Acta Derm Venereol 2013; 93: 446–450

CLINICAL REPORT

Quality of Life and Emotional State in Vitiligo in an Estonian Sample: Comparison with Psoriasis and Healthy Controls

Maire KARELSON, Helgi SILM and Külli KINGO
Department of Dermatology and Venereology, University of Tartu, Tartu, Estonia

The impact of vitiligo on quality of life is controversial. The aim of this study was to observe the impairment of quality of life and emotional state in adults with vitiligo compared with subjects with psoriasis and unaffected controls. The study group comprised 54 subjects with vitiligo, 57 with psoriasis and 57 unaffected controls. All subjects were examined and interviewed using the Dermatology Life Quality Index (DLQI) and Emotional State questionnaires. The total mean DLQI score in vitiligo was 4.7, compared with 0.6 in healthy controls ($p < 0.001$) and 13.1 in psoriasis ($p < 0.001$). In vitiligo, females experienced a greater impact on feelings and men experienced a greater impact on relationships. Lower quality of life in vitiligo was associated with active stage of the disease, extension of pigment loss, depigmentation on the hands, and earlier onset of disease. The results demonstrate that vitiligo has less impact on quality of life than psoriasis. ***Key words: vitiligo; quality of life; emotional state; adult.***

Accepted Sep 29, 2012; Epub ahead of print Dec 18, 2012

Acta Derm Venereol 2013; 93: 446–450.

Maire Karelson, Department of Dermatology and Venereology, University of Tartu, 31 Raja Street, EE-50417 Tartu, Estonia. E-mail: maire.karelson@kliinikum.ee

Vitiligo is a common pigmentary disease with a worldwide prevalence of 0.5–1%. The estimated number of cases of vitiligo in Estonia, which has a population of 1.3 million, is approximately 13,000. Our understanding of psychological and disease-related problems in vitiligo is increasing. Vitiligo does not cause notable physical impairment, but affects well-being and self-esteem by predisposing subjects to social isolation, depression, and problems with sexual relationships and the likelihood of marriage (1–3). People with dark skin colour are more stigmatized (4, 5). Quality of life (QoL) issues that arise from the loss of pigment include: choosing clothes, use of sun-blocks, use of make-up, avoidance of activities, and negative reactions of others (6–8). Some studies have shown psychiatric comorbidity in patients with vitiligo; the prevalence in Europe and in India is between 25% and 35% (8–11).

The aims of the present study were to measure impairment of QoL in adult subjects with vitiligo, using the Dermatology Life Quality Index (DLQI) and Emotional State Questionnaires (ES-Q), and to compare the results with data for patients with psoriasis and healthy volunteers. A further aim was to identify vitiligo subjects with emotional problems and suspected mood disorders based on patient assessment of self-esteem.

MATERIALS AND METHODS

A case-control study was conducted at the Department of Dermatology and Venereology of Tartu University from August 2009 to October 2011. The study was approved by the Ethics Review Committee on Human Research of the University of Tartu. Written informed consent was provided by all participants. Subjects with vitiligo were recruited from patients attending the outpatient department at the dermatology clinic, subjects with psoriasis were recruited from the inpatient department of the clinic, and healthy subjects were recruited from people attending the clinic who had benign skin tumours.

All participants (≥ 18 years) were interviewed and examined by an experienced dermatologist, who carried out an assessment of body surface area (BSA) in vitiligo and Psoriasis Area and Severity Index (PASI) in psoriasis. A questionnaire, collecting data on subjects' age, sex, nationality and clinical characteristics of the disease, was completed by the same dermatologist.

The Dermatology Life Quality Index (DLQI) questionnaire, validated Estonian version, was implemented to determine the impact of QoL on all the study subjects (12). Ten items (Q1–2 symptoms and feelings, Q3–4 daily activities, Q5–6 leisure, Q7 work/school, Q8–9 personal relationships, Q10 treatment) were answered in the DLQI questionnaire in a short time on a 4-point scale (0–3). The sum of the scores ranged from 0 to 30.

The ES-Q, validated Estonian version, was used to assess the traits of depression and anxiety (13). The ES-Q contains 28 items and is answered on a 5-point scale (0–4). Eight items (sadness, loss of interest, inferiority, self-accusation, hopelessness about the future, thoughts of suicide, feeling of loneliness, and inability to be joyful) with a cut-off score of 12 for depression; 6 items (rapid irritation or getting angry, anxiety or being afraid, feeling of stress or inability to relax, worrying too much about many things, physical restlessness, and being frightened very easily), with a cut-off score of 12 for general anxiety; 5 items (sudden attacks of panic with palpitation, lack of air, feeling of fainting or other frightening physical symptoms, fear of being alone away from home, being afraid in public places or streets, fear of fainting in crowds, fear of being in a bus, tram, train or car) with cut-off scores of 7 for panic disorder; 2 items (fear of being the centre of attention, fear of communicating with strangers) with cut-off scores 4 for social phobia; 4 items (passivity or fatigue, decreased ability to concentrate or to pay attention, rest does not provide strength; and rapid tiredness) with cut-off scores 6 for asthenia; 3 items (difficulty falling asleep, restlessness or fragmentary sleep, and awakening too early) with cut-off scores of 5 for sleep disturbance. The DLQI and ES-Q questionnaires were both completed by the subjects.

The data following a normal distribution were parametrically tested by unpaired *t*-test and the data not following a normal distribution by Mann–Whitney *t*-test using Graphpad Prism 4 software (GraphPad Software, San Diego, CA, USA). For all tests, a *p*-value <0.05 was considered significant.

RESULTS

The study group comprised 54 subjects with vitiligo (32 women, 22 men; mean age 36.6 years; mean disease duration 11.3 years), 57 subjects with psoriasis (30 women, 27 men; mean age 40.0 years; mean disease duration 18.6 years) and 57 unaffected controls (34 females, 23 males; mean age 39.7 years). All subjects were Caucasians with skin phototype I–IV (vitiligo: 17-II, 36-III, 1-IV; psoriasis: 1-I, 23-II, 33-III; healthy controls: 28-II, 28-III, 1-IV).

The main clinical type of vitiligo was vulgar vitiligo (43, 79.6%), followed by focal (4, 7.4%), acrofacial (3, 5.6%), segmental (3, 5.6%) and universal vitiligo (1, 1.9%). In 34 (63.0%) cases pigment loss did not exceed 10% of BSA, in 15 (27.8%) cases it remained between 11% and 50% of BSA, and in 5 (9.3%) cases it exceeded 50% of BSA.

All subjects with psoriasis had plaque-type psoriasis (mean PASI 12.9, range 1–37), with nail involvement in 42 cases (73.7%) and arthritis in 19 cases (33.3%).

The total mean DLQI score in vitiligo was 4.7 (range 0–22), which is statistically significantly higher than 0.6 (range 0–5) in healthy controls ($p<0.001$) and statistically significantly lower than 13.1 (range 1–30) in psoriasis ($p<0.001$).

Based on the interpretation of the results of the DLQI scale, no impairment in QoL was found in 9 cases (16.7%) of vitiligo and in 4 cases (7%) of psoriasis, a small impairment of QoL was found in 29 (53.7%) and in 10 (17.5%), moderate impairment of QoL was found in 12 (22.2%) and in 11 (19.0%), large impairment of QoL was found in 3 (5.6%) and in 20 (30%), a very large impairment of QoL in 1 (1.9 %) and in 12 (21%), respectively (Fig. 1).

Vitiligo has a highly significant impact on patients' QoL on the scale of symptoms and feelings ($p<0.001$), daily activities ($p<0.001$), leisure ($p<0.001$), but also treatment ($p<0.01$) and personal relationships ($p<0.05$), compared with healthy volunteers. Vitiligo does not influence activities such as going to school or work compared with healthy controls (Fig. 2). The highest individual mean scores in vitiligo were obtained in Q4 (clothing 1.07), Q2 (feelings 0.98) and Q5 (leisure 0.63).

Some differences in scale of DLQI individual items in the vitiligo group were related to gender. Female gender was associated with higher DLQI scores in feelings ($p=0.003$) and male gender was associated with higher DLQI scores in relationships ($p=0.040$).

Subjects with psoriasis showed higher mean scores in every DLQI item evaluated, compared with healthy controls and with vitiligo, and all these differences were statistically significant.

In vitiligo the total DLQI was associated with disease activity ($p=0.006$), disease extension (BSA $\leq 10\%$ vs. $>10\%$; $p=0.005$), depigmentation of the hands ($p=0.008$); and earlier disease onset (≤ 20 vs. >20 years; $p=0.040$). Total DLQI was not influenced by gender, age, disease duration, pigment loss on other parts of the body, previous treatment, family history of vitiligo and concomitant diseases in subjects with vitiligo. Total DLQI mean score was the highest (6.1) in the age group 40–49 years.

In psoriasis DLQI was associated with severity of the disease (PASI up to 10 vs. 20 or more; $p=0.027$) and concomitant arthritis ($p=0.019$). Nail involvement did not show a statistically significant effect ($p=0.062$) on QoL. In subjects with psoriasis DLQI was not associated with gender, age, disease duration or family history of psoriasis.

Analysis of the ES-Q item scale did not reveal any statistically significant differences in the mean scores for depression, general or social anxiety, panic, asthenia and insomnia in vitiligo compared with healthy controls. According to the scores 20% of the subjects had depression and 22% had general anxiety. Subjects with depression scored higher on the DLQI scale than did non-depressed subjects with vitiligo (7.18 vs. 4.19, $p<0.05$) and had developed vitiligo earlier (mean age 18.1 vs. 27.1 years). In addition, based on the cut-off score, 41% of subjects with vitiligo had asthenia with

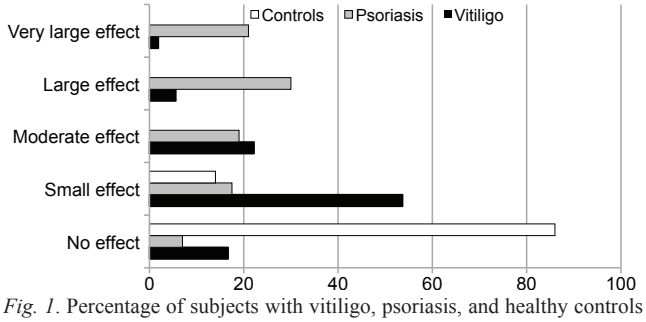

Fig. 1. Percentage of subjects with vitiligo, psoriasis, and healthy controls who answered the Dermatology Life Quality Index (DLQI) questionnaire on the scale from "no effect" to "very large effect".

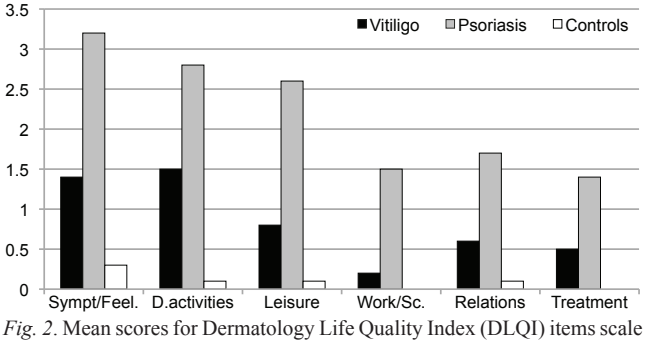

Fig. 2. Mean scores for Dermatology Life Quality Index (DLQI) items scale in the vitiligo group, psoriasis group and healthy controls.

fatigue, 30% had sleep disturbances, 7% had social phobia, and 2% had symptoms of panic disorder.

Subjects with psoriasis showed statistically higher scores on the ES-Q item scale in depression ($p < 0.05$), general anxiety ($p < 0.01$) and asthenia ($p < 0.05$), compared with vitiligo. Comparison between psoriasis and healthy controls accentuated statistically important differences in every item: depression ($p < 0.001$), general anxiety ($p < 0.001$) and insomnia ($p < 0.001$), but also panic ($p < 0.01$), asthenia ($p < 0.01$) and social anxiety ($p < 0.05$) (Fig. 3).

DISCUSSION

This case-control study in fair-skinned subjects demonstrates a small, but close to moderate, disease-related effect of vitiligo on QoL. The mean DLQI score was 4.7, which is significantly higher than in healthy controls with no impact on QoL (DLQI 0.6). The mean DLQI score in vitiligo in the present study is in agreement with studies from Belgium (DLQI 4.9), the UK (DLQI 4.8) and Indonesia (DLQI 4.4) (9, 14, 15). Studies from other regions of the world have shown higher mean DLQI scores in vitiligo: 5.9 in Japan (16), 7.0 in Germany (17), 7.1–8.2 in Iran (5, 18, 19), 7.2 in France (20), 8.4 in China (3), 10.7 in India (21), and 14.7 and 17.1 in Saudi Arabia (22, 23). Higher DLQI scores are associated with darker skin, as the contrast with skin colour in dark-skinned people attracts more unwanted attention, which is emotionally disturbing and upsetting. In our vitiligo population the mean DLQI was not associated with gender, age, disease duration or family history of vitiligo. The same results were reported by Wong & Baba (24) in a survey of Malaysian patients with vitiligo. Several studies have reported lower QoL in women with vitiligo, who may be more emotional and sensitive about their appearance (17, 19, 23, 25, 26). Subjects with vitiligo were affected on every individual DLQI item compared with healthy volunteers, but to a greater extent in terms of symptoms and feelings, leisure and daily activities, which is in agreement with Ongenae et al. (14) and Wang et al. (3). This confirms that subjects with vitiligo are embarrassed and do not feel free to dress as they wish and spend time with others, and feel the need to choose clothes to hide their skin imperfections. In the vitiligo group women scored statistically higher in symptoms and feelings compared with men, and men were more impaired in sexual or other personal relations compared with women. The latter outcome clearly shows that diverse skin colour can influence sexual and personal relations of both genders. Vitiligo has no impact on activities such as going to school or work, as pigment loss does not cause physical disability and this is in agreement with the results of other studies (3, 14, 17, 24).

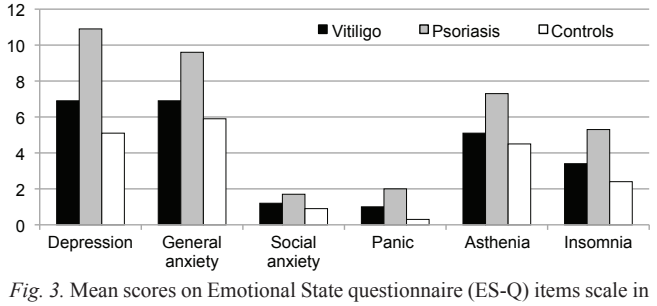

Fig. 3. Mean scores on Emotional State questionnaire (ES-Q) items scale in the vitiligo group, psoriasis group and healthy controls.

In the present study the total DLQI in vitiligo was associated with disease activity, extension, depigmentation on the hands and earlier disease onset. There are no reports in the literature confirming that impairment of QoL is associated with active stage of the disease or earlier disease onset. It is not surprising that the development of new lesions is upsetting for the patient, as there are no treatments that improve the lifelong course of the disease or control pigment loss, which adversely affects patient's confidence. The fact that those who develop vitiligo earlier in life have higher DLQI scores highlights the difficulties and disturbance in emotional state caused by coping with vitiligo (27). Subjects with vitiligo who were depressed had a lower quality of life compared with non-depressed subjects with vitiligo.

Papadopoulos et al. (28) showed the benefit of cognitive behavioural therapy in vitiligo. Most studies have emphasized the association between disease extension and lower QoL (3, 5, 14, 21, 25, 29). Vitiligo on exposed areas, such as the face and hands, has a serious negative impact on QoL (18, 24, 29). Make-up decreases the mean DLQI score in women with vitiligo by 1–1.5 score-points and is highly recommended for subjects with pigment loss on exposed areas (16, 30). This may explain why our vitiligo group showed a negative impact only of pigment loss on the hands, but not on the face. Many women are accustomed to using make-up on the face, but it is less common, and therefore less comfortable for them to use make-up on other parts of the body.

Patients with psoriasis were more disabled and showed more severe impairment in QoL compared with patients with vitiligo and healthy controls. Predictive clinical factors for low QoL were disease severity and concomitant arthritis. QoL was impaired in every DLQI item with 2 or 3 times higher mean score compared with vitiligo. The highest scores of DLQI individual scale in psoriasis were obtained in symptoms and feelings, daily activities and leisure. This profile is in agreement with previous studies in which psoriasis was compared with vitiligo (14, 17). We did not find an interaction of disease and gender on DLQI in psoriasis, as was previously reported by Ongenae et al. (14).

Based on the results of ES-Q, every fifth subject with vitiligo had symptoms of depression and anxiety, every

third had asthenia and sleep disturbances, but compared with healthy controls these differences did not show statistical significance. Studies have reported psychiatric morbidity in up to 35% of subjects with vitiligo in Europe, but the correlation with disease severity or extension is weak (8, 11). This confirms that other factors unrelated to the disease, such as personality traits and socio-economic factors, are influenced in psychiatric morbidity. Several personality characteristics, such as alexithymia, insecure attachment and poor social support, have also increased susceptibility to vitiligo, and the mechanism could be reduced ability to cope with stress (31).

In this study subjects with psoriasis were emotionally more disabled than those with vitiligo: 42% had symptoms of depression, 33% had general anxiety, and 65% had asthenia. The high number of subjects with a disturbed emotional state in psoriasis could be explained by the fact that the majority of subjects were recruited from the inpatient department, and had either moderate or severe disease with arthritis. Comparison with healthy subjects revealed a significant impairment in emotional state for every evaluated item. Previous studies have found the prevalence of psychiatric comorbidity in psoriasis to be 24–53%, and our results agree with this figure (8, 11, 32).

Conclusion

This case-control study of fair-skinned subjects demonstrates the low level of disease-related impairment in QoL in vitiligo compared with the severe impairment in QoL in psoriasis. In vitiligo women experienced a greater impact on feelings and men experienced a greater impact on relationships; the latter effect has not been shown previously. Lower QoL in vitiligo was associated with active stage of the disease and earlier disease onset, in addition to extension of pigment loss and depigmentation on the hands. Comparison with healthy controls did not show any statistically important difference in subjects' emotional state in vitiligo. However, subjects with depression scored higher on DLQI scale compared with non-depressed subjects with vitiligo. Subjects with psoriasis were more disabled and showed statistically higher scores on the ES-Q items scale of depression, general anxiety and asthenia compared with vitiligo and in every item compared with healthy controls.

There are some limitations to this study. The groups of subjects being compared were quite small, thus it was not possible to extrapolate the results. Most of the subjects with psoriasis were recruited from the hospital population, which may cause bias in terms of the remarkably lower QoL in this group subjects.

ACKNOWLEDGEMENTS

This study was financially supported by target-based funding from the Estonian Ministry of Education (grant No. SF0180043s07) and by the European Union through the European Social Fund.

The authors declare no conflicts of interest.

REFERENCES

1. Mechri A, Amri M, Douarika AA, Ali Hichem BH, Zouari B, Zili J. Psychiatric morbidity and quality of life in vitiligo: a case controlled study. La Tunisie Médicale 2006; 84: 632–635.
2. Firooz A, Bouzari N, Fallah N, Ghazisaidi B, Firoozabadi MR, Dowlati Y. What patients with vitiligo believe about their condition. Int J Dermatol 2004; 43: 811–814.
3. Wang KY, Wang KH, Zhang ZP. Health-related quality of life and marital quality of vitiligo patients in China. J Eur Acad Dermatol Venereol 2011; 25: 429–435.
4. Linthorst Homan MW, Spuls PI, de Korte J, Bos JD, Sprangers MA, van der Veen JP. The burden of vitiligo: patient characteristics associated with quality of life. J Am Acad Dermatol 2009; 61: 411–420.
5. Dolatshahi M, Ghazi P, Feizy V, Hemami MR. Life quality assessment among patients with vitiligo: comparison of married and single patients in Iran. Indian J Dermatol Venereol Leprol 2008; 74: 700.
6. Chren MM, Lasek RJ, Sahay AP, Sands LP. Measurement properties of Skindex-16: a brief quality-of-life measure for patients with skin diseases. J Cutan Med 2001; 5: 105–110.
7. Porter J. The psychological effects of vitiligo: response to impaired appearance. In: Hann SK, Nordlund JJ, editors. Vitiligo: a monograph on the basic and clinical science. Oxford: Blackwell Science, 2000: p. 97–100.
8. Mattoo SK, Handa S, Kaur I, Gupta N, Malhotra R. Psychiatric morbidity in vitiligo: prevalence and correlates in India. J Eur Acad Dermatol Venereol 2002; 16: 573–578.
9. Kent G, al-Abadie M. Factors affecting responses on Dermatology Life Quality Index items among vitiligo sufferers. Clin Exp Dermatol 1996; 21: 330–333.
10. Picardi A, Abeni D, Melchi CE, Puddu P, Pasquini P. Psychiatric morbidity in dermmatological outpatients: an issue to be recognized. Br J Dermatol 2000; 143: 983–991.
11. Matoo SK, Handa S, Kaur I, Gupta N, Malhotra R. Psychiatric morbidity in vitiligo and psoriasis: a comparative study from India. J Dermatol 2001; 28: 424–432.
12. Finlay AY, Khan GK. Dermatology Life Quality Index (DLQI) – a simple practical measure for routine clinical use. Clin Exp Dermatol 1994; 19: 210–216.
13. Aluoja A, Shlik J, Vasar V, Luuk K, Leinsalu M. Development and psychometric properties of the Emotional State Questionnaire, a self-report questionnaire for depression and anxiety. Nord J Psychiatry 1999; 53: 443–449.
14. Ongenae K, Van Geel N, De Schepper S, Naeyaert JM. Effect of vitiligo on self-reported health-related quality of life. Br J Dermatol 2005; 152: 1165–1172.
15. Chan MF, Chua TL, Goh BK, Aw CW, Thng TG, Lee SM. Investigating factors associated with depression of vitiligo patients in Singapore. J Clin Nursing 2012; 21: 1614–1621.
16. Tanioka M, Yamamoto Y, Kato M, Miyachi Y. Camouflage for patients with vitiligo vulgaris improved their quality of life. J Cosmet Dermatol 2010; 9: 72–75.
17. Radtke MA, Schäfer I, Gajur A, Langenbruch A, Augustin

M. Willingness-to-pay and quality of life in patients with vitiligo. Br J Dermatol 2009; 161: 134–139.
18. Aghaei S, Sodaifi M, Jafari P, Mazharinia N, Finlay AY. DLQI scores in vitiligo: reliability and validity of the Persian version. BMC Dermatology 2004; 4: 8.
19. Mashayekhi V, Javidi Z, Kiafar B, Manteghi AA, Saadatian V, Esmaeili HA. Quality of life in patients with vitiligo: a descriptive study on 83 patients attending a PUVA therapy unit in Imam Reza Hospital, Mashad. Indian J Dermatol Venereol Leprol 2010; 76: 592.
20. Kostopoulou P, Jouary T, Quintard B, Ezzedine K, Marques S, Boutchnei S, et al. Objective vs. subjective factors in the psychological impact of vitiligo: the experience from a French referral centre. Br J Dermatol 2009; 161: 128–133.
21. Parsad D, Pandhi R, Dogra S, Kanwar AJ, Kumar B. Dermatology Life Quality Index score in vitiligo and its impact on the treatment outcome. Br J Dermatol 2003; 148: 373–374.
22. Al Robaee A. Assessment of quality of life in Saudi patients with vitiligo in a medical school in Qassim province, Saudi Arabia. Saudi Med J 2007; 28: 1414–1417.
23. Al-Mubarak L, Al-Mohanna H, Al-Issa A, Jabak M, Mulekar SV. Quality of life in Saudi vitiligo patients. J Cut Aest Surgery 2011; 4: 33–37.
24. Wong SM, Baba R. Quality of life among Malaysian patients with vitiligo. Int J Dermatol 2012; 51: 158–161.
25. Belhadjali H, Amri M, Mecheri A, Doarika A, Khorchani H, Youssef M, et al. Vitiligo and quality of life: a case-control study. Ann Dermatol Venereol 2007; 134: 233–236.
26. Borimnejad L, Parsa Yekta Z, Nikbakht-Nasrabadi A, Firooz A. Quality of life with vitiligo: comparison of male and female muslim patients in Iran. Gender Med 2006; 3: 124–130.
27. Ongenae K, Beelaert L, van Geel N, Naeyaert J-M. Psychosocial effects of vitiligo. J Eur Dermatol Venereol 2006; 20: 1–8.
28. Papadopoulos L, Bor R, Legg C. Coping with disfiguring effects of vitiligo: a preliminary investigation into the effects of cognitive-behavioral therapy. Br J Med Psychol 1999; 72: 385–396.
29. Ingordo V, Cazzaniga S, Gentile C, Iannazzone SS, Cusano F, Naldi L. Dermatology Life Quality Index score in vitiligo patients: a pilot study among young Italian males. G Ital Dermatol Venereol 2012; 147: 83–90.
30. Ongenae K, Dierckxsens L, Brochez L, van Geel N, Naeyaert JM. Quality of life and stigmatization profile in a cohort of vitiligo patients and effect of the use of camouflage. Dermatology 2005; 210: 279–285.
31. Picardi A, Pasquini P, Cattaruzza MS, Gaetano P, Melchi CF, Baliva G, et al. Stressful life events, social support, attachment security and alexithymia in vitiligo. A case-control study. Psychother Psychosom 2003; 72: 150–158.
32. Sharma N, Koranne RV, Singh RK. Psychiatric morbidity in psoriasis and vitiligo: a comparative study. J Dermatol 2001; 28: 419–423.