

A hospital-based study on knowledge and attitude related to vitiligo among adults visiting a tertiary health facility of central India

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Abstract

Background: Vitiligo is one of the common stigmatizing dermatosis in the Indian society and the vitiligo patients have to face significant psychological hurt and social neglect. The severity of the stigma is related to the society's attitude and knowledge about it. **Aims and Objectives:** To document the prevalent knowledge and attitude in general public towards vitiligo patients, and to identify the determinants of good/poor knowledge and attitude. **Materials and Methods:** A systematic random sampling technique was adopted to enroll 700 adult participants visiting an urban tertiary healthcare facility of central India. We developed a questionnaire to collect information on knowledge and attitude of the participants. A composite score was developed for good knowledge and attitude and performance of the participants was compared with the selected determinants. Data analysis was conducted by Stata software version 11. **Results:** The overall knowledge score was good for 66.3% (95% confidence interval [CI]: 62.8%, 69.8%) of the participants. However, the score for attitude was comparatively poor i.e., only 16.9% (95% CI: 13.9%, 19.5%). None of the studied parameters could be significantly correlated with the knowledge score. Being married and being engaged in a health care related occupation were significant predictors of good attitude levels with $P = 0.042$ and 0.034 respectively, whereas female gender was the significant predictor for poor attitude with an odds ratio of 0.54 (95% CI: 0.33, 0.9) and $P = 0.018$. **Conclusions:** There were widespread myths prevalent about vitiligo in the studied population. The knowledge scores were better than attitude scores.

Key words: Attitude, knowledge, myths, society perceptions, vitiligo

INTRODUCTION

Vitiligo is a common, autoimmune acquired disorder of the skin, which causes milky white depigmented macules on various parts of the body. These macules are commonly aesthetically disfiguring, especially in dark colored individuals. Vitiligo downbeats affected persons'

thinking, emotions, and daily activities. The severity of this negative impact is related to the knowledge and attitude of the society regarding that disease along with the patients' demographic or personal characters and individual life situations.^[1] Common peoples' misconceptions and

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undue apprehension associated with vitiligo are the result of inadequate knowledge about this otherwise benign and harmless condition. The present study attempted to document the prevalent knowledge and attitude in the general public regarding vitiligo and to identify the determinants of good/poor knowledge and attitude. There is a severe scarcity of similar studies across the worldwide literature, and we could not find any from the Indian subcontinent.

MATERIALS AND METHODS

Design of the study

A prospective, hospital-based questionnaire survey was carried out over about 3 months from January to March 2012 at a tertiary care center hospital in central India. We recruited caregivers or other visitors of the dermatology outpatient facilities by systematic random sampling method. The participants included attendants and patients from various socioeconomic groups visiting the hospital. We excluded the individuals having vitiligo themselves, children below 16 years of age and mentally subnormal persons. This study was approved by the Ethics Committee of our institute and informed consent was taken from all the participants. Confidentiality and privacy of the participants were ensured by excluding identification details from the study instrument.

Sample size estimation

We considered 75% as the anticipated good knowledge level in our study population. At a confidence level of 95% and a power of 80% for a two-tailed test and with 12% relative precision, our primary outcome (overall good knowledge) was expected to lie between 66% and 84%. We got a sample size of 89 with the above criteria. It was proposed to recruit at least 150 participants for the study to account for the anticipated 60% response rate. For robust sub-group analysis of different variables included in the study, we kept 150 as the sample size for each of the 4 age wise sub-groups. Thus, the final minimum sample size was 600 for the study. We recruited 700 participants for the study.

Each participant was provided a questionnaire in the local language (Hindi), which was devised to include participants' demographic characteristics, questions related to their knowledge of vitiligo and their attitude toward persons with vitiligo. Each question was given open as well as close-ended options to mark in the affirmative, negative, or as not knowing and had the freedom to describe if the participant's opinion was not fitting in any given options for that question [Tables 1 and 2]. Answers to all these were ranked at different marks and a scoring system (indicative only as the scoring was an empirical device) was formulated

Table 1: Knowledge and prevalent myths in the study participants*

Question addressed	Participants' responses n (%)	Score points
Is it lethal?		2
Yes	46 (6.6)	
No	578 (82.6)	
What could be the age of onset of vitiligo?		2
Childhood	114 (16.3)	
Adult	91 (13.0)	
Anytime	272 (38.9)	
Who could be susceptible to develop vitiligo?		2
Anyone	397 (56.7)	
Family members of patient	119 (17.0)	
Persons with blood impurity	119 (17.0)	
What could be the possible causes of vitiligo?		2
Congenital	90 (12.9)	
Genetic	80 (11.4)	
Micro-organisms (germ)	132 (18.9)	
Food contamination	83 (11.9)	
Pollution	32 (4.6)	
Others	46 (6.6)	
What could be the relation of lesions with food?		2
Lesions are caused by intake of disturbed food	211 (30.1)	
They are related to consumption of fish and milk together	193 (27.6)	
Lesions exacerbated by consumption of excess sour food	142 (20.3)	
Is vitiligo infective?		2
Infectious	119 (17.0)	
Contagious by touch	82 (11.7)	
Caused by sharing meals	58 (8.3)	
Caused by prolonged contact with patient	79 (11.3)	
What are the expectations from treatment in vitiligo?		2
Possible cure	482 (68.9)	
No treatment	152 (21.7)	
Allopathy useful	362 (51.7)	
Allopathy deteriorate the disease	129 (18.4)	
Cured completely by AYUSH	390 (55.7)	
Is it usually related to other serious diseases?		
Yes	151 (21.6)	0
No	507 (72.4)	2
What may be the relation of vitiligo with leprosy?		
Both same	73 (10.4)	0
No relation	188 (26.9)	4
Vitiligo converts into leprosy later	48 (6.9)	0

*Total numbers may not add up to 700 as many questions were not answered by all participants and few questions got multiple responses

for knowledge and attitude estimation. For knowledge component of the study instrument, the total score was 20, while it was 14 for the attitude component.

Study outcomes

The study indicated the proportion of participants having overall good knowledge and attitude and correlation of

their knowledge/attitude with selected sociodemographic characteristics of the study participants.

Statistical analysis

The data were entered into Microsoft Excel version 2010, and data analysis was done with the help of statistical software Stata version 11 (College Station, Texas). Descriptive statistics was presented as means and standard deviations for continuous variables, and counts and percentages with confidence intervals (CIs) for categorical variables. Sub-group analysis was done to find out the association of outcome variable with the determinants studied. Appropriate statistical tests were used for continuous (*t*-test, ANOVA) and discrete variables (Chi-square test, Z-test). We also performed multivariate analysis using logistic regression method to identify the significant predictors of knowledge and attitude levels.

RESULTS

A total of 700 participants (499 males and 201 females) were included the study. Their sociodemographic characteristics are charted in Table 3. The majority were from urban areas of Bhopal city, and most were well educated.

The majority (487; 69.6%) perceived vitiligo to be an uncommon condition that is rarely seen around. A quarter of the participants (178; 25.4%) had some close family member/neighbor/friend affected with vitiligo (parent/sibling/child/spouse = 26, other relative = 27, friend = 61, neighbour = 64). The white patches on the exposed body parts of the patients such as face and hand were the most common to be recalled by the participants (314; 44.9% and 321; 45.9% respectively, followed by the whole body (209; 29.9%) and scalp (82; 11.7%).

The participants' knowledge about vitiligo is summarized in Table 1. Few participants (46; 6.6%) thought vitiligo to be a lethal disease. The majority of the recruited subjects (482; 68.9%) were hopeful about a possible cure by various treatments. A large number of people (390; 55.7%) in our study had belief in probable complete cure by using alternative (homeopathic or Ayurvedic) medicines while 362 (51.7%) had belief in the efficacy of allopathy treatment. 152 (21.7%) believed that there is no effective treatment, 130 (18.6%) even thought that the treatment might further aggravate the disease. Only 188 (26.9%) participants made a clear distinction between vitiligo and Hansen's disease. There are widespread myths prevalent about the disease [Table 1]. The attitude of the participants towards vitiligo patients also varied [Table 2].

Table 2: Attitude of the participants towards vitiligo patients*

Attitude of the participant	Responses n (%)	Score points
Friendship with patient	475 (67.9)	4
Share meal with patient		
Yes	233 (33.3)	2
Yes, in a different utensil	264 (37.7)	2
No	168 (24.0)	0
Thought while a patient around		
Nothing special	360 (51.4)	2
Fear	58 (8.3)	0
Hate	23 (3.3)	0
Pity	159 (22.7)	0
Want to stay afar	38 (5.4)	0
Ready to marry a patient	172 (24.6)	2
Ready to marry oneself/relative in a family with a person having vitiligo	237 (33.9)	2
No fear to touch/talk with person affected	144 (20.6)	2

*Total numbers may not add up to 700 as many questions were not answered by all participants and few questions got multiple responses

Table 3: Demographic characteristics of the study participants

Parameter	n (%)
Age distribution	
Mean age (SD)=31.7 years (male: 32.3, female: 30.0 years)	
Age groups	
15-24	217 (31)
25-34	256 (36.6)
35-44	129 (18.4)
45 and above	98 (14)
Residence	
Urban	605 (86.4)
Rural	95 (13.6)
Marital status	
Married	369 (52.7)
Unmarried	331 (47.3)
Education	
Illiterate to class V	28 (4)
VI-XII	157 (22.4)
Graduate and above	515 (73.6)
Occupation	
Student	174 (24.9)
Homemaker	83 (11.9)
Health-care related	21 (3.0)
Others	409 (58.4)
Unemployed	13 (1.9)

SD: Standard deviation

Knowledge and attitude scores

Tables 1 and 2 depict the assessment of the participants' knowledge and attitude scores, respectively. 66.3% of the participants achieved knowledge score of >10 (out of 20), the rest (33.7%) reported poor score. The attitude was assessed with a 14 point score and only 16.9% were found to have satisfactorily good (≥ 7) attitude score. Table 2 discloses reluctance observed in the participants to have friendship, share meal or have close social relation or marriage with a vitiligo affected person. Thoughts of fear, hate or pity toward

the affected person were also not uncommon. A total of 161 (23.0%) participants had witnessed marital difficulties for vitiligo affected persons. Discrimination at the workplace was also reported by a large number (198; 28.3%) of participants.

The possible correlation of knowledge and attitude scores with sociodemographic profile of the participants was checked. Good knowledge was not associated with any of the sociodemographic factors used in the bivariate analysis [Table 4]. The participants with a relative or friend with vitiligo had no significant difference in knowledge or attitude scores from other participants. Attitude score was significantly better among males, younger age-groups, the married and the participants indulging in healthcare related occupation or the unemployed [Table 5]. After multivariate analysis, married participants had an odds ratio (OR) of 1.51 (95% CI: 1.01, 2.44) as compared to unmarried participants for having good attitude. After controlling other factors, female gender was the only other significant factor for poor attitude score with an OR of 0.54 (95% CI: 0.33, 0.9) and a $P = 0.018$.

DISCUSSION

Although it is mostly an asymptomatic ailment, vitiligo may be a painful condition to live with because of the

associated stigmas. The negative impact on the patients' psyche is much more in Indians as most of the population is colored (Fitzpatrick scale IV or V).^[2,3] Various tools like dermatology life quality index and quality of life have been used to measure the negative impact on vitiligo affected persons in India. All of these studies have underlined the psychological trauma and physical disfigurement caused by vitiligo.^[4-7] However, none of these studies has explored the community outlook towards vitiligo patients in India.

Vitiligo affected persons are often subjected to whispered comments, taunts, and social rejection. Sometimes the patients themselves withdraw from all social interaction in anticipation of the guilt and humiliation.^[4,8,9] Many of our participants had reservations in having a friendship (27.7%) and in sharing meals (24.0%) with vitiligo patients. The thoughts of pity, hate or fear to touch, or talk with a patient around were also noticed in our study. There is no Indian study available with which these data could be compared, however, one recent study from Saudi Arabia has focused on public perceptions and attitudes toward vitiligo patients.^[10] The causes assumed by the participants in that study included autoimmunity (41.2%), heredity (40.50%), diet (30.50%), poor hygiene (22.5%), and evil eye (29.3%). The notion of

Table 4: Observed relationship of knowledge about vitiligo with sociodemographic characteristics

Parameter	Good score	Poor score	P
Age distribution			
Mean age	31.3	32.4	0.105
Male	66.5	33.5	0.827
Female	65.7	34.3	
Age groups			
15-24	72.8	27.2	0.076
25-34	63.7	36.3	
35-44	60.5	39.5	
45 and above	66.3	33.7	
Residence			
Urban	65.8	34.2	0.48
Rural	69.5	30.5	
Marital status			
Married	65.6	34.4	0.678
Unmarried	67.1	32.9	
Education			
Illiterate to class V	50	50	0.148
VI-XII	65	35	
Graduate and above	67.6	32.4	
Occupation			
Student	71.3	28.7	0.098
Homemaker	65.1	34.9	
Health-care related	81	19	
Others	63.1	36.9	
Unemployed	84.6	15.4	
Close relation with a doctor			
Yes	68.3	31.7	0.408
No	65.2	34.8	

Table 5: Observed relationship of attitude about vitiligo with sociodemographic characteristics

Parameter	Good score	Poor score	P
Age distribution			
Mean age	29.8	32	0.0244
Mean age (male)	29.7	33	0.0065
Mean age (female)	30.5	29.9	0.6189
Male	18.8	81.2	0.018
Female	11.4	88.6	
Age groups			
15-24	21.2	78.8	0.032 (first two age groups better score)
25-34	18	82	
35-44	11.6	88.4	
45 and above	10.2	89.8	
Residence			
Urban	16.5	83.5	0.74
Rural	17.9	82.1	
Marital status			
Married	19.8	80.2	0.022
Unmarried	13.3	86.7	
Education			
Illiterate to class V	10.7	89.3	0.266
VI-XII	13.4	86.6	
Graduate and above	18.1	81.9	
Occupation			
Student	19.5	80.5	0.007 (third group had better score)
Homemaker	8.4	91.6	
Health-care related	33.3	66.7	
Others	15.7	84.3	
Unemployed	38.5	61.5	
Close relation with a doctor			
Yes	17.9	82.1	0.538
No	16.1	83.9	

contagiousness was maintained by less number (8.0%) of the participants in that study as compared to ours (17.0%).^[10] In comparison, heredity was the most prevalent theory noticed in our society as the cause of vitiligo.

Vitiligo is recognized since antiquity. It is mentioned in the old testament, Ayurveda, Vinaypitika, Ebers Papyrus (1550 B.C.) and described even at the time of Aushooryan (2200 B.C.).^[11] Such a long history has added many myths in the general understanding related to its causes, spreadability, complications, and treatment options. The notion of infectiousness (119; 17% of our participants) or contagiousness (82; 11.7%) of the disease is still prevalent in our society. A part of this could be because of its confusion (73; 10.4% of the participants) with Hansen's disease. Kilaśa or external Kushta (vitiligo) and Switra (leprosy) were described in Ayurveda together and were thought to have a similar etiology. In fact, the suffix "Kushta" was used for all skin diseases in Ayurveda.^[11] However, it became synonymous with leprosy later. The fallacy carries a huge and culturally deep-rooted negative impact.

Another major problem in our society is regarding the difficulties faced by the vitiligo patients and their close family members in getting married. 69.14% of our study participants were unwilling to marry a vitiligo patient even when he or she was otherwise a suitable match. The study from Saudi Arabia had reported that 56.1% of their subjects were unwilling for the same.^[10] Only about one-third of the participants in this study were agreeable for marriage relations with a family having a vitiligo patient.

Many diet related myths are prevalent as evidenced in this study (almost one-third of the participants believed in them), like implicating sour food/white food/fish, etc.

Around 3-4% (about thirty million) of the general Indian population is suffering from vitiligo.^[2] Despite it being such a common disease, nearly about 70% of our study participants perceived vitiligo to be an uncommon condition. This might be because many cases have localized or sometimes widespread patches on unexposed parts.

Vitiligo patients are more likely to adopt alternative medicines as compared to other cosmetic dermatoses, in which allopathy is commonly used by them.^[12] Marginally more number (55.7%) of our study participants had belief in the efficacy of alternative medicine as compared to 51.7% having confidence in allopathy. Overall, the majority (68.9%) of the enrolled people were optimistic about improvement with treatment in vitiligo.

The majority (66.3%) of the participants had good knowledge score (11/20), while only 16.9% had good attitude score (8/14). There are no published studies with which these data could be compared. We had excluded persons affected with vitiligo themselves from the study, but the results of our study can be corroborated with another Indian study, which analyzed the views and concerns of vitiligo affected persons themselves. This qualitative study also looked in depth into their psychological burden and highlighted the feelings of guilt, insult, marital problems, gender differences, social isolation and coping strategies adopted by vitiligo affected persons.^[4]

Various coping techniques like cognitive behavioral therapy have been tried in patients to decrease the psychological burden,^[13] The use of camouflage on exposed white patches has also been encouraged as a harmless procedure.^[14] Understanding and interacting with society regarding its vitiligo related knowledge and attitude would be important steps towards decreasing the vitiligo patients' emotional burden.

CONCLUSION

There were widespread myths and misconceptions regarding vitiligo prevalent in the studied population. The knowledge scores were better than attitude scores. A better designed, community based study should be planned to get deeper insight into the problem.

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Conflicts of interest

There are no conflicts of interest.

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