

# Evaluation of quality of life in children with vitiligo referred to pediatric dermatology clinic

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## Abstract

**Background** Current evidence shows that quality of life in children with chronic dermatologic diseases can be profoundly affected. The objective of the study is to evaluate impact of vitiligo on quality of life of children with vitiligo.

**Methods** This is a cross-sectional study on children aged between 4-16 years old with vitiligo referred to pediatric dermatologic clinic. Demographics and clinical features of patients were recorded. Then, Persian version of childhood dermatology life quality index (CDLQI) questionnaire was completed by the patients. Data was analyzed by SPSS 16 (software IBM, Armonk, NY, USA). Mann-Whitney, Kruskal-Wallis and Spearman's correlation were utilized for analysis of data.

**Results** Sixty-one children with vitiligo were enrolled the study. Mean age of patients was 10.3±3.39 years old. Mean score of quality of life was 3.6±4.2. Vitiligo had mild, moderate and severe impact on quality of life in 37.7%, 14.8% and 4.9% of cases, respectively. The most common factors which had negative effects on quality of life of the patients were emotional distress, treatment and type of dressing. There was a significant association between type of vitiligo, percentage of involvement, course of disease and age of the patients with quality of life.

**Conclusion** In this study, vitiligo mostly had no effect on quality of life of children. Children with vulgaris type of vitiligo, higher percentage of involvement and progressive course had lower quality of life. Moreover, older children or patients with longer duration of disease had significantly lower quality of life.

## Key words

Vitiligo; Quality; Children.

## Introduction

Vitiligo is an acquired pigmentary dermatologic disease that is caused by autoimmune destruction of melanocytes. It has been estimated that nearly 0.5-2% of world population are suffering from vitiligo. Approximately half of the cases present in patients younger than 20 years old.<sup>1,2</sup>

Current evidence shows that quality of life in

children with chronic dermatologic diseases can be even lower than children with serious systemic diseases. This can be due to visibility

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of skin diseases that leads to lower self-confidence of patients and develops psychological symptoms such as depression, embracement, anxiety and eventually social isolation of children.<sup>3-8</sup>

Several factors such as socioeconomic status, educational status, and demographic characteristics (i.e. age, sex and skin type) can have remarkable effects on quality of life of the patients; for example, vitiligo patients with darker skin type usually have lower quality of life which can be related to higher contrast between normal skin and vitiligo lesions and as a result more visibility of lesions in darker skin types.<sup>3,4,9</sup>

In the treatment of patients with chronic skin diseases, most physicians only concentrate on treatment of skin lesions and physical symptoms associated to it, while underestimating psychological impact of skin diseases on social and personal aspects of life in patients.<sup>10-15</sup> In this study, we decided to evaluate impact of vitiligo on quality of life of children with vitiligo referred to pediatric dermatology clinic.

## **Material and methods**

This is a cross-sectional study on children with vitiligo referred to pediatric dermatologic clinic. Firstly, an informed consent was taken from participants and parents. Inclusion criterion was vitiligo patients aged between 4-16 years old who had the ability to write and read. Children who were affected by other dermatologic or systemic diseases with possible impact on quality of life were excluded from the study. Thereafter, demographics and clinical features of patients (including age, sex, disease duration, type and site of vitiligo as well as family history of vitiligo) were recorded. Then, Persian version of childhood dermatology life quality index (CDLQI) questionnaire that evaluates quality of life in children with skin disease was completed

by the patients. This questionnaire which validity and reliability of it was previously confirmed (Cronbach's  $\alpha=0.87$ ) evaluates impact of dermatologic diseases on different aspects of life in children during one week ago.<sup>16</sup> It contains ten questions about impact of skin disease on pruritus, mood, sleeping conditions, social activities, educational activities, leisure time, type of dressing, eating and bathing habits as well as treatment. Each question has four choices that evaluates the level of impact; graded from none, little, nearly a lot and a lot and scored from 0 to 3. The final score of quality of life varies from 0 to 30, and is calculated by summing of scores of ten questions. The higher scores represent the more negative impact of skin disease on quality of life of the patients. This proposal was approved with ethical code of IR.KMU.AH.REC.1396.1779/2017 in ethics committee of Kerman University of medical sciences. Data was analyzed by SPSS 16 (software IBM, Armonk, NY, USA). Mann-Whitney, Kruskal-Wallis and Spearman's correlation were utilized for analysis of data.

## **Results**

Sixty-one children with vitiligo (37 girls and 24 boys) were enrolled the study. Mean age of the patients was  $10.3\pm 3.39$  (ranging 4-16) years old. Mean duration of vitiligo was 3.44 years (ranging 2 months to 11.4 years). Duration of vitiligo in most of the patients (62.3%) was between 1-5 years. The most common type of vitiligo was vulgaris (62.3%). The most common site of involvement was head and neck (34.4%). In most of the cases (39.3%) less than 1% of the body was involved (**Table 1**).

Mean score of quality of life was  $3.6\pm 4.2$  (median=2, minimum=0 and maximum=15). In most of the patients (42.6%), vitiligo had no impact on quality of their lives; while it had mild, moderate and severe impact on quality of life in 37.7%, 14.8% and 4.9% of cases,

**Table 1** Association between quality of life in children with vitiligo with demographics and clinical features.

Variables	Frequency N (%)	Quality of life score			Interquartile range	P. Value
		Minimum	Maximum	Median		
Sex	Male	24 (39.3)	0	14	2	0.833
	Female	37 (60.7)	0	15	2	
Type of disease	Focal	20 (32.8)	0	10	1	0.006
	Segmental	3 (4.9)	2	10	3	
	Vulgaris	38 (62.3)	0	15	3.5	
Percentage of involvement	<1	24 (39.3)	0	10	1	0
	1-5	18 (29.5)	0	9	1.5	
	5-10	10 (16.4)	0	10	6	
History of recurrence	>10	9 (14.8)	1	15	8	0
	No	50 (81.9)	0	14	2	
Progressive course	Yes	11 (18)	0	15	4	0.289
	No	51 (83.6)	0	14	1	

respectively. The most common factors which had negative effects on quality of life of the patients were emotional distress (question of two with mean score of 0.8), treatment (question of ten with mean score of 0.62) and type of dressing (question of four with mean score of 0.54). The least common factors on quality of life were sleep patterns (question of nine with mean score of 0.08), pruritus and pain (question of one with mean score of 0.10) and educational activities and holiday (question of seven with mean score of 0.11) (**Table 2**).

Even though, there was no significant correlation between quality of life and sex of the patients; however, there was a significant association between type of vitiligo, percentage of involvement, course of disease and age of the patients with quality of life; as Children with vulgaris type of vitiligo, higher percentage of involvement and progressive course had lower quality of life (**Table 1**). Moreover, older children or patients with longer duration of disease had significantly lower quality of life ( $r=0.298$  and  $r=0.263$ , respectively).

### Discussion

In this study mean score of quality of life in children with vitiligo was  $3.65 \pm 4.20$ . In the previous studies this score varied between 1 and 11. Results of this study were nearly compatible

with the studies which have been done in America and Brazil with mean score of quality of life between 2 and 3.<sup>12-15</sup> In contrast to the current study, in one study in Turkey by Dertligoglu *et al.* mean score of quality of life in children was estimated  $11.68 \pm 6.54$  that was very higher than our results. Higher percentage of acral and generalized types of vitiligo in Turkey study, and cultural differences between two countries can explain the differences.<sup>11</sup>

In most of the studies, quality of life in children with vitiligo is usually better than children who are affected by other dermatologic diseases such as psoriasis and atopic dermatitis; for example in the study in Brazil, quality of life in children with atopic dermatitis and psoriasis was 4.65 and 2.7 times worse than children with vitiligo, respectively.<sup>15</sup> In one study in Kerman, mean score of quality of life of children with atopic dermatitis was  $9.65 \pm 5.41$  that was higher than mean score of children with vitiligo in this study ( $3.65 \pm 4.20$ ).<sup>16</sup> This difference can be due to negative impact of dermatologic diseases such as atopic dermatitis and psoriasis on daily and leisure activities of patients, secondary to symptoms such as pruritus and the need to avoid exacerbating factors such as detergents, dusts and plant's pollens. In addition, cases with extensive skin involvement may require hospitalization and administration of

**Table 2** Mean score and value of impact of each question on quality of life in children with vitiligo.

Questions	Topic	Mean score	A lot N (%)	Nearly a lot N (%)	Little N (%)	Non N (%)
Q1	Pruritus and pain	0.10	0 (0)	1 (1.6)	4 (6.6)	56 (91.8)
Q2	Emotions	0.80	5 (8.2)	9 (14.8)	16 (26.2)	31 (50.8)
Q3	Friendly relationship	0.33	0 (0)	3 (4.9)	14 (23)	44 (72.1)
Q4	Type of dressing	0.54	2 (3.3)	6 (9.8)	15 (24.6)	38 (62.3)
Q5	Leisure activities	0.33	0 (0)	(6.6)	12 (19.7)	45 (73.8)
Q6	Sport	0.33	1 (1.6)	2 (3.3)	13 (21.3)	45 (73.8)
Q7a	Educational	0.11	0 (0)	2 (3.3)	3 (4.9)	55 (91.8)
Q7b	Holidays		0 (0)	1 (1.6)	7 (11.5)	52 (85.2)
Q8	Bulling	0.41	0 (0)	5 (8.2)	15 (24.6)	41 (67.2)
Q9	Sleep	0.08	1 (1.6)	0 (0)	2 (3.3)	58 (91.1)
Q10	Treatment	0.62	2 (3.3)	10 (16.4)	12 (19.7)	37 (60.7)

immunosuppressive drugs; the adverse effects of these drugs and loss of school hours can lead to even more decline in quality of life in these skin diseases.<sup>15,17</sup>

In the present study, there was a positive and significant correlation between age and mean score of quality of life; as adolescents have lower quality of life. This result was compatible with other studies, in which lower quality of life was observed in adolescent and pre-adolescent period. These periods especially have an important role in personal and psychological development of children; therefore, visibility of the lesions and secondary limitations (physical and social) resulting from dermatologic diseases can lead to social isolation and low self-confidence.<sup>12,14</sup> Moreover, in the current study children with longer duration and higher percentage of skin involvement had the worst quality of life and this was compatible with other studies.<sup>18-20</sup>

In this study, there was no significant correlation between sex and quality of life, which was similar to most of the other studies on pediatric cases. However, in the majority of studies on adults, since females concentrate more on aesthetic issues than males, and the marked impact of these issues on their social and family relationships, females had lower quality of life than males.<sup>12-14</sup>

In the current study, children with vitiligo vulgaris had the lowest quality of life, while those with focal type had the highest quality of life. Limitation of skin lesions to one location in focal type of vitiligo provides the better opportunity to camouflage lesions with dressing and covering creams; thereby these patients have better quality of life compared to those with vulgaris type of vitiligo.<sup>21</sup> This result was compatible with another study in Saudi Arabia in which vulgaris and non-segmental types of vitiligo had the worst quality of life.<sup>22</sup>

In the present study, the most influential factor on quality of life of children was emotional issues (feeling of embarrassment, annoyance and sadness), and the least influential factor was impact of vitiligo on sleep patterns. In one study in Turkey, the most influencing factors on quality of life were feeling of embracement (question of 2) and bulling by peers (question of 8). Moreover, sleep disturbance and pruritus were the least influencing factors on quality of life in children which were nearly similar to the results of our study.<sup>11</sup>

In the study in Brazil, similar to this study, the most negative factor on quality of life was impact of vitiligo on emotional issues (question 2); however, in contrast to our study, the effect of vitiligo on type of dressing was also one of

the negative factors on quality of life, like in the Brazil study. Difference in cultural issues, religion and type of dressing in two countries can be the cause of these differences.<sup>14</sup> In the current study, vitiligo in the majority of children (42.6%) had no effect on quality of life, and in most of the other cases, it had little impact on quality of life (37.7%). In one study in England, similar to this study, in nearly half of the cases, vitiligo had no impact on quality of life in children with vitiligo.<sup>13</sup> In contrast, Dertligoglu *et al.* in Turkey, showed severe impact of vitiligo on quality of life of the most of children (54%), whilst only in 6% and 20% none or little effect was reported.<sup>11</sup> These dissimilarities between the results of the studies can be due to the differences in study population as well as cultural and demographic features of the populations in these studies<sup>11</sup>.

## Conclusion

Vitiligo can have negative impact on quality of life of children. Several factors including age, percentage of involvement, progressive course of disease as well as duration and type of vitiligo can influence quality of life of patients especially the emotional aspects such as feeling of embracement, sadness and annoyance. Therefore, concentrating on both physical and psychological aspects of disease is recommended.

**Declaration of patient consent** The authors certify that they have obtained all appropriate patient consent.

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## Author's contribution

**MK, AM, HS, RA, FG, MA:** Substantial contribution to study design, acquisition of data, manuscript writing, critical review, final approval of the version to be published.

## References

1. Farajzadeh, S., Aflatoonian, M., Mohammadi, S., Vares, B., & Amiri, R. Epidemiological aspects and disease association of childhood vitiligo. *J Pak Assoc Dermatol.* 2015;**25**(2):105-110.
2. Meymandi, S. S., Aflatoonian, M., Khalili, M., & Sarvandi, M. Prevalence of Metabolic Syndrome in Vitiligo Patients in Comparison with the Control Group. *Hormozgan Med J.* 2022;**26**(3):141-4.
3. Beattie PE, Lewis-Jones MS. A comparative study of impairment of quality of life in children with skin disease and children with other chronic childhood diseases. *Br J Dermatol.* 2006;**155**(1):145-51.
4. Saeedeh F, Hossein S, Saman M, Maryam K, Rezvan A, Mahin A, Azizian M. Evaluation of quality of life in parents of the patients with vitiligo by Persian version of the family dermatology life quality index (FDLQI) in Kerman. *J Pak Assoc Dermatol.* 2019;**29**(2):196-202.
5. Chen D, Tuan H, Zhou EY, Liu D, Zhao Y. Quality of life of adult vitiligo patients using camouflage: A survey in a Chinese vitiligo community. *PloS One.* 2019;**14**(1):e0210581.
6. Salek MS, Jung S, Brincat-Ruffini LA, MacFarlane L, Lewis-Jones MS, Basra MK, Finlay AY. Clinical experience and psychometric properties of the Children's Dermatology Life Quality Index (CDLQI), 1995–2012. *Br J Dermatol.* 2013;**169**(4):734-59.
7. Olsen JR, Gallacher J, Finlay AY, Pigué V, Francis NA. Quality of life impact of childhood skin conditions measured using the Children's Dermatology Life Quality Index (CDLQI): a meta-analysis. *Br J Dermatol.* 2016;**174**(4):853-61.
8. Van Geel MJ, Maatkamp M, Oostveen AM, de Jong EM, Finlay AY, van de Kerkhof PC, Seyger MM. Comparison of the Dermatology Life Quality Index and the Children's Dermatology Life Quality Index in assessment of quality of life in patients with psoriasis aged 16–17 years. *Br J Dermatol.* 2016;**174**(1):152-7.
9. Silverberg JI, Silverberg NB. Association between vitiligo extent and distribution and quality-of-life impairment. *JAMA Dermatol.* 2013;**149**(2):159-64.

10. Patvekar MA, Deo KS, Verma S, Kothari P, Gupta A. Quality of life in vitiligo: Relationship to clinical severity and demographic data. *Pigment International*. 2017;**4(2)**:104.
11. Dertlioğlu SB, Cicek D, Balci DD, Halisdemir N. Dermatology life quality index scores in children with vitiligo: comparison with atopic dermatitis and healthy control subjects. *Int J Dermatol*. 2013;**52(1)**:96-101.
12. Silverberg JI, Silverberg NB. Quality of life impairment in children and adolescents with vitiligo. *Pediatr Dermatol*. 2014;**31(3)**:309-18.
13. Krüger C, Panske A, Schallreuter KU. Disease-related behavioral patterns and experiences affect quality of life in children and adolescents with vitiligo. *Int J Dermatol*. 2014;**53(1)**:43-50.
14. Boza JC, Giongo N, Machado P, Horn R, Fabbrin A, Cestari T. Quality of life impairment in children and adults with vitiligo: a cross-sectional study based on dermatology-specific and disease-specific quality of life instruments. *Dermatology*. 2016;**232(5)**:619-25.
15. Manzoni AP, Pereira RL, Townsend RZ, Weber MB, Nagatomi AR, Cestari TF. Assessment of the quality of life of pediatric patients with the major chronic childhood skin diseases. *Anais Brasileiros de Dermatologia*. 2012;**87(3)**:361-8.
16. Mohammadi S, Khalili M, Farajzadeh S, Safizadeh H, Amiri R, Aflatoonian M, Shahabi S. Evaluation of Reliability and Validity of Persian Version of Children's Dermatology Life Quality Index (CDLQI) Questionnaire and Practical Use. *J Skin Stem Cell*. 2020;**7(4)**:e116498.
17. Mohammadi S, Farajzadeh S, Safizadeh H, Khalili M, Aflatoonian M, Amiri R, Mohammadrezakhani E. Validity and reliability of Persian version of infants' dermatitis quality of life index (IDQOL) questionnaire. *Iranian J Dermatol*. 2020;**22(4)**:139-44.
18. 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(2)**:373-4.
19. Hammam MA, Yasien HA, Algharably AF. Effect of Vitiligo Area Scoring Index on the quality of life in patients with vitiligo. *Menoufia Med J*. 2019;**32(1)**:244.
20. 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(1)**:134-9.
21. Karelson M, Silm H, KINgO K. Quality of life and emotional state in vitiligo in an Estonian sample: comparison with psoriasis and healthy controls. *Acta Dermato-Venereologica*. 2013;**93(4)**:446-50.
22. Mateen A, Syed R, Alharbi KK, Khan IA. An Overview of Quality of Life in Vitiligo Patients—At Glance. *Pigment Disorders S3*. 2015;**3**:2376-427.