was observed between caffeine consumption and presence of fungal infections, inhalant abuse with the occurrence of parasitic infection which was not found in previous studies.

**Sengotuven et al<sup>8</sup>** reported psoriasis vulgaris in 17% of patients among alcoholics followed by eczema and benign tumors of skin. Similarly in our study among alcohol consumers, psoriasis vulgaris and drug Rash were most common (12%) followed by other diseases. This may be due to exacerbation of psoriasis by alcohol. Further xerosis can occur as a

part of various dermatoses and also as an individual physiological change. Larger sample size is needed to reach a logical conclusion.

14% of cannabis abusers had leprosy in the present study which has not been reported in past. Small sample size prevents us from reaching any conclusion.

The findings in our study were similar to previous studies in terms of many things and contrasting in some others. For example, alcohol and tobacco use where tobacco is the most widely abused substance followed by alcohol but in our study, it was alcohol that was abused more than tobacco and it can be due to a smaller number of patients and geographical differences whereas in few Studies it has been found that cannabis and cocaine addiction were the most common ones. Polysubstance abuse was missing in the present study. This could simply be explained by availability of various substances in different geographical areas and the fact that patient could get the cheaper options in the form of alcohol and tobacco. Noteworthy, majority of patients belonged to low socioeconomic status.

### Conclusion

Few substances were significantly associated with specific dermatoses; example- alcohol abuse was associated with psoriasis and fungal infections. Tobacco consumption was associated with oral lichen planus, carcinoma of buccal mucosa. Cannabis abuse was associated with pellagroid dermatitis; Hallucinogen abuse was associated with drug rash; Opioids abuse was associated with vascular lesions

(leucocytoclastic vasculitis). This study will add upon the minuscule literature present on this topic.

### References

1. American Psychiatric Association. (2013). Diagnostic and statistical manual of mental disorders (5th ed.).
2. Fink B, Landthaler M, Hafner C. Skin alterations due to illegal drug abuse. *JDDG: Journal der Deutschen Dermatologischen Gesellschaft*. 2011;9(8):633-639.
3. Hennings C, Miller J. Illicit drugs: What dermatologists need to know. *Journal of the American Academy of Dermatology*. 2013;69(1):135-142.
4. Del Giudice P. Cutaneous complications of intravenous drug abuse. *British Journal of Dermatology*. 2004;150(1):1-10.
5. Albattal RR, Ye-Li Y, Albloushi FA, Albarmaqi RA, Malik A, Wasay A. Dermatologic manifestations of substance abuse. 2021;10(2):131-152
6. Vollum D. Skin Lesions in Drug Addicts. *BMJ*. 1970;2(5710):647-650.
7. Inci R, Kelekci K, Oguz N, Karaca S, Karadas B, Bayrakci A. Dermatological aspects of synthetic cannabinoid addiction. *Cutaneous and Ocular Toxicology*. 2016;36(2):125-131
8. Sengotuvan K, Murugaiyan R, Kaliaperumal K. Cutaneous manifestations of chronic alcoholism: a cross sectional study in a tertiary care center in South India. *International Journal of Research in Dermatology*. 2016;2(4):55.