

# Psychosocial aspects of rosacea with a focus on anxiety and depression

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**Background:** Rosacea is a common, chronic skin condition characterized by facial redness and inflammatory lesions. The disease can lead to social stigmatization and may significantly reduce the quality of life of patients. Psychosocial impact of rosacea can be severe and debilitating; however, it is still underestimated.

**Objective:** This paper provides a literature review focused on depression and anxiety in patients with rosacea.

**Conclusion:** Rosacea patients have an increased risk of developing depression and anxiety and tend to avoid social situations. However, there are still limited data on this condition. Effective treatment of clinical symptoms brings significant improvement in psychological symptoms. Further studies should be conducted to investigate in more detail the psychological impact of rosacea. In addition, improvement of the efficacy of rosacea treatment is still needed.

**Keywords:** rosacea, depression, anxiety, quality of life, psychosocial distress

## Introduction

Rosacea is a chronic skin condition characterized by erythema, inflammatory papules, pustules and telangiectasias, which typically occur on the face of middle-aged adults, especially fair skinned.<sup>1,2</sup> The disease affects up to 22% of the general population.<sup>3</sup> The etiology of rosacea is multifactorial, but still not fully understood; however, genetic background seems to play a major role in the pathogenesis of this skin condition.<sup>1</sup> There are four subtypes of rosacea created by the National Rosacea Society, namely erythematotelangiectatic, papulopustular, phymatous and ocular form.<sup>4</sup>

In the past, psychiatric illnesses and alcohol abuse were commonly associated with rosacea, and this fact explains why the disease still leads to social stigma.<sup>5</sup> Psychosocial effect of the disease can be severe and debilitating. It has already been described that rosacea can be associated with embarrassment, emotional distress, low self-esteem and avoidance of social situations. All these factors can lead to psychiatric disorders such as depression and anxiety.<sup>6</sup> However, data on the impact of rosacea on the mental condition of patients are still very limited. Here, we have reviewed current literature and summarized our knowledge about the impact of rosacea on depression and anxiety.

## Methods

A search of the CINAHL (Cumulative Index to Nursing and Allied Health Literature) as well as MEDLINE database via PubMed search engine was conducted using the following search terms: “rosacea” and “depression” or “anxiety”. The identified publications were reviewed and analyzed in terms of the relevance to the topic. Our search was

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limited to peer-reviewed journals. A total of 93 records were identified (CINAHL=68 and MEDLINE=25). After removal of duplicates, articles not related to the study aim and review papers, 13 papers were included in final analysis.

## Psychosocial distress in rosacea: depression and anxiety

Facial appearance plays an enormous role in our self-esteem and interactions with other people. Thus, it is not difficult to understand why rosacea patients frequently experience fear of social judgment. Surprisingly, there are still very limited studies on the impact of rosacea on psychosocial condition of patients when compared with other common, chronic skin diseases such as acne, psoriasis, vitiligo or atopic dermatitis.<sup>7–12</sup> The negative impact of rosacea on psychosocial well-being and overall quality of life seems to be underestimated by clinicians.<sup>13</sup> However, psychological factors, such as stress and anxiety, may even aggravate flushing in rosacea, leading to a vicious circle. It further supports the importance of considering not only clinical presentation but also the psychological status of patients with rosacea.<sup>14</sup>

A wrong judgment still exists in a society that the disease is a result of alcohol abuse or violent temperament, thus being a mark of laboring class or simply a betrayal of the person who blushes.<sup>5</sup> To the best of our knowledge, there is only one study in English literature evaluating different aspects of rosacea which contribute to the feeling of stigmatization.<sup>6</sup> In this survey including 807 participants, 30% reported significant level of stigmatization due to rosacea.<sup>6</sup> Importantly, men reported feelings of stigmatization more frequently than women, probably because they suffer from more severe forms of rosacea.<sup>6</sup> The frequency of perceived stigmatization was highest among patients between 18 and 24 years old and in those who were urban residents. Interestingly, risk of stigmatization was found to be higher among patients with positive family history of rosacea. In addition, patients with reported feelings of stigmatization were more likely to avoid social interactions and had a higher rate of depression (36.7% vs 21.1%,  $p<0.001$ ).<sup>6</sup>

Comorbidity between major depressive disease and rosacea was confirmed in another study conducted by Gupta et al<sup>15</sup> from 1995 to 2002.<sup>16</sup> Few other studies also analyzed the impact of rosacea on the development of depressive symptoms.<sup>17–20</sup> However, according to the study by Abram et al,<sup>18</sup> the presence of depressive symptoms is probably not related to the severity of the disease but rather to the subjective rosacea perception by the patients. In contrast, depression itself does not constitute a risk factor for the development of rosacea.<sup>19</sup> Recently, in a Danish nationwide study, it was

shown that mild and moderate-to-severe rosacea increased the risk of both depression (incidence rate ratios [IRR] 1.89 [95% CI 1.82–1.96] and IRR 2.04 [95% CI 1.96–2.12], respectively) and anxiety disorders (IRR 1.80 [95% CI 1.75–1.86] and IRR 1.98 [95% CI 1.91–2.05], respectively).<sup>20</sup>

In the study of Bewley et al,<sup>21</sup> it was shown that facial erythema in rosacea caused significantly more impairment of health-related quality of life (HRQoL) than inflammatory lesions. Furthermore, rosacea patients often demonstrate low self-esteem<sup>22</sup> and present a higher incidence of anxiety compared with the rest of the population.<sup>23</sup> Recurrent flushing seems to play an important role in developing anxiety among rosacea patients.<sup>2</sup> Fear of blushing may lead to social anxiety. Transient erythema could be misinterpreted by other people as an intense emotional response, and, as a coping mechanism, patients with rosacea may avoid social situations.<sup>17</sup> In some patients, anxiety may even resemble panic disorders.<sup>22</sup> Rosacea individuals may also feel that their facial defect diminishes their sexual attractiveness and limits career development.<sup>6,22</sup> In a recent study by Wu et al,<sup>23</sup> significantly higher Dermatology Life Quality Index (DLQI), anxiety and depression scores were observed in the rosacea group compared to the control group. Total DLQI score of patients was positively related to anxiety and depression scores.<sup>23</sup>

As already mentioned, erythema seems to have a major implication on patient's HRQoL. However, it is difficult to provide in-depth characteristics of HRQoL impairment among rosacea patients, as there are just few studies analyzing this aspect of rosacea. Second, different questionnaires are being chosen between various studies. The rosacea-specific quality of life questionnaire is a validated 21-item form covering three aspects of the disease: symptomatic, emotional and functional.<sup>24</sup> Using this questionnaire in a cross-sectional analysis of 135 patients, it was shown that phymatous form of rosacea is causing overall more HRQoL impairment than other rosacea subtypes.<sup>25</sup> Furthermore, rosacea is causing as much reduction of HRQoL level as other chronic skin conditions, such as vitiligo, occupational dermatitis and leg ulcers.<sup>25</sup> In another study evaluating the association between DLQI scoring and anxiety and depression symptoms in rosacea, symptoms of anxiety and depression were indirectly linked with somatic symptoms, mediated through quality of life level and stigmatization feeling.<sup>26</sup> Remarkably, men were more negatively affected by the disease than women.<sup>26</sup> This result again indicates a more severe psychological effect of rosacea among male gender, despite that female tend to suffer from the disease more often. In Table 1, we have summarized currently available data on depression and anxiety in patients with rosacea.

**Table I** Summary of studies focusing on impact of rosacea on stigmatization, quality of life, anxiety and depression

Study	Sample size	Methods	Major findings
Gupta et al, 2005 <sup>15</sup>	Over 13.9 million patients	- ICD-9-CM codes	94,521 (0.68%) rosacea patients also had a diagnosis of a depressive disease, which constitutes ~70% of all psychiatric comorbidities among rosacea patients. This was much higher than the 29.9% prevalence of depression among all psychiatric patient visits.
Abram et al, 2009 <sup>18</sup>	70 patients attending a dermatologist (seekers) and 56 with rosacea selected randomly from the population (non-seekers)	- VAS assessing how disturbing rosacea was during the past 4 weeks - Estonian Mood Scale questionnaire	Seekers presented significantly higher VAS scores ( $6.2 \pm 3.1$ ) compared with non-seekers ( $3.1 \pm 2.7$ ) ( $p < 0.001$ ). Higher mean VAS scores were associated with the presence of depressive symptoms, but not with the disease severity. Health care-seeking behavior was associated with higher subjective disease perception.
Bewley et al, 2016 <sup>21</sup>	5 randomized controlled trials 1 open-label safety study 1 epidemiological study	- DLQI - EQ5D - FRQ - PSLQ	Regarding EQ5D index, domains of pain/discomfort (31.5% moderate or extreme pain) and anxiety/depression (26.4% moderate or extreme) were mostly affected. Almost half (43%) of the subjects had at least moderately impaired HRQoL, including 19.8% with a DLQI total score of $\geq 10$ points indicating severely impaired HRQoL. Among subjects self-assessing their rosacea as severe, almost two-thirds (62%) reported that their erythema of rosacea at least somewhat interfered with their social life and almost half (47.8%) with their work life. Erythema of rosacea causes a marked decrease of HRQoL in most patients, especially those with self-perceived severe erythema and without inflammatory lesions.
Spoendlin et al, 2014 <sup>19</sup>	Case-control study among 53,927 rosacea patients	UK-based General Practice Research Database	Depression or other affective disorders were not associated with incident rosacea, whereas patients with schizophrenia were at a decreased risk of rosacea. A decreased risk of rosacea among people with chronic lithium exposure was observed.
Moustafa et al, 2014 <sup>24</sup>	17 studies	A search of the MEDLINE, EMBASE and psychINFO databases	Patients with rosacea have higher incidences of embarrassment, social anxiety, depression and decreased quality of life compared with the rest of the population.
Su and Drummond, 2012 <sup>17</sup>	31 patients	- Blushing Propensity Scale, - the Fear of Negative Evaluation Questionnaire - the Phobia Scale - Depression Anxiety and Stress Scale - the Social Interaction Anxiety Scale - the Social Phobia Scale	Blushing propensity scores were elevated in people with severe rosacea. Fear of blushing may contribute to social anxiety and avoidance. Cognitive-behavioral therapy for fear of blushing may help to reduce social anxiety in people with severe rosacea. Participants with extensive facial papules and pustules had higher blushing propensity, stress and social phobia scores than controls or those without papules or pustules. Cognitive-behavioral therapy appeared to be helpful for managing social anxiety in some individuals with rosacea with a fear of blushing.
Chodkiewicz et al, 2007 <sup>16</sup>	40 people with rosacea and 40 controls	Details not available	Patients with rosacea were less satisfied with their lives, subjectively felt that they receive poor social support, had difficulty in functioning in everyday life, worse general health perception, along with a higher level of anxiety and depression. Level of anxiety and depression and social integration were proved to be the predictors of life satisfaction.
Bohm et al, 2014 <sup>26</sup>	168 patients	- DLQI, - the rejection scale of the Questionnaire on Experience with Skin Complaints (QES) - HADS	Symptoms of anxiety and depression were indirectly linked with somatic symptoms, mediated through quality of life and stigmatization.

(Continued)

**Table I** (Continued)

Study	Sample size	Methods	Major findings
Egeberg et al, 2016 <sup>20</sup>	4,632,341 people	Nationwide registers	Mild and moderate-to-severe rosacea increased the risk of both depression and anxiety disorders.
Wu et al, 2017 <sup>23</sup>	201 rosacea patients, 196 controls	- HADS - DLQI	Patients with rosacea had significantly higher level of depression and anxiety. Quality of life impairment was significantly related to anxiety and depression scores.

**Abbreviations:** DLQI, Dermatology Life Quality Index; EQ5D, EuroQol-5D; FRQ, Facial Redness Questionnaire; HADS, Hospital Anxiety and Depression Scale; HRQoL, health-related quality of life; PSLQ, Productivity and Social Life Questionnaire; VAS, visual analog scale.

## Treatment of psychological symptoms

Different studies confirm that appropriate treatment apart from clinical improvement also brings improvement in psychological symptoms and HRQoL of rosacea patients.<sup>24</sup> In the past few decades, there have been several advances in rosacea treatment. However, options for treating erythema, especially in the case of flushing, are still limited. New treatment methods, such as laser therapy (eg, pulsed dye laser and diode laser) or topical 0.33% brimonidine gel, are still not fully satisfactory for many patients.<sup>27–30</sup> Intradermal botulinum toxin injection on refractory erythema and rosacea flushing can also be beneficial; however, further investigations are needed.<sup>31</sup> In some cases, psychological help, such as cognitive-behavioral therapy, may be considered as a helpful method for managing social anxiety.<sup>17</sup> However, in fact, any treatment which targets fear of blushing may help to reduce social anxiety and depressive mood in people with rosacea.<sup>17</sup> Different studies confirmed that currently available methods of rosacea treatment improve to some extent HRQoL,<sup>32–34</sup> and, by extrapolation, they should also bring improvement in psychological well-being, although more detailed data on this matter are still needed.

## Conclusion

Psychosocial effect of rosacea can be severe and debilitating and lead to social anxiety and depression. Men tend to experience more severe psychological impairment compared to women. The problem of stigmatization and psychosocial distress in rosacea is still underestimated, and it is important for clinicians to acknowledge the psychological impact of this disease to stimulate them to introduce more comprehensive treatment. Psychological support may be considered as an additional therapy to medical treatment as it may improve patient's outcomes. All treatment methods that lead to improvement of rosacea symptoms result in better quality of life of patients.

## Disclosure

The authors report no conflicts of interest in this work.

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