



SMJ- Sohag Medical Journal, Vol. 29 No(1) 2025

Print ISSN 1687-8353

Online ISSN 2682-4159

Original article

## Impact of Vitiligo on Quality Of Life in Children Patients and Their Mothers: A Cross- Sectional Study

Rasha Ismail Mohamed, Marwa Ali Abo elmagd

\*Department of Dermatology, Venereology, and Andrology, Faculty of Medicine, Sohag university, Sohag, Egypt.

### Abstract:

**Background:** Vitiligo is a depigmenting skin disorder having major effect on the quality of life of children sufferers and their family members

**Aim:** This research aimed to evaluate the impact of vitiligo on the quality of life of children and their mothers. and identify effectual variables.

**Methods:** This cross sectional study included 156 child patients with vitiligo and their mothers. All participants were subjected to full history taking and clinical assessment of the children. The Cartoon Children's Dermatology Life Quality Index (CDLQI) questionnaire was used for children patients. While the Family Dermatology Life Quality Index (FDLQI) questionnaire was used for direct interviewing of mothers.

**Results:** This study enrolled 156 child patients with vitiligo and their mothers. The results of the (CDLQI) questionnaire of the studied children revealed that The mean score was  $15.92 \pm 6.92$  and most of them( 92.3%) had a degree of impairment of their quality of life while The results of the (FDLQI) questionnaire of the mothers revealed that the mean total score was  $14.73 \pm 5.84$  and the majority of them (85.3%) had a degree of impairment of their quality of life. There was statistically significant strong positive correlation between total child score and mother total score ( $r=0.713$ ,  $p<0.001$ ).

**Conclusion:** Vitiligo impair QOL of both children patients and their mothers that highlight the importance of psychiatric intervention and supporting teams in the treatment plan.

**Keywords:** vitiligo, children, quality of life

**DOI :** 10.21608/SMJ.2025.359763.1538

**Received:** January 15, 2025

**Accepted:** February 11 , 2025

**Published:** March 3 , 2025

**Corresponding Author:** Rasha Ismailel Alkady

**E.mail:** [r.alkady21@gmail.com](mailto:r.alkady21@gmail.com)

**Citation:** Rasha Ismailel Alkady Impact of Vitiligo on Quality Of Life in Children Patients and Their Mothers: A Cross- Sectional Study *SMJ*,2025 Vol. 29 No (1) 2025: 184- 196

**Copyright:** Rasha Ismailel Alkady . et al., Instant open access to its content on principle Making research freely available to the public supports greater global exchange of research knowledge. Users have the right to read, download, copy, distribute, print or share the link Full texts



## Introduction:

Vitiligo is an acquired noninfectious depigmenting skin disease with variable course. The disease is characterized clinically by well-defined milky white macules and patches in the skin due to selective loss of melanocytes.<sup>(1)</sup>

Similar lesions appear on the mucous membranes and the retina. The hair on vitiliginous areas sometimes loss pigment and becomes white.<sup>(2)</sup>

It is the most common disorder of depegmentation, affecting about 0.5-2% of the population worldwide.<sup>(3)</sup> A non-significant female preponderance has been reported for vitiligo, this has been attributed to an increased cosmetic concerns reported by female patients.<sup>(4)</sup> Fifty percent of vitiligo patients develop it before the age of 20; most develop it before the age of 40.<sup>(5)</sup>

The last two decades have witnessed an increasing interest in psychological impacts of various skin disorders and QOL in patients with these diseases.<sup>(6)</sup>

Patient with vitiligo can experience emotional stress, especially if vitiligo lesion develops on visible sites of the body, such as face, arms, hands, feet, or on the genitals. Some people feel embarrassed, depressed, ashamed, or worried about the reaction of others.<sup>(7)</sup> Mood disturbances in the form of depression and irritability are common, particularly in vitiligo teenagers.<sup>(8)</sup> never the less major depression disorders and anxiety remained as the most common psychiatric problems among patients with vitiligo.<sup>(9)</sup>

Disturbed emotions in such patient are attributed to the arcane folk beliefs that most dermatologic disease is the result of infectious agents with significant imputations of self-negligence and uncleanliness.<sup>(10)</sup> The religious significance of leprosy in many cultures also exerts an effect where the depigmented skin disease as vitiligo has its psychosocial stigma even in non-endemic populations.<sup>(11)</sup>

In adults, A normal healthy skin is very important for a person's physical health and mental wellbeing. It is an essential aspect of their sexual wellbeing and a feel of self-confidence.<sup>(12)</sup>

While in children Vitiligo can negatively affect several aspects of QOL including their self-consciousness, friendship difficulty and schoolwork deterioration, and teasing or bullying. This

impairment is affected by the level of extent of vitiligo and its anatomical distribution of lesions.

Children with vitiligo develop their skin disease during their early stage of emotional development. deterioration of QOL was more in children who experience vitiligo at the age of 10 years old or older, indicating that vitiligo onset during the formative stages of ego development produces more QOL impairment.<sup>(13)</sup> It was found that QOL impairment occurs during the ages from 6–11 years; the age at which children develop the sense of competence in school and social life, and in teenagers ages from 12–18 years; the age at which they develop their identity. Vitiligo lesion onset during these ages causes higher degree of emotional burden.<sup>(14)</sup>

The impact of several skin disorders is not limited to the affected patient only but also extend to other family members.<sup>(15)</sup> There is only few data about QoL within families having vitiligo children, only limited number of researches have evaluated the effect of children with vitiligo on QoL of their family members<sup>(16-20)</sup> and these studies revealed several degrees of impairments in QoL among family members, moreover, it was reported that mothers are more distressed and more affected<sup>(17,20)</sup> This study aimed to evaluate the impact of vitiligo on the quality of life of children and their mothers. and to predict variables that might predict poorer quality of life among them.

## Patient and methods:

After study approval by the institute of research and ethical committees at Sohag faculty of medicine. (IRB registration number: Soh-Med-22-11-22).

The study included 156 child patients with vitiligo and their mothers who attended the outpatient clinic of Dermatology in Sohag University .All patients with at least one vitiligo patch were involved. An informed consent was obtained from all participant mothers.

The Cartoon Children's Dermatology Life Quality Index (CDLQI) questionnaire<sup>(21)</sup> was used for patients form age of four to sixteen years old. While the Family Dermatology Life Quality Index

(FDLQI) questionnaire <sup>(22)</sup> was used for direct interviewing of mothers.

Demographic features , including age, sex, marital status, occupation, special habits, site of residency, disease onset, course and duration, past history of any precipitating factors-previous systemic or skin disease and any previous treatment and the family history of any general, skin disease or vitiligo was reported. Physical examination, including skin phototype (SPT), type of vitiligo either (focal-segmental-acrofacial-vulgaris-universal), disease extension by VASI score measurement and distribution, <sup>(23)</sup> visibility of lesion, presence of leukotrichia or koebner's phenomenon and any associated skin or systemic diseases were recorded by the physician.

Statistical analyses: were performed by the statistical package for the social sciences (SPSS 11 .5 for windows). Relations between the total DLQI score individual variables was assessed by one-way ANOVA, independent t-test and correlations according to the type of variable. Also several linear

regression models were used. in order to define the relation between the DLQI score and different variables.

### Results:

This study enrolled 156 child patients with vitiligo and their mothers. The, mean  $\pm$  standard deviation of children age was  $9.08 \pm 4.82$  years ( range 3–17 years) , while the mean age of their mothers  $\pm$  standard deviation was  $37.12 \pm 8.23$  years (range 24–55 years) . There were female predominance in the studied children (73.1%) females Versus (26.9%) males.43.2% of them had positive family history of vitiligo. 62.2% of children and their families were living in urban areas. 46.2% of mothers had high school education, majority (88.5%) not working, (3.8%) of mothers suffering of vitiligo, while (19.2%) had another child or children with vitiligo, the Socio-demographic criteria of the studied children and their mothers are in (table 1).

**Table 1:** Socio-demographic characteristics of the studied children and mothers

Table 1. Socio-demographic characteristics of the studied children (n=156) and mothers (n= 156)	
<b>Children age (years)</b>	
mean $\pm$ SD	9.08 $\pm$ 4.82
Median (range)	7.5 (3.0- 17.0)
<b>Children Sex</b>	
Male, n (%)	42 (26.9%)
Female, n (%)	114 (73.1%)
<b>Family.H of Vitiligo, n (%)</b>	
	67 (43.2%)
<b>Mother age (years)</b>	
Mean $\pm$ SD	37.12 $\pm$ 8.23
Median (range)	36.5 (24.0- 55.0)
<b>Residence</b>	
Urban, n (%)	97 (62.2%)
Rural, n (%)	59 (37.8%)
<b>Mother's occupation</b>	
No, n (%)	138 (88.5%)
Yes, n (%)	18 (11.5%)
<b>Mother's education</b>	
Primary or less	6 (3.8%)
Intermediate school	36 (23.1%)
High school	72 (46.2%)
University	42 (26.9%)
<b>Other kids with vitiligo</b>	
No, n (%)	126 (80.8%)
Yes, n (%)	30 (19.2%)
<b>Affection of mothers by vitiligo</b>	
No, n (%)	150 (96.2%)
Yes, n (%)	6 (3.8%)

Most of the children (96.2%) had gradual onset and progressive course with mean duration of diseases was  $2.73 \pm 2.3$  years (range 0.1-11 years). (55.8%) of the children had vitiligo on exposed area, vitiligo vulgaris was in (46.8%) of patients followed by focal vitiligo in (28.2%) of them , as regard treatment (41%) of children were on phototherapy or superficial cautery beside the topical therapy. The clinical characteristics of vitiligo in the studied children were illustrated in (table 2).

**Table 2:** Clinical characteristics of vitiligo in the studied children.

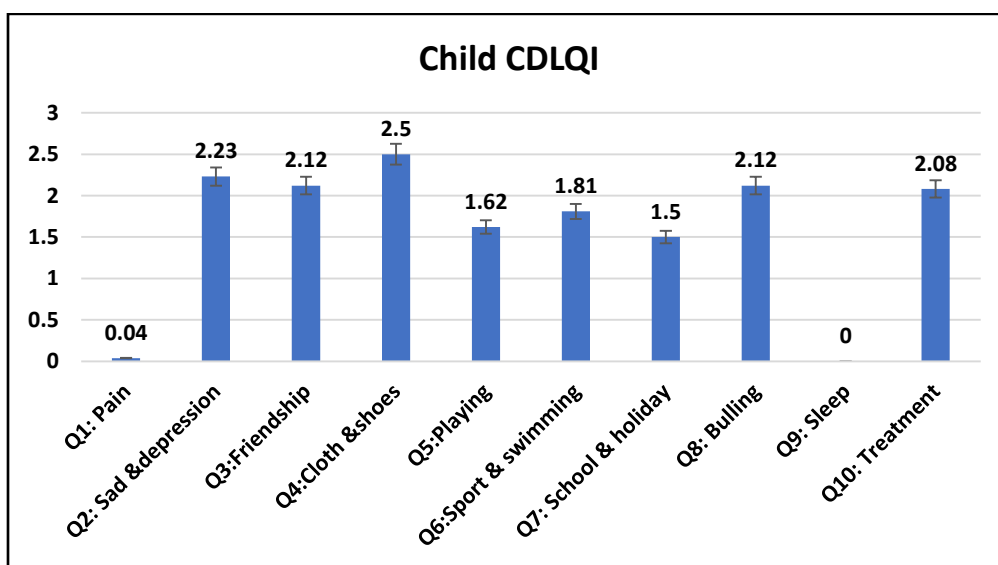
Table 2. Clinical characteristics of vitiligo in the studied children (n= 156)	
<b>Onset</b>	
Sudden, n (%)	6 (3.8%)
Gradual, n (%)	150 (96.2%)
<b>Course</b>	
Stationary, n (%)	6 (3.8%)
Progressive, n (%)	150 (96.2%)
<b>Duration (years)</b>	
Mean $\pm$ SD	2.73 $\pm$ 2.3
Median (range)	2.0 (.1- 11.0)
<b>Distribution of lesions</b>	
Exposed, n (%)	87 (55.8%)
Non- exposed, n (%)	69 (44.2%)
<b>Skin type</b>	
3, n (%)	66 (42.3%)
4, n (%)	78 (50.0%)
5, n (%)	12 (7.7%)
<b>Vitiligo type</b>	
Vulgaris, n (%)	73 (46.8%)
Acrofacial, n (%)	29 (18.6%)
Universal, n (%)	6 (3.8%)
Focal, n (%)	44 (28.2%)
Segmental, n (%)	4 (2.6%)
<b>Extent</b>	
0%- 25%, n (%)	96 (61.5%)
25%- 50%, n (%)	54 (34.6 %)
50%- 75%, n (%)	0 (0.0%)
75%- 100%, n (%)	6 (3.8%)
<b>Koebner's</b>	
No, n (%)	146 (93.6%)
Yes, n (%)	10 (6.4%)
<b>Leukotrichia</b>	
No, n (%)	120 (76.9%)
Yes, n (%)	36 (23.1%)
<b>Treatment</b>	
No, n (%)	15 (9.6%)
<b>Topical treatment</b>	
<b>Topical with sessions</b>	
- Topical with NB, n (%)	44 (28.2%)
- Topical with Cuttery, n (%)	4 (2.6%)
- Topical with Eximer, n (%)	16 (10.3%)

The results of the Cartoon Children's Dermatology Life Quality Index (CDLQI) questionnaire of the studied children revealed that The mean score was  $15.92 \pm 6.92$  ranging from 3 – 24 . (23.1%) of children had mild impairment , (26.9%) had moderate impairment, while (42.3%) had severe impairment of their QOL(Table 3).

**Table 3:** Total score of (CDLQI) questionnaire in the studied children

Table 3. Total score of (CDLQI) questionnaire in the studied children (n= 156)		
Final score	No.	%
No (0-1)	0	0%
Small effect (2 – 5)	12	7.7%
Moderate effect (6 - 10)	36	23.1%
Very large effect (11 – 20)	42	26.9%
Extremely large effect (21 - 30)	66	42.3%
<b>Total</b>	156	100.0
<b>Min. – Max.</b>	3.0 – 24.0	
<b>Mean ± SD.</b>	15.92 ± 6.92	
<b>Median</b>	18.5	

The most affected domains of quality of life impairment were The cloth & shoes domain score (2.50±1.01.) followed by sadness & depression domain score ( 2.23± 0.98.) followed by friendship domain score and bullying domain score each (2.12±1.16) . the detailed scores of each domain is illustrated in (figure 1).



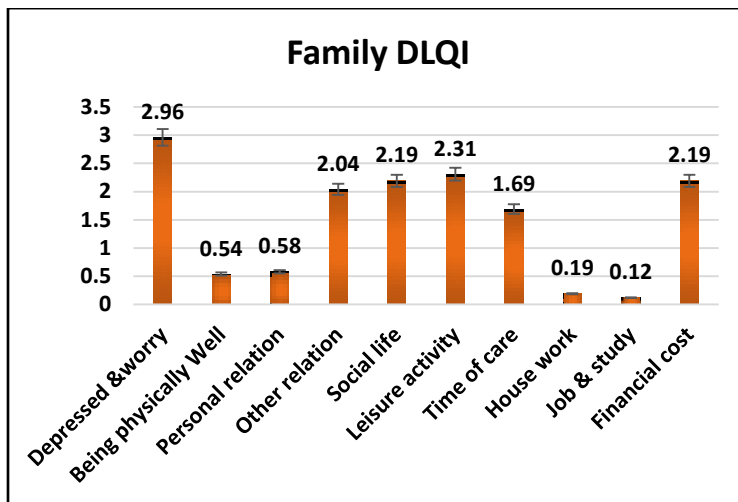
**Figure 1:** Different domains scores of the Child Dermatology Life Quality Index (CDLQI) questionnaire in the studied children (n= 156)

The results of the Family Dermatology Life Quality Index (FDLQI) questionnaire of the mothers revealed that the mean total score was 14.73± 5.84 ranging from 3 – 24. (12.2%) of the mothers had mild impairment , (65.4%) had moderate impairment, and (7.7%) had severe impairment of their QOL (Table 4).

**Table 4:** Total score of Family (DLQI) questionnaire in the studied mothers

Table 4. Total score of Family (DLQI) questionnaire in the studied mothers (n= 156)	
<b>Total score</b>	
<b>Mean± SD</b>	14.73± 5.84
<b>Median (range)</b>	17.0 (3.0- 24.0)
<b>Degree</b>	
No	0 (0%)
Small , n (%)	23 (14.7%)
Moderate , n (%)	19 (12.2%)
Very larg, n (%)	102 (65.4%)
Extreamly large , n (%)	12 (7.7%)

The most affected domains of quality of life impairment were depression and wariness domain score (  $2.96\pm0.19$ ), followed by leisure activity domain score (  $2.31\pm1.03$ ), followed by social life domain and financial cost domain scores each (  $2.19\pm1.21$  ). the detailed scores of each domain is illustrated in (figure 2).



**Figure 2:** Different domains scores of the Family Dermatology Life Quality Index (FDLQI) questionnaire in the studied mothers (n= 156).

The total score of (CDLQI) questionnaire was significantly higher in children with positive family history of vitiligo, those with universal vitiligo and vitiligo on exposed areas.( Table 5).

**Table 5:** Relation between the final ( CDLQI) score and different parameters.

Table 5: Relation between the final ( CDLQI) score and different parameters								
		Final child DLQI score					Test of sig.	P-value
		Mean	±SD	Median	Min.	Max.		
Gender	Male	16.57	6.95	18	3	23	$Z_{MWU}=0.867$	0.386
	Female	15.68	6.92	19	5	24		
Family history: vitiligo	No	14.20	7.32	16.0	3	23	$Z_{MWU}=3.88$	<0.001
	Yes	18.10	5.71	20.0	7	24		
Vitiligo type	Vulgaris,	17.08	5.99	19.0	5	23	KW=66.44	<0.001
	Acrofacial	21.34	1.82	22.0	18	23		
	Universal,	24.00	.00	24.0	24	24		
	Focal,	10.14	6.10	7.0	3	22		
	Segmental	7.00	.00	7.0	7	7		
Vitiligo distribution	Exposed	19.79	4.05	21.0	6	24	$Z_{MWU}=7.08$	<0.001
	Non-exposed	11.04	6.70	9.0	3	23		
Vitiligo treatment	No	12.93	7.51	9.00	5	23	$Z_{MWU}=1.70$	0.088
	Topical	16.24	6.80	19.00	3	24		
Vitiligo treatment with sessions	Topical with NB	17.70	5.94	21	7	24	$Z_{MWU}=14.24$	0.003
	Topical with Cuttery	20.50	1.00	20	20	22		
	Topical with Eximer	19.00	6.06	22	9	24		

While the total score of (FDLQI) questionnaire was significantly higher in mothers who had university education, who had other vitiligo kids patients and who had vitiligo themselves. Also the score was higher in mothers whom children had vitiligo in exposed areas or universal vitiligo. (Table 6)

**Table 6:** Relation between the mother (FDLQI) score and different parameters.

Table 6: Relation between the mother (FDLQI) score and different parameters.								
		Mother total score					Test of sig.	P-value
		Mean	±SD	Median	Min.	Max.		
Gender	Male	14.14	5.12	16	5	20	$Z_{MWU}=1.74$	0.082
	Female	14.95	6.09	17	3	24		
Vitiligo type	Vulgaris,	16.93	3.28	18	10	24	KW=63.96	<0.001
	Acrofacial	17.79	2.64	17	16	24		
	Universal,	22.00	.00	22	22	22		
	Focal,	8.68	6.06	5	3	20		
	Segmental	8.00	.00	8	8	8		
Vitiligo distribution	Exposed	17.51	4.07	18	4	24	$Z_{MWU}=6.23$	<0.001
	Non-exposed	11.23	5.87	12	3	20		
Vitiligo treatment	No	12.93	6.10	17	4	20		
	Topical	14.92	5.80	17	3	24		
Vitiligo treatment with sessions	Topical with NB	16.64	4.36	17	8	22	$Z_{MWU}=46.2$	<0.001
	Topical with Cuttery	23.00	2.00	24	20	24		
	Topical with Eximer	19.87	2.00	20	18	24		
Occupation	No	14.39	6.13	16.00	3	24	$Z_{MWU}=1.41$	0.159
	Yes	17.33	.49	17.00	17	18		
Residence	Urban	15.14	5.46	17.00	3	24	$Z_{MWU}=0.574$	0.566
	Rural	14.05	6.41	16.00	3	24		
Education	Primary or less	3.00	.00	3.00	3	3	KW=20.76	<0.001
	Intermediate school	14.33	6.22	15.50	5	22		
	High school	14.33	6.18	16.50	4	24		
	University	17.43	1.31	17.00	16	20		
Other kids	No	13.38	5.64	16.00	3	22	$Z_{MWU}=7.25$	<0.001
	Yes	20.40	1.99	20.00	18	24		
Affection by vitiligo	No	14.52	5.86	17.00	3	24	$Z_{MWU}=3.01$	0.003
	Yes	20.00	.00	20.00	20	20		

There was statistically significant strong positive correlation between total child score and mother total score ( $r=0.713$ ,  $p<0.001$ ).

## Discussion:

Vitiligo is an acquired, non-contagious pigmentation disorder characterized by sharply defined milky white macules and patches of variable size and shape. <sup>(5,24)</sup>

Its prevalence is 0.5 to 1 percent of the world's population, or as many as 65 million persons, have vitiligo. it is more obvious in those with dark skin. <sup>(5)</sup>

Although vitiligo leads to little physical handicap, it can be an important cause of psychiatric morbidity and poor self-esteem that is secondary to poor body image, feeling of stigmatization and guilt <sup>(25)</sup> a state of severe depression and tendencies to suicidal have also been reported in vitiligo patients. <sup>(26,27)</sup>

Society deals with vitiligo sufferers in much the same way as it deals with anyone else who appears to be strange or different. So that those patients are subjected to isolation, antagonism, insult or suffer from whispered comments. Also the chronic course of this disease, long duration of manegeme-

nt, lack of specific effective treatment and unpredictable fate of the disease is usually very depressing and demoralizing for patients. <sup>(12)</sup>

A disfiguring skin disease at childhood becomes a source of an increasing anxiety and may interfere with developing normal relationships with the opposite sex. <sup>(28)</sup>

Previous researches revealed that the mean score of quality of life in vitiligo patient was significantly impaired in patients with psychiatric morbidity than in patients without psychiatric morbidity, with significant relation between poor quality of life and anxiety and depression. <sup>(29,30)</sup>

The lack of self-confidence and sense of conveying a bad image to other people are other disastrous results that negatively affect the performance of patients at their work or in studying and in their social relationships. <sup>(31)</sup>

On the other hand It has been observed that markedly distressed vitiligo patients respond poorly or do not respond at all to treatment modalities . in these patients, the effect of stress goes beyond the effect of drugs.<sup>(32)</sup>

One study reported that QOL is more impaired in children with vitiligo than in those with atopic dermatitis,<sup>(33)</sup> Other authors have noted that vitiligo correlates with childhood depression, especially in the teenagers, and that disease in visible areas, may affect emotional development.<sup>(19)</sup>

In this research we aim to evaluate the impact of vitiligo not only on the vitiligo children but also on their mothers and identify effectual variables

Sample size in this research is comparable to that of Bin Saif et al.<sup>(17)</sup> in Saudi Arabia and much more than that of a study done by Handjani<sup>(15)</sup> in Iran , study in China by Amer et al.<sup>(20)</sup> or Gahalaut et al.<sup>(34)</sup> in India. for children evaluation we used CD-LQI questionnaire like that used in studies by Mart-ha et al.<sup>(35)</sup>, Jonathan and Nanette,<sup>(13)</sup> Selma et al.<sup>(36)</sup> Oostveen et al.<sup>(37)</sup> But we used FDLQI questionnaire for evaluation of mothers like that used by Bin Saif et al.<sup>(17)</sup> Handjani<sup>(15)</sup>, Amer et al.<sup>(20)</sup> or Gahalaut et al.<sup>(34)</sup> and Basra et al.<sup>(22)</sup>

In this research, the mean children age in our study was  $9.08 \pm 4.82$  and the majority of studied children were female, this finding is in agree with that of Jonathan and Nanette<sup>(13)</sup> and Martha et al.<sup>(35)</sup> Although vitiligo affect both sex equally but this can be explained by more attention paid for cosmetic appearance as regard females.

The results of the Cartoon Children's Dermatology Life Quality Index (CDLQI) questionnaire of the studied children revealed that all the studied children had some degree of impairment of their quality of life and mean score was  $15.92 \pm 6.92$  near to that recorded by Selma et al.<sup>(36)</sup> in turkey but much higher than that recorded by Martha et al.<sup>(35)</sup> in Mexico or Catucci et al.<sup>(38)</sup> in Brazil also the mean of our recorded CDLQI questionnaire is much higher than that of Jonathan and Nanette<sup>(13)</sup>, that based on an on line performed parental questionnaire this may be similarity in cultural back ground in both Egyptian and Turkish population which differ from that of western populations , most of them were from rural areas where stigmatization of vitiligo and false believes about disease nature

prevail. dominant female children among the participants and presence of vitiligo in exposed sites in most of the children in our study.

Also our study was hospital based study not community based or on line questionnaire and none of our patients was on supporting programs or teams.

For the same reasons most of our studied children had large and extremely large effect of disease on their QOL (26.9% and 42.3% respectively) that is more than that recorded by Selma et al.,<sup>(36)</sup> Martha et al.<sup>(35)</sup> or Jonathan and Nanette.<sup>(13)</sup>

As regard the affected individual aspects of QOL embarrassment, clothing and bullying was the most affected aspects in agreement with that reported by Selma et al.<sup>(36)</sup>, Jonathan and Nanette<sup>(13)</sup> and Catucci et al.<sup>(38)</sup> also our results were in agreement with that studies that pain and sleep aspects are the least affected aspects.

In our study we found significant positive correlation between child age and the total CDLQI score in agreement with that reported by Catucci et al.<sup>(38)</sup> and Jonathan and Nanette<sup>(13)</sup> this can be attributed to increased child awareness of his disease by age and increased their exposure to the general community but this finding was in contrast to that reported by Martha et al.<sup>(35)</sup> who found that the lower the age the greater the impact on CDLQI score.

In agreement with that reported by Jonathan and Nanette<sup>(13)</sup>, Selma et al.<sup>(36)</sup>, we found significant greater CDLQI score among children with vitiligo affecting exposed areas of the body and universal vitiligo with large surface area involvement. On the other hand we found non-significant difference in the CDLQI score between male or female children like that reported by Catucci et al.<sup>(38)</sup> and Martha et al.<sup>(35)</sup>. Or disease duration like that reported by Martha et al.<sup>(35)</sup> and by Jonathan and Nanette.<sup>(13)</sup>

In this study we found significant greater CDLQI score in children with positive family history of vitiligo and those who received additional treatment sessions like phototherapy or superficial cautery with topical treatment these finding can be explained by the psychological impact of bothered families on their children and physical and emotional burden of the treatment session on child lifestyle.



Dermatological diseases specially chronic disease affects QOL of the patients and their families Barsa et al. (22)

Even though few number of previous studies had studied the quality of life among family members of vitiligo patients, only two studies by Amer et al. (20) in China and Gahalaut et al. (34) in India had been conducted on family members of vitiligo children but none of them focus on mothers of those children.

In this study we used FDLQI questionnaire to study mothers affection and found that 100% of vitiligo children's mothers had impairment of their QOL.

The mean total FDLQI score of the mothers was  $14.73 \pm 5.84$  much greater than that of family members of adult vitiligo patients in study by Bin Saif et al. (17) in Saudi Arabia and Handjani et al. (15) in Iran also greater than that of the caregivers of vitiligo children in the study by Amer et al. (20) and that by Gahalaut et al. (34) this can be explained by focusing on mothers only in our study taking in consideration that the study by Amer et al. (20) and that by Gahalaut et al. (34) revealed greater score among female responders.

Moreover in this study we found (65.4%) and (7.7%) of mothers had very large effect and extremely large effect on their QOL that reflect marked impairment of QOL in vitiligo children's mothers.

In agreement with that reported by Amer et al. (20) and that by Gahalaut et al. (34) we found that emotional distress and expenditure are the most affected aspects of QOL impairment, but also in our study we found that people's reactions, social life and leisure activity aspects also markedly impaired and this can be attributed to the emotional factors of the mothers toward their children. Housework is one of the least affected aspects as reported by Gahalaut et al. (34)

In our study the total score of FDLQI is significantly greater in mother whom children had vitiligo in exposed areas as that reported by Gahalaut et al. (34) but the score not affected by child gender in difference with that reported by Gahalaut et al. (34) that found greater score if the vitiligo child was female this can be explained by larger sample size in our study.

In our study the FDLQI score was greater if the mothers had university education this can be attributed for increased awareness of disease nature and behavior.

While the total score of (FDLQI) questionnaire was significantly higher in mothers who had other vitiligo kids patients and who had vitiligo themselves. This is explained by increased psychological, physical and financial burden.

There was statistically significant strong positive correlation between total child score and mother total score ( $r=0.713$ ,  $p<0.001$ ) this indicated how much that mothers and children QOL are affected by each other this.

### Conclusion:

Vitiligo impair QOL of both children and their mothers due to the sensitive and close relationship between them ,this put in light the importance of psychiatric intervention for vitiligo children and their mothers with recommendation for their engagement in supporting and educational programs and increase dermatologist awareness of psychological and mental issues of the disease and importance of sharing with psychologist the treatment plan.

### References:

- 1-Dillon, Sideris, Hadi, and Elbuluk, N. Advances in vitiligo: an update on medical and surgical treatments. *The Journal of Clinical and Aesthetic Dermatology*. 2017; 10(1): 15.
- 2-Weiss. Vitiligo: to biopsy or not to biopsy. *Cutis*. 2020; 105(4): 189–190.
- 3-Joge, Kathane and Joshi. Vitiligo: A Narrative Review. *Cureus*. 2022; 14(9).
- 4-Sawant, Vanjari and Khopkar. Gender differences in depression, coping, stigma, and quality of life in patients of vitiligo. *Dermatology research and practice*. 2019; 7: 1-13.
- 5-Taieb A and Picardo M . The definition and assessment of vitiligo: a consensus report of the Vitiligo European Task Force. *Pigment Cell Res*. 2007; 20:27-35.
- 6-Mehto and Malhotre. Psychiatric evaluation of patients with psoriasis vulgaris and chronic urticaria, *German J Psychiatry*. 2007; 10: 104-110.

- 7-Mattoo, Handa , Kaur , Gupta and Malhotra.** Psychiatric morbidity in vitiligo: prevalence and correlates in India. *J Eur Acad Dermatol Venereol.* 2002; 16:573–578
- 8-Parsad , Pandhi , Dogra , Kanwar and Kumar.** Dermatology life quality index score in vitiligo and its impact on the treatment outcome. *Br J Dermatol* 2003; 148:373-4.
- 9-Ahmed , Ahmed and Nasreen.** Frequency and pattern of psychiatric disorders in patients with vitiligo. *J Ayub Med Coll Abbottabad.*2007; 19:19-21.
- 10- Ginsburg.** The psychological impact of skin diseases: An overview. *Dermatol Clin.* 1996; **14**:473–484.
- 11-Cash, Brown and Mikulka.** Attitudinal body-image assessment: factor analysis of the Body-Self Relations Questionnaire. *J Pers Assess .* 1990; 55(1-2):135-44.
- 12-Davinder ,Parsad, Sunil Dogra, and Amrinder Jit Kanwar.** Quality of life in patients with vitiligo. *Health Qual Life Outcomes.* 2003; 1: 58-62.
- 13-Jonathan and .Nanette .**Quality of Life Impairment in Children and Adolescents with Vitiligo. *Pediatric dermatology .* 2013; 31(3): 309-318
- 14- Eagle .**Contributions of Erik Erikson. *Psychoanal Rev* 1997; 84: 337–347.
- 15- Handjani and Kalafi .** Impact of dermatological diseases on family members of the patients using Family Dermatology Life Quality Index: A preliminary study in Iran. *Iran J Dermatol.*2013;16:128–31
- 16. Basra , Sue-Ho and Finlay.**The Family Dermatology Life Quality Index: Measuring the secondary impact of skin disease. *Br J Dermatol.*2007;156:528–38
- 17. Bin Saif , Al-Balbeesi , Binshabaib , Alsaad , Kwatra , Alzolibani , et al.**Quality of life in family members of vitiligo patients: A questionnaire study in Saudi Arabia. *Am J Clin Dermatol.* 2013;14:489–95
- 18.Manzoni , Pereira , Townsend , Weber , Nagatomi and Cestari.** Assessment of the quality of life of pediatric patients with the major chronic childhood skin diseases. *An Bras Dermatol.*2012;87:361–8
- 19. Bilgiç O, Bilgiç A, Akis HK, Eskioglu F, Kiliç .** Depression, anxiety and health-related quality of life in children and adolescents with vitiligo. *Clin Exp Dermatol.* 2011;36:360–5
- 20. Amer , Mchepange , Gao , Hong Y, Qi R, Wu Y, et al.** Hidden victims of childhood vitiligo: Impact on parents' mental health and quality of life. *Acta Derm Venereol.*2015;95:322–5
- 21-Lewis-Jones and Finlay.** The Children's Dermatology Life Quality Index (CDLQI): initial validation and practical use. *Br J Dermatol .* 1995; 132: 942–949.
- 22-Basra , Sue-Ho and Finlay.** The Family Dermatology Life Quality Index: Measuring the secondary impact of skin disease. *Br J Dermatol.* 2007;156:528–38
- 23-Hamzavi , Jain , McLean , Shapiro , Zeng and Lui.** Parametric modeling of narrowband UV-B phototherapy for vitiligo, using a novel quantitative tool: the Vitiligo Area Scoring Index. *Archives of Dermatology.* 2004;140(6):677–683.
- 24- Ogg , Dunbar and Romero.** High frequency of skin-homing melanocyte-specific cytotoxic T lymphocytes in autoimmune vitiligo. *J Exp Med.* 1998; 6:1203-1208.
- 25- Noor, Khurshid , Mahmmmod and Haroon .** Quality of life in vitiligo. *J Pak Assoc Dermatol.* 2004; 14: 55-8.
- 26- Papadopoulos, Bor , Legg and Hawk.** Impact of life events on the onset of vitiligo in adults, preliminary evidence for psychological dimension in aetiology. *Clin Exp Dermatol .*1998; 23: 243-8.
- 27- Porter , Beuf , Nordlund and Lerner. .** Personal responses of patients to vitiligo. *Arch Dermatol.* 1978; 114:1384-5.\*
- 28- Jacobs, Green and David .** A self-concept of children with atopic dermatitis. *Br J Dermatol.* 1995; 133: 1004.
- 29- Francesca Sampogna, Angelo Picardi, Mary-Margaret Chren, Franco melchi, Paolo pasquini, Cinzia masini, and Damiano Abeni.** Association Between Poorer Quality of Life and Psychiatric Morbidity in Patients With Different Dermatological Conditions. *Psychosomatic Medicine .* 2004; 66:620–624.

- 30- Hanan M. Saleh, Samar Abdallah M. Salem, Rania S El-Sheshetawy and Afaf M. Abd El-Samei.** Comparative Study of Psychiatric Morbidity and Quality of Life in Psoriasis, Vitiligo and Alopecia Areata. *Egyptian Dermatology Online Journal.* 2008; 4 : 2.
- 31- Savin J.** The hidden face of dermatology. *Clin Exp Dermatol .* 1993; 18: 393-395.
- 32- Lucas S.C. Nogueira, Pedro C.Q. Zancanaro and Roberto D.Azambuja.** Vitiligo and emotions , *Anais Brasileiros de Dermatologia,An. Bras. Dermatol.*2009; 84:1.
- 33- Dertlioglu , Cicek and Balci.** Dermatology life quality index scores in children with vitiligo: comparison with atopic dermatitis and healthy control subjects. *Int J Dermatol .* 2013; ;52:96–101.
- 34- Gahalaut, Pratik; Chauhan, Sandhya1; Shekhar, Amit; Rastogi, Madhur Kant; Mishra and Nitin.** Effect of Occurrence of Vitiligo in Children over Quality of Life of Their Families. *Indian Journal of Paediatric Dermatolog.* 2018; 19(1):21-25.
- 35-Martha Alejandra Morales-Sánchez, Ana Karla Díaz-Ortega and María Luisa Peralta-Pedrero..** Quality of life in children and adolescents with vitiligo. *British Journal of Dermatology.* 2023; 188.
- 36- Selma Bakar Dertlioglu, Demet Cicek, Didem D Balci and Nurhan Halisdemir.** Dermatology life quality index scores in children with vitiligo: Comparison with atopic dermatitis and healthy control subjects. *International journal of dermatology.*2013;52(1):96-101.
- 37- Oostveen-, de Jager, Peter van de Kerkhof, Donders, E de Jong and Seyger.** The influence of treatments in daily clinical practice on the Children's Dermatology Life Quality Index in juvenile psoriasis: A longitudinal study from the Child-CAPTURE patient registry. *The British journal of dermatology .* 2012;167(1):145-9
- 38- Catucci Boza; Natalia Giongo; Priscilla Machado; Roberta Horn; Amanda Fabbrin and Tania Cestari.** 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.* 2017; 232 (5): 619–625.