

# Patient-Reported Impact of Dermatological Diseases and Mental Health

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## INTRODUCTION

While the prevalences for depression and anxiety disorders are estimated at 3.8% and 4% of the global population, these can ascend to 30% in the dermatology population.

Variables related to disease and treatment play a proven, yet minor, role in explaining the high rates of psychiatric comorbidity, and, thus, additional psychological and social risk factors need to be identified.

**Using a newly developed and validated tool – Patient-Reported Impact of Dermatological Diseases (PRIDD) – this study examined the associations between clinical characteristics, disease burden, and patient-reported outcomes (PROs) of mental health.**

## METHODS

**Study design:** Cross-sectional data from Survey 1 from the Global Research on the Impact of Dermatological Diseases (GRIDD) study was analyzed. The online survey was available in 17 different languages and conducted between June 2023 and January 2024.

**Participants:** Eligible participants were adults (≥ 18 years) with self-reported dermatological conditions, recruited through patient organizations and social media platforms.

### Variables and measures:

- Socio-demographic and clinical questionnaire

**Disease impact** **PRIDD** total score range from 0 (no impact) to 64 (max. impact)

PHYSICAL PSYCHOLOGICAL LIFE RESPONSIBILITIES SOCIAL

**Depression** **Patient Health Questionnaire (PHQ-9):** score range from 0 to 27; higher scores indicate higher severity of depression

**Anxiety** **General Anxiety Disorder (GAD-7):** score range from 0 to 21; higher scores indicate higher severity of anxiety

## CONCLUSION

These results emphasize the importance of capturing the multidimensional burden of skin conditions on patients' lives, as it is a significant risk factor for psychiatric comorbidity.

The psychological and social impact of dermatological diseases should be assessed and managed in multidisciplinary primary and secondary care of dermatology patients.

## RESULTS

**Participants:** In total, 4138 participants completed the GRIDD survey and 3680 were retained for analyses, after excluding those who did not meet the inclusion criteria or had missing data in core variables. Participants were 76.4% female, mean age of 48.7 ± 15.7 years (range 18-98), from 87 different countries, and across 114 dermatological conditions (e.g., 12.8% Lichen Sclerosus, 12.3% Psoriasis, 8.2% Hidradenitis Suppurativa, 7.5% Atopic Dermatitis, 6.9% Vitiligo).

### Prevalence of psychiatric comorbidities:

Using the cut-off point PHQ-9 score ≥ 10 (sensitivity = 88%; specificity = 85%), 1349 (36.7%) patients presented clinically significant symptoms of depression (Table 1).

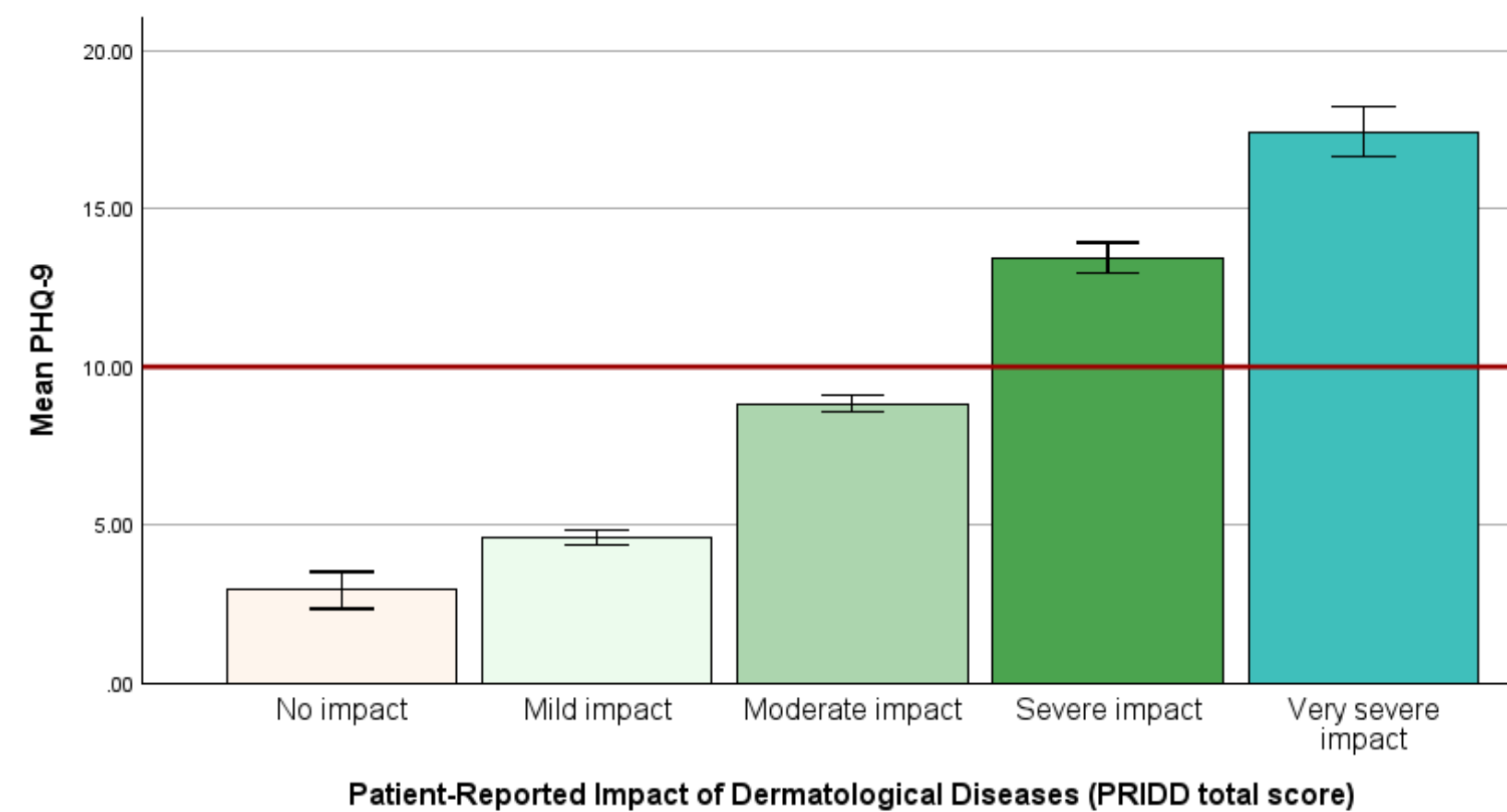
PHQ-9 scores	n	%
Minimal depression (0-4)	1115	30.3
Mild depression (5-9)	1216	33.0
Moderate depression (10-14)	681	18.5
Moderately severe depression (15-19)	418	11.4
Severe depression (20-27)	250	6.8
Total	3680	100.0

Using the cut-off point GAD-7 score ≥ 10 (sensitivity = 89%; specificity = 82%), 956 (26.0%) patients presented clinically significant symptoms of anxiety (Table 2).

GAD-7 scores	n	%
Minimal anxiety (0-4)	1446	39.3
Mild anxiety (5-9)	1278	34.7
Moderate anxiety (10-14)	545	14.8
Severe anxiety (15-21)	411	11.2
Total	3680	100.0

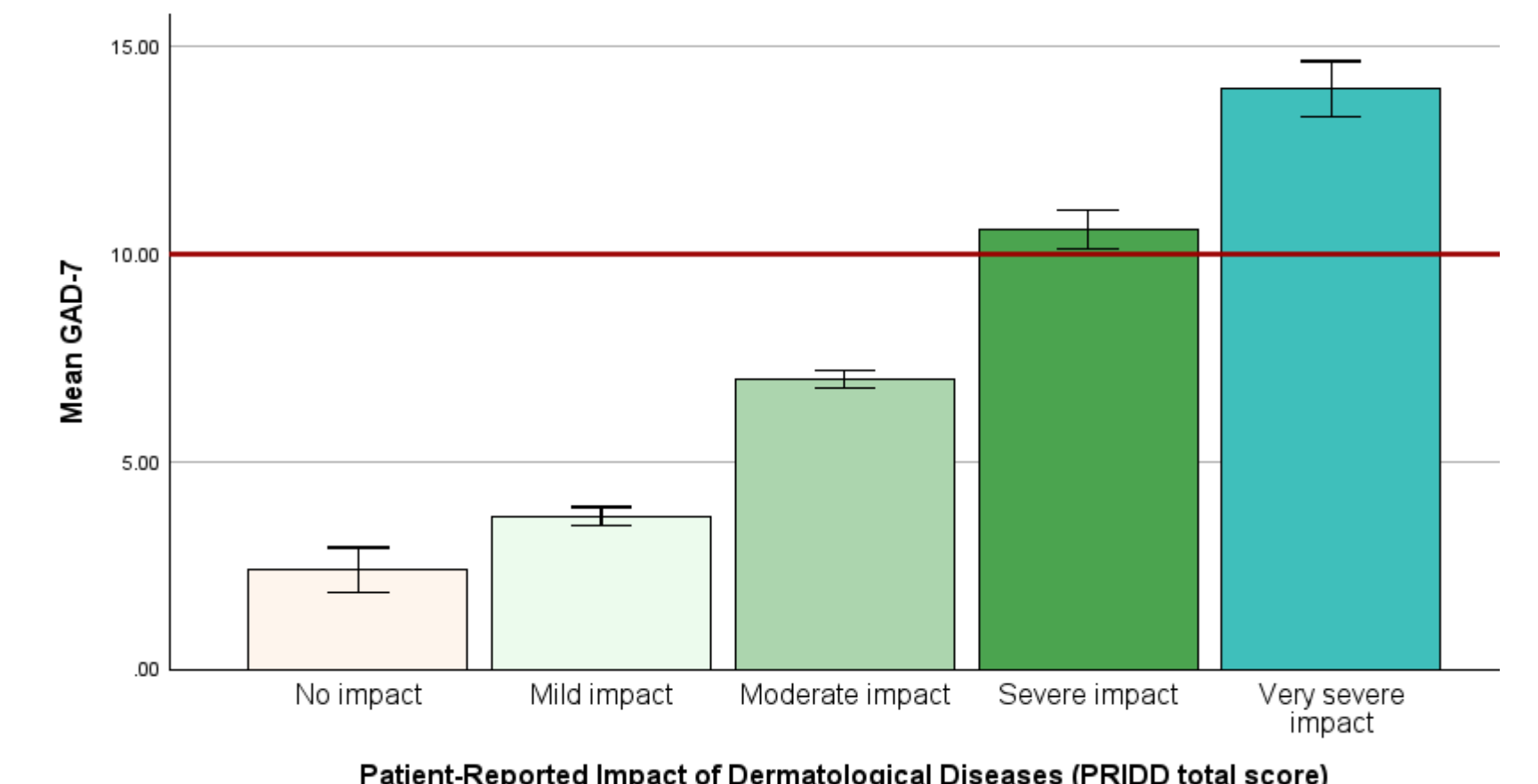
**Associations between patient-reported impact of dermatological diseases and mental health:** Higher impact of the dermatological condition on patients' lives was moderately associated with higher severity of depression (r = 0.618) and anxiety symptoms (r = 0.561). Patients who reported severe and very severe disease burden also reported, on average, clinically significant depression and anxiety problems (Figures 1 and 2).

Figure 1. Depression symptoms by disease impact category (PRIDD total score)



Error bars: 95% CI. PRIDD total score banding: 0.00 to 14.01 = no impact; 15.04 to 25.73 = mild impact; 26.14 to 34.26 = moderate impact; 34.89 to 39.93 = severe impact; 40.53 to 63.00 = very severe impact. PHQ-9: Patient Health Questionnaire, range from 0 to 27; the red line represents the cut-off point for clinical depression of PHQ-9 ≥ 10 (sensitivity = 88% and specificity = 85%).

Figure 2. Anxiety symptoms by disease impact category (PRIDD total score)



Error bars: 95% CI. PRIDD total score banding: 0.00 to 14.01 = no impact; 15.04 to 25.73 = mild impact; 26.14 to 34.26 = moderate impact; 34.89 to 39.93 = severe impact; 40.53 to 63.00 = very severe impact. GAD-7: General Anxiety Disorder, range from 0 to 21; the red line represents the cut-off point for clinical anxiety of GAD-7 ≥ 10 (sensitivity = 89% and specificity = 82%).

Hierarchical regression analyses testing main effects of sociodemographic characteristics, disease variables, and impact dimensions explained a total variance of 46.5% of depression and 42.9% of anxiety scores (Table 3).

Table 3 | Associations between sociodemographic and disease characteristics, PRIDD dimensions and mental health outcomes

	Depression (PHQ-9)	Anxiety (GAD-7)
	$\beta$	$\beta$
<b>Sociodemographic characteristics</b>	$\Delta R^2 = .039; \Delta F_{(3, 3115)} = 41.80^{***}$	$\Delta R^2 = .052; \Delta F_{(3, 3115)} = 56.39^{***}$
Age	-.181 <sup>***</sup>	-.214 <sup>***</sup>
Biologic sex (1 = male vs. 0 = female)	-.059 <sup>***</sup>	-.057 <sup>***</sup>
Fitzpatrick skin type (0-6)	.031	.028
<b>Disease characteristics</b>	$\Delta R^2 = .201; \Delta F_{(8, 3107)} = 102.42^{***}$	$\Delta R^2 = .150; \Delta F_{(8, 3107)} = 72.92^{***}$
Rare disease (1 = yes vs. 0 = no)	.066 <sup>***</sup>	.038 <sup>*</sup>
Years lived with the condition	-.028	-.027
Disease severity (PGA 0-4)	.331 <sup>***</sup>	.299 <sup>***</sup>
Visible areas affected (1 = yes vs. 0 = no)	-.009	-.006
Dermatological comorbidities (1 = yes vs. 0 = no)	.043 <sup>**</sup>	.020
Physical or mental comorbidities (1 = yes vs. 0 = no)	.194 <sup>***</sup>	.142 <sup>***</sup>
Patient organisation membership (1 = yes vs. 0 = no)	-.026	-.043 <sup>**</sup>
Satisfaction with the current healthcare (0-4)	-.120 <sup>***</sup>	-.103 <sup>***</sup>
<b>PRIDD dimensions</b>	$\Delta R^2 = .226; \Delta F_{(4, 3103)} = 327.14^{***}$	$\Delta R^2 = .228; \Delta F_{(4, 3103)} = 309.41^{***}$
Physical impact	.223 <sup>***</sup>	.101 <sup>***</sup>
Life responsibilities impact	-.072 <sup>**</sup>	-.122 <sup>***</sup>
Psychological impact	.263 <sup>***</sup>	.450 <sup>***</sup>
Social impact	.212 <sup>***</sup>	.148 <sup>***</sup>
<b>Model Summary</b>	$R^2 = .465; F_{(15, 3103)} = 179.76^{***}$	$R^2 = .429; F_{(15, 3103)} = 155.51^{***}$

$\beta$  – Standardized Coefficients; \* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001.