

Psychological Stress and Coping Pattern among Patients with Vitiligo

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Abstract

Background: Vitiligo is an autoimmune chronic skin disease characterized by a progressive loss in skin pigmentation due to the loss of melanocytes. Psychological stressors play a critical role in vitiligo. **The aim of this study:** was to assess psychological stress and coping pattern among patients with vitiligo. **Design:** A descriptive design was utilized for conduction of this study. **Setting:** The study was conducted at outpatient clinics in Benha Dermatology Hospital which affiliated to Ministry of Health. **Study subjects:** A purposive sample of 100 patients in the previous mentioned setting. **Data collection tools:** I- Socio-demographic of patient sheet, II- Vitiligo Psychological Stress Questionnaire, III- Vitiligo Coping Pattern Questionnaire. **Results:** The study showed that, the mean age of the studied patients was 34.69 ± 5.87 and 76.0% of them were males. 81.0% of them were married and 69.0% of them were from rural residence. 76.0% of them were occupied and 67.0% of them reported not enough income. Regarding level of psychological stress, 40.0% of the studied patients had high level of stress and 33.0% of them had low level of stress. While, 27.0% of them had moderate level of stress. Regarding levels of coping, 65.0% of the studied patients had effective coping level and 35.0% of them had ineffective coping level. **Conclusion:** the studied vitiligo patients as more than two thirds of them had severe level of stress while more than half of them had low level of coping pattern. Furthermore, there was a significant statically negative correlation between total level of psychological stress and total level of coping among the studied patient with vitiligo. **Recommendation:** Designing and implementing psycho-educational programs for vitiligo patients to improve their coping strategies and reduce disease related stress.

Keywords: Psychological Stress, Coping Pattern, Vitiligo Patients.

Introduction:

Vitiligo is an acquired skin disorder characterized by a progressive loss in skin pigmentation due to the loss of melanocytes, the pigment producing cells in the skin. Vitiligo affects around 0.5% of the global population and although all ethnic groups are similarly affected, it is more noticeable and more severe in dark-skinned individuals (Al-Harbi, 2019).

While the onset of vitiligo usually occurs during adolescence, individuals developing vitiligo during adulthood have been reported. Though hereditary factors predispose patients to depigmentation, in adult onset vitiligo, a relatively greater contribution to disease etiology can be attributed to stress (Almomani, Abdulmajeed, Rahman and Alakkam, 2018).

Physical or environmental stressors are reported in the onset and disease progression of vitiligo. Psychological stressors also play a role in vitiligo. Stress increases the levels of catecholamines, neuropeptides, and cortisol that are higher in vitiligo patients suggesting their role in the pathogenesis of vitiligo (Bergqvist and Ezzedine, 2020).

Though vitiligo is one of the psychodermatological disorders which do not cause direct physical impairment, it is cosmetically disfiguring leading to serious psychological problems in daily life. Various psychological effects of vitiligo include low self-esteem, social anxiety, isolation, depression, impaired quality of life (Almutairi and Aljasser, 2020).

Vitiligo patients should address the emotional effects and include tools for psychological intervention, which may ultimately lead to better adaptation to the disease and coping, thus improving the patients overall quality of life. Liaison with the psychiatrist is important for early assessment of depressive symptoms and considering both psychotherapeutic and psychopharmacological treatment options. Long-term prospective studies in different chronic skin conditions would help in the better understanding of the gender based differences (Abdelmaguid, Khalifa, Salah and Sayed, 2020).

Various coping techniques like cognitive behavioral therapy have been tried in patients to decrease the psychological burden, The use of camouflage on exposed white patches has also been encouraged as a harmless procedure. Understanding and interacting with society regarding its vitiligo related knowledge and attitude would be important steps towards decreasing the vitiligo patients' emotional burden (Grimes & Miller. 2018).

Aesthetic nurses should have a broad knowledge of vitiligo to be able to provide patients with information about the disease, causes, prognosis and realistic advice about the benefits of treatment. Patients should specifically be advised on the daily use of sun block with maximum protection on all areas of vitiligo. High-protection sunscreens can be prescribed as a borderline substance to people with vitiligo (Kara, Karaca, Nazik and Gül 2019).

Significance of the study:

Vitiligo is a serious skin disease having major impact on quality of life of patients, many of whom feel distressed and stigmatized by their condition (Lai, Yew, Kennedy & Schwartz 2017):

Worldwide, vitiligo is a common depigmenting skin disorder with an estimated prevalence 0.5 -2% of the population. (Karger, 2020)

Therefore, is important to recognize the psychological stress and coping pattern among patient of vitiligo.

Aim of the study

This study aims to assess psychological stress and coping pattern among patient of vitiligo.

Research questions:

- 1-What are the psychological stressors among patient with vitiligo?
- 2-What are the coping patterns among patient with vitiligo?

Subjects and Methods

The study was portrayed under the four main designs as the following:

- I. Technical design.
- II. Operational design.
- III. Administrative design.
- IV. Statistical design.

I. Technical design:

The technical design includes research design, setting, subject, and tools of data collection.

Research design:

Descriptive correlational design was be utilized to answer the research questions.

Setting:

This study was conducted at outpatient clinics in Benha Dermatology Hospital which affiliated to Ministry of Health.

Subject:

A purposive sample of 100 patients was included in this study. Sample size was calculated according to the following equation; $n = 2 (Z_{\alpha} + Z_{[1-\beta]})^2 \times SD^2 / d^2$

Where: **n** is the sample size, **Z_α** and **Z_(1-β)** are constant values for convention values of **α** and **β** values where **Z_α** =1.96 when **α**=0.05 and **Z_(1-β)** =1.036 when **β** =0.20, **SD** is the standard deviation obtained from previous study (Nasser, El Tahlawi, Abdelfatah and Soltan, 2021) and **d** is the effect size.

$$n = 2 (1.96 + 1.03)^2 \times 11.8^2 / 5^2 = 99.5$$

Therefore, the minimal sample size was found to be = **100 participants**.

Inclusion criteria:

- Both sexes.
- Adult age (≥ 20 years old)
- Free from Psychotic disorder.

Tools of data collection:

Data were collected using the following tools:-

Tool-I Socio demographic sheet:

It was developed by researcher and aimed to assess the patient's age, gender, educational level, marital status, residence, occupation and monthly income.

Tool-II: Vitiligo Psychological Stress Questionnaire:-

This tool was developed by researcher after reviewing of the related literatures. It aimed to assess the psychological stress among patient with vitiligo. It's a three point likert scale and consisted of 40 statements under 4 domains (social, occupational, financial and psychological).

❖ Scoring system:

The scores for the responses of each statement was scored as follows: agree = 1, neutral= 2 and disagree = 3. The total score ranges from 40-120 where the higher scores indicating higher severity of stress. These scores were summed up and converted into a percentage score and categorized as follow:

- **Low stress** was considered when score ≤ 50 %
- **Moderate stress** was considered when score > 50 % - **75%**
- **High stress** was considered when score > 75 %

Tool (III)- Vitiligo Coping Pattern Questionnaire:-

This tool was developed by researcher after reviewing of the related literatures. It aimed to assess the coping pattern among patient with vitiligo. It's a three point likert scale and consisted of 63 statements under 7 domains (Positive

confrontation, problem solving, acceptance and hope, support, restore to religion, behavioral disengagement and venting).

❖ Scoring system

The scores for the responses of positive statements were; agree = 3, neutral= 2 and disagree = 1 and the score was reserved for negative statements. The total score ranges from 63-159 where the higher scores indicating effective coping. These scores were summed up and converted into a percentage score and categorized as follow:

- **Ineffective coping** was considered when score ≤ 60 %
- **Effective coping** was considered when score > 60 %

II. Operational design:

The operational design included preparatory phase, content validity and reliability, pilot study and field work.

A- Preparatory phase:

It include reviewing the recent related literature and theoretical knowledge of various aspects of the study using books, articles, internet, periodicals, magazines in order to develop and modify the data collection tools.

B- Tool's validity and reliability:

• Validity:

The face and content validity was done through a panel of three experts from Psychiatric and Mental health Nursing department, faculty of nursing, Ain Shams University. Their opinions were regarding comprehensiveness, accuracy, clarity, relevance and appropriateness of the study tools.

• Reliability:

Reliability of tools was tested statistically using Cronbach's Alpha which is a model of internal consistency. stress scale was reliable at 0.81 and coping scale was reliable at 0.86.

C- Pilot study:

The pilot study was carried out on a group of 10 patients (10% of the subjects) to test the

clarity, applicability, feasibility and relevance of the study tools and to determine the needed time for the application of the tools.

Field of work:

A written informed consent was obtained from each participant prior to the data collection after explaining the aim of the study. Data collection started and completed within six months. Data collection was done at the previous mentioned setting two days per week (Saturday and Monday) by the researcher in the morning shift.

Ethical Considerations:

Approval to conduct the study was obtained from the ethical committee in the faculty of nursing, Ain shams University before starting the study. The researcher explained and clarified the study aim and conducting way to the participants before taking the consent of participation. The researcher assured maintaining anonymity and confidentiality of data of subjects included in the study. The participants were informed about their right to withdraw from the study at any time without giving any reason.

III. Administrative design:

Approval to carry out this study was obtained from the faculty of nursing, Ain shams University to the medical and nursing directors of Benha Dermatology Hospital.

IV. Statistical design:

The collected data were organized, categorized, tabulated and statistically analyzed using the statistical package for social science (SPSS) version 20 and Microsoft office Excel. Quantitative data were presented as mean and standard deviation (SD) while qualitative data were expressed as frequency and percentage. Chi-square test used as a test of significance to test relations between quantitative variables as the variables were not normally distributed. P-value was considered significant at ≤ 0.5 and non-significant at > 0.5 .

Results:

Table (1): reveals that, 54.0% of the studied patients were in age group 25-30 years with mean age 34.69 ± 5.87 and 76.0% of them were males. Also, 81.0% of them were married and 69.0% of them were from rural residence. In relation to occupation and monthly income, 76.0% of them were occupied and 67.0% of them reported not enough income.

Table (2): shows that, 85.0% of the studied patients had no chronic disease. Also, 94.0% of them had previous hospital admission due to side effects from vitiligo, 77.0% of them had history of immunity impairment related to vitiligo medications and 69.0% of them had previous exposure to skin infection. In relation to family history, 68.0% of them had no family history of vitiligo. Additionally, Onset of vitiligo and beginning of treatment were since 6-12 months in 71.0% of the studied patients. Moreover, 79.0% of them underwent pharmacological treatment.

Table (3): reveals that, 49.0% of the studied patients had high psychological stress related to financial aspect. Also, 43.0% of them had high psychological stress related to emotional aspect. Additionally, 40.0% of them had high psychological stress related to social aspect. While, 45.0% of them had low psychological stress related to occupational aspect.

Figure (1): illustrates that, 40.0% of the studied patients had high level of stress and 33.0% of them had low level of stress. While, 27.0% of them had moderate level of stress.

Table (4): shows that, 95.0%, 94.0%, 78.0% and 61.0% of the studied patients had effective coping regarding restore to religion, acceptance and hope, problem solving and support (cognitive, emotional and scientific) respectively. While, 66.0%, 55.0% and 53.0% of them had ineffective coping regarding positive confrontation, venting and behavioral disengagement respectively.

Figure (2): illustrates that, 65.0% of the studied patients had effective coping level.

While, 35.0% of them had ineffective coping level.

Table (5): reveals that, there was a significant statistical relationship between total level of stress among the studied patients and their gender, marital status, monthly income and occupation at P value= 0.028, 0.003, 0.012 and 0.045 respectively. While, there was non-significant statistical relationship between total level of stress among the studied patients and their age, residence and educational level at P value= 0.624, 0.964 and 0.342 respectively.

Table (6): shows that, there was a significant statically negative correlation

between total level of psychological stress and total level of coping among the studied patient with vitiligo.

Table (7): reveals that, there was a significant statistical relationship between total level of coping among the studied patients and their age and educational level at P value= 0.005 and 0.034 respectively. While, there was non-significant statistical relationship between total level of coping among the studied patients and their gender, marital status, residence, monthly income and occupation at P value= 0.239, 0.208, 0.700, 0.258 and 0.087 respectively.

Table (1): Distribution of demographic characteristics of the studied patients (n=100).

Demographic characteristics	Items	N	%
Age (in years)	20-<25	17	17.0
	25-30	54	54.0
	>30	29	29.0
	Mean \pm SD		34.69 \pm 5.87
Gender	Male	76	76.0
	Female	24	24.0
Marital status	Single	14	14.0
	Married	81	81.0
	Widowed	2	2.0
	Divorced	3	3.0
Residence	Rural	69	69.0
	Urban	31	31.0
Occupation	Occupied	76	76.0
	Not occupied	24	24.0
Monthly income	Enough and save	11	11.0
	Just enough	22	22.0
	Not enough	67	67.0

Table (2): Distribution of health history of the studied patients (n=100).

Health History	Items	N	%
Chronic disease	Yes	15	15.0
	No	85	85.0
Previous hospital admission due to side effects from vitiligo	Yes	6	6.0
	No	94	94.0
History of immunity impairment related to vitiligo medications	Yes	23	23.0
	No	77	77.0
Previous exposure to skin infection	Yes	31	31.0
	No	69	69.0
Family history of vitiligo	Yes	42	42.0
	No	58	58.0
Onset of vitiligo (in months)	1-<6	29	29.0
	6-12	71	71.0
Beginning of treatment (in months)	1-<6	29	29.0
	6-12	71	71.0
Type of treatment	Psychological	6	6.0
	Pharmacological	79	79.0
	Both	15	15.0

Table (3): Distribution of the studied patients regarding to their total levels of psychological stress domains (n=100).

Psychological stress domains	Low		Moderate		High	
	N	%	N	%	N	%
Social	30	30.0	30	30.0	40	40.0
Emotional	34	34.0	23	23.0	43	43.0
Occupational	45	45.0	27.0	27.0	28	28.0
Financial	24	24.0	27	27.0	49	49.0

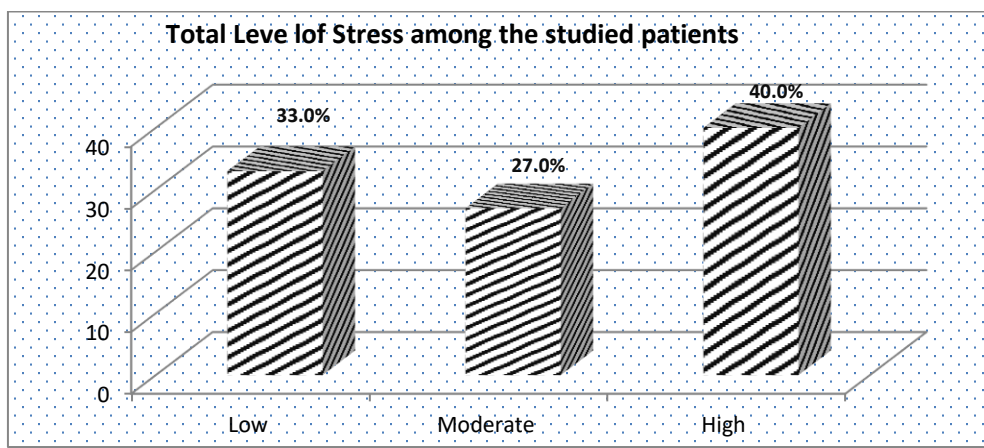


Figure (1): Total level of psychological stress among the studied patients (n=100).

Table (4): Distribution of the studied patients regarding to their total levels of coping strategies (n=100).

Coping strategies	Effective		Ineffective	
	N	%	N	%
Positive confrontation	34	34.0	66	66.0
Problem solving	78	78.0	22	22.0
Acceptance and Hope	94	94.0	6	6.0
Cognitive, emotional and scientific support	61	61.0	39	39.0
Restore to religion	95	95.0	5	5.0
Behavioral disengagement	47	47.0	53	53.0
Venting	45	45.0	55	55.0

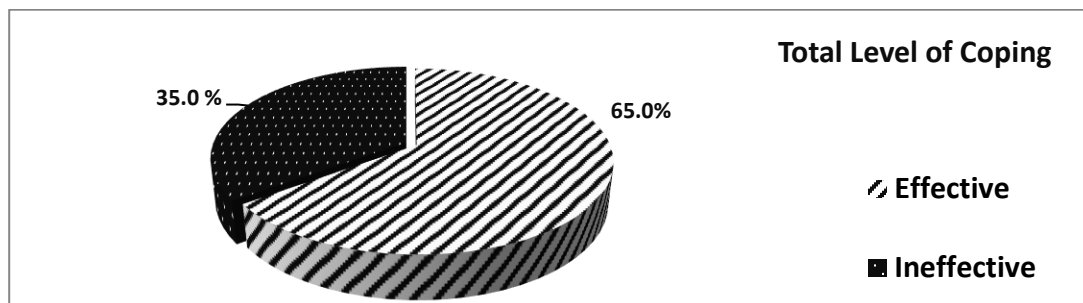


Figure (2): Total level of coping among the studied patients (n=100).

Table (5): Relationship between patients socio-demographic characteristics and their total level of stress (n=100).

Demographic characteristics		Total Stress Level						X ²	P-Value
		Low		Moderate		High			
		N	%	N	%	N	%		
Age (in years)	20-<25	5	5.0	7	7.0	5	5.0	2.616	0.624 (NS)
	25-30	17	17.0	13	13.0	24	24.0		
	>30	11	11.0	7	7.0	11	11.0		
Gender	Male	29	29.0	18	18.0	29	29.0	4.111	0.028* (S)
	Female	4	4.0	9	9.0	11	11.0		
Marital status	Single	2	2.0	8	8.0	4	4.0	19.676	0.003* (S)
	Married	28	28.0	17	17.0	36	36.0		
	Widowed	0	0.0	2	2.0	0	0.0		
	Divorced	3	3.0	0	0.0	0	0.0		
Residence	Rural	23	23.0	19	19.0	27	27.0	0.073	0.964 (NS)
	Urban	10	10.0	8	8.0	13	13.0		
Monthly income	Enough and save	5	5.0	2	2.0	4	4.0	6.537	0.012* (S)
	Just enough	7	7.0	10	10.0	5	5.0		
	Not enough	21	21.0	15	15.0	31	31.0		
Educational level	Not read or write	1	1.0	2	2.0	2	2.0	6.779	0.342 (NS)
	Elementary	8	8.0	3	3.0	2	2.0		
	Secondary	14	14.0	13	13.0	19	19.0		
	University	10	10.0	9	9.0	7	7.0		
Occupation	Working	23	23.0	22	22.0	31	31.0	1.213	0.045* (S)
	Not working	10	10.0	5	5.0	9	9.0		

X²= Chi Square Test // P-value >0.05 Significant (NS)// * P-value ≤ 0.05 Significant (S).

Table (6): Correlation between stress and coping level among patients under study.

Parent's variables	Level of stress	
	r	P-value
Level of Coping	-0.707	0.032*

* P-value ≤ 0.05 Significant (S).

Table (7): Relationship between demographic characteristics of the studied patients and total coping level (n=100).

Demographic characteristics		Total Coping Level				X ² / Fisher Exact Test	P- value
		Effective		Ineffective			
		N	%	N	%		
Age (in years)	20-<25	11	11.0	6	6.0	0.998	0.005* (S)
	25-30	35	35.0	19	19.0		
	>30	19	19.0	10	10.0		
Gender	Male	47	47.0	29	29.0	1.388	0.239 (NS)
	Female	18	18.0	6	6.0		
Marital status	Single	11	11.0	3	3.0	4.459	0.208 (NS)
	Married	49	49.0	32	32.0		
	Widowed	2	2.0	0	0.0		
	Divorced	3	3.0	0	0.0		
Residence	Rural	44	44.0	25	25.0	0.148	0.700 (NS)
	Urban	21	21.0	10	10.0		
Monthly income	Enough and save	10	10.0	1	1.0	3.690	0.258 (NS)
	Just enough	14	14.0	8	8.0		
	Not enough	41	41.0	26	26.0		
Educational level	Not read or write	4	4.0	1	1.0	1.713	0.034* (S)
	Elementary	9	9.0	4	4.0		
	Secondary	27	27.0	19	19.0		
	University	25	25.0	11	11.0		
Occupation	Working	50	50.0	26	26.0	0.768	0.087 (NS)
	Not working	15	15.0	9	9.0		

X²= Chi Square Test // P-value >0.05 Significant (NS)// * P-value ≤ 0.05 Significant (S).

Discussion

Part I Socio-demographic characteristics Pertaining to age, the findings of the present study revealed that more than half of the

studied patients were in age group 25-30 years with mean age 34.69 ± 5.87 . This may be due to vitiligo disease more commonly affect the young age and the risk of disease was decreased with increasing age.

. This result was consistent with **Rehab et al (2021)** who revealed that, a half of studied sample were in the age group of 20 to < 30 years with the mean age 30.01 ± 9.42 years.

On other hand, this result were in disagreement with (**Nasreen et al., 2017**) who founded that the age group of his sample between 30-40 years with the mean age 24.6 ± 3.22 years. From researcher point of view, this may be due to vitiligo disease more commonly affect the young age and the risk of disease was decreased with increasing age.

Regarding gender, the findings of the present study revealed that more than three quarters of the studied patients were males. This result was consistent with **Khoury et al., (2017)** who reported that more than half of the total sample was males. This came in disagreement with **Rehab et al (2021)** who clarified that nearly two thirds of studied vitiligo patients were females.

Owing to marital status, the findings of the present study revealed that majority of the studied patients were married. This result was supported by **Khattari et al.,(2017)** who found that the majority of the studied sample were married. On other hand, **Kiprono et al., (2018)** founded that more than two thirds of the patients were single. This variation in findings could be due to appearance of vitiligo lesion in visible sites of the body that affect the persons' beauty and hence impair marriage.

Regarding to residence, the findings of the present study revealed that more than two thirds of the studied patients were from rural residence. This could be due to the site of data collection serves many rural areas. These findings were in agreement with the study of **Grimes (2017)** who found that, more than half of his studied sample was from rural areas.

Owing to monthly income, the findings of the present study revealed that more than two thirds of the studied patients reported not enough income. This could be due to the cost of treatment and follow up is expensive. This result was consistent with **Rehab et al (2021)** who demonstrated that the majority of the studied patients didn't have sufficient income. These findings were contradicted with the study done by **Almomani et al., (2018)** who found that, only one third of his sample mentioned that their income was not enough.

Part II: Psychological stress among the studied patients:-

In relation to level of stress domains, the findings of the present study revealed that about half of the studied patients had high psychological stress related to financial aspect. Also, more than two fifths of them had high psychological stress related to emotional aspect. Additionally, two fifths of them had high psychological stress related to social aspect. While, more than two fifths of them had low psychological stress related to occupational aspect.

This result was supported by **Cupertino et al. (2017)** reported that stressful life events generate vitiligo. Also, **Wang et al. (2017)** concluded that vitiligo patients suffer more from depression and anxiety.

Additionally, The results of present study were consistent with the study of **Grimes & Miller (2018)** who reported that vitiligo can affect patient's psychological well-being and the majority of them were most likely to have associated psychological problems as stress,

Moreover, This result was consistent with **Kara et al., (2019)** his study showed that nearly two thirds reported social stress related to vitiligo. **Nikam et al, 2020**, reported that vitiligo is strongly associated with financial stress.

In relation to total level of psychological stress, the findings of the present study revealed that two fifths of the studied

patients had high level of stress and one third of them had low level of stress.

This can be justified by vitiligo is one of the most psychologically devastating diseases in dermatology because of appearance of pigmentation in visible sites which lead to numerous problems not only psychological problems such as stress but also, social problems as disturbances in social relationships.

This result goes in the same line with the study done by **Osman et al., (2019)** who stated that the majority of his studied sample suffering from stress as a result of vitiligo.

Also, this result was consistent with **Rehab et al (2021)** who illustrated that more than two thirds of the studied vitiligo patients have severe level of stress. From researcher point of view, this is due to the fact that life and economic matters often concern people, especially in developing countries.

Part III: Coping pattern among the studied patients:-

The findings of the present study revealed that most of the studied patients had effective coping regarding restore to religion, acceptance and hope. While, more than half of them had ineffective coping regarding positive confrontation, venting and behavioral disengagement.

This result goes in the same line with **Ezzedine et al. (2021)** reported that, the most commonly reported coping strategy among patients in our analysis was concealment of lesions through clothing choices, camouflage, and altered body movements.

Gupta and Gupta (2003) confirmed that it is important to identify and treat patients' psychosocial and social factors for more positive effect on quality of life and treatment. **Krüger and Schallreuter (2015)** reported that, an impressive majority of patients had an only slightly impaired QoL.

On the other hand, **Kota et al. (2019)** found that vitiligo can even pose difficulty in primary daily activities like wearing clothes, having food of their choice, and going to social events.

Part IV: Relationships and correlation between the studied variables:

Concerning the relation between socio-demographic characteristics of the studied patients and their total level of stress, the findings of the present study revealed that there was a significant statistical relationship between total level of stress among the studied patients and their gender, marital status, monthly income and occupation. While, there was non-significant statistical relationship between total level of stress among the studied patients and their age, residence and educational level.

This was in harmony with **Henning et al. (2020)** who reported that, age was not associated with perceived stress. Also, **Abdelmaguid et al. (2020)**, vitiligo has a negative impact on patients' psychological well-being in regards of anxiety and depression, especially in female patients. According to **Hamidzadeh et al.'s (2020)** findings showing that women with vitiligo were more nervous.

In the same context, **Suyog (2016)** mentioned that there is a highly statistically significant relationship was found between all items of socio-demographic characteristics and total stress scale.

On the other hand, **Daneshpazhooh et al., (2017)** reported that there is no statistically difference was noted between all items of socio-demographic characteristics and total stress scale.

Concerning the relation between socio-demographic characteristics of the studied patients and their total level of coping, the findings of the present study revealed that there was a significant statistical relationship between total level of coping among the studied patients and their age and educational level. While, there was non-significant statistical relationship between total level of coping among the studied patients

and their gender, marital status, residence, monthly income and occupation.

In the same context, **Mitrevska et al., (2017)** represented there is a highly statistically significant differences between all items of socio-demographic characteristics and coping level.

On the other hand, **Nasser et al. (2021)** reported that, there was no statistically significant difference between all items of socio-demographic characteristics and coping level.

Conclusion

Based on findings of the current study, it can be concluded that, The study findings concluded that, two fifths of the studied patients had high level of stress and more than three fifths of them had effective coping level. There was a significant statistical relationship between total level of stress among the studied patients and their gender ,marital status, monthly income, occupation and history of chronic disease. There was a significant statistical relationship between total level of coping among the studied patients and their age and educational level. There was a significant statically negative correlation between total level of psychological stress and total level of coping.

Recommendations

Based on the findings of the current study, the following recommendations are suggested:

- Stress management and assertiveness training program should be given to vitiligo patients to relieve their psychological problems and enhance their coping patterns.
- Designing and implementing psycho-educational programs for vitiligo patients to increase their self-esteem and quality of life domains.
- Psychiatric support must be provided continuously as a part of routine nursing care for all patients with vitiligo.
- A similar study should be replicated on a large sample and other place to generalize the findings.

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