Research Article

# The relation between illness perceptions and psychiatric morbidity among patients with vitiligo, in Al-Madinah, Saudi Arabia

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## Abstract

**Background:** Vitiligo is a prevalent macular skin depigmentation that can impose significant psychiatric morbidity in terms of depression and anxiety. Patients with vitiligo, as well as other chronic diseases, react to their illness by developing their own beliefs and perceptions that might affect their health and well-being.

**Objective:** This study aimed to assess the rate of depression and anxiety among patients with vitiligo, and to evaluate the relation between patients' perceptions regarding vitiligo and the increased likelihood of depression and anxiety.

**Materials and Methods:** This cross-sectional study included consecutive adult patients with vitiligo who attended the Laser and Skin Clinic in King Fahd Hospital, in Al-Madinah, Saudi Arabia. Participants were invited to respond to the Arabic versions of the Hospital Anxiety and Depression Scale (HADS), and the Revised-Illness Perceptions Questionnaire (IPQ-R). Patients' sociodemographic characteristics were recorded.

**Results:** Out of 132 patients, 49 (37.1%) had depression and 56 (42.4%) had anxiety. Pearson's correlation showed significant association between depression and anxiety, and various dimensions of the patients' poor illness perceptions ($P < 0.05$). Multivariate logistic regression analysis revealed that poor personal control over illness was the most significant independent variable associated with psychiatric morbidity (OR = 11.7; 95% CI, 2.9–48.2 for depression; and OR = 17.6; 95% CI 3.7–84.6 for anxiety), followed by patients' beliefs in serious consequences, more perceived severity, and less trust in treatment effect. The risk of psychiatric morbidity was associated with patient's younger age, female gender, being unmarried, and unemployed.

**Conclusion:** Poor illness perceptions were clearly adversely affecting the psychological well-being of patients with vitiligo with a resulting increased rate of depression and anxiety.

**KEY WORDS:** Illness perceptions, psychiatric morbidity, depression, anxiety, vitiligo

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## Introduction

Vitiligo is a macular skin depigmentation that can be localized focal or segmental, generalized, or even universal.[1] Its course could be rapidly progressive or remain stationary.[2] The estimated prevalence of vitiligo ranges from 0.1% to 4% of the population worldwide. The disease can be overwhelming psychologically, particularly in dark-skinned individuals.[1]

Some patients may become psychosocially incapacitated with a resulting depression, and/or anxiety.[3,4]

It is noted that the prevalence rates of depressive disorders in various chronic medical conditions,[5–7] and chronic skin diseases including vitiligo are significantly higher than those in healthy general population.[8–11] Depression and anxiety has been shown to predict health-related outcomes including physical and social function.[5,6] Bearing in mind that symptoms of depression and anxiety may go unnoticed, it is essential to screen for these mental disorders in vulnerable patients.[7]

The Hospital Anxiety and Depression Scale (HADS) was developed by Zigmond and Snaith[12] in 1983 to provide physicians with a reliable, valid, and easy-to-practice tool for identifying depression and anxiety. It is not used for diagnosis of psychiatric disorders, rather for screening general population[13,14] and general hospital outpatients[15–18] who need further psychiatric evaluation and management.[19] The HADS has been translated into many languages including Arabic,[16] and widely used in more than 25 countries since its development.[19] It has been reviewed and validated in the studies by Herrmann and Bjelland et al.[20] and used to assess depression and anxiety in various medical conditions including heart failure, coronary heart disease, hypertension, hemophilia, HIV infections, and cancers.[21–26]

When investigating the contributing factors for depression and anxiety, patients' beliefs and perceptions about their illness should be considered. The relationship between beliefs about illness and health-related outcomes has been extensively studied and illness perceptions are recognized as significantly important to patient behavior and outcomes.[23,24,27–29]

Illness perceptions imply patients' own beliefs and thoughts about the illness and its expected threats to their health. The evaluation of health threats can be through certain dimensions as[30] perceived severity of illness, expected time of illness duration, sense of personal control over illness, beliefs about the expected consequences, trust in treatment effect, and belief in illness effect on emotional state.[31–33]

Physicians' understanding of patients' illness perceptions may help to identify those patients who are more vulnerable to the cumulative psychological impact of their illness, thereby resulting in more appropriate treatment decisions early in the course of the disease.[34,35]

There has been a shortage of studies on illness perceptions and its associated effect on patients' psychological condition among patients with vitiligo. This study aimed to assess the rates of depression and anxiety among patients with vitiligo, and to evaluate the relation between illness perceptions and the likelihood of increased psychological morbidity in patients having vitiligo and attending outpatient clinics in Al-Madinah Al-Munawarah, Saudi Arabia.

## Materials and Methods

This cross-sectional study was conducted at the Dermatology and Laser clinics of King Fahd Hospital, Al-Madinah Al-Munawarah, Saudi Arabia, during the period of March to June 2014. Eligibility criteria were adults 16 years or older and of both sexes who have been diagnosed with any form of vitiligo for ≥6 months. The study was approved by the Medical Ethics and Research Committee of Taiba University, and King Fahd Hospital authority, Al-Madinah Al-Munawarah.

While patients were waiting for their consultation, all consecutive vitiligo patients have been approached by the interviewers. Formal consent was obtained from the respondents, simply clarifying the aim of the study, the importance of the respondent views, and assuring strict confidentiality of the information.

Data were collected using a questionnaire consisting of the following three sections:

**Section 1:** contains relevant patient's demographics including age, gender, marital status, employment status, and associated comorbidities.

**Section 2:** a validated Arabic version[16] of the self-rated HADS was used to identify and score symptoms of depression and anxiety.[12] This 14-item questionnaire was designed to screen for psychiatric disorders in patients with physical illness to identify those who need further psychiatric assessment. It encompasses two subscales: anxiety and depression. Items are rated on a 4-point Likert scale as yes definitely, yes sometimes, no not much, and no not at all. Its maximum scores are 21 for anxiety or depression. Scores of ≥11 on the depression or anxiety subscale are considered indicative of ''case-ness'' for either disorder, scores of 8–10 represent ''borderline case,'' and scores 0–7 is ''non-case.'. The HADS is commonly used, significantly reliable, and valid in assessing case-ness of depression and anxiety in clinical practice and general populations, and permits significant distinction between these two disorders.[20]

**Section 3:** a validated Arabic translation of the revised form of Illness Perceptions Questionnaire (IPQ-R) was used to record patients' personal beliefs about vitiligo.[33] The IPQ-R assesses eight dimensions of the patients' personal beliefs regarding their illness: (1) perceived load of the illness symptoms (Identity/Concern), (2) perceived severity of illness (Severity), (3) expected effects and outcomes of the illness (Consequences), (4) beliefs about treatment effect and curability (Treatment Effect), (5) beliefs about the personal capacity for controlling the illness (Personal Control),(6) expected chronic illness duration (Timeline), (7) beliefs on effect of illness on emotional state (Emotional Effect), and (8) perceived understanding of the illness process (Understadibility subscale). The current study did not use the dimension of Identity/Concern because it is not applicable to vitiligo disease which does not possess symptoms rather than skin depigmentation, which could be assessed from patient's view with the dimension of perceived severity.

Each dimension was rated on a 5-point Likert scale from strongly disagree, disagree, borderline, agree, and strongly agree. High scores for the dimensions of severity, consequences, timeline, and emotional effect means negative beliefs about the load of symptoms attributed to the illness, the chronicity of the condition, the negative consequences

of the illness, and the adverse emotional effect; high scores for the dimensions of personal control, treatment control, and understandability means positive beliefs about the controllability of the illness and a personal understanding of the condition. The IPQ-R is a reliable and valid tool to explore patients' different aspects of beliefs and adaptation in a wide range of chronic illness.[31]

To maintain uniformity, the questionnaires have been introduced by gender-matched, Arabic-speaking interviewers, trained, and standardized interviewers who had past experience with similar subjects. Interviewers read out the questionnaires to the patients, and documented responses. During the process all data were kept secure.

A pilot study on 10 patients was done before commencing the study for validation of the questionnaires, apply necessary modifications, and ensure standardization of interviewers.

### Statistical Analysis

Statistical analysis was performed using Statistical Package for Social Sciences (SPSS) for Windows version 20.0 (Somers, NY, USA). Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variables, and means ± standard deviation (SD) for quantitative variables. After confirming that key variables were normally distributed, the degree of linear association between variables was determined using Pearson's correlation coefficient (r). The independent effect of the variables considered on the presence of "case-ness" disorder was assessed by multivariate logistic regression analysis. Odds ratios were calculated. To check for significant differences between the ratios, the 95% confidence level around each measure was calculated. Statistical significance is set at *P* value <0.05.

## Results

Of the 143 patients that met the inclusion criteria, a total of 132 (92.3%) patients have consented to participate in the study and responded to the questionnaire. Nonparticipants did not differ significantly from participants in terms of demographics or illness characteristics.

The sample consisted of 73 (55.3%) females, and the mean age of the total sample was 30.1 ± 13.2 years with age range 16–64 years. At the time of study, 74 (56.1%) subjects were married, 38 (37.9%) were single, 5 (3.8%) were divorced, and 3(2.3%) were widowed, whereas 79 subjects (59.8) were unemployed, 46 (34.8%) were employed, and 7(5.3%) were retired. A total of 56 (42.4%) subjects had vitiligo at exposed skin (face and/or hands), and 38 (28.8%) had vitiligo for more than 5 years. Only 15 subjects (11.4%) had associated comorbidity (Table1).

The HADS questionnaire revealed that 74 (56%) participants had psychiatric morbidity of either depression and/or anxiety. Of these, 49 (37.1%) met criteria for depression (HADS depression score ≥11) and 56 (42.4%) met criteria for anxiety (HADS anxiety score ≥11), whereas 18 (13.6%) met criteria for depression alone, 25 (18.9%) met criteria for anxiety alone, and 31 (23.5%) met criteria for both depression and anxiety (Table 1).

Pearson's correlations coefficient (r) shows significant association between various components of illness perceptions and psychiatric morbidity in terms of depression and anxiety (Table 2).

A multivariate logistic regression analysis (Table 3) shows the risk factors for depression and anxiety in vitiligo patients where the risk is associated with younger age (<25 years), female sex, unemployed, unmarried, with vitiligo of exposed

**Table 1:** Participants' characteristics

| Characteristics | N (132) | (%) |
|---|---|---|
| Gender | | |
| Male | 59 | 44.7% |
| Female | 73 | 55.3% |
| Age (y) ± SD | 30.1 ± 13.2<br>Range: 16–64 years | |
| Marital status | | |
| Single | 50 | 37.9% |
| Married | 74 | 56.1% |
| Divorced | 5 | 3.8% |
| Widowed | 3 | 2.3% |
| Occupation | | |
| Un-employed | 79 | 59.8% |
| Employed | 50 | 37.9% |
| Retired | 3 | 2.3% |
| Comorbidity | | |
| Yes | 15 | 11.4% |
| No | 117 | 88.6% |
| Type of comorbidity | | |
| Bronchial asthma | 3 | 2.3% |
| Diabetes mellitus | 4 | 3% |
| Hypertension | 2 | 1.5% |
| Heart Disease | 1 | 0.07% |
| Osteoarthritis | 2 | 1.5% |
| Hypothyroidism | 2 | 1.5% |
| Diagnosed depression and/or anxiety | 0 | 0% |
| Others: allergic rhinitis | 1 | 0.07% |
| Vitiligo at exposed skin (face, hands) | 56 | 42.4% |
| Duration of vitiligo | | |
| <5 years | 94 | 71.2% |
| >5 years | 38 | 28.8% |
| Psychological status: | | |
| Normal psychological state | 58 | 44% |
| Total cases of psychiatric morbidity (depression and/or anxiety) | 74 | 56% |
| Total cases of depression | 49 | 37.1% |
| Total cases of anxiety | 56 | 42.4% |
| Depression alone | 18 | 13.6% |
| Anxiety alone | 25 | 18.9% |
| Mixed depression and anxiety | 31 | 23.5% |

**Table 2:** Correlations between illness perceptions and psychiatric morbidity

| Component of illness perception | Depression | | Anxiety | |
|---|---|---|---|---|
| | r | *P* value | r | *P* value |
| Personal control | -0.54 | <0.001 | -0.45 | <0.001 |
| Illness consequences | 0.47 | <0.001 | 0.41 | <0.001 |
| Treatment effect | -0.45 | <0.001 | -0.38 | <0.001 |
| Severity | 0.35 | <0.001 | 0.39 | <0.001 |
| Timeline | 0.27 | 0.002 | 0.26 | 0.003 |
| Understandability | 0.19 | 0.03 | 0.38 | <0.001 |
| Emotional representations | 0.4 | <0.001 | 0.15 | 0.08 |

**Table 3:** Odds ratios of variables independently associated with depression and anxiety in vitiligo patients

| Variable | Depression | | Anxiety | |
|---|---|---|---|---|
| | OR(95% CI) | *P* value | OR(95% CI) | *P* value |
| Age <25 y | 4.6 (1.2–5.3) | 0.03 | 3.9 (1.4–6.5) | 0.02 |
| Unmarried | 6.7 (1.5–30.3) | 0.013 | 10.4 (2.3–47.7) | 0.003 |
| Female gender | 4.5 (0.9–21.1) | 0.06 | 3.8 (1.3–9.5) | 0.034 |
| Unemployed | 2.9 (0.5–18.2) | 0.247 | 2.6 (0.7–9.8) | 0.169 |
| Associated comorbidity | 1.8 (0.3–9.5) | 0.5 | 2.7 (0.7–10.2) | 0.139 |
| Vitiligo at exposed skin | 3.9 (1.1–14.2) | 0.035 | 4.4 (1.4–13.7) | 0.01 |
| Duration of vitiligo >5 y | 1.24 (0.79–0. 1.96) | 0.337 | 1.09 (0.6–1.96) | 0.765 |
| Personal control | 11.7 (2.9–48.2) | 0.001 | 17.6 (3.7–84.6) | 0.001 |
| Illness consequences | 7.2 (1.9–27.1) | 0.003 | 10.5 (2–55.5) | 0.005 |
| Severity | 5.06 (0.9–27.7) | 0.06 | 4.9 (1.2–19.2) | 0.024 |
| Treatment effect | 4.8 (0.9–25.5) | 0.07 | 3.7 (1.7–10.2) | 0.017 |
| Timeline | 2.5 (0.5–11.8) | 0.243 | 2.2 (0.6–8.5) | 0.261 |
| Understandability | 1.5 (0.3–6.8) | 0.596 | 2.2 (0.4–11.1) | 0.335 |
| Emotional representations | 1.1 (0.3–4.7) | 0.896 | 1.7 (0.5–6) | 0.412 |

skin, and duration less than 5 years. With regard to poor illness perceptions, poor personal control over illness was the most significant independent variable associated with psychiatric morbidity followed by patients' beliefs in serious consequences, more perceived severity, less trust in treatment effect, and expected chronic duration of vitiligo.

## Discussion

This study aimed to identify the rate of psychological morbidity in terms of depression and anxiety among patients with vitiligo and to evaluate the relation between patients' beliefs and perceptions regarding vitiligo and the likelihood of increased rate of depression and anxiety.

In this study, the rate of psychiatric morbidity of either depression and/or anxiety among patients with vitiligo was high; 56%. The rate of depression was 37.1%, and anxiety rate was 42.4%. These figures are considerably higher than their prevalence in general population. In the United States, a prevalence of 18.1% for anxiety, and 6.7% for major depression in general population has been reported in 2014.[36] In Europe, 27% of adult population experienced at least one of a series of mental disorders in the past year[37]; 13.9% depression, and 13.6% anxiety disorder.[38] In developing countries, 10%–44% of the general population suffers from depression and anxiety disorders.[39] In Saudi Arabia, several studies have estimated the prevalence of psychiatric morbidities in general population with rates varying in different Saudi populations, age groups, and geographic locations. In central Saudi Arabia, a prevalence of 18% among adults has been reported to have depression and anxiety disorders in 2002.[40] Among residents of Dammam, El Rufaie et al.[41] reported about 17% prevalence of depression. In the southeastern region, nearing 12% prevalence of depression has been reported by Abdelwahid et al.[42] in 2011. In their recent study in Riyadh, Jury et al. described a rate of 59% of depression ranging from mild to moderate and severe. The very high rate described by Jury et al. measured by the Beck Depression Inventory (BDI) scale, is different from the one used in the current study, which was the HADS questionnaire with a cutoff score of ≥8 for borderline cases, and ≥11 for definite case of depression or anxiety.[12] Meanwhile,

HADS showed acceptable performance at a score of ≥7 for HADS-depression subscale and 14 or more for HADS-total score, which, if has been used by this study, the prevalence of depression and anxiety would rise significantly than the above-mentioned figures.[43] Moreover, given the spiritual character of the Holy city Al-Madinah Al-Munawarah, the prevalence of psychiatric disorders in its healthy general population is expected to be lower than in other locations of Saudi Arabia.

The increased rate of psychiatric morbidity is a common association in patients with skin diseases.[8–10] Henkel et al. demonstrated a 40% prevalence of psychiatric comorbidity in adult dermatological out patients using BDI.[11] Al-Huzali et al.[44] reported depression among 40.9% of acne patients in Makkah, Saudi Arabia. A depression of 70.1% in those suffering from vitiligo was described by Layegh et al.,[45] 2010. Mattoo et al.[46] assessed psychiatric morbidity rates at 33.63% and 24.7% for vitiligo and psoriasis, respectively, using General Health Questionnaire (GHQ),and a rate of 25% using Quality of Life (QOL) and psychiatric morbidity questionnaires,[47] while Sharma et al.[9] found depression in 53.3% and 16.22% in the psoriasis and vitiligo patients, respectively, using the GHQ.

The above-mentioned studies described rates of anxiety and depression higher than in their general population. The difference in rating could be owed to different instruments used to assess psychiatric morbidity, different populations of study, different sample sizes, and different times of conducting the studies, which makes liable for seasonal depression.

The current study demonstrated significant association between various dimensions of negative illness perceptions and the increased rate of depression and anxiety in patients with vitiligo. This is in accordance with many studies that demonstrated such significant association in a variety of chronic diseases,[21,23,24,29,48–52] as well as skin diseases.[27,53–68]

Patients with chronic medical problems may actively build their own individual models of beliefs about their illness in a trial to deal with the impact of the illness.[29] Those patients with perceived poor personal control over illness, belief in severe consequences, belief in chronic timeline, more perceived illness severity, and less trust in treatment effect have all been shown to have related psychological morbidity and poor well-being in various chronic illnesses and skin diseases.[21,23,24,29,48–68]

In this study, the perceived poor control over illness was the most important correlate of depression and anxiety. This is comparable with results of Hagger et al.[27] and Scharloo et al.[35] This finding highlighted the importance of patient-centered approach of management aiming at increasing patient empowerment and disease controllability by engaging the patient in decision making regarding their own care.[69]

In the current study, various sociodemographic characteristics were associated with depression and anxiety including patient's young age, female sex, being unmarried, and unemployed. This finding was similar to previous studies.[21,47,57,70] This outcome highlights the psychosocial impact of vitiligo on marriage and employment that was felt most by young adults especially females. Patients with vitiligo has a range of concerns regarding their disease such as physical appearance and stigma, progression of white patches to involve facial skin or the whole body, social isolation, difficulty in getting jobs, and they consider it to be a significant barrier to getting married.[47] However, the association of depression and anxiety with negative illness perceptions was more significant than sociodemographic characteristics.

### Limitations and Strengths

The main limitation of this study is its cross-sectional design without controlling or randomization, which makes it liable for confounding variables, and limits the interpretation of the directions of the associations. Data collected through questionnaires are problematic in terms of subjectivity of responses and possibility of dependent misclassification.[71] The strengths of the study are the relatively high rate of respondents (92.3%) and the use of validated tools for data collection.

## Conclusion

The current study demonstrated a high rate of depression and anxiety among patients with vitiligo compared to general population, which points to the importance of screening of these psychologically vulnerable patients with a valid and reliable tool of assessment of psychiatric morbidity. The patients' perceived poor personal control over their illness, belief in serious consequences, belief in chronic timeline, more perceived illness severity, and less trust in treatment effect have all been shown to be related to increased depression and anxiety. Hence, patients' illness perceptions should be addressed as primary modifiable risk factors in the development of psychiatric morbidity in vitiligo patients. This highlights the importance of exploring patients' beliefs about their illnesses, adopting a model of consultation and communication, which allows patients to express their feelings and concerns to explain the disease process, ensure patient understanding, and to construct a management plan that empowers patients by involving them in decision making regarding their health. Sociodemographic characteristics were associated with psychiatric morbidity as well, which mandates exploring the psychosocial aspects of vitiligo and treating patients in the context of their social circumstances and adopting the typical family medicine biopsychosocial approach of management.

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