P1239

Presented at the
29th European Academy of Dermatology and Venereology (EADV) Virtual Congress
29–31 October 2020

Prevalence of Psychosocial Comorbidities in Vitiligo: A Systematic Literature Review

Khaled Ezzedine, MD, PhD,[1]* Viktoria Eleftheriadou, MD, PhD,[2] Heather Jones, RN,[3] Kristen Bibeau, PhD, MSPH,[3] Fiona Kuo, PhD,[3] Daniel Sturm, PharmD, CMPP,[3] Amit G. Pandya, MD[4,5]

[1]Department of Dermatology, Henri Mondor University Hospital and Université Paris-Est Créteil Val de Marne, Paris, France; [2]Department of Dermatology, Worcestershire Royal Hospital, Worcester, UK; [3]Incyte Corporation, Wilmington, DE, USA; [4]Palo Alto Foundation Medical Group, Mountain View, CA, USA; [5]University of Texas Southwestern Medical Center, Dallas, TX, USA

*Presenting author

Background

- Vitiligo is a chronic, pigmentary skin disease that results in patchy loss of skin color due to melanocyte loss[1-3]
- Lesions can appear at any age, but onset typically occurs in patients aged ≤30 years[2]
- Global prevalence is approximately 0.5%–2.0% with variation depending on geographic region[4]
- Patients experience high psychosocial burden, including depression and/or anxiety,[5,6] which contributes to reduced quality of life (QoL)[7,8]

Objective

- To describe the prevalence and types of psychosocial comorbidities in patients with vitiligo via a systematic literature review

Methods

Literature Search

- PubMed, Embase, Scopus, and Cochrane databases were searched from the earliest respective entries through December 31, 2019, with supplemental searches to identify more recent articles (supplemental search cutoff, March 15, 2020)
- The search was limited to articles published in English and the following keywords: vitiligo, QoL, burden, psychosocial, and anxiety, as well as variants of depression, stigma, psychology, and psychiatry
- Duplicate results from the separate databases were removed before assessment of article eligibility
- Primary publications, including clinical trials and observational studies (cross-sectional, case-control, prospective, and retrospective analyses), were included; studies with <5 patients with vitiligo were excluded
- The study protocol was registered with PROSPERO (CRD42020162223)

Data Extraction and Analysis

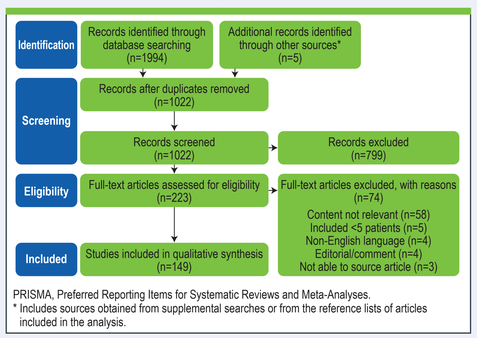
- Extracted data included study design, geographic region, sample size, patient demographics, types and prevalence of psychosocial comorbidities, factors associated with psychosocial burden, and endpoints (scales) used to assess burden
  - Data were also collected for healthy controls, if available

Results

Literature Search

- After removal of duplicates (n=977) and formal screening of 1022 articles, data were extracted from 149 articles (**Figure 1**)

Figure 1. PRISMA Flow Diagram



PRISMA, Preferred Reporting Items for Systematic Reviews and Meta-Analyses.
* Includes sources obtained from supplemental searches or from the reference lists of articles included in the analysis.

Study Characteristics

- Included studies were published between 1979 and 2020, with the majority (69.1%) published between 2010 and 2020
- Most included studies were observational (98.0%); regions with the most studies included Europe (30.9%), Middle East (29.5%), Southern Asia (14.8%), and North America (12.8%; **Table 1**)
- Among included studies, sample sizes ranged from 6–7104 patients with vitiligo

Table 1. Summary of Study Characteristics

Characteristic	Number of Studies, n (%) N=149
Geographic region*	
Africa	2 (1.3)
Europe	46 (30.9)
Eastern Asia†	15 (10.1)
Southern Asia	22 (14.8)
Middle East	44 (29.5)
North America	19 (12.8)
South America	5 (3.4)
Age group of patients with vitiligo, y‡	
Child only (<12)	0
Adolescent only (12–17)	1 (0.7)
Adult only (≥18)	79 (53.0)
Child and adolescent (≤17)	12 (8.1)
Adolescent and adult (≥12)	39 (26.2)
All age groups (≥0)	10 (6.7)
Number of patients with vitiligo§	
≤25	13 (8.7)
26–100	69 (46.3)
101–200	36 (24.2)
>200	25 (16.8)

* Multinational studies conducted in 2 geographic regions are listed under both regions.
† Includes East (Northeast) Asia and Southeast Asia.
‡ Patient age groups were not reported for 8 (5.4%) studies.
§ Number of patients with vitiligo was not available for 6 studies.

Psychosocial Comorbidities

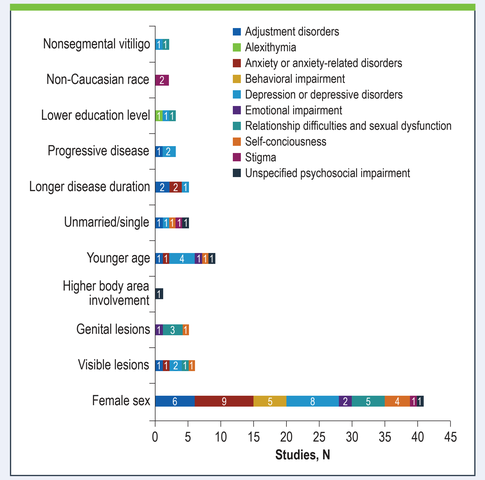
- Depression and anxiety were the most commonly reported psychosocial comorbidities (**Table 2**)
- Other psychosocial comorbidities were also widely reported and included sleep disturbance, emotional and cognitive impairment, alexithymia, anger, somatoform disorder, and alcohol dependence or abuse
- Patients also reported behavioral impairments, including avoidance or restriction behavior, attention-deficit/hyperactivity disorder, and obsessive disorders
- Vitiligo contributed to feelings of stigmatization and self-consciousness among patients, encompassing embarrassment and low self-esteem; relationship difficulties and sexual dysfunction as well as suicidality were also noted
- The prevalence of depression, anxiety, emotional or behavioral impairment, adjustment disorder, low self-esteem, relationship and sexual dysfunction, sleep disturbance, suicidality, self-consciousness, embarrassment, alexithymia, and alcohol abuse or addiction was significantly higher among patients with vitiligo vs healthy controls ($P \leq 0.05$)
- Factors significantly associated with higher psychosocial burden were female sex, lesion location in visible areas (eg, face, hands) or genitals, extensive body area involvement, and younger age (**Figure 2**)
  - Unmarried/single relationship status, longer disease duration, progressive disease, lower education status, nonsegmental vitiligo (vs segmental or focal), and non-Caucasian race were also signficantly associated with increased burden

Table 2. Prevalence of Psychosocial Comorbidity in Patients With Vitiligo

Psychosocial Comorbidity	Comorbidity Screening Tool	Number of Patients With Vitiligo	Prevalence, %	Country (Number of Studies)
Depression or depressive disorders	Any	6–7104	0.1–62.3	India (12); Turkey (5); Saudi Arabia (3); Singapore (2); UK (2); US (2); Egypt (1); Estonia (1); Georgia (1); Germany (1); Italy (1); Iran (1); Japan (1); Jordan (1); South Korea (1); Mexico (1); Nigeria (1); Taiwan (1)
Depression	BDI	100–308	30.3–54.5	Germany (1); India (1); Iran (1); Jordan (1); Mexico (1); Saudi Arabia (1)
	CES-D	54–222	16.2–27.8	Singapore (2); Japan (1); South Korea (1)
	HADS	15–102	7.8–60.0	Georgia (1); Nigeria (1); Saudi Arabia (1)
	Other*	6–326	2.7–62.3	India (9); Turkey (2); US (2); Egypt (1); Estonia (1); Italy (1); Saudi Arabia (1); UK (1)
Bipolar disorder	Diagnosis	53–1432	0.1–7.6	India (1); Taiwan (1)
Dysthymic disorder	Diagnosis	113	0.9–1.8	India (2)
	SCID-I	42–50	4.8–26.0	Turkey (2)
MDD	Other*	42–7104	3.5–56.6	India (3); Taiwan (1); Turkey (1); UK (1)
Unspecified depressive disorder	K-SADS-PL	30	23.4	Turkey (1)
Anxiety or anxiety-related disorders	Any	15–1432	1.9–67.9	India (5); Turkey (5); Saudi Arabia (2); Egypt (1); Estonia (1); Georgia (1); Italy (1); Iran (1); Mexico (1); Nigeria (1); Taiwan (1)
Anxiety	BAI	100–150	60.0–66.0	Iran (1); Mexico (1)
	HADS	15–102	18.6–66.7	Georgia (1); Nigeria (1); Saudi Arabia (1)
	Other*	30–1432	3.3–57	India (4); Turkey (3); Egypt (1); Estonia (1); Saudi Arabia (1); Taiwan (1)
Agoraphobia	PAS	100	2.0	India (1)
GAD	Other*	30–42	4.8–10.0	Turkey (2)
Panic disorder	Other*	53–95	1.9–11.3	India (2); Estonia (1)
Social phobia	Other*	42–181	2.4–67.9	India (2); Estonia (1); Italy (1); Turkey (1)
Depression and anxiety	HADS	15–102	4.9–33.3	Georgia (1); Nigeria (1)
	Other*	30–100	5–10.0	India (1); Turkey (1)
Stigmatization	Other*	7–326	17.3–100	US (3); Germany (2); India (1); UK (1)
Adjustment disorders	Any	30–326	4–93.9	India (3); Egypt (1); Germany (1); Italy (1); Iran (1); Romania (1); UK (1); US (1)
Adjustment disorder	Diagnosed	113	10.6–11.5	India (2)
Hopelessness	BHS	100	60.0	Iran (1)
Stress	Holmes and Rahe Social Readjustment Rating Scale	30–32	65.6–93.9	Egypt (1); Romania (1)
	Freiburger Personality Inventory	117	28.2	Germany (1)
Worry about spread	Other*	150–326	4–60	India (1); Italy (1); UK (1); US (1)
Sleep disturbances	Other*	30–116	4.6–89.0	India (2); Egypt (1); Estonia (1); Greece (1); Romania (1); UK (1)
Behavioral impairment	Any	30–1432	0.1–76	India (6); Turkey (3); Germany (2); Egypt (1); France (1); Romania (1); Taiwan (1); US (1)
ADHD	K-SADS-PL	30	20.0	Turkey (1)
Binge-eating disorder	PRIME-MD PHQ	95	7.4	India (1)
Obsessive disorders	Diagnosed	53–1432	0.1–19.5	Egypt (1); India (1); Taiwan (1); Turkey (1)
Social and situational avoidance/restriction	Not specified	53	3.8	India (1)
	Participation Scale	100–150	17.3–48.0	India (2)
	Other*	32–442	12.5–76	Germany (2); France (1); India (1); Romania (1); Turkey (1); US (1)
Self-consciousness	Any	61–326	6.2–66.7	US (4); Singapore (2); Germany (1); India (1); Italy (1)
Embarrassment	Other*	61–326	24–66.7	US (4); India (1); Italy (1)
Low self-esteem	RSES	145–222	6.2–6.8	Singapore (2)
	Freiburger Personality Inventory	117	30	Germany (1)
Emotional impairment	Other*	61–1432	6–65.0	US (3); Germany (1); India (1); South Korea (1); Saudi Arabia (1); Taiwan (1); UK (1)
Cognitive impairment	Any	53–1432	0.3–50.8	India (2); Taiwan (1)
Schizophrenia	Diagnosis	53–1432	0.3–3.8	India (1); Taiwan (1)
Unspecified	Skindex-61	61	50.8	India (1)
Relationship difficulties and sexual dysfunction	Any	32–326	2.0–48.2	US (3); Egypt (1); India (1); South Korea (1); Romania (1); Turkey (1); UK (1)
Relationships	Self-Report	158–326	15–23	US (2)
Sexual	Other*	32–167	2.0–48.2	US (2); Egypt (1); India (1); South Korea (1); Romania (1); Turkey (1); UK (1)
Alexithymia	TAS-20	30–181	23.8–46.7	Iran (2); Italy (2)
Anger	IPQ	100–164	29.0–34	Saudi Arabia (1); Turkey (1)
	Other*	61–181	14–36.9	Germany (1); India (1); Italy (1); UK (1)
Suicidality	Any	30–326	3.0–28.3	India (4); Egypt (1); US (1)
Attempts	Diagnosis	30–108	3.3–3.7	Egypt (1); India (1)
Ideation	Other*	30–326	3–25.0	India (3); Egypt (1); US (1)
Unspecified	Not specified	53	28.3	India (1)
Somatoform disorder	Other*	30–95	6.3–9.4	India (3)
Alcohol dependence or abuse	Other*	42–95	2.4–7.6	India (2); Turkey (1)

ADHD, attention-deficit/hyperactivity disorder; BAI, Beck Anxiety Inventory; BDI, Beck Depression Inventory; BHS, Beck Hopelessness Scale; CES-D, Center for Epidemiologic Studies Depression scale; GAD, generalized anxiety disorder; HADS, Hospital Anxiety and Depression Scale; IPQ, Illness Perception Questionnaire; K-SADS-PL, Schedule for Affective Disorders and Schizophrenia for School Age Children-Present and Lifetime Version; MDD, major depressive disorder; PAS, Psychiatric Assessment Schedule; PRIME-MD PHQ, Primary Care Evaluation of Mental Disorders–Patient Health Questionnaire; RSES, Rosenberg Self-Esteem Scale; SCID-I, Structured Clinical Interview for Diagnostic and Statistical Manual of Mental Disorders IV Axis I Disorders; TAS-20, Toronto Alexithymia Scale-20.
* Reporting based on diagnosis or self-report, an unspecified tool, or a tool used in only 1 study for each comorbidity; if a comorbidity only included data from 1 study, the specific tool (including diagnosis or self-report) was listed. For "diagnosis," formal diagnosis or diagnostic criteria/codes (ie, Diagnostic and Statistical Manual of Mental Disorders IV/V or International Classification of Diseases 9/10) suggestive of a formal diagnosis were provided in the article.

Figure 2. Factors Significantly Associated With Psychosocial Comorbidity



Conclusions

- **The results of this systematic review support previous findings specific to the association of vitiligo with depression and/or anxiety and also highlight additional psychosocial disorders of stigmatization, sleep disturbance, and emotional impairment, among others**
- **Prevalence ranges were often large, reflecting heterogeneity of studies**
- **Further assessment of factors, such as geographical regions and cultural differences, may shed more light on the contribution of psychosocial burden to reduced QoL**

Disclosures

KE is a consultant for AbbVie, Incyte Corporation, La Roche-Posay, Pfizer, Pierre Fabre, Sanofi, and Viela Bio. VE has nothing to disclose. HJ, KB, FK, and DS are employees and shareholders of Incyte Corporation. AGP has served as an investigator for Aclaris Therapeutics, Immune Tolerance Network, Incyte Corporation, and Pfizer; a consultant for Arcutis, Avita, Chromaderm, Immune Tolerance Network, Incyte Corporation, Pfizer, Viela Bio, and Villaris; and a board member who also holds stock options for Clarify Medical and Tara Medical.

Acknowledgments

Writing assistance was provided by Jane Kovalevich, PhD, an employee of ICON (North Wales, PA), and was funded by Incyte Corporation (Wilmington, DE).

References

1. Taieb A, et al. *Pigment Cell Res.* 2007;20(1):27-35.
2. Ezzedine K, et al. *J Am Acad Dermatol.* 2015;73(5):883-885.
3. Ezzedine K, et al. *Lancet.* 2015;386(9988):74-84.
4. Kruger C, Schallreuter KU. *Int J Dermatol.* 2012; 51(10):1206-1212.
5. Osinubi O, et al. *Br J Dermatol.* 2018;178(4):863-878.
6. Wang G, et al. *J Eur Acad Dermatol Venereol.* 2018; 32(8):1343-1351.
7. Morrison B, et al. *Br J Dermatol.* 2017;177(6): e338-e339.
8. Cupertino F, et al. *Clin Dermatol.* 2017;35(3): 292-297.

To download a copy of this poster, scan code.