

## Effect of Implementing Educational Guidelines on Nurses' Knowledge and Practice toward Caring of Vitiligo Patients Undergoing of Photo Therapy

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### Abstract

**Background** Nurses play a crucial role in providing effective care for vitiligo patients undergoing phototherapy. Their knowledge and practice about vitiligo care is influenced by various characteristics. Understanding these relationships and educating nurses can guide the development of targeted interventions to improve nurses' knowledge and practice and enhance patient care outcomes. **Aim** To determine the Effect of Implementing Educational Guidelines on Nurses' Knowledge and Practice toward Caring of Vitiligo Patients Undergoing of Photo Therapy. **Research design** A quasi-experimental design was used to achieve the aim of the study. **Setting** The study was conducted in Sheikh Zayed Dermatology Hospital in Ismailia, Egypt. **Materials and methods** A convenient sample of 40 nurses was recruited. **Tools of data collection** Two tools were used: Nurses' interview questionnaire sheet, and Assessment Nurses' practices toward vitiligo patients check lists. **Results** There was a lack in nurses' knowledge before educational guidelines which increased in post and follow-up phases of educational guidelines with a highly statistically significant difference ( $P < 0.01$ ). As evidence, 22.5% and 30.0% of the studied nurses have satisfactory level of total knowledge at pre-intervention, respectively. While changed to be 90.0% and 95.0% after implementation of educational nursing guidelines, respectively, with a statistically significant difference ( $P=0.000$ ). Moreover, there was a lack in nurses' practice before educational guidelines, which increased in post and follow-up phases of educational guidelines, as evidence, 12.5% and 22.5% of the studied nurses were competent respectively. While changed to be 90.0% and 95.0% after implementation of educational guidelines, respectively. with a statistically significance difference ( $P=0.000$ ). **Conclusion** Based on the results of the study, mean scores of nurses' knowledge and practice were higher in post and follow-up phases of nursing educational guidelines. **Recommendation** Intervention guidelines toward vitiligo patients should be conducted for nurses, as they are the key to improve nurses' knowledge and practice and enhance vitiligo patient care outcomes.

**Keywords:** Vitiligo patients, Educational guidelines, Nurses' knowledge and practice.

### Introduction

Vitiligo is a prevalent condition affecting a significant portion of the population, ranging from 0.5% to 10%. Throughout the years, several theories have

emerged to explain its causes, including the immune system theory, nerve fluid theory, and melanin self-destruct theory. Vitiligo is characterized by the appearance of white spots on the skin and is a chronic pigmentation disorder that occurs as a result

of the absence of melanocytes and the impaired functioning of melanocytes in the human skin. Unfortunately, there is currently no known cure for this condition. **Saleh,etal, (2020) & AL- smadi et al., (2023)**

Vitiligo is a condition that has been predominantly studied and classified within the framework of western medicine. However, it is important to acknowledge the cultural and linguistic variations in the naming of this condition. In recent years, there has been a rise in the incidence rate of vitiligo, which can be attributed to factors such as heightened mental stress, environmental pollution, and the depletion of the ozone layer. These factors are believed to contribute to the development and progression of the condition. **Saeedinezhad, et al., (2017).& AL-smadi, et al. (2023).**

Vitiligo symptoms can be categorized into local, systemic, and combined manifestations. While this condition can occur at any age, it typically emerges between 10 and 30 years old. The initial skin lesions of vitiligo present as depigmented circles or irregular shapes of varying sizes. Occasionally, these patches may exhibit erythematous boundaries, accompanied by pruritus, pain, and inflammation along the advancing edge. In some cases, vitiligo patients may experience associated eye and inner ear disorders. Furthermore, individuals with vitiligo frequently develop autoimmune thyroid disease and other autoimmune conditions. The presence of systemic diseases, such as diabetes, pernicious anemia, hypothyroidism, hyperthyroidism, and liver diseases, may also coincide with vitiligo. **Cho&Park, (2016) & Juntongjina,etal., (2018). & Murshidi et al., (2023)**

Patients' knowledge about their illness is based on information received from different sources, including their physician, nurses, family, friends, as well as existing social and cultural notions about health and illness. The resulting beliefs can be flawed or inaccurate. These beliefs have a direct impact

on the ability of patients to cope with the condition and to comply with the treatment. **Linthorst, (2012); Camille, et al., (2016) & Abdel-Hady, (2020).**

In 2004, a study from Iran showed that the knowledge of 80 vitiligo patients regarding the causes and course of their disease was limited. It is important to understand the beliefs vitiligo patients' hold regarding their illness. To our knowledge, there have been very few studies worldwide regarding vitiligo patients' beliefs about their condition. Moreover, there has been no such study performed in Arab vitiligo patients. **Journal of Investigative Dermatology, (2016).**

Long-wavelength ultraviolet (UV) light therapy, administered at a frequency of 2-3 times per week, has shown promising efficacy for long-term treatment. Another effective therapeutic approach involves the use of long-term steroids, which can be administered topically (as creams or ointments) or systemically. Topical application of a vitamin D derivative is also utilized as a treatment option, and it can be combined with steroids or UV light, although this combination may cause discomfort. It is important to note that topical ointments containing tacrolimus or pimecrolimus carry a potential risk of increasing the likelihood of skin cancer and lymphoma. In certain cases, surgical procedures such as skin transplantation or suction blister grafting have demonstrated positive effects in the treatment of vitiligo. **Cho & Park, (2016) ; (Esmat & Hegazy, (2017); Nho, (2017) & Abdel-Motaleb and Tawfik, (2019).**

The use of "bleaching" treatments to achieve total depigmentation of the skin, resulting in a completely white appearance, is an option for some individuals. However, it is important to note that this treatment approach does not allow for the regeneration of pigments and can lead to increased sensitivity to sunlight or UV light, making normal outdoor activities challenging. To effectively manage vitiligo, it is crucial to prioritize the

maintenance of both physical and mental well-being, as the appearance and progression of lesions are often influenced by various forms of stress. Strategies such as stress and anxiety management, adherence to a regulated and clinically recommended diet, appropriate vitamin supplementation, utilization of photochemical and herbal treatments, engagement in an active lifestyle, and participation in immunity-based exercise programs are all significant considerations in the management of vitiligo. **Cho&Park, (2016) ; Esmat & Hegazy, (2017) & Murshidi et al., (2023)**

Nurses play a great role in caring of vitiligo patient. So, improving nursing knowledge and practice is a vital including, nursing guidelines and health education regarding patient education about the disease, nutrition and clinical diet; and regarding practices as physical and activity management, exercises that increase immunity and improve heart rate. Following a skin graft procedure, skin mobility and pain reduction can be enhanced through techniques such as skin rolling and wound relaxation treatment. These interventions have the potential to improve patient outcomes and prevent complications like pruritus (itching), pain, neuralgia, redness, and blistering, which can sometimes arise after Laser and Narrowband Ultraviolet B Therapy. **Cho&Park, (2016); Nho, (2017) & Ali, (2019) & Potter et al., (2021).**

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

Misconceptions about vitiligo seem to be higher than previous reports. This may be due to the visualized based questionnaires instead of asking from the word 'vitiligo' directly. Therefore, educational knowledge about disease recognition, causes and mode of transmission should be encouraged for public. **Juntongjin,etal., (2018) & Ali, (2019) & Ebrahim et al., (2023).**

Preliminary studies investigating the impact of dietary modifications on vitiligo

treatment have shown promise. However, further research involving diverse populations is necessary to fully understand the therapeutic potential of these interventions. While various treatment options are available, a definitive cure for vitiligo remains elusive. Recently, there has been growing interest in exploring the relationship between diet and the development of vitiligo. **Mallory, etal (2017) & Dutta et al., (2022).**

Presently, existing medical treatments for systemic vitiligo are inadequate; however, advancements in treatment methods are being made, suggesting that enduring the current state could be a viable approach to await future treatments. Thus, in order to address the challenges posed by severe skin conditions, it is crucial to cultivate and reinforce active and positive psychological states. Additionally, to prevent the progression of vitiligo and optimize future treatment outcomes, it is imperative to maintain vitamin therapy, adhere to a suitable diet, and foster an active lifestyle. **Nho, (2017) & Ali, (2019)**

Nurses have a significant impact on the care and support provided to individuals with vitiligo. So improving nursing knowledge and practice is a vital. Improving health care provided for patients with vitiligo had become a priority for health care provider with the overall objective of achieving a high degree of patient satisfaction through greater awareness among the patients, increasing demand for better care, keener competition, more health care regulation, improving patient and disease outcomes and preventing complications. **Patricia, et al., (2019) & Potter, et al., (2021) & Murshidi et al., (2023)**

So, it is important through this study to clarify Effect of Nursing Guidelines on Knowledge and Practice of Nurses toward Vitiligo.

### Operational definitions

1.Educational Guidelines: Structured and standardized educational materials or interventions aimed at enhancing nurses' understanding and skills in caring for vitiligo patients undergoing phototherapy.

2.Nurses' Knowledge: Nurses' understanding of vitiligo, phototherapy, and the specific care needs of patients undergoing this treatment.

3.Nurses' Practice: The application of nurses' knowledge and skills in providing comprehensive care to vitiligo patients during phototherapy, including assessments, care planning, interventions, communication, and evaluation.

4.Caring of Vitiligo Patients: Holistic and patient-centered approach to meeting the physical, emotional, and psychosocial needs of individuals diagnosed with vitiligo, focusing on promoting self-esteem, addressing concerns, and creating a supportive environment.

5.Phototherapy: Therapeutic use of specific light wavelengths to treat vitiligo, aiming to stimulate melanocyte activity and re-pigment depigmented skin areas.

6.Effect: The impact or changes observed in nurses' knowledge, practice, confidence, and the overall quality of care provided to vitiligo patients undergoing phototherapy as a result of implementing educational guidelines.

### Aim of the study

To determine the Effect of Implementing Educational Guidelines on Nurses' Knowledge and Practice toward Caring of Vitiligo Patients Undergoing of Photo Therapy.

### Hypotheses

To fulfill the purpose of this study, the following research hypotheses were formulated:

**H1:** Mean nurses' knowledge score post implementation of educational nursing guidelines will be higher than pre-implementation of educational nursing guidelines.

**H2:** Mean nurses' practice score post implementation of educational nursing guidelines will be higher than pre-implementation of educational nursing guidelines.

### Subjects and methods:

#### Research Design:

A quazi –experimental (Pre/Post-test) research design was utilized to conduct the study.

**Setting:** The study was conducted at Sheikh Zayed Dermatology Hospital in Ismailia (out patients' dermatology and Photo therapy clinic).

#### Subject

Convenient sample, all available staff nurses (males & females) working at the previously mentioned setting regardless their age, years of experience, level of education, about forty (40) nurses were included in this study. They were consecutively recruited at outside clinic and then in phototherapy department. The sample was calculated by power and sample size calculation program to give power of 80%.

#### Required sample size: -

$$n = \left[ \frac{Z_{\alpha/2}}{E} \right]^2 * P(1 - P)$$

(Dawson, 2004)

#### Where

- n= sample size
- $Z_{\alpha/2} = 1.96$  (The critical value that divides the central 95% of the Z distribution from the 5% in the tail)

•  $E = .1$

•  $P = .65$

(El-Gawab, 2017).

**n= 40**

### **Tool I: Nurses' interview questionnaire sheet.**

It is designed by the researcher based on literature review and opinions of expertise for content validity. It was designed in Arabic form to avoid misunderstanding; it was applied to all nurses in the study. It included **two parts: -**

#### **Part 1: Socio demographic Assessment**

The questionnaire covered the following: - 5 items of personal demographic characteristics of the nurses such as age, gender, marital status, level of education, and residence.

#### **Part 2: Nurses' knowledge assessment questionnaire sheet:**

It was developed by the researchers based on current national and international literature review **Journal of investigation Dermatology, (2016), Abd-El Mohsen, & Mohamed, (2020) & Saleh, et al., (2020)**. It was designed in Arabic form to avoid misunderstanding, to assess nurses' knowledge about vitiligo, nurses' knowledge about vitiligo patients' diet and nurses' knowledge about practices provided for vitiligo patient to improve immunity, maintain effective heart rate, control stress or anxiety and increase circulation in lesioned skin with vitiligo. The questionnaire included (40) items covered three main parts **as the following:**

#### **Part I: Assessment of nurses' knowledge about vitiligo disease: -**

It included (27) items, including definition of vitiligo, autoimmune disease, melanocytes, types of vitiligo, causes, classifications, clinical manifestations, diagnosis, treatment and nursing guidelines to improve health life style patterns for vitiligo patients.

#### **Part II: Assessment of Nurses' knowledge about vitiligo patients' Diet: -It included 6 items cover the following:**

Eating regular three meals & regular protein amount, zinc diet, eat food contain vitamin D, folic acid & B12, fibers, vegetable, avoid excess salt, drink 6 cups of water daily, avoid eat fast food, take antioxidant drink, eat health food and weight measure. Laboratory measures to level of zinc, folic acid and vitamin D.

#### **Part III: Assessment of Nurses' knowledge about nursing care practices provided for vitiligo patient: The purposes of these nursing care practices were to:**

Improve immunity. Maintain effective heart rate before laser or photo chemotherapy session. Increase circulation in vitiligo area before laser or photo chemotherapy session. Control anxiety and stress before laser or photo chemotherapy session. Maintain good posturing and provide comfortable during laser or photo chemotherapy session. Relieve pain, neurologia and pruritus sensation after laser or photo chemotherapy session. Enhance reepigmentation. It included 7 questions covered the following, practices to improve immunity, maintain effective heart rate, control stress or anxiety and increase circulation in lesioned skin with vitiligo. ....etc.

- **Scoring system:** The total number of questions is 40.

- Right = (1 scores), Wrong = (0).
- The total score for all items is 40 marks.
- Satisfactory level of knowledge >80%.
- Un satisfactory level of knowledge <80%.

#### **Tool 2: Assessment Nurses' practices toward vitiligo patients check lists (Pre/Post test):**

It is developed by the researchers based on current national and international literature review (pottery, et al., 2017) ;(Richards et al., 2017) ;(Patricia, et al., 2019) & (Potter, et al., 2021). The purposes of these nursing care practices were to:

Improve immunity. Maintain effective heart rate before laser or photo chemotherapy session. Increase circulation in vitiligo area before laser or photo chemotherapy session. Control anxiety and stress before laser or photo chemotherapy session. Maintain good posturing and provide comfortable during laser or photo chemotherapy session. Relieve pain, neuralgia and pruritus sensation after laser or photo chemotherapy session. Enhance repigmentation. It includes Six Check lists including: -

Skin assessment checklist, Vitiligo European task force assessment checklist (VETF) Check list, Preparing and Administering Topical Medications checklist, Preparing and administering Oral Medication Check List, Breathing exercise performance check list and Foot Exercises Performance Check List.

#### **Tools Validity:**

Tools of data collection were tested for its content validity with a content validity index. Comprehensiveness and applicability by expertise of medical, surgical nursing to determine whether the included items are comprehensive, understandable, applicable, clear and suitable to achieve the aim of the study.

#### **Tools reliability:**

Coefficient of reliability of the evaluating tool was measured by Cronbach's alpha.

#### **Ethical considerations and human rights**

Prior to recruitment and data collection, approval was obtained from all the

applicable Research/Boards and Ethics Committee of faculty of nursing at Suez Canal University Code (97-12), a written consent was secured from each subject after being informed about the nature, purpose and benefits of the study. Subjects were also be informed that participation is voluntary and about their right to withdraw at any time without giving reasons. Confidentiality of any obtained information was ensured through coding of all data. The researchers reassured Subjects that the data would be used for only the research purpose.

#### **Pilot study:**

A pilot study was carried out on 10% of the total study sample to test the clarity and practicability of the tools and to estimate the needed time to fill in each form. Necessary modifications were done according to the pilot study results. Pilot subjects were later excluded from the main study sample.

#### **Field work:**

- Approval was taken by official letters to director of the hospitals before starting application of study plan and informed him about time and date of data collection

- Tools were reviewed by experts in the different fields of nursing and medical specialties.

- Content validity and reliability tests were done before starting of data collection

- The data collection pre/post was done by the researchers available 3 days / week at morning shift.

- The educational nursing guidelines sessions were designed based on analysis of the actual nurses' needs from pre-tests (assessment nurses' knowledge and practice sheets and check lists).

- Data collection started from December 2022 to October 2023.

- Data collection was divided into four phases: -

**Assessment phase:**

• The researchers made interview with nurses in outside clinic and in phototherapy clinic for assessment of socio demographic data, and then ask each nurse to fill the pre-assessment nurses' knowledge questionnaire which is prepared in a simple Arabic language as a pre-test, and then pre-assess nurses' practices using check lists as a pretest. Each tool took 15-20 minutes to be filled. Determined nurses' needs based on answer of each nurse in the previous tool. (Pre-Test Assessment)

**Planning phase:** Educational nursing guidelines related to knowledge about vitiligo, dietary modifications and needed nursing care practices for vitiligo patients, was designed according to predetermined actual nurses' needs. Three educational sessions were designed to cover all of knowledge and practice for each session 45 minutes. The content met nurses' needs. The written Arabic guidelines consisted of **three parts as follows:**

**Part one: Nurses' knowledge about vitiligo Including:**

Meaning of vitiligo Causes of vitiligo, High risk people for vitiligo, Types of vitiligo. Life style and home care, affected parts of the body, Methods of treatment and Patient's instructions pre, during and after procedures of laser, photo or chemo phototherapy sessions including: -

Pre-assessment for the patients. Diet, fluid and pain relieve measures before the session, Patients' investigation before the session, Patients' positions during session, Home care instructions, How to assess post session complications as (pain, neurologia, pruritus sensation, discomfort, anxiety and stress), Medications intake, Instructions regarding pain, neurologia, pruritus sensation, discomfort, anxiety and stress alleviation methods, Normal daily activity such as

(hygiene, movement, diet regimen and exercise return to work) and couple relations.

**Part two: Nurses' knowledge about vitiligo patients' Diet includes the following: -**

Clinical diet needed for vitiligo patients, Meals numbers -time daily, Meals rich with protein, Meals rich with Zinc, Known Zinc source, known vitamin D source, known vitamin B12 source and Laboratory investigations needed to assess proper diet for vitiligo patients: Zinc serum level, Vitamin D serum level, and Vitamin B12 serum level.

**Part three: Nurses' knowledge about needed practical nursing care provided to vitiligo patients include the following :-( six Checklists)**

Skin assessment checklist, Vitiligo European task force assessment checklist (VETF) checklist, preparing and Administering Topical Medications checklist, Administering Oral Medication Check List, breathing exercise performance check list and foot exercises performance check List.

**Method of teaching**

- Educational sessions. -Presentation. - Group discussion.

**Media of teaching:**

- Illustrated guidelines, audiovisual videos, computer and booklets.

❖ **Implementing phase: -** After nurses' pre-assessment with orientation about the content and purpose of the study, the researchers gave the nurses educational guidelines first session about the theoretical part of education guide lines which included knowledge about the disease and clinical diets for vitiligo patient for **(30-60 minutes)**. Then the researchers gave the nurses educational guidelines second session about the practical part of educational guidelines which included

nursing practices needed for caring of vitiligo patients which included; Skin assessment practice, Vitiligo European task force assessment practice (VETF), Preparing and Administering Topical Medications practice, Administering Oral Medication practice, Breathing exercise performance practice and Foot Exercises Performance practice. For about (30-60 minute).

❖ **Evaluation phase (Post Test assessment)** :(after 3 months).

○ After three months the researchers made another interview with the nurses of the study for knowledge and practice post reassessment in the outpatient or inpatient.

**Study Limitations:**

The study may face limitations including a small sample size, potentially limiting the generalizability of the findings. Selection bias could arise if participants who choose to participate have different characteristics or motivation levels compared to non-participants. Additionally, relying on self-reported measures for assessing nurses' knowledge and practice introduces the possibility of response bias.

**Overcoming Limitations:**

To overcome the limitation of a small sample size, researchers can expand their recruitment efforts and collaborate with other institutions to ensure a more diverse and representative sample. Randomized sampling methods can minimize selection bias by selecting participants randomly from the target population. Triangulating data from multiple sources and incorporating objective assessments can enhance the validity of the findings. Longitudinal study designs, control groups, and sensitivity analysis can provide more robust evidence. External validation through collaboration with other research groups or multi-center studies can ensure the generalizability of the results. By implementing these strategies, researchers can strengthen the study design and improve the reliability and applicability of the findings.

**Statistical Design: -**

The collected data organized, tabulated and statistically analyzed using Statistical Package for Social Science (SPSS) version 25 for windows, running on IBM compatible computer. Descriptive statistics were applied (e.g. frequency, percentages, mean and standard deviation). Test of significance, qualitative variables were compared using chi square test ( $X^2$ ), Paired T test (t) used to compare between means of quantitative variables and Pearson correlation test (R- test) to the correlation between the study variables. A significant level value was considered when  $p < 0.05$  and a highly significant level value was considered when  $p < 0.01$ . No statistical significance difference was considered when  $p \geq 0.05$ .

**Results**

**Figure (2):** Percentage distribution of the studied nurses according to their total practices toward caring of vitiligo patients undergoing of photo therapy pre and post implementation of educational nursing guidelines (n=40).

**Table (1)** Illustrates that: 52.5% of the studied nurses were in the age group 30-<40 years with Mean  $\pm$  SD was  $34.55 \pm 5.62$  years. As regard to gender, 87.5% of them were female. Regarding education level, 57.5% of them have Nursing Technical Institute. Also, 40.0% of them have  $\geq 10$  years of experience with Mean  $\pm$  SD was  $9.75 \pm 3.12$  years. Moreover, 67.5% of them were married.

**Table (2)** Reveals that, there was a significant improvement in nurses' knowledge about caring of vitiligo patients undergoing of photo therapy post implementation of educational nursing guidelines with a highly statistically significant difference ( $P < 0.01$ ) compared to pre-providing educational sessions. As evidence, 22.5% and 30.0% of the studied nurses have satisfactory level of total knowledge about diet and nursing care practices provided for vitiligo patient at pre-



intervention, respectively. While changed to be 90.0% and 95.0% after implementation of educational nursing guidelines, respectively. Also, 15.0% of the studied nurses have satisfactory level of total knowledge about caring of vitiligo patients undergoing of photo therapy at pre-intervention. While changed to be 82.5% after implementation of educational nursing guidelines.

**Figure (1)** Shows that 15.0% of the studied nurses have satisfactory level of total knowledge about caring of vitiligo patients undergoing of photo therapy at pre-intervention. While changed to be 82.5% after implementation of educational nursing guidelines.

**Table (3)** Displays that, there is a significant improvement in nurses’ practices toward caring of vitiligo patients undergoing of photo therapy post implementation of educational nursing guidelines with a highly statistically significant difference ( $P < 0.01$ ) compared to pre-providing educational sessions. As evidence, 12.5% and 22.5% of the studied nurses were competent regarding preparing and

administering topical medications and administering oral medication at pre-intervention, respectively. While changed to be 90.0% and 95.0% after implementation of educational nursing guidelines, respectively. Also, 10.0% of the studied nurses were competent regarding total practices toward caring of vitiligo patients undergoing of photo therapy at pre-intervention. While changed to be 80.0% after implementation of educational nursing guidelines.

**Figure (2)** Shows that 10.0% of the studied nurses were competent regarding total practices toward caring of vitiligo patients undergoing of photo therapy at pre-intervention. While changed to be 80.0% after implementation of educational nursing guidelines.

**Table (4):** Reveals that, there was high significant statistical positive correlation between total nurses’ knowledge score and their total practices score toward caring of vitiligo patients undergoing of photo therapy pre and post implementation of educational nursing guidelines at  $p < 0.01$ .

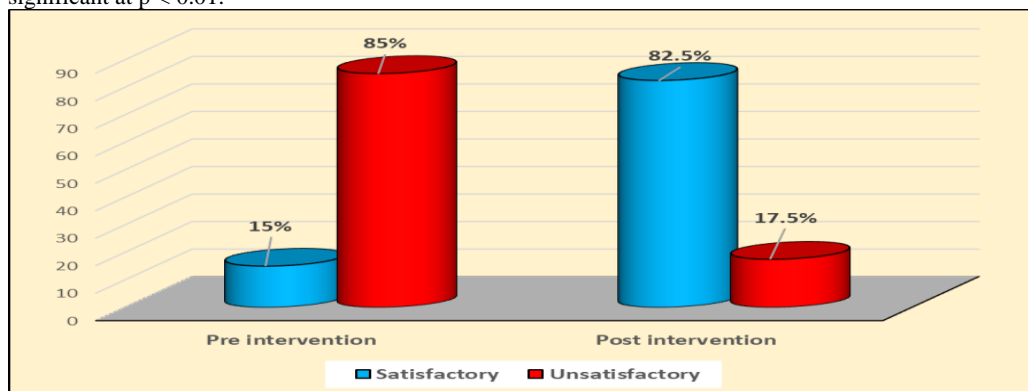
**Table (1):** Frequency distribution of the studied nurses according to their demographic characteristics (n=40).

Demographic Characteristics	No.	%
<b>Age (Year)</b>		
20-<30	8	20.0
30-<40	21	52.5
≥ 40	11	27.5
$\bar{x}$ S.D	34.55±5.62	
<b>Gender</b>		
Male	5	12.5
Female	35	87.5
<b>Educational level</b>		
Nursing Diplom	12	30.0
Nursing Technical Institute	23	57.5
Bachelor of Nursing	5	12.5
<b>Years of Experience</b>		
<5	9	22.5
5-<10	15	37.5
≥ 10	16	40.0
$\bar{x}$ S.D	9.75±3.12	
<b>Marital status</b>		
Single	10	25.0
Married	27	67.5
Divorced	2	5.0
Widow	1	2.5

**Table (2):** Comparison between the studied nurses regarding knowledge about caring of vitiligo patients undergoing of photo therapy pre and post implementation of educational nursing guidelines (n=40).

Knowledge subscales	Pre-intervention				Post intervention				X <sup>2</sup>	P-value
	Satisfactory		Unsatisfactory		Satisfactory		Unsatisfactory			
	No.	%	No.	%	No.	%	No.	%		
Vitiligo disease	6	15.0	34	85.0	33	82.5	7	17.5	36.473	0.000**
Diet	9	22.5	31	77.5	36	90.0	4	10.0	37.029	0.000**
Nursing care practices provided for vitiligo patient	12	30.0	28	70.0	38	95.0	2	5.0	36.053	0.000**
<b>Total knowledge score</b>	<b>6</b>	<b>15.0</b>	<b>34</b>	<b>85.0</b>	<b>33</b>	<b>82.5</b>	<b>7</b>	<b>17.5</b>	<b>36.473</b>	<b>0.000**</b>
<b>Mean ± SD</b>	<b>21.77±7.72</b>				<b>34.75±4.75</b>				<b>t= 9.045</b>	<b>0.000**</b>

X<sup>2</sup>: Chi Square Test. FET= Fisher's Exact Test. t= Paired-t test. (\*\*): Highly statistically significant at p < 0.01.

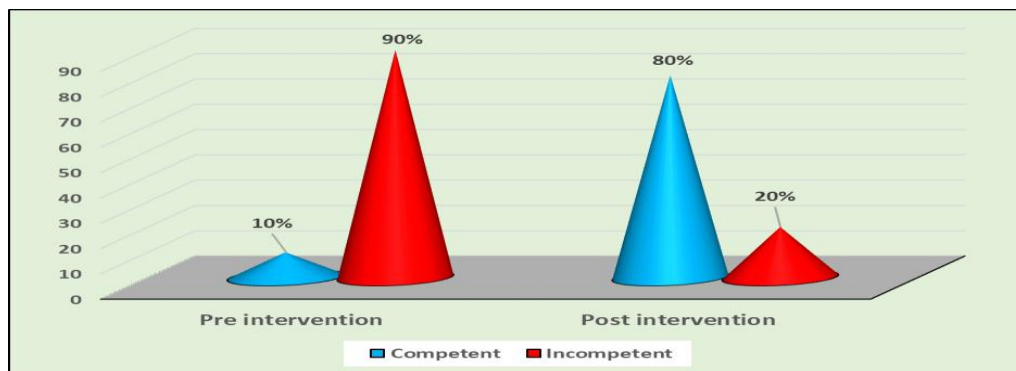


**Figure (1):** Percentage distribution of the studied nurses according to their total knowledge about caring of vitiligo patients undergoing of photo therapy pre and post implementation of educational nursing guidelines (n=40).

**Table (3):** Comparison between the studied nurses regarding practices toward caring of vitiligo patients undergoing of photo therapy pre and post implementation of educational nursing guidelines (n=40).

Practices subscales	Pre-intervention				Post intervention				X <sup>2</sup>	P-value
	Competent		Incompetent		Competent		Incompetent			
	No.	%	No.	%	No.	%	No.	%		
Skin assessment	6	15.0	34	85.0	33	82.5	7	17.5	36.473	0.000**
Vitiligo European task force assessment	3	7.5	37	92.5	29	72.5	11	27.5	35.208	0.000**
Preparing and administering topical medications	5	12.5	35	87.5	36	90.0	4	10.0	48.080	0.000**
Administering Oral Medication	9	22.5	31	77.5	38	95.0	2	5.0	43.378	0.000**
Breathing exercise performance	6	15.0	34	85.0	31	77.5	9	22.5	31.427	0.000**
Foot exercise performance	3	7.5	37	92.5	30	75.0	10	25.0	37.602	0.000**
<b>Total practices score</b>	<b>4</b>	<b>10.0</b>	<b>36</b>	<b>90.0</b>	<b>32</b>	<b>80.0</b>	<b>8</b>	<b>20.0</b>	<b>39.596</b>	<b>0.000**</b>
<b>Mean ± SD</b>	<b>36.10±10.85</b>				<b>58.95±8.33</b>				<b>t=10.560</b>	<b>0.000**</b>

X<sup>2</sup>: Chi Square Test. t= Paired-t test. (\*\*): Highly statistically significant at p < 0.01.



**Figure (2):** Percentage distribution of the studied nurses according to their total practices toward caring of vitiligo patients undergoing of photo therapy pre and post implementation of educational nursing guidelines (n=40).

**Table (4):** Correlation between total nurses’ knowledge score and their total practices score toward caring of vitiligo patients undergoing of photo therapy pre and post implementation of educational nursing guidelines (n=40).

Variables		Total knowledge score	
		Pre-intervention	Post-intervention
Total practices score	r	0.878	0.926
	p	0.000**	0.000**

r= Pearson correlation coefficient test. P= p-value. \*\* Correlation is significant at < 0.01.

**Discussion**

Regarding Distribution of the studied nurses according to their demographic characteristics:

The current study revealed that, concerning to age, the majority of nurses fell into the 30-<40 years age group. This finding suggests that the nursing workforce is relatively young and may have implications for long-term workforce planning.

In terms of gender, the study found that the majority of the nurses were female. This aligns with previous research indicating that nursing remains a predominantly female profession. The latest study by **Jenny. (2023)** supports these findings, reporting a similar gender distribution among nurses in a larger sample. This may be due to that many females flock to this profession because of their inherent capacity to care for another human being. Nurses are often seen as caring,

compassionate, patient, and understanding. And nursing thrives on a woman's instinct to nurture.

With respect to educational level, more than half of the nurses in this study had a Nursing Technical Institute qualification. This suggests that a significant portion of the nursing workforce has received specialized technical training. However, it is worth noting that the latest study by **Magnuski et al. (2016)** Their sample revealed an increased percentage of nurses who held a Bachelor of Nursing degree, suggesting a possible shift in educational patterns within the nursing profession.

Regarding years of experience, less than half of the nurses had 10 or more years of experience, with a mean experience of 9.75 ± 3.12 years. This finding suggests a relatively experienced nursing workforce. The significant proportion of nurses with 10 or more years of experience highlights the importance of recognizing and utilizing the

expertise of experienced nurses. Strategies should be in place to retain experienced nurses and facilitate knowledge transfer to younger generations entering the profession.

In terms of marital status, the majority of nurses were married. This finding may have implications for understanding the work-life balance and potential support systems available to nurses. And this is in line with **Ramadan Et al., (2023)**.

Finally, the present study has provided valuable insights into the demographic characteristics of a group of nurses, including their age, gender, educational level, years of experience, and marital status. The findings highlight the importance of understanding and leveraging these characteristics to optimize the nursing workforce and maintain the quality of healthcare delivery.

Regarding the comparison of nurses' knowledge about caring for vitiligo patients undergoing phototherapy, both before and after the implementation of educational nursing guidelines, and the distribution of nurses based on their overall knowledge about this topic, the study findings indicate notable insights.:

The present study revealed that, there was a significant improvement in nurses' knowledge about caring of vitiligo patients undergoing of photo therapy post implementation of educational nursing guidelines with a highly statistically significant difference ( $P < 0.01$ ) compared to pre-providing educational sessions. As evidence, nearly about one third of the studied nurses had satisfactory level of total knowledge about diet and nursing care practices provided for vitiligo patient at pre-intervention, respectively. While changed to be the majority of the studied nurses had satisfactory level of total knowledge after implementation of educational nursing guidelines, respectively. Also, less than a quarter of the studied nurses (only 15 percentages of the studied nurses) had a

satisfactory level of total knowledge about caring of vitiligo patients undergoing of photo therapy at pre-intervention. While changed to be the majority of the studied nurses had satisfactory level of total knowledge after implementation of educational nursing guidelines.

The results of this study were consistent with the latest research by **Saleh et al., (2020)**, who revealed that developing and implementing nursing guidelines based on the needs of patients with vitiligo were effective in improving their lifestyle including their knowledge level. which support the notion that educational interventions can significantly improve nurses' knowledge in dermatological care. These studies highlighted the importance of ongoing education and training to ensure that nurses are equipped with the necessary knowledge and skills to provide high-quality care. Also, the present study agreed with **Rachawong et al., (2016)** who concluded that the use of informational content in video-based education is more effective and beneficial in vitiligo education to encourage improving the nurse's knowledge and also changing attitude towards vitiligo patients and providing standard of nursing care.

The current study demonstrated the significant impact of implementing educational nursing guidelines on nurses' knowledge about caring for vitiligo patients undergoing phototherapy. The findings indicate a substantial improvement in nurses' knowledge across all knowledge subscales, including vitiligo disease, dietary considerations, and nursing care practices. The findings of this study provide strong evidence for the positive impact of implementing educational nursing guidelines on nurses' knowledge about caring for vitiligo patients undergoing phototherapy. The significant improvements observed across all knowledge subscales demonstrated the effectiveness of educational interventions in enhancing nurses' understanding of vitiligo

disease, dietary considerations, and nursing care practices.

Moreover, the findings of the current study highlighted a significant improvement in nurses' total knowledge towards caring for vitiligo patients undergoing phototherapy after the implementation of educational nursing guidelines. The substantial increase in the percentage distribution of nurses with satisfactory level of knowledge indicated the effectiveness of the educational sessions in enhancing nurses' overall understanding and performance in providing comprehensive care to vitiligo patients.

So, the implementation of educational nursing guidelines has the potential to improve patient outcomes by ensuring that nurses are well-informed and capable of delivering evidence-based care. However, it is essential to consider the sustainability of these interventions and the need for continuous professional development to maintain and reinforce knowledge gains over time.

Concerning to the Comparing between the Studied Nurses Regarding Practices toward Caring of Vitiligo Patients Undergoing of Photo therapy pre and post Implementation of Educational Nursing Guidelines & Also The percentage Distribution of the studied nurses According to their Total Practices Toward Caring of Vitiligo Patients Undergoing of Photo therapy pre and post Implementation of Educational Nursing Guidelines:

The present study displayed that, there was a significant improvement in nurses' practices toward caring of vitiligo patients undergoing of photo therapy post implementation of educational nursing guidelines with a highly statistically significant difference ( $P < 0.01$ ) compared to pre-providing educational sessions. As evidence, less than a quarter of the studied nurses were competent regarding preparing and administering topical medications and administering oral medication at pre-

intervention, respectively. While changed to be the majority of the studied nurses were competent regarding preparing and administering topical medications and administering oral medication after implementation of educational nursing guidelines, respectively. Also, less than a quarter of the studied nurses (only 10 percentage of the studied nurses) were competent regarding total practices toward caring of vitiligo patients undergoing of photo therapy at pre-intervention. While changed to be the majority of the studied nurses were competent regarding total practices toward caring of vitiligo patients undergoing of photo therapy after implementation of educational nursing guidelines.

Hence, standard and quality care for vitiligo patients undergoing phototherapy requires nurses to possess competent practices in various aspects of patient care. The findings contribute to understanding the effectiveness of educational interventions in improving nurses' practices and ultimately enhancing patient care outcomes.

Moreover, the findings of this study highlighted a significant improvement in nurses' total practices towards caring for vitiligo patients undergoing phototherapy after the implementation of educational nursing guidelines. The substantial increase in the percentage distribution of nurses with competent practices indicated the effectiveness of the educational sessions in enhancing nurses' overall understanding and performance in providing comprehensive care to vitiligo patients.

These results were consistent with the study by **Nair et al. (2022) and Sharma (2017)** which reported a significant improvement in nurses' practices following educational interventions in a vitiligo patient. And mentioned also that dermatology nurses can provide quality service at the institutional, clinic, and community levels to augment dermatology services. And recommended that nurses should be trained to supervise, manage

and provide quality care to patients with skin diseases and undertake research in dermatology nursing. The study highlighted the effectiveness of educational programs in enhancing nurses' competence in providing care to patients undergoing phototherapy for various dermatological conditions, including vitiligo. Moreover, in line with **Matthews et al., (2020)** and **Bansal et al. (2021)** who recommended that all qualified staff working in vitiligo patient management with phototherapy should be aware of the existence of the nursing intervention guidelines. Also mentioned that all staff working in vitiligo patients' management undergoing phototherapy should have attended an external introduction course to phototherapy and ensure maintenance of knowledge and skills by attending a yearly external update course, internal yearly competencies and independent learning. The agreement between the current study and the findings of **Nair et al. (2022)** and **Sharma (2017) & Matthews et al., (2020)** and **Bansal et al. (2021)** strengthened the validity of the results presented in the current study.

In addition, skin assessment, an essential aspect of patient care, saw a remarkable improvement post-implementation, with a substantial increase in competent practices. Similarly, the assessment based on the Vitiligo European Task Force guidelines also exhibited a significant enhancement in competency levels among nurses. These improvements suggested that the educational interventions effectively equipped nurses with the necessary knowledge and skills to perform comprehensive assessments, thereby enhancing the quality of care provided to vitiligo patients undergoing phototherapy. And this in line with the study of **van Os-Medendorp et al., (2020)**

Moreover, the administration of both topical and oral medications witnessed substantial improvements in competency levels post-implementation. This is

particularly crucial as proper medication management is essential for the effective treatment and management of vitiligo. The significant increase in competent practices indicated that nurses were better prepared to prepare, administer, and monitor the effects of medications, thereby optimizing patient outcomes. And this in line with the study of **Kubelis-López et al., (2021)**

Additionally, the performance of breathing, foot exercises and applying skin rolling massage for the vitiligo area to increase circulation before laser, photo, or chemo photo session, which are integral components of holistic patient care, demonstrated considerable enhancements in competency levels following the educational interventions. And this in line with the study of **Seneschal et al., (2023)**. Also, the findings suggested that nurses were more proficient in assisting patients with therapeutic exercises, thereby promoting their physical well-being and overall health. And these previous mentioned results are in the same line with the study of **de França et al., (2022)** which emphasized the relationship between the immune system and epidermal melanocytes and their interplay with the redox system in vitiligo patient. Based on state-of-the-art evidence from the vitiligo research, physical exercise immunology, and redox system literature, also proposed that physical exercises including breathing exercises and foot exercises as a therapeutic strategy to treat and prevent vitiligo disease progression. Also, presented evidence that physical exercises can change the balance of inflammatory to an anti-inflammatory state, improve functions resulting in improving the vitiligo patient health outcomes.

Finally, the findings of the current study underscore the significant impact of educational nursing guidelines on enhancing nurses' practices toward caring for vitiligo patients undergoing phototherapy. These results not only contributed to the body of evidence supporting the efficacy of

educational interventions but also emphasized the importance of ongoing education and training in ensuring the delivery of high-quality care to patients with dermatological conditions. Hence, the notable increase in the proportion of competent nurses post-implementation highlighted the effectiveness of targeted educational interventions in addressing knowledge and practice gaps among nursing staff. However, ongoing evaluation and reinforcement of educational initiatives are essential to ensure the sustainability of improvements in nursing practices over time.

Regarding total nurses' knowledge score and their total practices score toward caring of vitiligo patients undergoing of photo therapy pre and post implementation of educational nursing guidelines:

The present study revealed a highly significant positive correlation between nurses' knowledge scores and their practices scores, both at the pre-intervention phase and the post-intervention phase. These findings indicated that as nurses' knowledge increased, their practices in caring for vitiligo patients also improved. The findings may provide insights into the importance of knowledge acquisition and its impact on nurses' practices.

The strong positive correlation between nurses' knowledge and practices scores was consistent with the study conducted by **Mohamed et al. (2013)**, which supported the notion that knowledge positively influences nurses' practices, and examined the relationship between knowledge and practices and revealed that a statistically significant was found between the level of knowledge and level of practices with ( $P=0.09$ ), so concluded that the nurses with good level of knowledge have competent practices level after implementing of his educational training program to nurses in his study. This finding indicated that nurses who possess a higher level of knowledge are more likely to implement evidence-based practices and provide better care for vitiligo patients

undergoing phototherapy. And emphasized the importance of continuous education and knowledge enhancement to enhance nurses' practices and improve patient care outcomes.

Moreover, **Kim et al., (2023)**. who highlighted the need to establish an education program to improve the modifiable predictors of nurses' practice and education level. also reported similar findings, highlighting the significance of knowledge acquisition in shaping nurses' practices and improving patient outcomes. In addition, **Nasr Abd El Aziz et al., (2021)** who concluded that there was a high significant, positive correlation between knowledge and practice of staff nurses in his study. And recommended preparing a structured educational program to improve knowledge and practice for nurse staff in his study. Hence, the agreement between the present study and the findings of **Mohamed et al. (2013)**, **Nasr Abd El Aziz et al., (2021)** & **Kim et al., (2023)** strengthened the validity of the results presented in this point in the present study.

Finally, the findings of the present study underscored the critical relationship between nurses' knowledge and their practices toward caring for vitiligo patients undergoing phototherapy, both before and after the implementation of educational nursing guidelines. Targeted educational interventions that focus on enhancing nurses' knowledge base can have a significant impact on improving their practice proficiency, ultimately leading to better outcomes for patients with dermatological conditions like vitiligo undergoing phototherapy.

#### **Conclusion: -**

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Based on the results of the study, mean scores of nurses' knowledge and practice were higher in post educational guidelines and follow-up phases of intervention guidelines than pre-intervention phase, which might mean an effective intervention guidelines. Also, there was a statistically significant improvement in nurses' total

knowledge and total practice regarding care for vitiligo patients after implementation of educational guidelines.

### Recommendations: -

➤ Intervention guidelines toward vitiligo patients should be conducted for nurses, as they are the key to improve nurses' knowledge and practice and enhance vitiligo patient care outcomes.

➤ Offering booklets regarding the management of vitiligo patients for nurses to understand how to deal with vitiligo cases.

➤ More researches needed on nursing care for vitiligo patients and encouraging personnel to use evidence-based guidelines, increase in the quality of nursing care can be reached.

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