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Assessment of knowledge and perception towards vitiligo in Northern Saudi Arabia

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ABSTRACT

Background: There is a prevalence of vitiligo in Saudi Arabia, with low reports regarding the burden of the disease. Thus, the current study aimed to assess the knowledge and perception of vitiligo in Saudi Arabia. *Methodology*: This cross-sectional study involved 1004 volunteers' participants living in the city of Hai'l, Northern Saudi Arabia. Contributors were selected randomly regardless of age or sex. A purposeful questionnaire was designed and used to collect data regarding vitiligo. *Results*: About 77% claimed to know what vitiligo is. The Odds Ratio (OR) and 95% confidence interval (95%CI) for Knowledge was OR (95%CI) = 1.193 (1.032-1.378), P-value = 0.007. The most common source of knowledge was the internet, followed by physicians and friends, constituting 25%, 23%, and 13%, respectively. *Conclusion:* The knowledge and perception of vitiligo are averages among the Saudi community. Distribution of educational and awareness materials through internet and social media can potentially reduce negative attitudes toward vitiligo patients and improves their life quality.

Keywords: vitiligo, melanocytes, skin, Saudi Arabia

1. INTRODUCTION

Vitiligo is described as progressive developed depigmented macules and patches resulting from an autoimmune process leading to selective loss of melanocytes (Fatima et al., 2022; Bergqvist and Ezzedine, 2020). The global prevalence rate of vitiligo is estimated to be from 0.5% to 2% of the population (Bergqvist and Ezzedine, 2020). About 80% of the causes of vitiligo are attributed to genetic risk factors, and the remaining 20% of factors are thought to be linked to environmental factors. The pathogenesis of vitiligo is attributed to the fact that the melanocytes are more vulnerable to oxidative stress in a vitiligo patient. This leads to the release of exosomes and inflammatory cytokines. These cytokines lead to activation of the innate immune response followed by adaptive immunity through activation of auto-reactive cytotoxic CD8+ T-cells. CD8+ T-cells generate interferon-γ (IFN-γ) that leads to

chemokine secretion from adjacent keratinocytes to recruit more T-cells (Bergqvist, 2021; Shah et al., 2021).

Numerous treatment options have been introduced to treat vitiligo, including topical and systemic types. Phototherapy, laser therapy, and surgical therapies are commonly used. Topical therapies such as corticosteroids, calcineurin inhibitors, and vitamin-D analogs are used. Narrowband UV-B is commonly employed (Ahmed and Masood, 2022). A study from Saudi Arabia has reported a very high prevalence of vitiligo (3.5%) in the country (Murad et al., 2020). However, a positive attitude toward vitiligo patients has been reported in Saudi Arabia but with knowledge gaps (Algarni et al., 2021). Accordingly, the current study aimed to assess the knowledge and perception of vitiligo in Saudi Arabia.

2. MATERIALS AND METHODS

In this cross-sectional survey, 1004 volunteers' participants lived in the city of Hai'l, Northern Saudi Arabia. Contributors were selected randomly regardless of age or sex, during the period from April 2021 to June 2021. A purposeful questionnaire was designed and used to collect data regarding vitiligo. Besides demographical characteristics of the contributors, other information was included, such as questions evaluating the levels of knowledge about the vitiligo causes concepts and levels of knowledge about diagnosis and treatment concepts. Each participant was interviewed by a medical student to collect the appropriate information.

Ethical Consent

Each participant was asked to sign a written ethical consent form before the interview. The study protocol was approved by ethical committee at the College of Medicine, University of Ha'il. Approval number: HREC 00116/CM-UOH.04/20.

Statistical analysis

Collected data was set in standard sheets and entered computer software (SPSS) and analyzed to obtain frequencies, cross-tabulations, relative risk, and Chi-square test considering a 95% confidence interval. A P-value less than 0.05 were considered statistically significant.

3. RESULTS

The current study included 104 participants aged 52 to 17 years with a mean age of 22 years. Of the 1004 participants, 440/1004(44%) were males and 564/1004(56%) females. Most participants were in the age range 21-25 years, followed by ≤ 20 years, representing 509/1004(51%) and 404/1004(40%), respectively. Most contributors were with university-level education representing 942/1004(94%) (Table 1 and figure 1).

Table 1 Distribution of the study population by demographic characteristics

Variable	Males	Females	Total
Age			
≤ 20 years	113	291	404
21-25	289	220	509
26-30	25	38	63
31-35	8	6	14
≥36	5	9	14
Total	440	564	1004
Education			
Primary education	25	25	50
University	411	531	942
Post-university	4	8	12
Total	440	564	1004

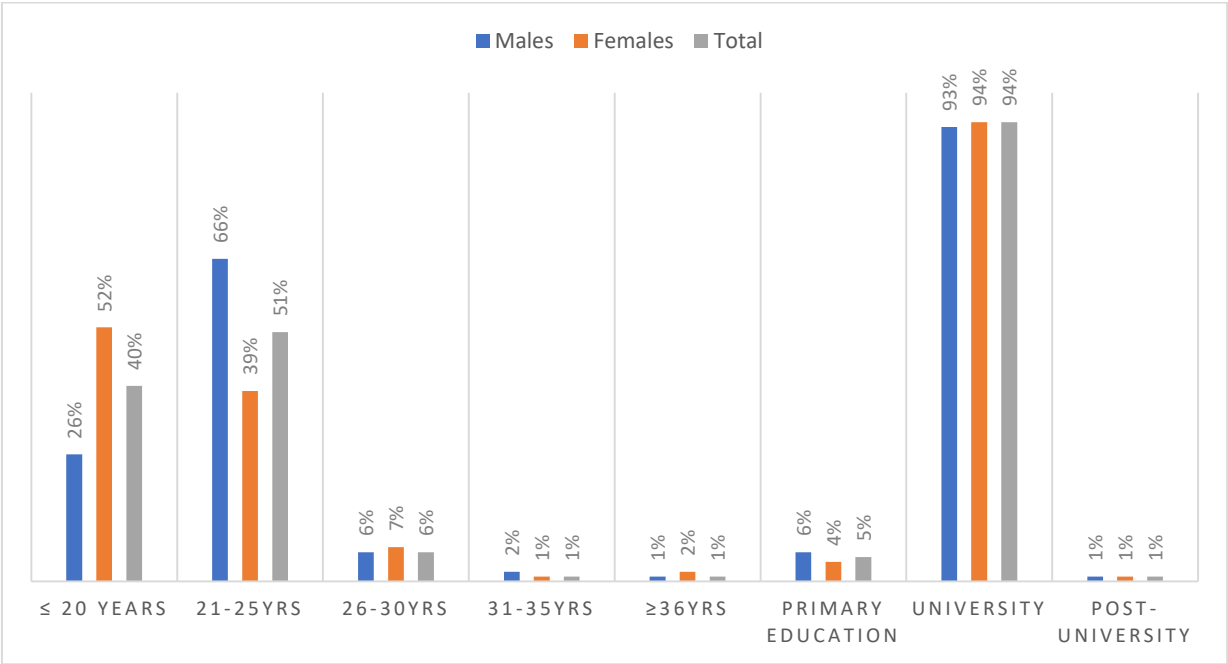

Figure 1 Description of the study population by demographical characteristics

Table 2 and Fig 2, summarizes the distribution of the study subjects by levels of knowledge about vitiligo. About 773/1004(77%) claimed to know what vitiligo is. The Odds Ratio (OR) and 95% confidence interval (95%CI) for Knowledge was OR (95%CI) = 1.193 (1.032-1.378), P-value = 0.007. The most common source of knowledge was the internet, followed by Physicians and friends, constituting 195/773(25%), 174/733(23%), and 104/773(13%), correspondingly. About 722/1004(72%) individuals believe that vitiligo is a benign condition, 195/1004(19%) don't know, and 90/1004(9%) believe that it is serious disease.

Table 2 Distribution of the study subjects by levels of knowledge about the vitiligo

Variable	Males	Females	Total
Do you know vitiligo			
Yes	322	451	773
No	118	113	231
Total	440	564	1004
Source of knowledge			
Physician	81	93	174
News Papers & Magazines	20	35	55
Internet	88	107	195
TVs	28	33	61
Friends	54	50	104
Schools	11	17	28
Parents	15	58	73
Others	25	58	83
Total	322	451	773
Vitiligo is			
Benign	327	395	722
Serious	38	52	90
I don't Know	75	117	192
Total	440	564	1004

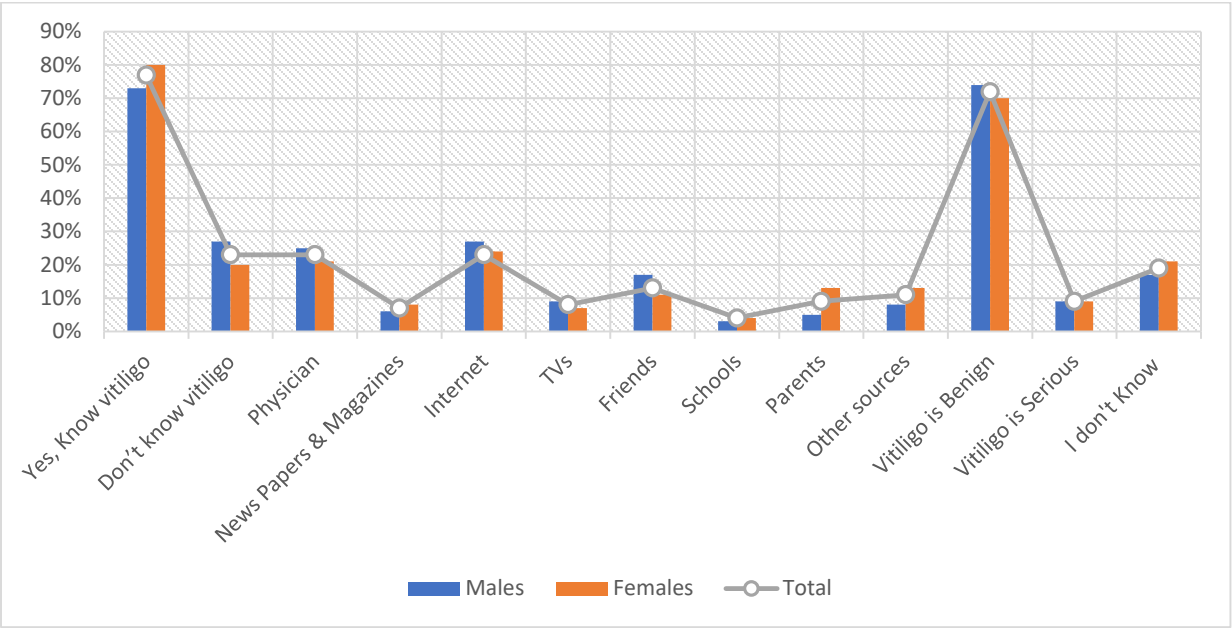

Figure 2 Description of the study subjects by levels of knowledge about the vitiligo

Table 3 and Fig 3, summarizes the distribution of the study subjects by levels of knowledge about the vitiligo causes concepts. Most participants think that vitiligo is an inherited disorder, followed by those who regarded it as acquired and don't know, representing 592/1004(59%), 288/1004(29%), and 103/1004(10%), in that order. Regarding the modifiable risk factors, most participants think that genetic risk factors is followed by dietary factors and stress, representing 593/1004(59%), 143(14%), and 136(14%), respectively.

Table 3 Distribution of the study subjects by levels of knowledge about the vitiligo causes concepts

Variable	Males	Females	Total
Etiology			
Infectious	12	9	21
Inherited	240	352	592
Acquired	132	156	288
Don't know	56	47	103
Total	440	564	1004
Modifiable risk			
Dietary factors	60	83	143
Infectious organisms	29	27	56
Genetics	256	337	593
Some chemicals	37	39	76
Stress	58	78	136
Total	440	564	1004

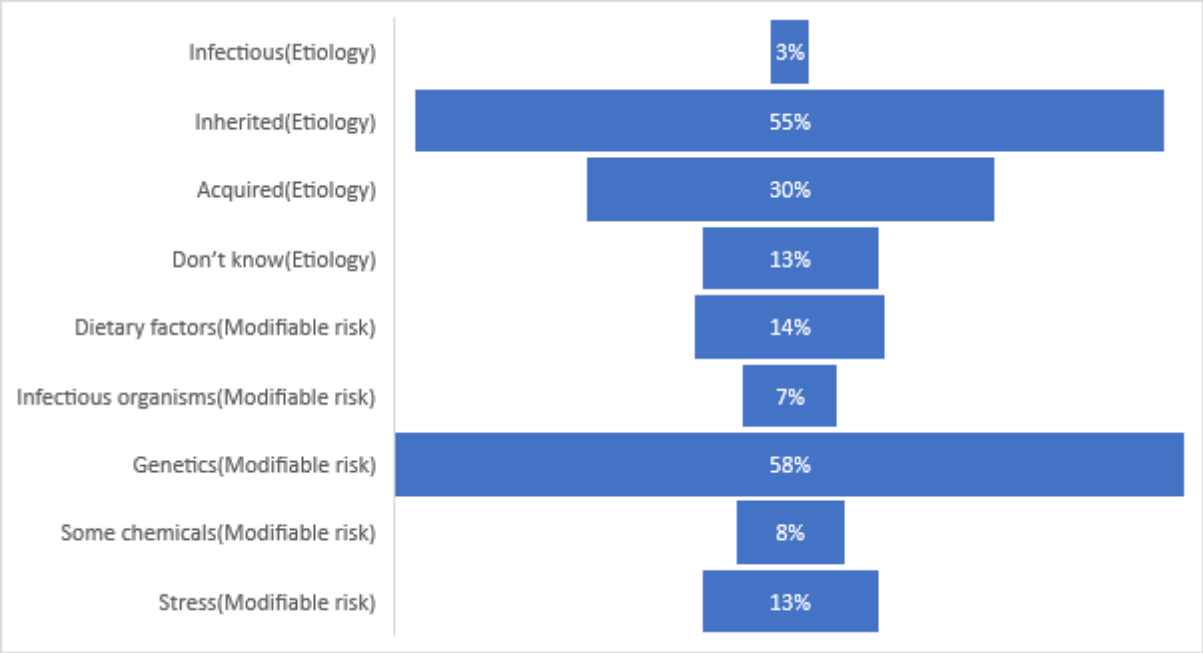

Figure 3 Description of the study subjects by levels of knowledge about the vitiligo causes concepts.

Table 4 and Fig 4 describe the distribution of the study subjects by levels of knowledge about diagnosis and treatment concepts. For vitiligo diagnosis, most contributors believe that it is easy to diagnose, followed by it needs specialist, and those don't know constituting 384/1004(38%), 363(36%), and 236(24%), correspondingly. Most participants think that the most familiar vitiligo characteristic is all body whitish, representing 624/1004(62%), followed by specific whitening of body area 299/1004(30%). Most participants believe that albinism is the same as vitiligo, followed by albinism is inherited, and don't know, representing 357/1004(36%), 276(27%), and 268(26%), in this order. Only 542/1004(54%) believe that vitiligo can be treated. About 323/542(60%) think that vitiligo needs years to appear, 191/542(35%) stated as less than a year.

Table 4 Distribution of the study subjects by levels of knowledge about diagnosis and treatment concepts

Variable	Males	Females	Total
Vitiligo diagnosis is			
Very difficult	7	14	21
Need specialist	147	216	363
Easy	186	198	384
Don't know	100	136	236
Total	440	564	1004
Vitiligo characteristics			
All body whitish	135	489	624
Specific whitening of body area	264	35	299
Skin Redness	9	16	25
I don't Know	32	24	56
Total	440	564	1004
Albinism Vs. Vitiligo			
The same	183	174	357
Albinism is inherited	94	182	276
Albinism is acquired	35	68	103
I don't Know	128	140	268
Total	440	564	1004
Treatment			
Yes	207	335	542

No	233	229	462
Total	440	564	1004
Duration			
For days	20	8	28
Less than a year	71	120	191
Needs years	116	207	323
Total	207	335	542

4. DISCUSSION

The increased prevalence of vitiligo in Saudi Arabia has impacted the quality of life of many patients. Besides personal influence, there is some sort of negative community attitude towards such patients (Al-Shammari et al., 2021). Herein we highlighted the general population's levels of knowledge and perception of vitiligo. The present study's findings revealed a high level of knowledge of vitiligo in the general population. This may predict either an increased number of patients in the population or an increased number of educated participants in this study. However, a high knowledge level about vitiligo was recently reported in a study from Saudi Arabia (Algarni et al., 2021). The source of knowledge for most participants was the internet (including media), the family physician, and then friends. Similar findings were previously reported that the internet (social media) was the most frequently reported source of knowledge about vitiligo, followed by family and friends (Al-Shammari et al., 2021). Such means can be used to increase awareness in well-oriented programs to decrease the disease consequence among the general Saudi community.

In the current study, more than 30% of the study subjects have the wrong concept about the nature of the disease. This leads to the raised concept of the dire consequence of the illness and render some sort of concern and decreased quality of life. Many of the participants in this study believe that vitiligo results from inherited genes, which is supported by several studies (Basher et al., 2021; Roberts et al., 2019; Spritz and Santorico, 2021). It was reported that about 70% of the vitiligo comes from common inherited genes, and 30% comes from rare genomic variants. Moreover, the environmental risk was suspected for about 20% of the cases (Roberts et al., 2020). Nevertheless, many autoimmune diseases are linked to the antigen processing 1 (TAP1) and proteasome 20S subunit beta 9 (PSMB9) genes. In this context, a study from Saudi Arabia indicated a fundamental responsibility for *TAP1* and PSMB9 as risks for the development of many cases of vitiligo in the Saudi community (Mufti et al., 2021).

Many of the participants in the present study believed that vitiligo is easy to diagnose, but it needs the assistance of a specialist. Vitiligo can easily be diagnosed by in vivo confocal microscopy or skin biopsy using specific markers. The absence of melanocytes from the skin strongly indicates (Rahman and Hasija, 2018). However, most of the participants stated that vitiligo comprised all body whitish. Vitiligo is characterized by white non-scaly depigmented patches with distinct sharp margins distributed unilaterally in the skin (Rahman and Hasija, 2018). A great majority of participants in this study could not distinguish between albinism and vitiligo. Albinism is an autosomal recessive disorder causing a complete absence of melanin biosynthesis in melanocytes resulting in body whitening, hence the vitiligo caused by autoimmune disease resulting in white non-scaly depigmented patches (Carolina et al., 2019; Rahman and Hasija, 2018).

Over half of the study participants agree that vitiligo can be treated. Vitiligo treatment is usually aimed at restricting the disease's spread and enhancing re-pigmentation of the impacted sites. Topical agents and phototherapy are the most frequently used treatment. Moreover, there are increasing trends in using systemic therapy, which significantly influences the course of the disease (Searle et al., 2021). Many participants think that treatment of vitiligo requires years of treatment. However, this depends on multifocal factors. Some lesions can be controlled with 6 to 24 months, but others may need more time (Bergqvist and Ezzedine, 2020). Although the present study brings about important information regarding vitiligo updates from Saudi Arabia, it has limitations, including its cross-sectional setting and clustering of young, educated contributors.

5. CONCLUSION

Vitiligo's overall knowledge and perception are average among the Saudi community. Internet and social media are the most effective means for health education to decrease negative attitudes toward vitiligo patients and improve the quality of life for these patients.

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Author Contributions

Fatmah Fahad Alreshidi: Conception, case analysis, manuscript drafting, approval of the final version.
Ebtehaj Saud Almughais: Case analysis, manuscript drafting, approval of the final version.
Dalal Alayed: Case analysis, manuscript drafting, approval of the final version.
Rasha Mohammed Alarfaj: Case analysis, manuscript drafting, approval of the final version.
Samiah Ahmed Almehmadi: Case analysis, manuscript drafting, approval of the final version.
Hussain Gadelkarim Ahmed: Supervision, critical revision of manuscript, approval of the final version.

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Conflicts of interest

The authors declare that there are no conflicts of interests.

Data and materials availability

All data associated with this study are present in the paper.

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