

## Prevalence and Factors Associated with Anxiety among Patients with Common Skin Disease on follow up at Alert Referral Hospital, Addis Ababa, Ethiopia

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### Abstract

**Background:** Anxiety disorders are common in individuals with skin disease. Occurrence of anxiety disorders with skin disease associated with a negative consequence among individuals, families, communities and nations including poor treatment outcomes and reduced productivity. However little is known about prevalence of anxiety disorders in individuals with common skin disease in Ethiopia

**Objectives:** The main aim of this study was to assess the prevalence and associated factors of anxiety among common skin disease in Alert hospital dermatologic clinic, Addis Ababa, Ethiopia 2015.

**Methods:** Institutional based cross sectional study was conducted at Alert hospital, May 2015. A total of 618 patients of skin disease who were on regular follow up were recruited to the study. Anxiety was assessed through face to face interviews by trained psychiatry nurses using the hospital anxiety and depression scale (HADS). The data entry, clearance and analysis were carried out using SPSS version 20 statistical software package.  $p$ -value < 0.05 was considered statistically significant in this study.

**Result:** The prevalence of anxiety was 37.4% with 95% confidence interval (33.7, 41.3). Of the study participants being females (AOR=1.58, 95% CI 1.08, 2.32), type of skin disease psoriasis (AOR=1.86, 95% CI 1.07, 3.23) and acne (AOR=1.84, 95% CI 1.04, 3.25), site of infection on facial area (AOR=4.99, 95% CI 1.43, 17.42), duration of illness less than six months (AOR=1.72, 95% CI 1.17, 2.53), poor social support (AOR=4.47, 95% CI 1.56, 12.85) and perceived stigma (AOR=6.99, 95% CI 4.64, 10.53) had statistically significant association of anxiety with  $p$ -value < 0.05.

**Conclusion and Recommendation:** Prevalence of anxiety was found to be high on people living with common skin problem. Being female, type of common skin infection, site of infection, duration of illness, poor social support and perceived stigma had positive association factors for the development of anxiety disorder. The strengthening of screening and treatment of anxiety symptom in dermatological care unit should be an integral component.

**Keywords:** Anxiety; Prevalence; Common skin disorder

### Background

Patient with the diagnosis of Acne, Psoriasis Vitiligo, and Eczema are considered as common skin disease for this study. Globally common skin diseases are common and have negative influence on quality of life and have high health care costs [1]. Global study revealed that common skin disorders were the fourth leading causes of non-fatal disease burden both high- and low-income countries [2]. The World Health Organization reported data indicates that prevalence of skin diseases' in developing countries were range between 21–87% on the general population [2,3]. In Sab-Saharan Africa, the mortality rates due to skin disorder were 20,000 [4].

Anxiety is a vague feeling of apprehension, worry, uneasiness, or dread, the source of which is often non-specific or unknown to the individual [5]. However its emotion prepares the individual to the environmental changes or helps to create a response to those changes. Anxiety disorders are amongst the most common psychiatric disorders in all over the world [6]. The lifetime prevalence of any anxiety disorder in nationwide rate was approximately 25% [6].

The global prevalence of mental illness among skin disorders were about 3.7% [7]. There is a high rate of psychological problems in dermatological out-patients suffering from chronic and disfiguring skin conditions and many studies were conducted on individual based skin problem. Various studies were conducted on four of skin disease

namely psoriasis, acne, vitiligo and eczema. The prevalence of each of them were various in different types of skin disease, in 13 European countries were 17.2% [8], in Pakistan 28% [9] and 60% [10], in India 2% [11] and 68.3% [12], in Italy 58% [13], in Canada 36.6% [14], in Turkish 32.9% [15], and 26% [16], in Brazil 36% [17], in Egypt 22.4% [18], in Sudan 28.6% [19]. This suggests that anxiety disorder more common in skin disease. It is affecting many aspects of patient's life including school performance, marital status and relationship with families, friends, communities, nations and also impaired psychologically patients feel low self-control, suspicion, apprehension and tension [20].

Institutional based study conducted in Rome on those who have skin problem patients 58% recognized significant symptoms of anxiety

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symptom using GHQ-12 assessment [18]. A hospital based study conducted in Canada among psoriatic arthritis individual assessing by HADS the prevalence of anxiety disorders 36.6% [21]. Another hospital based case control study in Iran using Spiel Berger State-Trait Anxiety Scale assessment of anxiety disorders among psoriasis patients were 45%. Low educational status age, sex, unemployment all tend to be associated with higher rates of anxiety symptom and may be seen as risk factors for the development of anxiety symptom on patient with psoriasis [14].

Anxiety has a negative influence on quality of life, health care cost and self-care. This leads to decreased resistance to infections, so it adversely affects the patient's compliance to treatment that can increase mortality from the disease [4,16,20,22]. Despite their known effect on the population, there is very little data available in the study area. Therefore, this study was planned to determine the prevalence and correlates of anxiety among patients with common skin disease at Alert hospital Addis Ababa, Ethiopia.

## Methods

### Study setting and design

Institution based cross-sectional study was conducted at Alert hospital May, 2015, Addis Ababa, Ethiopia.

### Study population

The study population consisted of all adult with common skin diseases who were on follow up at Alert hospital who were included in the sample. Those patients who were critically ill were excluded from the study.

### Sampling procedures

Sample size was determined based on single population proportion formula using Epi-info version 7 with a 95% CI, 5% margin of error and taking prevalence of anxiety 50% and sample size calculation for associated risk factors (tobacco OR=1.7, CI=95%, Ratio=1:1, P=69.6%, Power=80%). Assuming a 10% non-response rate a total sample size of 638 common skin disease cases was required. Systematic sampling technique was used to select the study participants. Sampling interval was determined by dividing the total study population who had follow-up during four weeks data collection period by total sample size then the starting point was randomly selected.

### Data collection

Data were collected using pretested interviewer administered questionnaire, which contains socio-demographic characteristics (age, education, occupation, marital status and others), perceived stigma (patients who scored >1 on three items scale on perceived stigma scale), social support (individuals who were scored greater than or equal to 9 (moderate and strong) on Oslo 3- item social support scale), anxiety (anxiety was measured by using seven items of (anxiety sub scale) HADS with cut-off points of greater than or equal to 8 scores).

### Data processing and analyses

Data were analysed using SPSS version 20. Bivariate analysis was done to see the association of each independent variable with the outcome variable. Potential confounders (important) variables were entered into binary logistic regression model to identify the effect of each independent variable with the outcome 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.

## Ethical consideration

Ethical clearance was obtained from the Institutional Review Board of the University of Gondar and Amanuel Mental Specialized hospital. A formal letter of permission was obtained from Amanuel mental specialized hospital and University of Gondar was submitted to AHRI/ALERT ethical review committee for getting ethical clearance to do on the site. Supportive letter was obtained from AHRI/ALERT. 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. Tuberculosis patients who were found to have depression and anxiety were referred for further investigations.

## Results

A total of 618 participants were included in the study which makes the response rate 98.6%. The mean age of the respondents was 33.18 ( $\pm$  standard deviation=11.64) years. Among total participants, 316 (51.1%) were female, 250 (40.5%) were married, 263(42.6%) were between the ages of 25-34 years. About 31.1% attended primary education, Orthodox Christianity accounts for 354 (57.3%) and about 31.4% were Amhara by ethnicity. About 21.8% were in very low socio-economic status (Table 1).

### Clinical and psychosocial characteristics of the respondents

Regarding to clinical characteristics from type of skin infection Psoriasis accounts about 25.8% concerning site of skin infection 190 (30.7%) was found in lower extremity. From the study subject's about 344 (51.5%) were less than six months duration of illness. Regarding to psychosocial factors 65.8% had poor social support and 52.4% had perceived stigma among the total study subjects (Table 2).

### Prevalence of anxiety among common skin disorders

The prevalence of anxiety was 37.4 % with 95% confidence interval (33.7, 41.3), among common skin disorder patients.

### Factors associated with anxiety among patients with common skin disorder

Multivariate logistic regression analysis revealed being female, site of skin infection, type of skin infection, duration of illness, poor social support and perceived stigma were statistically significant with 95% CI for anxiety disorder.

After all factors adjusted the association of anxiety disorder and female sex were increased 1.58 times more likely to have anxiety disorder as compared to males [AOR=1.58, CI (1.08, 2.32)]. Concerning type of common skin disorders psoriasis were 1.86 times [AOR 1.86, 95% CI (1.07, 3.23)] more likely to develop anxiety as compared to eczema

Those participants who respond the interview indicate that skin infection in facial area were 4.76 times [AOR=4.76, 95% CI (1.34, 16.85)] more likely to develop anxiety than those compared to shoulder parts of the body. Regarding to duration of less than 6 months were 1.7 times [AOR=1.72, 95% CI (1.17, 2.53)] more likely to have anxiety as compared to above six months. Patients who were new and in follow up patients who had poor social support were 4.47 times [AOR 4.47, 95% CI (1.56, 12.85)] more likely to have anxiety disorders as compared to patients who had strong social support. Patients who had perceived stigma were 6.99 times [AOR=6.99, 95% CI, (4.64, 10.53)] more likely

Variables		Frequency	Percentage (%)
Age	18-24	138	22.3
	25-34	263	42.6
	35-44	113	18.3
	45-54	55	8.9
	>=55	49	7.9
Sex	Male	302	48.9
	Female	316	51.1
Religion	Orthodox	354	57.3
	Protestant	125	20.2
	Muslim	113	18.3
	Others	26	4.2
Ethnicity	Oromo	194	31.4
	Amhara	155	25.1
	Gurage	123	19.9
	Tigre	95	15.4
	Others	51	8.3
Marital status	Married	250	40.5
	Single	321	51.9
	Divorced	22	3.6
	Widowed	25	4
Education status	Unable to read and write	75	12.1
	Primary education	192	31.1
	Secondary education	178	28.8
	Diploma and above	173	28
Occupational status	Government	140	22.7
	Unemployed	69	11.2
	House wife	85	13.8
	Student	77	12.5
	Private	136	22
	Merchant farmer	32	5.2
	Farmer	26	4.2
	Others	53	8.6
Wealth index	Lowest	123	19.9
	Second	125	20.2
	Medium	124	20.1
	Fourth	123	19.9
	Highest	123	19.9

**Table 1:** Distribution of socio-demographic characteristics skin disorders patients from May- June at ALERT Hospital, Addis Ababa, Ethiopia.

to developed anxiety as compared to patients who didn't perceived stigma (Table 3).

## Discussion

Variables		Frequency	Percentage (%)
Type of skin infection	Acne	151	24.3
	Psoriasis	158	25.8
	Vitiligo	154	24.8
	Eczema	155	25.1
Site of skin infection	Face	144	23.3
	Neck	85	13.8
	Hand	124	20.1
	Genital area	52	8.4
	Lower extremity	190	30.7
	Others	23	3.7
Social support	poor	435	70.4
	moderate	151	24.4
	good	32	5.2
Perceived stigma	Yes	178	28.8
	No	440	71.2
Duration of illness	<=6 months	318	51.5
	>6 months	300	48.5

**Table 2:** Description of clinical, psychological and substance use factors among patients with common skin disease at ALERT hospital dermatologic, May 2015.

This study revealed that the prevalence of anxiety was 37.4%. The finding was similar with other studies carried out in Canada 36.6% [21]. On the other hand, the current study finding was higher than the study done in Sudan 28.6% [19], Pakistan 28% [11] and study conducted in 13 European countries were 17.2% [8] and lower than the study was done in Pakistan 60% [23] and in Iran 45% [14]. The variation might be due to the difference in study design, data collection tool, sample size and difference in study participants.

In this study the prevalence of anxiety among and Vitiligo patients was 38.8%. This finding was higher than with the study conducted in India 25% [24], Japan 3.3% [25] and India 8% [22]. The variation might be due to socio cultural, instrument and sample size difference.

In the current study the prevalence of anxiety among psoriasis patients was 27%. This finding was lower than the study done in Canada 36.6%, Pakistan 60% [23] and Iran 45% [14,21]. The variation might be due to the difference in study design, data collection tool, sample size and difference in study participants.

In this study the prevalence of anxiety among acne patients was 37.74%. This findings was higher than with the study conducted in Turkish were 26% (16) and Nigeria 17.2% (50) and lower than the study conducted in Turkish 50.6% [26]. The difference may be due to socio cultural, instrument and sample size difference.

In the current study the prevalence of anxiety among eczema patients were (32.25%). The finding was similar with other studies carried out in Pakistan 28% [11].

The result obtained in this study revealed positive association of female sex was 1.58 times more likely to have anxiety as compared to males. The finding is similar with other studies in Bosnia and Herzegovina [27].

In the current study those patients who have skin lesion on facial

Explanatory variable	Anxiety		COR	95%CI	AOR	95%CI	
	Yes	No					
Type of skin disease	Acne	57	94	1.27	(0.74, 2.04)	1.84	(1.04, 3.25)*
	Psoriasis	68	90	1.59	(1.01, 2.52)*	1.86	(1.07, 3.23)*
	Vitiligo	56	98	1.20	(0.75, 1.92)	1.59	(0.92, 8.34)
	Excema	50	105			1	
Sex	Male	94	208	1		1	
	Female	137	179	1.69	(1.22, 2.35)*	1.51	(1.03, 2.21)*
Chronic illness	Yes	159	324	0.43	(0.29, 0.63)	0.41	(0.26, 0.64)
	No	72	63	1		1	
Site of infection	Face	58	132	3.69	(1.20, 11.41)*	4.76	(1.347, 16.85)*
	Neck	35	50	3.33	(1.04, 10.62)*	4.59	(1.265, 16.65)*
	Hand	47	77	2.99	(0.93, 9.04)	2.64	(0.750, 9.268)
	Genital	24	28	4.07	(1.22, 13.63)	4.35	(1.13, 16.75)
	Leg	63	81	2.09	(0.68, 6.41)	1.9	(0.550, 6.67)
	Shoulder	4	19	1		1	
Perceived stigma	Yes	121	57	6.37	(4.35, 9.33)*	6.99	(4.38, 9.93)*
	No	110	330	1		1	
Social support	Poor	180	225	3.32	(1.44, 10.09)	4.47	(1.56, 12.85)*
	Moderate	46	105	2.37	(0.85, 6.52)	2.77	(0.92, 8.34)
	Strong	5	27	1		1	

Significant association ( $p$ -value < 0.05) Hosmer and Lemeshow test=0.53

**Table 3:** Factors associated with anxiety among patients with skin disorder at ALERT Hospital Addis Ababa, Ethiopia, May 2015.

area were 4.9 times more likely to have anxiety as compared to other part of body. With respect to type of infection psoriasis were 1.8 times more likely to develop anxiety than eczema. This might be due to as a result of stigma and discrimination by the society.

Regarding to duration of illness patients with common skin problem were those who had skin disease less than 6 months were 1.72 times more likely to have anxiety as compared to patients with duration more than 6 months. The possible reason might be due to easily outbreak their emotion due to unexpected skin colour change and difficulty to adapt the situation.

Regarding to perceived stigma, patients who had perceived stigma were 6.99 times more likely to have anxiety as compared to patients who had no perceived stigma; this finding is in agreement with study conducted in India [22]. People with perceived stigma may have a low self-image and be socially isolated which may predispose them anxiety.

Furthermore, the study indicated that patients who had poor social support were 4.47 times more likely have anxiety than patients who had moderate and strong social support. Lack of (poor) social support and somatic illness may lead to increased psychological distress. On the other hand, good social support is vital for those with good health in prevention of anxiety. This finding was supported by other studies [16].

## Conclusion

The prevalence of anxiety (37.4%) among common skin disorder patients is high. Being female, type of common skin infection, site of infection, duration of illness, poor social support and perceived stigma had positive association for anxiety disorders in patients with common skin disorder. Ministry of Health should develop guidelines to screen and treat anxiety among patients with common skin diseases. Further research on risk factors of anxiety should be conducted to strengthen and broaden these findings.

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## Competing interests

The authors declare that they have no competing interests.

## Authors' Contributions

GA conceived the study and was involved in the study design, reviewed the article, analysis, report writing and drafted the manuscript. GA, GA, GT & MG were involved in the study design, analysis and drafted the manuscript. All authors read and approved the final manuscript.

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