

Association between Treatment Adherence and Depression with Health-Related Quality of Life in Women with Vitiligo

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Abstract

Background: Vitiligo, a chronic depigmentary dermatosis, significantly compromises health-related quality of life (HRQoL), especially among women. Treatment adherence and depression are two important factors that can influence HRQoL in these patients. This study aimed to investigate the association between treatment adherence, depression, and HRQoL in women with vitiligo.

Methods: A cross-sectional study was conducted on 152 women with vitiligo who were selected using convenient sampling method from a dermatology clinic in Ahvaz, Iran, in 2023. The study employed the MOS 36-Item Short-Form Health Survey (SF-36), Treatment Adherence Questionnaire (TAQ), and Beck Depression Inventory (BDI) to collect data. Pearson correlation coefficients assessed the relationships between variables, while stepwise regression analysis explored the independent contributions of these factors to the outcome variables.

Results: Our results showed mean scores (SD) of 58.13 (11.50) for HRQoL, 49.70 (8.82) for treatment adherence, and 20.25 (4.47) for depression. Significant positive and negative correlations were observed between treatment adherence and HRQoL ($r=0.44$, $P<0.001$) and depression and HRQoL ($r=-0.36$, $P<0.001$), respectively. Furthermore, regression analysis confirmed that both treatment adherence ($\beta=0.51$, $P<0.001$) and depression ($\beta=-0.57$, $P<0.001$) were significantly associated with HRQoL in women with vitiligo.

Conclusion: These results highlighted the importance of treatment adherence as a key factor influencing HRQoL in women with vitiligo. Additionally, the study underscores the negative impact of depression on HRQoL, suggesting the potential benefit of addressing both treatment adherence and depression in clinical management strategies to optimize HRQoL for women with vitiligo.

Keywords: Vitiligo, Treatment adherence, Depression, Health-related quality of life, Women

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1. Introduction

Vitiligo is a chronic pigmentary disorder characterized by a loss of melanocytes, the cells responsible for skin pigmentation (1). This leads to the appearance of white patches on the skin, which can vary in size and shape. These patches can be smooth or scaly, and they may be accompanied by itching or burning (2). Vitiligo can also affect the hair, causing it to turn white or gray. Vitiligo occurs due to putative autoimmune mechanisms and affects 0.5-2% of the global population (3). While the etiology remains unclear, the immune system is thought to target and destroy melanocytes, leading to the characteristic depigmented patches (4, 5). This condition can manifest on all body surfaces, including the face, hands, arms, legs, and genitals. Notably, vitiligo significantly impacts both physical and psychological well-being, despite the absence of a treatment (6). Fortunately, various treatment options aim to improve skin appearance and

manage the psychological burden of the disease (7).

Vitiligo impacts the quality of life, self-esteem, marriage, and employment, particularly in individuals with darker skin tones and in cultures where it is stigmatized (8). These factors result in a decline in health-related quality of life (HRQoL) for those affected (9). HRQoL is an individual's subjective perception of their place in society, culture, and values, closely tied to personal goals, aspirations, and values (10). In HRQoL, aspects such as physical health, mental well-being, level of independence, social connections, personal beliefs, and the interaction of these factors with the individual's environment are recognized (11, 12).

Treatment adherence is recognized as a critical factor influencing HRQoL in vitiligo patients (13). The World Health Organization (WHO) defines adherence, also referred to as compliance, as the degree to which an individual's behavior

(medication use, dietary modifications, and lifestyle changes) aligns with healthcare provider recommendations (14). Treatment adherence is a critical factor that improves patients' health-related quality of life (15). WHO recommends using the term "adherence to treatment" for chronic diseases. In general, patient non-adherence to treatment has always been a significant and multifaceted problem in the field of healthcare (16).

On the other hand, women with vitiligo are more likely to experience depression (17). Depression is one of the most common mental disorders and a natural human response to environmental stressors (18). In fact, depression is a major health priority in today's world. It is the leading cause of disability worldwide and results in significant healthcare costs for individuals and societies (19). Depression is a term used to describe a set of behaviors characterized by psychomotor retardation (20). Other symptoms include crying, sadness, loss of interest, loss of appetite, low self-esteem, and insomnia (21). Throughout their lives, humans encounter various situations and experience a range of emotional responses. Depression is one of the most common emotional and mood reactions (22).

Thousands of people visit dermatologists every year for skin diseases such as acne, psoriasis, lupus, leishmaniasis, and vitiligo. Most of these individuals experience facial and exposed body area involvement, which causes psychological distress and anxiety more than other body areas. The severity of these skin conditions affects their HRQoL. Accordingly, it is crucial to consider the factors influencing this relationship, such as treatment adherence and depression. Therefore, the present study aimed to investigate the relationship between treatment adherence, depression, and HRQoL in women with vitiligo.

2. Methods

This study employed a descriptive-correlational design to investigate relationships between variables in a sample of women with vitiligo. The target population comprised women diagnosed with vitiligo who sought treatment at dermatology or cosmetic clinics within Ahvaz, Iran, in 2023. Maxwell (23) suggested that in multiple regression analysis, to enhance the generalizability of findings, at least 15 samples should be included for each predictor variable. Thus, given the number of

variables, the possibility of sample attrition, and the need for acceptable results, a sample size of 150 was deemed necessary. Using the convenience sampling method, 165 female patients were selected from the statistical population who met the inclusion criteria, including diagnosis of vitiligo by a dermatologist, informed consent to participate in the study, and no history of psychotherapy. Participants were excluded for unwillingness to participate or for returning questionnaires with missing data. Finally, after excluding incomplete questionnaires, 152 participants completely answered the questionnaires and entered the study. To ensure ethical considerations, the participants were assured that the information obtained from the study would be used confidentially and anonymously. To protect personal data and privacy, the results were reported at a general level.

2.1. Instruments

2.1.1. The MOS 36-Item Short-Form Health Survey (SF-36): SF-36 developed by Ware and Sherbourne (24) was employed to assess health-related quality of life (HRQoL). This multidimensional instrument encompasses eight subscales: physical functioning, role limitations due to physical and emotional health problems, energy/vitality, emotional well-being, social functioning, pain, and general health perception. The lowest score in this questionnaire is zero and the highest is 100, with scores divided into four levels: less than 45 as very poor quality of life, 45-60 as poor, 60-75 as good, and above 75 as desirable. In Iran, Montazeri and colleagues (25) translated and standardized this questionnaire, reporting reliability coefficients for its dimensions ranging from 0.77 to 0.90. The Persian adaptation of the instrument underwent a rigorous validation process involving a ten-member expert panel. The content validity index (CVI) and content validity ratio (CVR) were calculated, demonstrating high concordance among the experts (CVI=0.92, CVR=0.89) (25). In the present study, Cronbach's alpha coefficient was employed to assess the reliability of the SF-36, yielding a value of 0.84.

2.1.2. The Treatment Adherence Questionnaire (TAQ): TAQ developed by Seyed Fatemi and colleagues (26) for chronic disease management, was used to assess treatment adherence. This 40-item, self-report instrument comprises seven subscales: Attention to Treatment, Willingness to Participate, Ability to Adapt, Integration into Life, Adherence,

Commitment, and Hesitation. Items are rated on a 5-point Likert scale, with higher scores indicating greater adherence behaviors. The minimum and maximum scores in this questionnaire are 0 and 200, respectively, with higher scores indicating better treatment adherence. In the study by Seyed Fatemi and colleagues (26), the Cronbach's alpha coefficient was reported as 0.92. Moreover, to strengthen the TAQ's validation, CVI and CVR scores were obtained. The scores (CVI=0.89, CVR=0.87) provide quantitative evidence supporting the instrument's content validity (26). In this study, Cronbach's alpha of 0.80 was used to assess TAQ reliability.

2.1.3. Beck Depression Inventory (BDI): BDI by Beck and colleagues (27) is a well-established, 21-item self-report measure used to assess depression severity. Using a 4-point Likert scale, each item is scored from 0 to 3, with total scores ranging from 0 to 66. Higher scores indicate greater depressive symptoms. In the study by Ghassemzadeh and co-workers (28), the Cronbach's alpha coefficient was reported as 0.87. Furthermore, the content validity of BDI was further assessed using established methods. The CVI score (0.99) and CVR score (0.97) obtained through expert evaluation demonstrate the instrument's alignment with the target construct (28). In the study, Cronbach's alpha for BDI was 0.88.

2.2. Data Analysis

Statistical analyses were conducted using Statistical Package for Social Sciences (SPSS) version 27. Descriptive statistics were employed to

summarize the collected data on HRQoL, treatment adherence, and depression in women with vitiligo. This included calculating mean and standard deviation for each variable, providing an overview of the central tendency and variability within the data. Pearson's correlation coefficients were employed to quantify the strength and direction of linear associations between the continuous variables of HRQoL, treatment adherence, and depression scores. This analysis allows for the exploration of potential bivariate relationships between these factors. Finally, a stepwise regression analysis was conducted to identify the independent predictors of HRQoL. This method systematically adds variables to the model based on their contribution to explaining the variance in HRQoL. Stepwise regression analysis allowed for the exploration of the unique and combined effects of treatment adherence and depression on HRQoL in women with vitiligo.

3. Results

The study sample consisted of 152 female individuals diagnosed with vitiligo, with an average age of 32.14 years and a standard deviation of 8.81 years. The demographic characteristics of the participants are described in Table 1.

Table 2 presents descriptive statistics for the study variables, including means, standard deviations (SD), and Pearson correlation coefficients. This table provides an overview of the central tendencies, variability, and potential linear relationships between HRQoL, treatment adherence, and depression scores.

Table 1: Demographic variables of the women

Demographic variables		n	%
Age (years)	20-35	105	61.48
	35-50	47	30.92
Employment status	Housewife	91	59.87
	Employed	61	40.13
Marital status	Single	83	54.61
	Married	69	45.39
Education	High school	94	61.84
	College education	58	38.16

Table 2: Mean, standard deviation (SD), and Pearson correlation coefficient of the research variables

Variables	Mean	SD	Health-related quality of life
Health-related quality of life	58.13	11.50	1
Treatment adherence	49.70	8.82	0.44**
Depression	20.25	4.47	-0.36**

**P<0.001; SD: Standard Deviation

Table 3: Regression coefficients of the association between treatment adherence and depression with HRQoL

Variables	B	β	SE	P
Treatment adherence	0.24	0.51	0.05	0.001
Maternal depression	-0.60	-0.57	0.03	0.001

SE: Standard Deviation; HRQoL: Health-related Quality of Life

Pearson correlation coefficients, presented in Table 2, revealed a significant positive association between treatment adherence and HRQoL in women with vitiligo ($r=0.44$, $P<0.001$). Conversely, a significant negative correlation was observed between depression and HRQoL ($r=-0.36$, $P<0.001$). These findings suggested that better treatment adherence and lower levels of depression are associated with improved HRQoL in this population.

Based on the results of Table 3, treatment adherence exhibited a significant positive association with HRQoL ($\beta=0.51$, $P<0.001$). This indicates that higher scores on treatment adherence were associated with higher scores on HRQoL. Depression also had a significant association with HRQoL, but in the opposite direction ($\beta=-0.57$, $P<0.001$). Here, higher depression scores were linked with lower HRQoL scores.

4. Discussion

This study explored the associations between treatment adherence, depression, and HRQoL in women with vitiligo. The results revealed a statistically significant multivariate relationship among these variables. Specifically, treatment adherence was positively associated with HRQoL, corroborating prior findings by Sakkaki and colleagues (29) and Onu (30). This can be explained by the fact that vitiligo patients face numerous physical and psychological challenges that can have a substantial impact on their quality of life. Treatment adherence plays a critical role in improving health and reducing clinical symptoms for these patients. By following their doctor's instructions carefully, including taking medications accurately, following a proper diet, and regularly engaging in physical activities, women with vitiligo can experience symptom improvement and reduced clinical complications. Additionally, given that vitiligo patients typically require long-term treatment, adherence can play a significant role in maintaining their health and improving their quality of life. Moreover, the positive effect of treatment adherence on quality

of life can lead to increased patient satisfaction and improved social and family relationships (30). Therefore, it is recommended that women with vitiligo follow their doctor's instructions carefully and, if necessary, use available resources (such as group therapy methods) to ensure, as much as possible, regular and proper adherence to their treatment. In this context, treatment adherence refers to accepting and correctly following the doctor's instructions. Regular medication adherence, attendance at treatment sessions, dietary compliance, and performing physiotherapy exercises all play an important role in the patient's clinical improvement (31).

The second finding indicated that depressive symptoms had a significant association with HRQoL in women with vitiligo. This finding was consistent with the results of studies by Sakkaki and colleagues (29), and Skandari and co-workers (32). For instance, Sakkaki and colleagues (29) found a significant correlation between depression and HRQoL in women with cervical cancer.

This finding can be explained by the fact that depression is a common psychological problem that may also occur in women with vitiligo. Vitiligo is a skin condition that causes white patches to appear on the body. The physical changes caused by vitiligo can lead to a negative body image, which in turn can contribute to depression and anxiety. Additionally, the long-term use of nonsteroidal anti-inflammatory drugs (NSAIDs), used to treat vitiligo, may also play a role in the psychological changes experienced by individuals with this condition (33). Depression has a significant impact on HRQoL (34). Symptoms of depression include hopelessness, suicidal thoughts, anxiety, and decreased motivation for daily activities. These symptoms can directly impact HRQoL, leading to reduced satisfaction and function in daily life.

4.1. Limitations

The present study had several limitations. Firstly, the cross-sectional design restricted the ability to establish causal relationships between variables.

Secondly, the study sample was small and restricted to a specific geographic location, potentially limiting the generalizability of the findings to other populations. Furthermore, comorbidities such as diabetes mellitus (DM), hypertension (HTN), and other autoimmune diseases were not investigated, despite their potential influence on outcomes. Additionally, the study did not include demographic variables in regression modeling, which could have provided further insight. Future longitudinal studies are necessary to explore the temporal relationships between treatment adherence, depression, and health-related quality of life (HRQoL) in women with vitiligo. Larger, more diverse samples are needed to validate the findings and investigate the factors influencing treatment adherence and depression in this population.

5. Conclusions

The present study identified significant associations between treatment adherence, depression, and HRQoL in women with vitiligo. Positive treatment adherence was associated with improved HRQoL, while depression exhibited a negative association with HRQoL. These findings highlighted the crucial role of both treatment adherence and managing depression in promoting better health-related quality of life among women with vitiligo. Addressing co-occurring depression alongside treatment adherence may optimize overall well-being for women with this condition. Clinicians treating vitiligo should emphasize the importance of treatment adherence and its positive impact on HRQoL. Strategies to improve adherence, such as medication reminders and educational interventions, could be incorporated into treatment plans.

Ethical Approval

This study was approved by the Research Ethics Committee of the Ahvaz Branch, Islamic Azad University with the code of IR.IAU.AHVAZ.REC.1402.071. Also, written informed consent was obtained from the participants.

Authors' Contribution

Melika Noori: Substantial contributions to the conception and design of the work, acquisition, analysis, and interpretation of data for the work, and drafting the work. Reza Johari Fard: Contribution

to the design of the work, drafting the work and reviewing it critically for important intellectual content. All authors have read and approved the final manuscript and agree to be accountable for all aspects of the work, such as the questions related to the accuracy or integrity of any part of the work.

Conflict of interests: None declared.

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