

## Health Belief Model among Patients with Vitiligo

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### Abstract

**Background:** Vitiligo is a common chronic autoimmune skin disorder featured with depigmented patches, and effect of health belief model on health behavior of patients. **Aim of the study:** Was to assess health belief model among patients with vitiligo. **Research design:** A descriptive research design was utilized to conduct the study. **Setting:** This study was conducted at Dermatological Out-patients Clinic in Benha University Hospital. **Sample:** A convenience sample included 60 patients. **Tools:** Two tools were used. **Tool I):** A structured interviewing questionnaire which included 3 parts. **A):** Socio demographic characteristics of patient. **B):** patients knowledge about the disease. **C):** Reported practice as nutrition and treatment. **Tool II):** Siddiqui's Health Beliefs Model Construct scale that adapted to assess behaviors regarding vitiligo. **Results:** 47% of patients had an average total knowledge score. Regarding health beliefs model 36.7% of patients had a high perception and only 13.3% of them had low perception about health belief model. **Conclusion:** There were no statistically significant relation between studied patients' socio-demographic characteristics and their total knowledge score except educational level, there was a highly statistically significant relation. There were no statistically significant relation between studied patients' total perception about health belief model regarding vitiligo and all items of socio demographic characteristics except educational level, there was a statistically significant relation. **Recommendations:** Developing and implementing health educational programs to improve health belief patient.

**Keywords:** Health Belief Model, Vitiligo.

### Introduction

Vitiligo is the most common skin depigmentation disease and is characterized by loss of melanin of the skin or mucous membranes. It's characterized by skin leukemia, and it affects the appearance and readily causes mental and psychological illnesses such as anxiety, depression, and low self-esteem with vitiligo patients (Zhang et al., 2022).

Etiology of vitiligo is unknown but also melanin loss and absence of numbers of melanocytes in the epidermis. Vitiligo occurs due to the dynamic interaction between genetic and environmental factors that lead to the autoimmune destruction of melanocytes.

Defects in melanocyte adhesion and increased oxidative stress further augment the immune response in vitiligo. This decrease varies according to the disease stage. Genetic heterogeneity, and multiple susceptibility loci are risk factors. Melanocytes as revealed by an appropriate monoclonal antibody technique for body of patient (Tanwar et al., 2022).

Vitiligo is divided into two types segmental and nonsegmental. Generalized vitiligo, focal vitiligo, acral vitiligo, acrofacial vitiligo, and vitiligo universalis are examples of nonsegmental vitiligo. classified based on clinical includes into two major forms, namely, Segmental Vitiligo (SV) and Non-

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Segmental Vitiligo (NSV), the latter including several variants as generalized vitiligo, acrofacial vitiligo, universal vitiligo (Eleftheriadou et al., 2022).

The Health Belief Model (HBM) is a model of health behavior. The HBM attempts to predict health-related behavior in terms of certain belief patterns. A person's motivation to undertake a healthy behavior can be divided into three categories: individual perceptions, modifying factors, and likelihood of action. Individual perceptions are factors that affect the perception of illness and the importance of health to individual (Suess et al., 2022).

Community Health Nursing (CHN) activities is an integrated part of community. CHNs have the duty to provide nursing care to each group in the community with intention to improve the community's quality of life in dealing with problems that cause vulnerability to health problems and health risks. However, the needs of today's society are increasingly complex due to the requirement to adapt to changing times. CHN must be able to apply an integrated and holistic approach in responding to the existing challenges (Akbar et al., 2022).

### **Significance of the study:**

In Egypt, Vitiligo is a rare disease that has been consider significant health problem to patient in both genders. prevalence of vitiligo varies in different geographic regions and different sample size, and data have limitation and localization. Varying prevalence estimate range from 0.1% to 2.0% in Egypt (Fawzy et al., 2022).

### **Aim of the study:**

The aim of the study is to assess health belief model among patient with vitiligo.

### **Research questions:**

1. What is the relation between patients' knowledge and socio demographic characteristic?
2. What is the relation between patients' health beliefs model and socio demographic characteristic?

### **Subjects and method:**

#### **Research design:**

A descriptive research design was utilized to conduct this study.

**Setting:** Dermatological Out-patients Clinic in Benha University Hospital.

#### **Sampling:**

A convenience sample of vitiligo patients who attended in previously mentioned setting for six months. Total sample patients were 60.

**Tools for Data Collection:** Two tools were used for data collection.

**Tool I: A structured interviewing questionnaires:** it was consisted of three parts:

**Part I:** Socio- demographic characteristics as age, sex, residence, marital status, level of education, occupation, residence, and family income.

**Part II:** Assessed patients knowledge about vitiligo: Meaning of vitiligo, causes of vitiligo, complications of vitiligo, treatment of vitiligo, obstacles for vitiligo patients, the effect of the disease on patients' life, and source of knowledge.

#### **Scoring system of patients' knowledge**

Each item was assigned a score of 2 give when answer was completely correct answer, a score (1) was given when the answer was incompletely correct and a score (0) was given when the answer was wrong/don't know. All knowledge variables were weighted according to items each question was scored as the

following: Good if patients scored  $\geq 75\%$ , average if patients scored  $50 < 75$  and poor if patients scored  $< 50\%$ .

**Part III:** It concerned with reported practice as: nutrition and treatment.

**Scoring system** of the studied patients was calculated as always was scored one and never was scored zero. The total score (26%) for all practice was classified as the following: Healthy practice or satisfactory practice  $> 60\%$ . Unhealthy practices or unsatisfactory  $< 60\%$ .

**Tool II:** Health beliefs model construct scale: That adapted from **Siddiqui (2019)**. That is used to assess health belief model and its component. It was translated into Arabic by researchers and divided into: (perceived susceptibility, perceived severity, perceived benefits, perceived barriers, perceived effect).

#### **Scoring system:**

The scoring system for health belief model was calculated as follows by giving (2) for agree, (1) agree to some extent, (0) for disagree. These were respectively scored for positive items and reversed for negative items. Total health belief model score = 79%. The total health belief model score was considered high if the score  $> 75\%$  ( $> 79$ ), while considered moderate if it equal 50-75% (53-79) and considered poor if it equals  $< 50\%$  ( $< 53$ ).

#### **Tools validity and reliability:**

The tool validity was done by five panel expertise in community health nursing specialty who reviewed the tools for clarity, relevance; comprehensive, applicability and reliability. The reliability was done by Cranach's Alpha which revealed that the internal consistency of knowledge was 0.819 and practice was 0.724 and for HBM was 0.727.

#### **Ethical consideration:**

The researchers clarified the aim of the study to patients included in the study. patients' oral consent was obtained from them before their participation in the study. patients were assured that all gathered data was used for research purposes only and the study was harmless. Additionally, patients are allowed to withdrawal from the study at any time without giving the reason. Confidentially of the gathered data and results were secured.

#### **Pilot study:**

A pilot study was carried out to test the applicability, clarity, efficiency of tools and time needed for each tool. It was done on 10% (6 patients) of the total subjects (60 patients) who were included in the present study. Minor modifications were made.

#### **Field work:**

Data collection was carried out in the period from the beginning of September 2021 to the end of February 2022 covering six months. The researcher was available in the study settings two days weekly (Sunday and Thursday) to collect data and implement this study alternatively in each study setting. At the beginning of the interview, the researcher welcomed each patient. The title, objectives, tools and the study technique were illustrated for each patient to obtain their approval and cooperation which is needed for conducting this study. Each patient was individually interviewed using Arabic structured interviewing questionnaire and reported practices, and the time needed for filling the tools ranged from 30-45 minutes.

#### **Statistical analysis:**

The data collected were revised, coded, tabulated, and statistically analyzed using statistical package for the social science (SPSS) version 20 for windows and running on IBM compatible computer. Results were

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presented by tables and graphs. Descriptive statistics were applied (e.g. frequency, percentages, mean and standard deviation) and chi-square coefficient  $X^2$  was used. Reliability of the study tools was done using Cronbach's Alpha. A significant level value was considered when  $p < 0.05$  and a highly significant level value was considered when  $p < 0.001$ .  $P > 0.05$  Not significant  $P < 0.05^*$  Significant  $P < 0.001^{**}$  Highly significant.

### **Results:**

**Table (1):** Shows that, 38.3% of studied patient were aged from 20<30 years old with mean  $\pm$ SD =34.60 $\pm$ 7.81, 56.7% were female, and 61.7% were married, and 53.3% had secondary education, and 68.3% were working and 30.0% of them had not enough family income.

**Figure (1):** Reveals that 46.7% of studied patients had poor total knowledge regarding vitiligo whenever 40% of patient had average total knowledge and only 13.3% of them had a good total knowledge regarding vitiligo.

**Figure (2)** Illustrates that; 73.3% of studied patients had unhealthy total reported practice regarding vitiligo disease and slightly 26.7 % had healthy total practice.

**Figure (3):** Illustrates that; 36.7% of studied patient had a high total perception about health belief model of vitiligo, 50 % of them had a moderate total perception, and only 13.3% of them had low total level of perception about health belief model.

**Table (2):** Shows that, there were no statistically significant relation between studied patients' socio-demographic characteristics and their total knowledge score  $p > 0.05$  except educational level, there was a

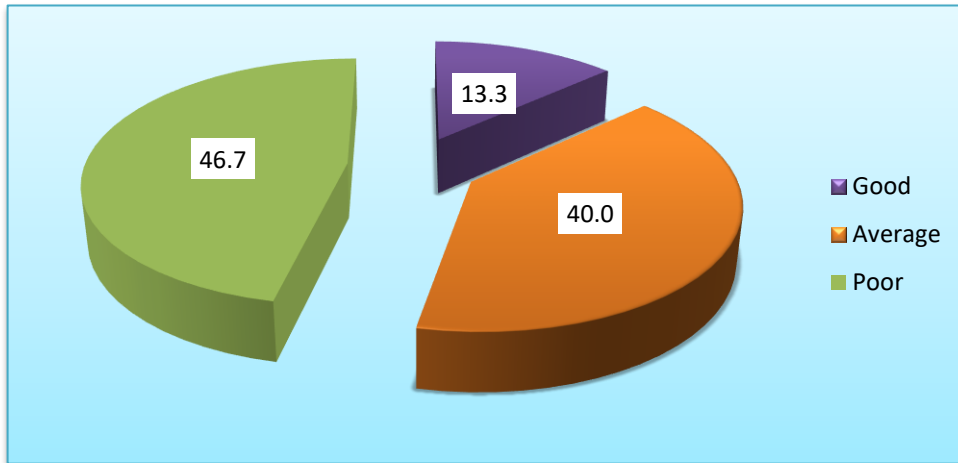
highly statistically significant relation  $P < 0.001$ .

**Table (3):** Shows that, there were no statistically significant relation between studied patients' total perception about health belief model regarding vitiligo and all items of socio demographic characteristics  $p > 0.05$  except educational level, there was a statistically significant relation  $P < 0.05$ .

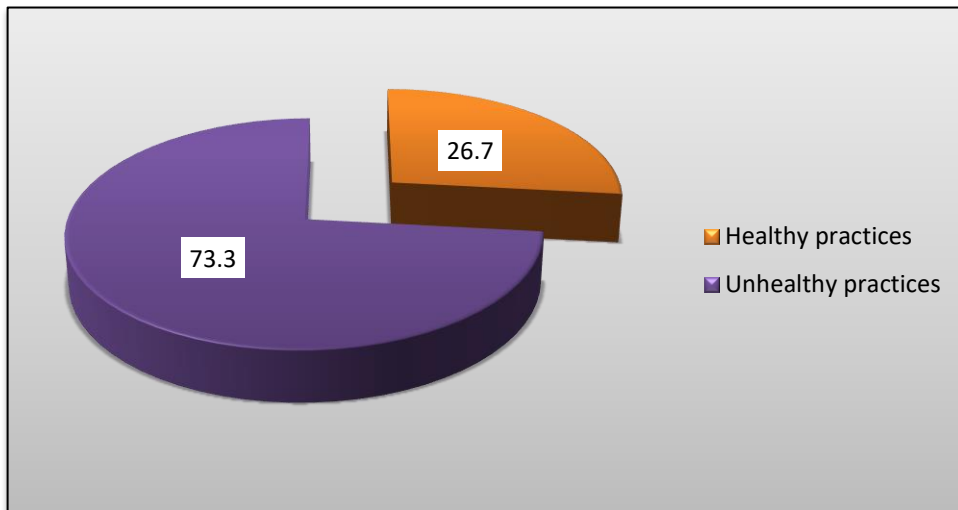
**Table (1): Frequency distribution of studied patient regarding their socio-demographic characteristics (n=60).**

socio- demographic characteristics.	No	%
<b>Age</b>		
20<30years	23	38.3
30<40 years	20	33.3
40<50 years	15	25.0
≥50 years	2	3.3
Min –Max	24-52	
Mean ±SD	34.60±7.81	
<b>Sex</b>		
Male	26	43.3
Female	34	56.7
<b>Martial status</b>		
Single	13	21.7
Married	37	61.7
Widowed	2	3.3
Divorced	8	13.3
<b>Educational level</b>		
Don't read and write	2	3.3
Basic education	6	10.0
Secondary education	32	53.3
University education and above	20	33.3
<b>Residence</b>		
Urban area	36	60.0
Rural area	24	40.0
<b>Occupation</b>		
Working	41	68.3
Not working	19	31.7
<b>Income</b>		
Enough	32	53.3
Not enough	18	30.0
Enough and saving	10	16.7

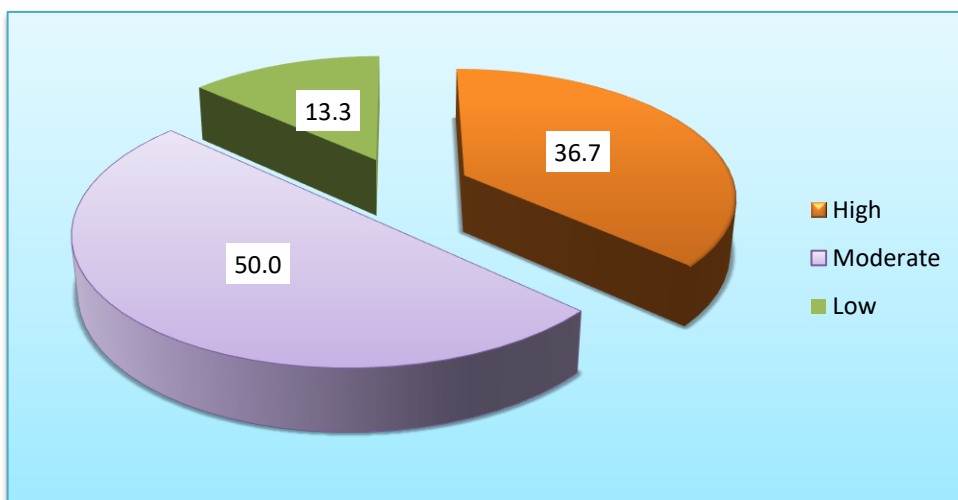
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**Figure (1): Percentage distribution of studied patient regarding their total knowledge level about vitiligo(n=60).**



**Figure (2): Frequency distribution of studied patient regarding their total reported practices about vitiligo(n=60).**



**Figure (3): Percentage distribution of studied patients regarding their total perception about health belief (n=60).**

**Table (2): Statistically relation between total knowledge level of studied patients and their socio-demographic characteristics (n=60).**

socio-demographic characteristics	Total knowledge score						X <sup>2</sup>	p-value
	Poor(n=28)		Average (n=24)		Good(n=8)			
	No	%	No	%	No	%		
<b>Age</b>								
20<30years	11	39.3	9	37.5	3	37.5	3.227	0.78
30<40 years	10	35.7	8	33.3	2	25.0		
40<50 years	7	25.0	6	25.0	2	25.0		
≥50 years	0	0.0	1	4.2	1	12.5		
<b>Sex</b>								
Male	10	35.7	13	54.2	3	37.5	1.92	0.383
Female	18	64.3	11	45.8	5	62.5		
<b>Marital status</b>								
Single	4	14.3	6	25.0	3	37.5	2.504	0.868
Married	19	67.9	14	58.3	4	50.0		
Widow	1	3.6	1	4.2	0	0.0		
Divorced	4	14.3	3	12.5	1	12.5		
<b>Educational level</b>								
Don't read and write	1	3.6	0	0.0	1	12.5	26.36	.000**
Basic education	3	10.7	3	12.5	0	0.0		
Secondary education	23	82.1	6	25.0	3	37.5		
University education and above	1	3.6	15	62.5	4	50.0		
<b>Residence</b>								
Urban area	18	64.3	14	58.3	4	50.0	0.575	0.75
Rural area	10	35.7	10	41.7	4	50.0		
<b>Occupation</b>								
Working	17	60.7	19	79.2	5	62.5	2.179	0.336
Not working	11	39.3	5	20.8	3	37.5		
<b>Income</b>								
Enough	16	57.1	12	50.0	4	50.0	0.722	0.949
Not enough	7	25.0	8	33.3	3	37.5		
Enough and saving	5	17.9	4	16.7	1	12.5		

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**Table (4): Statistically relation between total perception about health belief model and their socio demographic characteristics among studied patients(n=60).**

Socio demographic characteristics	Total perception about health belief model						X <sup>2</sup>	p-value
	Low (n=8)		Moderate (n=30)		High (n=22)			
	No	%	No	%	No	%		
<b>Age</b>								
20<30years	6	75.0	10	33.3	7	31.8	7.133	0.309
30<40 years	2	25.0	9	30.0	9	40.9		
40<50 years	0	0.0	10	33.3	5	22.7		
≥50 years	0	0.0	1	3.3	1	4.5		
<b>Sex</b>								
Male	6	75.0	11	36.7	9	40.9	3.863	0.145
Female	2	25.0	19	63.3	13	59.1		
<b>Marital status</b>								
Single	3	37.5	4	13.3	6	27.3	6.907	0.33
Married	4	50.0	21	70.0	12	54.5		
Widow	0	0.0	0	0.0	2	9.1		
Divorced	1	12.5	5	16.7	2	9.1		
<b>Educational level</b>								
Don't read and write	0	0.0	2	6.7	0	0.0	12.764	.047*
Basic education	0	0.0	4	13.3	2	9.1		
Secondary education	5	62.5	10	33.3	17	77.3		
University education and above	3	37.5	14	46.7	3	13.6		
<b>Residence</b>								
Urban area	6	75.0	16	53.3	14	63.6	1.427	0.49
Rural area	2	25.0	14	46.7	8	36.4		
<b>Occupation</b>								
Working	7	87.5	18	60.0	16	72.7	2.517	0.284
Not working	1	12.5	12	40.0	6	27.3		
<b>Income</b>								
Enough	4	50.0	15	50.0	13	59.1	1.679	0.795
Not enough	2	25.0	11	36.7	5	22.7		
Enough and saving	2	25.0	4	13.3	4	18.2		



**Discussion:**

Regarding to the socio demographic characteristics of the studied patient, the current study showed that, more than one third of patients aged from 20<30 years old with mean  $\pm$ SD =34.60 $\pm$ 7.81 and less than two thirds of them were married. This might be due to this age more violent to life, because they were vulnerable to stress life violence specially female more than male and criteria of selection of studied sample. This finding agreed with **lin et al., (2018)** they studied " Comprehensive survey of vitiligo patients in the northeast of China using a predesigned questionnaire. Total number of patient=983" and reported that, the mean age of all their patients was 30 years (29.77  $\pm$  0.59) and 28 years (28.11  $\pm$  0.84).

Regarding the marital status of the studied patient, The present study showed that, half of the patient were married. This finding disagreed with **Alharbi et al., (2020)**. Who studied "Identifying patients at higher risk of depression among patients with vitiligo at outpatient setting of Al Imam Mohammad Ibn Saud Islamic University, (total patient=308) and found that, two thirds (63.6%) of their patients were single.

Regarding the educational level of the studied patient, the present study showed that, more than half of patients had secondary education and more than two thirds of them were working. These finding were inagreement with **Khatab et al.,(2021)** they studied" Quality of life of Patients with Vitiligo" (total patient=100) Assuit University and reported that, more than three quarters of their patients(77%) had secondry education and more than half of them(52%) were employees.

Regarding to total knowledge level of the studied patients, the current study clarified that, less than half of studied patients had

poor level of total knowledge regarding vitiligo and less two fifths of them had average total knowledge. This result supported by **Tsadik et al.,(2020)** who studied" Public knowledge and attitudes towards vitiligo: A survey in Mekelle city, Northern Ethiopia"(total patient=368) and found that, more than half of their participants(53%) had poor level of total knowledge regarding to disease of vitiligo. While this result disagreed with **Hadi et al., (2020)**, who studied" Comorbid diseases of vitiligo: a 10-year cross-sectional retrospective study of an urban US population" and reported that, more than half of thier participants had poor level of total knowledge regarding the vitiligo disease.

Regarding the studied patients reported practices, the present study illustrated that, less than three quarters of studied patient had unhealthy total practice regarding vitiligo disease. This finding disagreed with **Chen et al., (2021)**, who studied" Current art of combination therapy with autologous platelet-rich plasma for stable vitiligo" Peking Union Medical College, Beijing China, and mention that, majority of their studied patients had unhealthy total practice regarding vitiligo disease.

Regarding to the studied patient total perception about health belief, the present study showed that, more than one third of studied patients had a high total perception about health belief of vitiligo and half of them had a moderate total perception whenever, the minority of them had low total level of perception about health belief model. This might be due to spread of internet in Egypt. This finding agreed with **Dogan et al., (2021)**, who studied" Health Belief Model Scale in Skin Cancer among Turkish University Students" and reported that, less than half of their studied patients had a high total

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perception about health belief model of vitiligo.

The present study shows that, there were no statistically significant relation between studied patients socio demographic characteristics and their total knowledge level  $p > 0.05$  except for educational level, there was a highly statistically significant relation  $P < 0.001$ . These finding supported by **Hooshmand et al., (2021)**, they studied "Impact of vitiligo on quality of life of patients in Herat, Afghanistan" they mentioned that, their studied patient's educational level was the main factor influenced the knowledge of vitiligo.

The present study showed that, there were no statistically significant relation between studied patients' total perception about health belief regarding vitiligo and all items of socio demographic characteristics except educational level, there was a statistically significant relation. These finding supported by **Pearlman et al.,(2021)**, they studied "Effects of health beliefs, social support, and self-efficacy on sun protection behaviors among medical students" Mississippi University, and found that, there was more relation between educational level and health belief regarding vitiligo.

### **Conclusion**

There was no statistically significant relation between studied patients socio demographic characteristics and their total knowledge level except educational level, there was a highly statistically significant relation. There were no statistically significant relation between studied patients' total perception about health belief regarding vitiligo and all items of socio demographic characteristics except educational level, there was a statistically significant relation.

### **Recommendations:**

Health educational program should be developed and implemented for patients with vitiligo to increase their awareness about practices toward vitiligo.

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## نموذج المعتقدات الصحية لمرضى البهاق

اسراء محمود قطب- هويدا صادق عبدالحميد- سماح سعيد صبري

البهاق هو اضطراب جلدي مزمن شائع في المناعة الذاتية يتميز ببقع و نقص الصبغة بالجلد. لذا هدفت هذه الدراسة الي تقييم نموذج المعتقدات الصحية لمرضى البهاق. وقد أجريت هذه الدراسة في عيادة الامراض الجلدية الخارجية بمستشفى جامعة بنها على 60 مريض. وقد أظهرت النتائج بأن 47% من المرضى لديهم معرفة متوسطة بالمعتقدات الصحية بينما 36.7% من المرضى لديهم تصور عالي و 13.3% فقط لديهم تصور منخفض. كما لا توجد علاقة ذات دلالة احصائية بين الخصائص الديموغرافية للمرضى الخاضعين للدراسة والمعرفة باستثناء المستوى التعليمي. أيضا لا توجد دلالة احصائية بين الخصائص الديموغرافية ونموذج المعتقدات الصحية فيما يتعلق بالبهاق باستثناء المستوى التعليمي. واوصت الدراسة بتطوير وتنفيذ برامج التثقيف الصحي لتحسين التصور حول نموذج المعتقدات الصحي.