

## Original Research Article

# Prevalence and correlates of suicidal ideation with dermatological morbidities

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## ABSTRACT

**Background:** The dermatologic consultation might be a precious opportunity to recognize and treat depression associated with suicidal ideation in these patients. This study aimed to find the prevalence of suicidal ideation among patients with dermatologic conditions, and identifying demographic variables of suicidal ideation.

**Methods:** This institution based cross-sectional study was conducted during February to March 2017, at dermatological out-patients department of the teaching hospital Indira Gandhi Institute of Medical Sciences (IGIMS), Patna, India.

**Results:** Of 396 adults with skin disease 272 (68.69%) were male. Prevalence of suicidal tendency was significantly more among young adults and higher in females (38.7%) than males (1.5%). In males, suicidal tendency was in patients suffering from tinea infection while among females, significantly more observed among patients suffering from tinea 38.71%, psoriasis 22.58% and chronic idiopathic urticaria 16.13%. The risk of suicidal tendency in males were significantly higher among 18–20 years, unemployed, belongs to smaller family, having lower body mass index and suffering from depression. While in females, suicidal tendency was significantly higher among early adulthood, not or lower education, unemployed, no personal income and vegetarian, belongs to large family, no family support, having lower body mass index and suffering from depression as well as suffering from some other medical comorbidity in addition to skin diseases.

**Conclusions:** Risk correlates of suicidal ideation with skin diseases were early adulthood, lower education, unemployment with no personal income, vegetarian diet, large family, no family support, lower body mass index and suffering from depression and comorbidities.

**Keywords:** Suicidal ideation, Skin diseases, Dermatological morbidities

## INTRODUCTION

Psychological problems play an important role in the relapse and chronicity of several skin disorders.<sup>1</sup> Concerns are rising on growing prevalence of psychiatric disorders with dermatologic conditions and potential for deliberate self-harm with skin diseases.<sup>2</sup> Indeed, several

cases of patients with dermatologic conditions who completed suicide have been reported.<sup>3</sup> Suicide is the third leading cause of death among young adults worldwide.<sup>3</sup> Suicide a serious public health problem in developed countries; in fact, most suicides occur in low- and middle-income countries.<sup>5</sup> It is estimated that, every 40 seconds a person dies by suicide somewhere in the

world and many more attempt suicide. An estimated worldwide in 2012, representing an annual global age-standardized suicide rate of 11.4 per 100 000 population (15.0 for males and 8.0 for females) and in India age-standardized suicide rate of 21.1 per 100 000 population (25.8 for males and 16.4 for females). There is no single explanation of why people die by suicide. Social, psychological, cultural and other factors can interact to lead a person to suicidal behaviour. Risk factors at the individual level included previous suicide attempts, mental disorders, harmful use of alcohol, financial loss, chronic pain and a family history of suicide.<sup>6</sup> Suicide can be regarded as a process extending over time. Different types of suicidal expression, such as life weariness, death wishes, suicidal ideation, suicidal plans, and suicidal attempts, constitute a possible continuous sequence of phenomena.<sup>7</sup> Although unplanned suicide attempts are seldom preventable, planned attempts might be. Given that suicidal ideation is associated with a markedly increased probability of planned suicidal behaviour.<sup>8</sup> Any intervention aimed at early detection and treatment of patients at risk might carry considerable benefit. As only a minority of suicidal individuals overtly seeks professional help for mental health reasons.<sup>9</sup> This study aimed to find the prevalence of suicidal ideation among patients with dermatologic conditions, and identifying demographic, clinical, and psychosocial factors.

## METHODS

### *Study design*

This institution based cross-sectional study was conducted during February to March 2017, at dermatological out-patients department of the teaching hospital Indira Gandhi Institute of Medical Sciences (IGIMS), Patna, India.

### *Ethical consideration*

Ethical clearance was obtained from the Institutional Review Board. Written informed consent was obtained from each study participant after they were introduced to the purpose of the study and informed about their rights to interrupt the interview at any time. Confidentiality was maintained at all levels of the study. Patients who were found to have depression were referred for further investigations.

### *Settings*

At dermatological out-patient clinic, 396 consecutive patients were invited to participate in the study on one or more random days. Precautions were taken to reflect the majority of patients and avoid any overestimation of any possible co-occurrence between mental and skin disease and participants diagnosed with steroid dermatitis, tinea infection, chronic idiopathic urticaria, psoriasis, acne, leprosy, alopecia universalis, oral lichen planus and vitiligo. In this study, only those willing to participate

were included. Information on treated co-morbidities was self-reported.

All participants were informed and gave signed consent. For each participant chief investigator completed a questionnaire and gave it to the consultant before being examined clinically. Each patient was examined by a dermatologist who recorded the diagnosis; if required a secondary diagnosis was recorded. The presence of other physical conditions was recorded. If there were doubts as to whether a skin disease was present (e.g., no diagnosis, no flares, and no itch) the patients were not included in the sample.

### *Inclusion criteria*

The inclusion criteria were aged 18 years or more of both gender attending dermatology at outpatients, willing to participate, and who has given written consent, being able to read and write the local language, not suffering from severe psychosis

### *Exclusion criteria*

Person less than 18 years of age, attending other outpatients department, unwilling and severely ill were excluded from the study.

### *Primary outcome variables*

Prevalence of suicidal ideation among patients with dermatologic conditions, and identifying demographic, clinical, and psychosocial factors.

### *Study instruments*

#### *Questionnaires*

The first part of the questionnaire recorded socio-demographic variables including self-reported socioeconomic status. For each participant, information regarding family and personal characteristics was recorded by the principal investigator using interview technique on predesigned & pretested semi structured questionnaire, developed at the Institute with the assistance from the faculty members and other experts for socio-demographic profile and social support had variables relating to family and personal characteristics. By initial translation, back-translation, retranslation followed by pilot study, the questionnaire was custom-made for the study. The pilot study was carried out at the outpatients department of the Institute among comparable geriatric subjects, following which some of the questions from the interview schedule were modified.

The second part of the questionnaire recorded, symptoms of depression and anxiety, the main outcome variables, were assessed with the health questionnaire (PHQ-9), a well-validated instrument showing good psychometric properties.<sup>10</sup> The Hindi translation was validated and used

in patients with skin diseases. PHQ-9 was used as a diagnostic tool both for the assessment of prevalence of depression and for measuring the level of depression containing nine items. Higher scores indicate greater psychological distress. This was calculated by assigning scores of 0, 1, 2, and 3, to the response categories of “not at all”, “several days”, “more than half the days”, and “nearly every day”, respectively. In the PHQ-9 the total score for the nine items range from 0 to 27. Interpretations of scores were as follows: 0-4 - none-minimal, 5-9- mild, 10-14- moderate, 15-19- moderately severe and 20-27 – severe.

The third part of the questionnaire, assess suicidal ideation, we included the item “have you thought of committing suicide in last one month?” with possible answers “yes” or “no”: we were not able to identify a validated item on suicidal ideation.

#### Anthropometry

Body weight of the participants was measured (to the nearest 0.5 kg) in the standing, motionless position on the calibrated bathroom scale in minimum clothing with feet 15 cm apart, and weight equally distributed on each leg. Height was measured (to the nearest 0.5 cm) by a Stadiometer in the standing position with closed feet, holding their breath in full inspiration and in the Frankfurt line of vision.

Information on the field of psycho-dermatology was disseminated to participants and their caregivers in health education sessions to complement the findings of study.

#### Data processing and analysis

Data were entered in excel sheet and Epi-Info 7 was used to analyze the data. To characterize the study population, prevalence of depression, and suicidal ideation, we report numbers and percentage. The  $\chi^2$ -test for dichotomous or categorical variables. A *p*-value of less than 0.05 was considered statistically significant, and adjusted odds ratio with 95% CI was calculated to determine association.

#### RESULTS

A total of 396 adults with skin disease aged 18 years and more were recruited in the study. Out of them 272 (68.69%) were Male and 124 (31.31%) were female. Overall prevalence of suicidal tendency was 4 (1.5%) in male and 48 (38.7%) in female. Prevalence of suicidal tendency was significantly higher in female as compared to male (Table 1) and it was significantly more among young adults (Table 3).

Among the study population, participants diagnosed with steroid dermatitis 16 (4.04%), tinea infection 188 (47.48%), chronic idiopathic urticaria 32 (8.08%), psoriasis 64 (16.16%), acne 20 (5.05%), leprosy 32 (8.08%), alopecia universalis 12 (3.03%), oral lichen planus 12 (3.03%), and vitiligo 20 (5.05%). In males, suicidal tendency was only observe in patients suffering from tinea infection while among females, significantly more suicidal tendency was observed among patients suffering from tinea 48 (38.71%), psoriasis 28 (22.58%) and chronic idiopathic urticaria 20 (16.13%) (Table 2).

**Table 1: The prevalence of suicidal ideation among the study population.**

Gender	Total (%)	Suicidal tendency present (%)	Suicidal tendency absent (%)	Odds ratio (95% CI)	P value
Male	272 (68.69)	4 (1.5)	268 (98.5)	1	
Female	124 (31.31)	48 (38.7)	76 (61.3)	42.315 (14.788 – 121.085)	0.000
Total	396	52 (13.13)	344 (86.87)		

**Table 2: Prevalence of suicidal ideation in different common skin diseases in study population.**

Diseases	Suicidal tendency amongst male			Suicidal tendency amongst female		
	Total (%)	Yes (%)	P value	Total (%)	Yes (%)	P value
Steroids dermatitis	16 (5.88)	0 (0)	0.872	0 (0)	0	0.002
Tinea	140 (51.47)	4 (2.9)		48 (38.71)	20 (41.7)	
Chronic idiopathic urticaria	12 (4.41)	0 (0)		20 (16.13)	4 (20)	
Psoriasis	36 (13.23)	0 (0)		28 (22.58)	16 (57.1)	
Acne	20 (7.35)	0 (0)		0 (0)	0	
Leprosy	20 (7.35)	0 (0)		12 (9.68)	4 (33.3)	
Alopecia universalise	8 (2.94)	0 (0)		4 (3.22)	0 (0)	
Oral lichen planus	8 (2.94)	0 (0)		4 (3.22)	4 (100)	
Vitiligo	12 (4.41)	0 (0)		8 (6.45)	0 (0)	
Total	272	4 (1.5)		124	48 (38.7)	

**Table 3: Correlates of suicidal ideation among the study population: univariate analysis.**

Variables	Male			Female		
	Total N=272	Suicidal tendency present (%) N=4 (1.5)	P value	Total N=124	Suicidal tendency present (%) N=48 (38.7)	P value
1. Age						
18-20	52	4 (7.7)	0.001	12	8 (66.7)	0.001
21-30	108	0 (0)		40	20 (50.0)	
31-40	52	0 (0)		24	12 (50.0)	
≥41	60	0 (0)		48	8 (16.7)	
2. Religion						
Muslim	24	0 (0)	0.531	8	4 (50.0)	0.498
Hindu	248	4 (1.6)		116	44 (37.9)	
3. Education						
Illiterate	12	0 (0)	0.162	40	20 (50.0)	0.000
1–9	28	0 (0)		20	4 (20.0)	
10–12	120	4 (3.3)		40	24 (60.0)	
Graduate and professional	112	0 (0)		24	0 (0)	
4. Occupation						
Unemployed	8	4 (50.0)	0.000	100	32 (32.0)	0.000
Laborers	48	0 (0)		0	0 (0)	
Business & service	116	0 (0)		16	8 (50.0)	
Student	100	0 (0)		8	8 (100)	
5. Personal income						
No	100	0 (0)	0.124	100	32 (32.0)	0.002
Yes	172	4 (2.32)		24	16 (66.7)	
6. Dietary habit						
Vegetarian	68	0 (0)	0.245	44	24 (54.5)	0.007
Non-vegetarian	204	4 (2.0)		80	24 (30.0)	
7. Family size						
≥6	164	0 (0)	0.013	56	36 (64.3)	0.000
<6	108	4 (3.7)		68	12 (17.6)	
8. Family support						
No	20	0 (0)	0.570	12	12 (100)	0.000
Yes	252	4 (1.6)		112	36 (32.1)	
9. Debt						
Yes	80	0 (0)	0.193	40	20 (50.0)	0.075
No	192	4 (2.1)		84	28 (33.3)	
10.Other medical co-morbidity						
Yes	64	0 (0)	0.264	76	36 (47.4)	0.013
No	208	4 (1.9)		48	12 (25.0)	
11. Depression						
Yes	136	4 (2.9)	0.044	92	48 (52.2)	0.000
No	136	0 (0)		32	0 (0)	
12. Body mass index						
<18.5	52	4 (7.7)	0.000	36	16 (44.4)	0.040
18.5–24.99	164	0 (0)		40	20 (50.0)	
≥25	56	0 (0)		48	12 (25.0)	

In univariate analysis, the risk of suicidal tendency in males were significantly higher among early adulthood (18–20 years), engaged in unemployed, belongs to smaller family, having lower body mass index less and suffering from depression. While in females, the risk of suicidal tendency was significantly higher among early

adulthood, having no education or lower education, unemployed, having no personal income and vegetarian dietary habit, belongs to large family, no family support, having lower body mass index and suffering from depression as well as suffering from some other medical comorbidity in addition to skin diseases (Table 3).

## DISCUSSION

### Prevalence

Reported prevalence rates of suicidal ideations and behaviour in general population suggest that they are common. It is also common among patients with dermatologic conditions.

There are a few specific Indian studies regarding suicidality conducted in various populations. A study involving 4711 subjects (aged 30+ years) in rural Central India close to the tribal belt reported suicide attempt by 4.2% and suicidal thoughts during the last 6 months by 5.1%.<sup>11</sup> In the Idu Mishmi, tribal population in North East India suicide attempt (14.2%) was higher than urban population in general (0.4–4.2%) and females were at higher risk.<sup>12</sup> In a study of medical students in Madras, 16.8% reported previous suicidal ideation and 5.9% reported suicide attempts.<sup>13</sup>

### Age

Problem of suicidal tendency was significantly more in Young adults, both in males and female observed in this study. Similar observation was reported by the Gururaj et al, Isaac.<sup>14</sup> Low prevalence of suicide among the elderly observed in this study and similar finding was reported other study.<sup>15</sup>

### Gender

We found that suicidal ideation was more common in women. Women might be more vulnerable than men to the impact of skin disease on their lives, as suggested also by the interaction between visibility of skin lesions and female sex in increasing the risk of psychiatric morbidity.<sup>16</sup> Suresh reported attempted suicide was as high as 1.2 times higher in women relative to men in some studies.<sup>17</sup> Others studies showed a male predominance, male: female ratio ranging from 1.13:1 to 1.63:1.<sup>18,19</sup> Although several recent population studies did not report an association between female sex and self-reported suicidal ideation.<sup>20</sup>

### Diseases

In this study suicidal ideation was observed in oral lichen planus, psoriasis, tinea, leprosy and chronic idiopathic urticaria significantly higher among female while it was insignificant among male. Jagtiani, reported suicidal ideation was present in Acne vulgaris, psoriasis, and alopecia areata.<sup>21</sup> Egyptian study reported suicidal ideation to be present in 8% psoriasis and 8% alopecia areata patients.<sup>22</sup> Florence et al reported suicidal ideation was present in patients suffering from psoriasis, acne and some other skin diseases.<sup>23</sup>

### Religion

In our study, religion was not significantly associated with attempted suicide. Suicide rates were reported lower in Muslim geographic religion.<sup>24</sup> Yet, other literatures noted that suicide attempt rates do not appear to be lower in Muslims compared to non-Muslims. The proportion of participants from Muslim religion was low (8%) in this survey, and the sample may not be representative of the general Muslim population. It was identified that there was inadequate research in this area, which needs to be done in representative larger samples.<sup>25</sup>

### Education

Women attempting suicide tended to have a lower educational status in our study. Similar observation in gender differences was noted by others in serious suicide attempts.<sup>26</sup>

### Occupation

In this study, there is a fairly strong association between unemployment rates and suicide among. In India, in another study, >50% of patients were employed, 12% were unemployed and some were either students or housewives.<sup>27</sup>

### Income

Suicidal ideation was significantly more in female having no personal income and perusing life as a student. Jin RL reported Unemployment is also considered a key factor influencing suicidal behaviour.<sup>28</sup> Yur'yev et al reports association between suicide mortality and both unemployment risk and the expectation of inadequate financial resources during unemployment.<sup>29</sup>

### Dietary habit

In this study, suicidal ideation was significantly more in female. Vegetarians displayed elevated prevalence rates for depressive disorders, anxiety disorders and somatoform disorders especially in female.<sup>30</sup>

### Family size

It was interesting to note that a considerable proportion of participants with attempt history among males belong to smaller family while female belongs to larger family. The majority of suicide attempters were from nuclear families possibly reflecting the role of social integration, though an earlier study shows that more suicide attempters come from joint families.<sup>4,26</sup>

### Family support

Suicidal ideation was significantly less in female having family support.



Strong attachment and integration with family is known to be protective against suicide attempt.<sup>31</sup> Turvey also reported that, the presence of a social support system may reduce suicide risk.<sup>32</sup>

## BMI

A significant inverse association was observed between BMI and attempted suicide.

Cohort studies have demonstrated a decrease in risk for attempted suicide associated with increasing BMI, while other studies have found a positive association between overweight and obese and suicide attempt.<sup>33</sup> Many of the studies examining BMI and attempted suicide are cross-sectional in design, thus precluding the ability to infer temporal or causal pathways.<sup>34</sup>

## General medical co-morbidity

In this study, suicidal ideation was significantly more in female suffering from skin disease and having a general medical co-morbidity is associated and similar finding was reported among both male and female by Harris, Barraclough.<sup>35</sup>

## Depression

The presence of a depressive or anxiety disorder was associated with suicidal ideation consistently with the literature, the association with depression was particularly strong.<sup>36</sup>

In the suicidal process, ideation precedes planning, which in turn may result in an attempt to death. So, early detection and treatment with suicidal ideation is of utmost importance. Our findings and those of other studies suggested that assessing suicidality might be warranted in patients with dermatologic conditions at higher risk, such as emotionally distressed women.<sup>37</sup> If suicidal ideation is suggested based on this preliminary assessment, the dermatologist can refer the patient to mental health services and possibly alert patient's close relatives to the danger and the need of treatment. However, if the patient is unsure of being able to resist suicidal urges, or if the dermatologist fears that the patient may not seek help before committing self-harm, emergency psychiatric evaluation is mandatory to provide effective treatment and careful follow-up of patients with dermatologic conditions and suicidal ideation or other mental health needs.<sup>38</sup>

## CONCLUSION

In the studied sample of adults, it appeared that suicidal thoughts and behaviors were not uncommon. The participants were well aware about the issues surrounding suicidality. Overall, it appeared that the suicidal behavior, risk factors and possible preventive measures were well understood by the participants. A large-scale community

based study on these may be better to consider the findings generalizable to the wider population. It is worthwhile to repeat this kind of surveys which may help to understand suicidal trends over time as well as to review the changing attitudes and to reflect on societal and public health measures for suicide prevention.

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