

Association of home light therapy with patient-reported outcomes of vitiligo during the COVID-19 pandemic: An Internet-based survey

To the Editor:

The pandemic of COVID-19 has been reported globally. Preventive measures to slow down the pandemic and control the high incidence rates are mandatory. As a result, many non-emergent healthcare services such as dermatology outpatient care were forced to shut down. To date, the literature is very limited when it comes to the disease outcomes and psychological conditions of patients with vitiligo under the circumstances of the COVID-19 pandemic. We speculated that during this period teledermatology¹⁻³ and home light therapy such as Narrowband Ultraviolet B (NB-UVB)^{4,5} might have advantages over face-to-face outpatient visits for patients with vitiligo. Therefore, we initiated an Internet-based survey in order to investigate the associations of above behaviors with the patient-reported outcomes of vitiligo in China between January 23, 2020 and June 8, 2020 (Supplementary S1).

The primary outcome was the progression of vitiligo. Secondary outcomes included symptoms of anxiety (two-item Generalized Anxiety Disorder), depression (two-item Patient Health Questionnaire), and stress (visual analogue scale). Covariates included gender, age, educational level, course of disease, type of vitiligo, and treatment willingness. The data were analyzed with SPSS version 20.0. Chi-squared test, Wilcoxon rank-sum test, and Kruskal-Wallis test were applied to compare covariates. Multivariable logistic regression was used to estimate the associations with adjustments. Adjusted odds ratio (aOR) with 95% confidence interval (CI) was presented. $P < .05$ was considered as statistically significant.

A total of 1100 valid questionnaires were collected. The mean age of the patients was 27.6 ± 13.0 years, and 46.7% were female. A total of 104 (9.5%) reported new onset of vitiligo, 190 (17.3%) reported recurrence of vitiligo, and 614 (55.8%) reported exacerbation of vitiligo. A total of 658 (59.8%) reported interruption of the original treatment during the COVID-19 pandemic mainly due to no access to the hospital (70.4%), no medication (14.6%), unaffordability of medications due to lower income (27.2%), or unwillingness to be treated (12.3%; multiple choice questions) (Table S1).

Healthcare utilization ($P = .001$), adherence to treatment ($P = .001$), use of hospital-based phototherapy ($P = .001$), and treatment willingness ($P = .001$) of vitiligo patients were significantly

TABLE 1 Healthcare utilization, adherence to treatment, use of home light therapy, use of teledermatology, and willingness to take treatment before and after the pandemic of COVID-19

Patient-reported outcomes	Before (%)	After (%)	P
Frequency of the dermatologists' visits			
Once a month or more than once a month	50.5	27.4	.001
Once every two months	15.9	17.4	
Less frequently than once every two months	33.6	55.2	
Treatment adherence			
Very regular ^a	51.5	40.4	.001
Almost regular ^b	27.5	27.6	
Irregular ^c	21.0	16.6	
No treatment	0.0	15.4	
Ways of treatments			
Both hospital-based and home light therapy ^d	8.2	4.8	.001
Hospital-based phototherapy ^d	44.9	30.6	.001
Home light therapy ^d	21.6	29.4	.022
No light therapy	25.3	35.2	
Use of online healthcare services			
Very frequently (more than 5 times)	3.9	3.1	.453
Frequently (3-5 times)	6.3	6.0	
Occasionally (1-2 times)	20.2	21.9	
Never	69.6	69.0	
Willingness to be treated			
Strong desire	70.0	61.2	.001
General desire	25.2	32.3	
Unwillingness to be treated	4.8	6.5	

^aVery regular: completely follow the doctor's instructions.

^bAlmost regular: missed the pills 2-3 times per week, or 2-3 times per month for light therapy.

^cIrregular: missed the pills more than 3 times a week, or more than 3 times per month for light therapy.

^dNB-UVB or 308 nm excimer light/laser.

Patient-reported outcomes	Home light therapy			
	N (%)	OR (95% CI)	aOR (95% CI) ^a	P
Progression of vitiligo	229 (20.8)	0.47 (0.32, 0.70)	0.60 (0.40, 0.89)	.012
Anxiety	185 (16.8)	0.55 (0.36, 0.83)	0.63 (0.41, 0.96)	.030
Depression	180 (16.4)	0.77 (0.52, 1.13)	0.90 (0.61, 1.34)	.613
Perceived stress	226 (20.5)	0.67 (0.47, 0.96)	0.81 (0.56, 1.19)	.814

Abbreviations: aOR, adjusted odds ratio; CI, confidence interval; OR, unadjusted odds ratio.

^aAdjusted for gender, age, educational level, course of disease, type of vitiligo and treatment willingness.

decreased, whereas the use of home light therapy ($P = .022$) was significantly increased after the COVID-19 pandemic from 174 (21.6%) to 237 (29.4%; Table 1). However, there was no significant difference in terms of teledermatology use before and after the COVID-19 pandemic ($P = .453$). In our survey, 644 (58.6%) patients experienced varying degrees of irritability, anxiety, fear, or depression due to the COVID-19 pandemic. Intriguingly, during the COVID-19 pandemic, home light therapy could slow down the spreading of vitiligo ($P = .001$) and reduce symptoms of anxiety ($P = .003$) and stress ($P = .031$), but was not associated with symptoms of depression ($P = .364$) (Table S2-S5). To further determine the independent factors, stepwise regression was conducted and use of home light therapy was independently negatively associated with the progression of vitiligo (aOR = 0.60; 95% CI: 0.40-0.89) and symptoms of anxiety (aOR = 0.63; 95% CI: 0.41-0.96), but was not associated with symptoms of depression (aOR = 0.90; 95% CI: 0.61-1.34) and perceived stress (aOR = 0.81; 95% CI: 0.56-1.19; Table 2). 726 (66.0%) patients agreed with the positive effects of home light therapy on improving vitiligo during the COVID-19 pandemic.

In conclusion, vitiligo patients were restricted to go to hospital routinely during the COVID-19 pandemic, which drove the disease onset, recurrence, and progression. Meanwhile, application of home light therapy was significantly increased in vitiligo patients during the COVID-19 pandemic. Most notably, use of home light therapy significantly reduced the disease progression and symptoms of anxiety of vitiligo patients.

KEYWORDS

coronavirus, COVID-19, home light therapy, vitiligo

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TABLE 2 Associations of use of home light therapy with patient-reported outcomes of vitiligo

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CONFLICT OF INTEREST


None declared.

AUTHOR CONTRIBUTIONS

Data collection: Shanglin Jin, Xiaoxi Dai; study design: Chengfeng Zhang, Zhongyi Xu; writing: Chengfeng Zhang, Zhongyi Xu; data analysis: Shanglin Jin, Chengfeng Zhang, Zhongyi Xu, Xiaoxi Dai; funding: Leihong Flora Xiang, Zhongyi Xu; data interpretation/revision/final approval: all authors. IRB approval status: Reviewed and approved by the Huashan Hospital Institutional Review Board (approval No. KY2020-792).

DATA AVAILABILITY STATEMENT


Data available in article supplementary material.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section.

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