

Original Paper

A Comparative Study on Internet Addiction in Iranian People With and Without Acne Vulgaris



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ABSTRACT

Introduction: Acne vulgaris is a skin disorder that affects the mental health and social relationships of individuals.

Objective: In this study, we aim to compare internet addiction between people with acne vulgaris (PwAV) and non-acne people.

Materials and Methods: This comparative/analytical study was performed on 114 PwAV referred to a dermatology clinic and 114 people without acne in Rasht, northern Iran. A demographic form and internet addiction test (IAT) were used to collect data. Chi-square test, independent t-test, and analysis of variance were used for statistical analysis. $P < 0.05$ was considered statistically significant.

Results: The mean age of PwAV and non-acne groups was 26.6 ± 5.56 and 27.53 ± 4.71 years, respectively. Regarding the severity of acne, 65.5% of patients had mild acne, 30.9% moderate acne, and only 3.6% had severe symptoms. The IAT score was significantly higher in the PwAV group than in the non-acne group ($P = 0.01$). In terms of severity, most individuals in both groups had a mild level of internet addiction, and there was no significant difference between the two groups. The hours of internet use per day were higher in the PwAV group than in the non-acne group, but the difference was not significant. In both groups, the IAT score was significantly higher in people < 26 years of age ($P = 0.02$ for PwAV; $P = 0.02$ for non-acne group) and single people ($P = 0.01$ for PwAV; $P = 0.03$ for non-acne people).

Conclusion: Internet addiction is higher in Iranian PwAV, but its severity is not significantly different between people with and without acne vulgaris. Young and single people (with or without acne vulgaris) have higher internet addiction.

Keywords:

Internet addiction, Acne vulgaris, Skin disorders

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Highlights

- The internet addiction test (IAT) score is significantly higher in people with acne vulgaris than in non-acne people.
- The severity of internet addiction in Iranian people with and without acne vulgaris was mild.
- Young and single people (with or without acne vulgaris) have higher internet addiction.

Plain Language Summary

Acne vulgaris is a common skin disorder with adverse effects on mental health and social relationships. The present study aimed to investigate the effect of acne vulgaris on internet addiction. In this regard, 114 patients with acne vulgaris and 114 people without acne vulgaris from northern Iran participated in this study. According to the results, the score of internet addiction was significantly higher in patients than in the healthy group. Both groups with and without acne vulgaris had a mild level of internet addiction. In both groups, young and single people had higher internet addiction scores.

Introduction

Acne vulgaris is a common skin disorder that affects more than 80% of people from adolescence to adulthood [1]. Physical appearance is important for self-esteem and social interactions. Based on studies, social appearance anxiety is higher in patients with acne vulgaris [2, 3]. This disorder is also related to social anxiety disorder and is a potential barrier to the formation of social relationships [4]. Several studies have shown that this skin disorder has adverse effects on social relationships and quality of life (QoL) in adolescents and adults [3, 5, 6]. Avoiding people and not being a social person can lead to depressive disorders, substance abuse, and alcohol consumption in patients with acne vulgaris (PwAV) [4]. In addition, the use of medications such as isotretinoin (a retinoid drug used to treat severe acne), can lead to depression and even suicide [7, 8]. Isotretinoin affects certain brain areas, such as the hippocampus, orbito-frontal cortex, and corpus striatum, which are involved in the pathophysiology of depression [9].

Recent studies have suggested that acne vulgaris is associated with behavioral addictions, such as internet addiction or problematic internet use [4, 10]. However, the scarce studies in this field make it difficult to make a definite conclusion. In recent years, the popularity of the internet has led to increased research on internet addiction [11]. Like other addictive disorders, internet addiction is diagnosed based on the diagnostic and statistical manual of mental disorders, fifth edition (DSM-5) criteria, including preoccupation with internet use, withdrawal symptoms, unsuccessful attempts to control

the internet use, tolerance, and continued overuse despite awareness of psychosocial harms, loss of interests in previous hobbies, use of the internet to escape or alleviate a negative mood, and deceived family members [12]. Internet addiction is more common in people who feel very lonely [13]. Young PwAV spend more time on the internet and social networks to reduce their loneliness [4].

Previous studies indicated that the adverse effects of acne vulgaris are associated with reduced QoL and psychological health in the patients [3, 14-17]. However, despite the importance of this issue, there are contradictory results regarding the relationship between acne vulgaris and demographic factors involved in internet addiction. Due to the research gap in explaining the relationship between internet addiction and acne vulgaris, the present study aimed to investigate internet addiction in PwAV from northern Iran in comparison with non-acne people.

Materials and Methods

This is a comparative/analytical study. The study population consists of PwAV referred to a dermatology clinic affiliated to [Guilan University of Medical Sciences](#) (GUMS), and people without acne vulgaris in Rasht, Iran, in 2021. According to the mean internet addiction scores in PwAV and healthy people reported in a previous study [4] (26.1 ± 8.1 and 24.3 ± 8.1 , respectively), and considering a 95% confidence interval and a test power of 80%, the sample size was determined as 114 per group (with and without acne vulgaris). For the patient group, the inclusion criteria were the diag-

nosis of acne vulgaris by a specialist, literacy to read and write, being able to understand and answer questions, age 12-45 years, and willingness to participate in the study. The healthy group was selected from the general population and patients' companions, whose inclusion criteria were no history of skin diseases, literacy to read and write, being able to understand and answer questions, age 12-45 years (considering that acne vulgaris is prevalent among adults and teenagers [18] and they are the common internet users [19]), and willingness to participate in the study. Incomplete questionnaires were excluded. The non-acne group was matched for demographic variables (age, gender, marital status, and level of education). For matching, those who were close to the patient in terms of demographic characteristics were selected from among the patients' companions. Sampling in two groups was done using a convenience sampling method. The sampling was performed from March to June 2021. Informed consent was obtained from all individuals, and they were given full explanations about the study objectives.

Data collection tools included three questionnaires: A demographic form surveying age, gender, marital status, educational level, severity of acne vulgaris (based on expert opinion), and hours of daily internet use; Young' internet addiction test (IAT) with 20 items and a one-factor structure using a five-point Likert scale from 1 (not at all) to 5 (always). The total score ranges from 20 to 100, with higher scores indicating psychological dependence on the internet. Based on the total scores,

a score of 20 to 30 indicates normal addiction; 31-49, mild addiction; 50-79, moderate addiction; and 80-100, severe addiction [20]. In the latest research on youth in Indonesia, its validity was confirmed [21]. The validity of the IAT has been confirmed for Iranian samples, and a Cronbach's α of 0.91 has been reported for its internal consistency [22]. In our study, the severity of acne vulgaris in patients was determined by an experienced dermatologist and classified into three categories: Mild, moderate, and severe.

Data analysis was performed in SPSS software, version 22. The data were described using frequency, percentage, Mean \pm SD. The normality of data distribution was determined using the Kolmogorov-Smirnov test. Chi-square, independent t-test, and Analysis of variance (ANOVA) were used for the analysis. $P < 0.05$ was considered statistically significant.

Results

Participants were two groups of PwAV ($n=114$) and non-acne ($n=114$), with a mean age of 26.6 ± 4.56 and 27.53 ± 4.71 , respectively. Table 1 presents the demographic information of the two groups. In the PwAV group, the severity of acne was mild in 75 patients (65.5%), moderate in 35 patients (30.9%), and severe in only four patients (3.6%).

Table 1. Demographic characteristics of participants in two groups

Variables		No. (%)	
		PwAV (n=114)	Non-acne (n=114)
Age (y)	≤ 26	62(54.5)	57(50)
	> 26	52(45.5)	57(50)
Gender	Male	62(54.5)	54(47.1)
	Female	52(45.5)	60(52.9)
Marital status	Single	87(76.4)	91(79.4)
	Married	27(23.6)	23(20.6)
Educational level	Lower than high school/diploma	29(25.5)	27(23.8)
	Associate degree/bachelor's degree	43(38.2)	37(32.4)
	Master's degree	42(36.3)	50(43.8)

PwAV: People with acne vulgaris.

Table 2. The mean IAT scores based on demographic characteristics for two study groups

Variables		PwAV		Non-acne	
		Mean±SD	P	Mean±SD	P
Age (y)	≤26	42.76±10.88	0.01*	39.82±10.24	0.01*
	>26	34.44±9.06		30.35±8.41	
Gender	Male	40.66±11.67	0.07*	36.12±10.44	0.28*
	Female	36.96±9.59		34.16±9.17	
Marital status	Single	43.25±9.78	0.01*	38.23±9.12	0.03*
	Married	34.91±9.18		33.76±9.45	
Educational level	Lower than high school/diploma	40.4±10.31	0.41**	35.5±12.09	0.9**
	Associate degree/Bachelor's degree	38.25±9.25		36.09±9.24	
	Master's degree	37.36±9.35		35.12±9.89	

Abbreviations: SD: Standard deviation; IAT: Internet addiction test; PwAV: People with acne vulgaris.

*Independent t-test, **ANOVA.

The Kolmogorov-Smirnov test results showed that the internet addiction variable in both groups had a normal distribution. Table 2 shows the mean IAT scores based on the demographic information for both groups. Based on the independent t-test, the IAT score in both groups was significantly higher in people <26 years of age and single people ($P<0.05$). In other words, being young and single was associated with internet addiction in both PwAV and non-acne groups.

The mean IAT scores of the PwAV and non-acne groups were 38.98 ± 10.84 and 35.08 ± 9.69 , respectively. Based on the results, the mean IAT score was significantly higher in the PwAV group than the non-acne group ($P<0.05$). In terms of severity, the internet addiction in both groups was mild (a score of 31-49), and there was no significant

difference between the two groups in terms of internet addiction severity. Also, there was no difference between the two groups in the daily internet use (Table 3).

Discussion

The present study was conducted to investigate internet addiction in PwAV compared to non-acne people in northern Iran. The results showed that people with and without acne vulgaris had a low level of internet addiction. The IAT score of PwAV was higher. Also, the severity of internet addiction was mild in more than 95% of people from both groups. Therefore, it can be said that they had internet addiction. "Young age" and "being single" were two important demographic factors that increased the probability of internet addiction in both groups.

Table 3. Comparison of the IAT score, internet addiction severity, and daily internet usage between two groups

Variables		Mean±SD/No.(%)		P
		PwAV	Non-acne	
IAT score		38.98±10.84	35.08±9.69	0.01*
Internet addiction severity	Mild	95(83.6)	97(85.3)	0.71**
	Moderate	19(16.4)	17(14.7)	
Daily internet use (h)		3.36±0.84	3.15±0.95	0.26*

SD: Standard deviation; IAT: Internet addiction test; PwAV: People with acne vulgaris.

*Independent t-test, **Chi-square test.

Previous studies have also shown that the internet addiction score was higher in PwAV [4, 10], and younger people with depressive symptoms were more likely to have internet addiction than adults [4]. A review study suggested that young and single people are more prone to internet addiction [23]. Although the results of the present study are similar to those of previous studies, some studies question the term “internet addiction” for PwAV and suggest that the use of the term “problematic internet use” is more acceptable.

In explaining the internet addiction in PwAV, it is necessary to consider the factors that mediate the relationship between this skin disorder and problematic internet use. As mentioned earlier, this skin condition can lead to decreased social relationships and increased loneliness. Therefore, people who feel lonely may use the internet for longer because they feel more comfortable in virtual environments and can find new friends on social media [4]. In a study, the relationship between acne and problematic internet use was explained based on the variables of social anxiety and reduced QoL [10]. Social anxiety in adolescents with acne leads to withdrawing from real life and an attempt to meet social needs on the internet. Although the Internet is a platform for meeting social needs, it can lead to problematic Internet use in adolescents [10]. There are limited studies on internet addiction in PwAV and mediating factors, which suggests the need for more studies in this field.

This research had some limitations. Since we used a cross-sectional design, the causality cannot be determined. Therefore, it is suggested that case-control or cohort methods be used in future studies to accurately examine the influencing factors and prove causality. Also, further studies using a larger sample size and with other demographic variables are recommended.

Overall, it can be concluded that the internet addiction score of Iranian PwAV is significantly higher compared to people without acne, but there is no significant difference between them in terms of addiction severity. Most people with or without acne vulgaris have a mild level of internet addiction. Young and single people (with or without acne vulgaris) have higher internet addiction scores. Further studies need to be conducted to provide more information on how to reduce problematic internet use and design appropriate interventions for PwAV.

Ethical Considerations

Compliance with ethical guidelines

The procedures in this study were in accordance with ethical principles and the Declaration of Helsinki. This study was approved by the Ethics Committee of [Guilan University of Medical Sciences](#), Rasht, Iran (Code: IR.GUMS.REC.1399.496). Informed consent was obtained from all individuals.

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Authors' contributions

Conceptualization, and writing: All authors; Methodology and supervision: Ali Pourramzani and Kaveh Gharaei Nejad; Data collection: Amir Mohammad Alinejad; Data analysis: Ali Pourramzani and Fatemeh Eslamdoust-Siahestalkhi.

Conflict of interest

The authors declared no conflict of interest.

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