

Public Perceptions and Attitudes Toward Vitiligo

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Background: Previous studies have discussed attitudes of vitiligo patients toward their disease. However, no studies have addressed this issue from the public's point of view.

Objective: To explore the perceptions, attitudes, and misconceptions of the public toward vitiligo.

Methods: A self-administered questionnaire was distributed to attendees of primary health care centers in Riyadh, Saudi Arabia, between January and August 2010.

Results: Overall, 924 of the 1,000 distributed questionnaires were returned, and 429 were males (46.8%). Moreover, 33.1% (303 of 916) believed that vitiligo is contagious or did not know that it is not. The cause of vitiligo was thought to be infectious by 20.4% of respondents (182 of 894), inherited by 40.5% (365 of 902), autoimmune by 41.2% (370 of 899), and due to a lack of hygiene by 22.5% (199 of 883). Unmarried individuals and those with less education were more likely to state that vitiligo is caused by an infection ($p = .02$, $p = .03$, respectively). Younger individuals and those with less education were more likely to think that vitiligo is caused by a lack of hygiene ($p = .01$, $p = .001$, respectively). More than half of the participants (56.1%, 504 of 898) would be unwilling to marry a vitiligo patient. Younger individuals and males were less likely to marry a vitiligo patient ($p = .01$, $p = .05$, respectively), whereas those of lower income were more likely to accept it ($p = .002$).

Conclusions: Various misconceptions and negative attitudes about vitiligo among the public are prevalent. Educating the public about vitiligo could ultimately lead to better psychosocial well-being of vitiligo patients.

Contexte: Des études ont déjà porté sur la perception des personnes atteintes de vitiligo à l'égard de leur propre maladie, mais aucune étude n'a porté sur la perception du public à l'égard de cette maladie.

Objectif: L'étude visait à analyser les perceptions, les attitudes, et les idées fausses du public à l'égard du vitiligo.

Méthodes: Un questionnaire autoadministré a été remis à des personnes présentes dans des centres de soins primaires à Riyad, en Arabie saoudite, entre janvier et août 2010.

Résultats: En tout, 924 questionnaires sur 1,000 ont été remis. Sur ce nombre, 429 avaient été remplis par des hommes (46.8%). De plus, 33.1% (303 sur 916) des répondants croyaient que le vitiligo était contagieux ou ne savaient pas qu'il ne l'était pas. Quant à la cause du vitiligo, 20.4% des participants (182 sur 894) croyaient que c'était une maladie contagieuse; 40.5% (365 sur 902), que c'était une maladie héréditaire; 41.2% (370 sur 899), que c'était une maladie auto-immune; et 22.5% (199 sur 883), que c'était une maladie due à un manque d'hygiène. Les personnes célibataires et celles moins instruites étaient plus portées à croire que le vitiligo était causé par une infection ($p = .02$ et $p = .03$, respectivement). Les jeunes et les personnes moins instruites étaient plus susceptibles de croire que le vitiligo était causé par un manque d'hygiène ($p = .01$ et $p = .001$, respectivement). Plus de la moitié des participants (56.1%, 504 sur 898) ne voulaient pas se marier avec une personne atteinte de vitiligo. Les jeunes et les hommes étaient moins disposés à se marier avec une personne atteinte de vitiligo ($p = .01$ et $p = .05$, respectivement), tandis que ceux à faible revenu étaient plus susceptibles d'accepter le fait ($p = .002$).

Conclusions: Il existe plusieurs idées fausses sur le vitiligo au sein de la population, et la maladie suscite des réactions négatives. L'éducation du public sur le vitiligo pourrait peut-être améliorer le bien-être psychosocial des personnes atteintes de vitiligo.

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DOI 10.2310/7750.2012.11122

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VITILIGO is a chronic noncontagious skin disease that causes depigmentation.¹ It affects approximately 1 to 2% of the total population of the world.^{2,3} There are currently many medical interventions but no curative treatment for vitiligo. Its unpredictable natural course represents a heavy burden for the patients' quality of life.^{4,5}

Unlike most internal diseases, skin diseases such as vitiligo are often immediately visible to others; therefore, people

suffering from dermatologic conditions may suffer related social and emotional consequences.⁶ Although vitiligo does not directly cause physical impairment, it may considerably influence patients' psychological well-being.⁷ The appearance of the skin can condition an individual's body image. Many vitiligo patients feel distressed and stigmatized because of their condition.⁸ These patients often develop negative feelings that are reinforced by their experiences over the years. Most vitiligo patients report feeling embarrassed, which can lead to low self-esteem and social isolation.⁹ Vitiligo has often been associated with myths, including a lack of personal hygiene and contagion. Such myths can influence others to act negatively toward the patient and hence often generate feelings of profound stigmatization.^{6,10}

Previous studies explored the attitudes of vitiligo patients toward their disease and how the public's reaction affects them.^{4,5,7-9} Vitiligo has been specifically studied in Saudi Arabia,¹¹ where 44% of patients believed that vitiligo had strongly affected the way others see them, and more than 50% reported feeling depressed and anxious because of their disease.¹¹ Our literature search revealed a lack of published studies regarding the public's attitude, general knowledge, and reaction toward vitiligo patients. An examination of this disease from the public's perspective, rather than solely from the patients themselves, could offer explanations for some of the negative feelings that patients suffer. Understanding derived from both perspectives could aid in finding a solution for the problem. The aim of our study is to explore the public's knowledge, attitudes, perceptions, and local myths concerning vitiligo.

Methods

This was a cross-sectional survey of patients and visitors attending primary health care centers (PHCCs) in the city of Riyadh, Saudi Arabia, from January to August 2010. Data collection was performed by a trained research assistant.

Data Collection

The survey was pilot-tested three times on 50 subjects per test prior to the final distribution to estimate the time required to complete the questionnaire and to assess the comprehension of questions by the participants so that it could be refined as necessary. Pilot questionnaires were excluded from the final analysis. The final self-administered questionnaire consisted of 19 questions and required approximately 4 minutes to answer. This study was approved by the local ethics committee.

To avoid bias, the survey was distributed to a reasonably representative sample of the general population. The survey was conducted on both males and females who attended PHCCs in the city of Riyadh, Saudi Arabia. A cluster-multistage random sampling technique was employed. PHCCs were clustered according to their geographic divisions into five districts (middle, southern, northern, eastern, and western) with 10 to 15 PHCCs in each district. The inclusion criteria included any adult Saudi citizen visiting the PHCC. Exclusion criteria included age less than 18 years and having vitiligo. We randomly chose two PHCCs in each region of Riyadh city. Therefore, we had 10 PHCCs.

The aim of the study was clearly explained to all participants. Participants were shown pictures of vitiligo patients in cases of uncertainty of the condition's appearance. Each participant was assured that the results of the survey would be used only for research purposes, without any disclosure of identity.

Questionnaire

The questionnaire consisted of a brief introduction that included the goals of the survey and a concise definition of vitiligo. The questions were divided into categories, which included perceptions of vitiligo, attitudes toward vitiligo patients, and personal information. The first category of questions concerned the participants' information about vitiligo. Participants were asked about their main source of information about the disease and whether they had any friend or relative with vitiligo. They were also asked about their personal views regarding the dangers of vitiligo to the patient's overall health and their assumptions about its curability. Some questions were designed to reveal any misconceptions the participant might have about the disease and its possible causes. The second category elicited information about the participants' attitudes toward vitiligo patients and included questions about whether the participants would agree or disagree to marry a person affected with this disease and the reasons behind disagreeing, if any. The third category requested personal information, including gender, age, marital status, educational level, occupation, and average household monthly income.

Statistical Analysis

The statistical software SPSS version 16 (SPSS Inc, Chicago, IL) was used for statistical analysis. Numerical variables are reported as mean \pm standard deviation. The chi-square test was used to assess associations between categorical variables. A multiple logistic regression was used to relate public

attitudes toward vitiligo with various sociodemographic variables, including age, gender, education, and income. Statistical significance was based on $p < .05$.

Results

The response rate was 92.4%, with 924 of the 1,000 distributed questionnaires being returned; the individuals sampled included 429 males (46.8%). The sociodemographic characteristics of the participants are shown in Table 1.

Knowledge about Vitiligo

The participants stated the source of their information about vitiligo to be friends or family (42.9%, 217 of 506), media (21.7%, 110 of 506), a medical source (18.2%, 92 of 506), or the Internet (13.6%, 69 of 509). Approximately one-third of the participants had a relative (31.4%, 286 of 911) or a friend (27.1%, 243 of 898) afflicted with vitiligo. Moreover, 18.5% (170 of 920) believed that vitiligo could harm or affect the health of its patients, whereas 44.2% (407 of 920) believed it could not and 37.3% (343 of 920) were unsure. With regard to treatment, 39.3% (360 of 916) thought that vitiligo could be cured completely, whereas 21.3% (195 of 916) did not

think so and 39.4% (361 of 916) did not know. Additionally, 8.0% (73 of 916) thought that vitiligo is contagious and 25.1% (230 of 916) were unsure. The different causes of vitiligo as stated by the participants are shown in Figure 1. Table 2 details the belief of infection as a cause of vitiligo and its relationship with sociodemographic variables. Single individuals and those with less education were more likely to think that vitiligo was caused by an infection ($p = .02$ and $p = .03$, respectively). Participants with more education thought that vitiligo is an inherited disorder more frequently than did those with less education ($p = .015$). Table 3 shows the belief in lack of personal hygiene as a cause of vitiligo and its relationship with sociodemographic variables. Males, younger individuals, and those with less education were more likely to think that vitiligo was caused by a lack of hygiene ($p = .02$, $p = .01$, and $p = .001$, respectively).

Attitudes toward Vitiligo Patients

More than half of the participants (58.2%, 523 of 899) would sympathize with vitiligo patients. The attitude and reactions of the participants toward vitiligo patients are shown in Figure 2. More females and younger individuals would sympathize with vitiligo patients than males and older individuals ($p < .001$ and $p = .006$, respectively). Concurrently, more females and younger individuals would stare at vitiligo patients than males and older individuals ($p = .009$ and $p < .001$, respectively). Younger individuals would avoid direct contact with vitiligo patients more frequently than older ones ($p < .001$).

More than half of the participants (56.1%, 504 of 898) would not accept marriage to a vitiligo patient, 19.3% (173 of 898) would decide after consulting a doctor, 13.8% (124 of 898) would accept only if the vitiliginous patches were in hidden areas (meaning not on the face or hands), and 10.8% (97 of 898) would accept regardless of the location of the vitiliginous patches. Table 4 shows the association between willingness to marry a vitiligo patient and demographic variables. Females and those with lower income were more frequently willing to marry a vitiligo patient than were males or those with a higher income ($p = .05$ and $p = .002$, respectively). Younger individuals would refuse marrying a vitiligo patient more often than older ones ($p = .01$). The reasons behind the refusal varied widely and are shown in Figure 3.

Table 1. Sociodemographic Characteristics for the 924 Participants in the Study

Variable	Count*	%
Age group (yr)		
Below 30	384/762	50.4
30–39	200/762	26.2
40 and above	178/762	23.4
Marital status		
Single	274/906	30.2
Married	611/906	67.4
Divorced	21/906	2.3
Education		
High school or lower	383/875	43.8
University or higher	492/875	56.2
Average household monthly income (SR) [†]		
< 10,000	456/849	53.7
10,000–15,000	216/849	25.4
> 15,000	177/849	20.8
Gender		
Male	429/917	46.8
Occupation		
Employed	528/880	60.0
Unemployed	352/880	40.0

*The number of patients in the categories of a given variable may not add up to the total number due to missing values.

[†]3.74 Saudi Riyals (SR) = US\$1.

Discussion

Our study focused on the misconceptions and attitudes of the public regarding vitiligo. This is extremely important

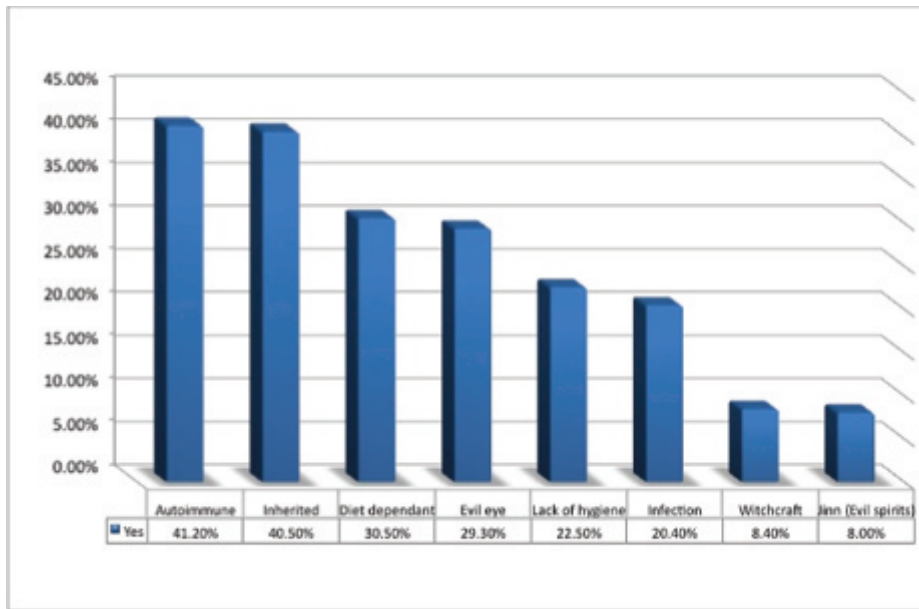


Figure 1. Causes of vitiligo according to the 924 participants of the study. Responses were not mutually exclusive.

because the attitude of the public is probably one of the most significant reasons for the depression, isolation, and distress experienced by vitiligo patients.

A recent study by Thompson and colleagues analyzed British vitiligo patients and discovered that they suffer

from avoidance and concealment.¹² This seemed to be caused by cultural values related to appearance, status, and myths linked to the cause of the condition. A similar recent study by Kent and Al'Abadie revealed that vitiligo affects lives in a variety of ways, mainly due to activities such as

Table 2. Belief in Infection as a Cause of Vitiligo and Its Relationship with Sociodemographic Variables Using Multiple Logistic Regression

Variable	Infection as a Cause of Vitiligo (Yes/No)					
	Yes (%)	Unadjusted OR (95% CI)	p Value	Adjusted OR (95% CI)	p Value	
Age (yrs)						
Below 30	37.3	1.19 (0.7–2.0)	.53	0.87 (0.4–2.0)	.75	
30–39	38.9	1.27 (0.7–2.4)	.46	1.38 (0.6–3.2)	.48	
40+ (reference)	33.3	1.0		1.0		
Gender						
Male	38.7	1.20 (0.8–1.7)	.33	1.23 (0.7–2.2)	.49	
Female (reference)	34.4	1.0		1.0		
Marital status						
Single	39.6	1.23 (0.8–1.8)	.29	2.30 (1.2–4.6)	.02	
Married/divorced/widowed (reference)	34.8	1.0		1.0		
Educational level						
Secondary school or lower	40.5	1.36 (0.9–1.9)	.10	1.89 (1.1–3.4)	.03	
University or higher (reference)	33.3	1.0		1.0		
Occupation						
Employed	35.0	0.90 (0.6–1.3)	.61	0.55 (0.3–1.2)	.11	
Unemployed (reference)	37.3	1.0		1.0		
Average household monthly income (SR)						
Up to 10,000	40.2	1.27 (0.8–2.0)	.31	1.03 (0.5–2.7)	.93	
10,000–15,000	34.7	1.01 (0.6–1.8)	.98	1.48 (0.7–3.3)	.34	
> 15,000 (reference)	34.6	1.0		1.0		

SR = Saudi Riyals.

Table 3. Belief in Lack of Hygiene as a Cause of Vitiligo and Its Relationship with Sociodemographic Variables Using Multiple Logistic Regression

Variable	Lack of Hygiene as a Cause of Vitiligo (Yes/No)				
	Yes (%)	Unadjusted OR (95% CI)	p Value	Adjusted OR (95% CI)	p Value
Age (yr)					
Below 30	35.6	1.89 (1.2–3.1)	.01	2.64 (1.2–5.6)	.012
30–39	23.6	1.05 (0.6–1.9)	.84	1.32 (0.6–2.8)	.47
40+ (reference)	22.6	1.0		1.0	
Gender					
Male	29.5	1.04 (0.7–1.4)	.83	1.87 (1.1–3.2)	.02
Female (reference)	28.8	1.0		1.0	
Marital status					
Single	31.0	1.15 (0.8–1.6)	.44	0.79 (0.4–1.5)	.46
Married/divorced/widowed (reference)	28.1	1.0		1.0	
Educational level					
Secondary school or lower	34.4	1.62 (1.2–2.3)	.005	2.50 (1.5–4.3)	.001
University or higher (reference)	24.5	1.0		1.0	
Occupation					
Employed	25.1	0.64 (0.5–0.9)	.01	0.34 (0.2–0.7)	.003
Unemployed (reference)	34.5	1.0		1.0	
Average household monthly income (SR)					
Up to 10,000	27.0	0.77 (0.5–1.2)	.22	0.56 (0.3–1.1)	.07
10,000–15,000	36.9	1.22 (0.7–1.9)	.43	1.19 (0.6–2.4)	.63
> 15,000 (reference)	32.4	1.0		1.0	

SR = Saudi Riyals.

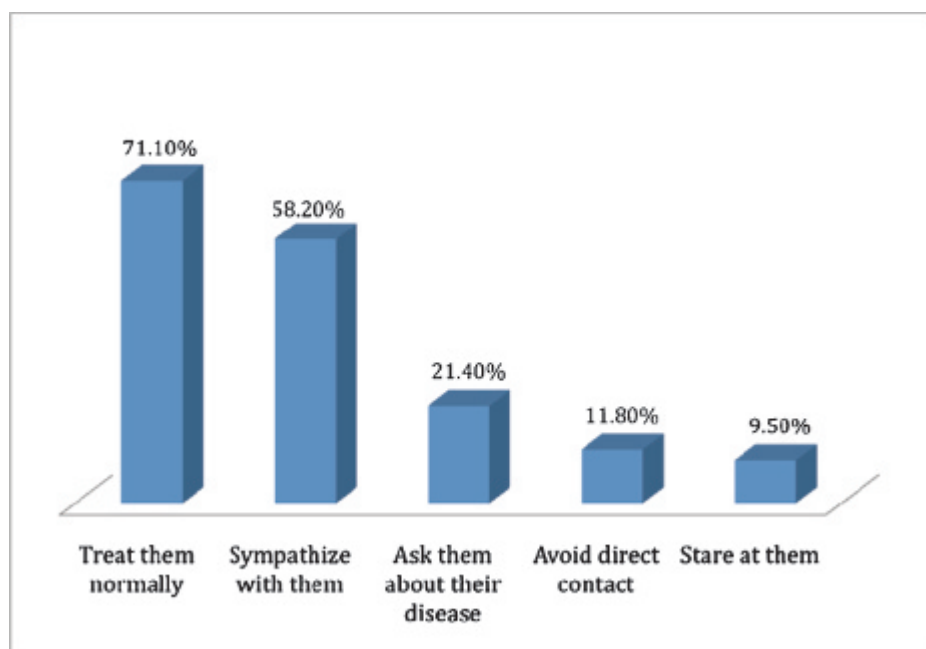
**Figure 2.** Attitudes toward vitiligo patients among the 924 participants of the study. Responses were not mutually exclusive.

Table 4. Agreeing to Marry a Vitiligo Patient (Yes/No) and Its Relationship with Demographic Variables Using Multiple Logistic Regression

Variable	Agreeing to Marry a Vitiligo Patient (Yes/No)				
	Yes (%)	Unadjusted OR (95% CI)	p Value	Adjusted OR (95% CI)	p Value
Age (yr)					
Below 30	37.8	0.63 (0.4–0.9)	.01	0.44 (0.2–0.8)	.01
30–39	48.4	0.97 (0.6–1.5)	.89	0.77 (0.4–1.3)	.36
40+ (reference)	49.1	1.0		1.0	
Gender					
Male	39.6	0.74 (0.6–1.0)	.02	0.65 (0.4–1.0)	.05
Female (reference)	47.2	1.0		1.0	
Marital status					
Single	39.3	0.76 (0.6–1.0)	.06	0.96 (0.6–1.6)	.87
Married/divorced/widowed (reference)	46.2	1.0		1.0	
Educational level					
High school or lower	48.2	1.19 (0.9–1.6)	.22	0.67 (0.4–1.0)	.08
University or higher (reference)	44.4	1.0		1.0	
Occupation					
Employed	43.9	0.99 (0.8–1.3)	.96	1.27 (0.7–1.6)	.44
Unemployed (reference)	44.1	1.0		1.0	
Average household monthly income (SR)					
Up to 10,000	52.5	1.57 (1.1–2.2)	.01	2.23 (1.3–3.8)	.002
10,000–15,000	30.0	0.61 (0.4–0.9)	.02	0.80 (0.4–1.5)	.49
> 15,000 (reference)	41.3	1.0		1.0	

SR = Saudi Riyals.

avoidance and negative reactions by others.¹³ Another study revealed that 33.63% of vitiligo patients in a teaching hospital in India suffered from psychiatric morbidity.¹⁴ Our study differs from this previous work by being the only study that analyzes the public instead of the patients.

Our study revealed a wide range of common public misconceptions about vitiligo. Beliefs about the cause of vitiligo were striking as more than 20% thought that it was caused by an infection and more than 22% thought that it was caused by a lack of personal hygiene. Other prominent

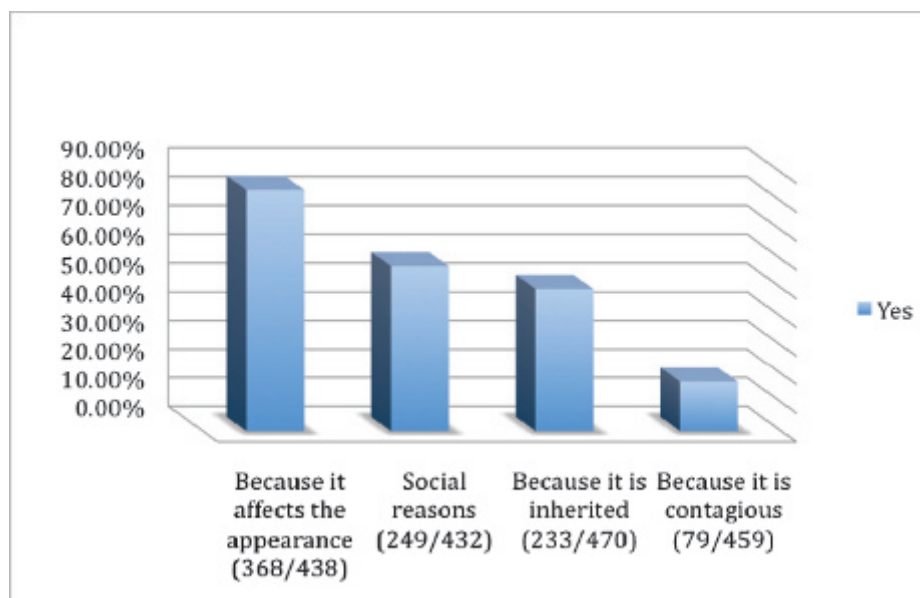


Figure 3. Reasons behind refusing to marry a vitiligo patient among the 924 participants of the study. Responses were not mutually exclusive.

misconceptions included evil-eye, witchcraft (sorcery), and *jinn* (evil spirits), which all reveal the prevalence of cultural myths related to this disease. Our analysis revealed that misconceptions related to the cause of vitiligo are more prevalent among young individuals and those of lower education. Attitudes toward vitiligo patients were also described in our study, with 56.1% (504 of 898) absolutely unwilling to marry a vitiligo patient. This finding provides an explanation for the common difficulties that vitiligo patients, particularly single women, experience in initiating relationships.^{5,7,8} Our results revealed that males and younger individuals are less likely to accept marriage to a vitiligo patient. This is probably due to the fact that individuals in those groups tend to focus more on physical appearances.

To the best of our knowledge, our study is the first to examine vitiligo through the eyes of the general public. We have addressed a previously neglected issue in a comprehensive manner. Our study is also unique in that it illuminates some of the local issues in our population and how they affect the thoughts, beliefs, and behaviors of the population concerning vitiligo. A large sample size was chosen to generalize our results. Using only participants attending PHCCs could not be precisely representative of the general population, which is considered a limitation of the study.

We hope that this study will be the first of many covering this important subject. Further studies can be designed to include a larger sample size that is more representative of the whole population. Mass public education campaigns should be organized to correct many of the misconceptions shown here to be prevalent in our society. Follow-up studies should also be conducted to reveal the effectiveness of the campaigns and to find ways to improve our public attitudes and perceptions toward vitiligo patients.

Conclusion

Participants had common negative attitudes and misunderstandings about vitiligo. Among them was the belief that vitiligo was contagious or that it was caused by poor hygiene. Educating the public about vitiligo could lead to increased self-confidence, better social integration, and psychological well-being for vitiligo patients.

Acknowledgment

Financial disclosure of authors and reviewers: None reported.

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