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Assessment of Quality of Life in Acne Vulgaris using WHOQOL-BREF

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Abstract

Background: Acne is a common dermatological condition that significantly affects quality of life. The impact of acne extends beyond physical symptoms, influencing psychological, social, and environmental aspects of life. This study utilizes the World Health Organization Quality of Life-BREF (WHOQOL BREF) instrument to assess the quality of life in individuals with acne, aiming to understand the broader implications of this condition across various domains.

Materials and Methods: A hospital-based cross-sectional observational study was conducted, recruiting a total of 130 patients with acne vulgaris. QOL was measured using the WHOQOL-BREF questionnaire. The Nepali and English version of WHOQOL-BREF was used depending on the comfort of participants. The data was collected using a preformed proforma. The analysis of results was done using percentage, mean ± standard deviation, correlation coefficient where appropriate.

Results: A total of 130 participants with acne, female (65.4%) and male (34.6%) were included in the study. The mean scores for the WHOQOL BREF domains were as follows: Physical (61.52), Psychological (58.57), Social (61.23), and Environmental (60.95), with the psychological domain being mostly affected by acne. There was a weak negative correlation between acne severity and various domains.

Conclusion: The study highlights that acne affects various aspects of quality of life, with the most substantial impact seen in the psychological domain. Understanding the quality of life in individuals with acne is crucial for developing comprehensive treatment approaches that address not only the physical but also the psychological, social, and environmental factors associated with the condition. These findings suggest the importance of a holistic approach in managing acne, emphasizing the need for supportive interventions to improve overall well-being.

Key words: Acne Vulgaris, Quality of Life, Severity of Illness Index, Cross-Sectional Studies, Young Adult, WHO-QOL domains.

Introduction

Acne Vulgaris is a chronic inflammatory disease of the pilosebaceous unit. The clinical lesions are comedones, papules, pustules and nodules. The primary site of acne is face and to lesser degree,

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the back, chest and shoulders. Post inflammatory hyperpigmentation and scarring commonly occur.[1] The pathogenesis of acne is multi-faceted, the four key pathogenetic factors of acne have been recognized for decades which include follicular epithelial hyperproliferation and resultant follicular plugging, excess sebum, inflammation, and the presence and activity of Propionibacterium acnes.[2-4]

Although the course of acne may be limited in majority of patients, the sequelae can be lifelong with scar formation and psychological impairment, especially in young people.[5] There is generally a linear relationship between the clinical severity of acne and impairment of health-related quality of life, although impairment is also dependent upon a person's coping ability.[6] Acne leads to significant morbidity, including depression, anxiety and psychosocial stress affecting self-esteem.[7,8] Adolescence is a time of important physical, emotional and social development. With its high prevalence particularly in the adolescent population, facial acne has a considerable psychosocial impact on these patients by causing significant negative effects on self-image leading to feelings of isolation and loneliness.[9,10]

Quality Of life (QOL) impairment does not depend on severity of acne alone. Physical, psychological, social, and environment domains play an important role in impaired QOL. The WHO has developed a generic health-related QOL questionnaire – the WHOQOL. The WHOQOL-BREF is a self-reported questionnaire containing 26 items that make up the 4 domains of physical health (7 items), psychological health (6 items), social relationships (3 items), and environment (8 items); there also are 2 single questions regarding the overall perception of QOL and health.[11]

The purpose of this study is to understand how acne affects the quality of life of patients. This study also aims to identify the specific domains that are most affected by acne which can then be used to develop a holistic treatment approach that addresses physical symptoms of acne as well as the psychological, environmental and social impact.

Materials and Methods

A hospital-based cross-sectional study was conducted in the Department of Dermatology of National Academy of Health Sciences, Bir Hospital, from April 2023 to September 2024 after ethical approval was obtained from the Institutional Review Board of National Academy of Health Science, Bir hospital. Patients attending the dermatology outpatient department, were evaluated, and acne was diagnosed and graded by a dermatologist using the IADVL Acne Grading System.[12] Eligible participants were selected using a convenience sampling technique and were enrolled in the study. The minimum required sample size was calculated using the formula for estimating a proportion, with a prevalence of acne of 7.7%,[13] a 95% confidence interval, and a 5% allowable error, yielding a minimum sample size of 110. However, a total of 130 patients fulfilling the inclusion criteria were enrolled. Patients aged 16 years and above with clinically diagnosed acne vulgaris were included, while those who had received acne treatment within the past three months, those unable to read or comprehend the questionnaire, individuals with psychiatric illness under treatment, and those unwilling to participate were excluded. Written informed consent was obtained from all participants in either English or Nepali. Sociodemographic details, clinical history, and examination findings were recorded in a predesigned proforma.

Quality of life was assessed using the WHOQOL-BREF questionnaire in Nepali or English as preferred by the participant. The WHOQOL-BREF consists of 26 items covering four domains—physical health, psychological health, social relationships, and environmental health—along with two general items on overall quality of life and general health. Participants capable of reading and writing were encouraged to self-administer the questionnaire. Domain scores were calculated as the mean of item scores within each domain and transformed to a 0–100 scale using standard WHO guidelines, where higher scores indicate better quality of life.

Data were checked for completeness, entered into Microsoft Excel 2019, and analyzed using SPSS version 26.0. Descriptive statistics such as frequency, percentage, mean ± standard deviation, and median were used as appropriate, and the results were presented in tables, graphs, and charts. Spearman's rank correlation was used to study the correlation between QOL scores of each domain of WHOQOL-BREF and grade of acne.

Result

Out of 130 cases, 85 (65.38%) were females and 45 (34.62%) were males. Minimum age of patient was 16 and maximum age was 35 years with mean age of 22.45 ± 4.733 years. The age range 16-20 had the maximum number of cases which was 57 (43.85%). Maximum number of patients had grade II 74 (56.92%). Maximum number of male (48.88%) and female (61.18%) presented with grade II acne. Most of the cases were students 89 (68.5%). Maximum number of cases 47 (36.15%) relate menstruation as aggravating factors, 33 (25.38%) relate diet and 29 (22.31%) relate others.

The WHOQOL-BREF mean scores were notably lower across all domains. The scores for each domain were: Physical (61.52), psychological (58.57), social (61.23) and environmental (60.95). Out of four domains, the psychological domain was lowest which implies psychological aspect is most affected in acne. (Table 1)

Table 1: Mean transformed score of WHOQOL domain

WHOQOL DOMAIN	Transformed score (0-100) (mean)	Standard deviation (SD)
Physical	61.52	± 12.65
Psychological	58.57	± 14.05
Social	61.23	± 17.49
Environment	60.95	± 13.82

While comparing the mean scores of four quality of life domains: Physical, Psychological, Social, and Environmental across different grades of acne (I to IV). Cases with grade I acne have relatively high scores in all domains as compared to other with physical and psychological impacts being minimal, as indicated by scores of 60.61 and 60.72, respectively. (Table 2)

As acne severity increases to Grade III, there is a noticeable decline in the physical (58.89) and psychological (57.39) domains, indicating a moderate impact in these areas. For Grade IV acne, the scores are the lowest in the physical (55.03) and psychological (55.07) domains, highlighting a more impact on physical and psychological aspect of life.

Overall, as acne severity increases, there was a trend of declining quality of life, particularly in the physical and psychological domains, with social and environmental domains showing more variability.

Table 2: Comparison of grades of acne with WHOQOL domains

Acne grade	Grade I	Grade II	Grade III	Grade IV	Correlation coefficient, p value
Domain mean					
Physical domain	60.61	63.57	58.89	55.03	r = – 0.070 (p = 0.15)
Psychological	60.72	58.88	57.39	55.07	r = – 0.067 (p=0.44)
Social	59.39	63.28	57.43	60.00	r = – 0.070 (p=0.43)
Environmental	58.89	61.93	62.00	54.04	r = – 0.056 (p=0.53)

As the acne grade increases from I to IV, there was a noticeable decline in the mean psychological domain scores.

In analyzing the correlation between acne grade and domain scores, weak negative correlation was found between the two variables, however, this was not statistically significant. In analyzing the correlation between acne grade and psychological domain scores, there was weak negative linear correlation between the two variables. The negative value suggests that as the severity of acne increases, there is a slight tendency for the WHOQOL domains scores to decrease. This result suggests that there may be some association, between acne severity and domains of QOL.

On evaluation of the percentage of negative feelings such as blue mood, despair, anxiety, and depression among acne cases in response to Question 26 which is one of the facets of psychological domain. (Figure 1) The highest percentage, 52.31%, reported experiencing these negative feelings as "Quite often". This distribution highlights that a significant proportion of acne sufferers frequently experience negative psychological effects, which could reflect the emotional burden associated with the condition.

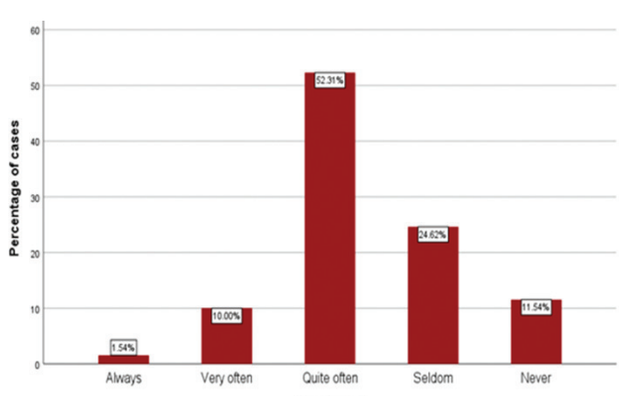

Figure 1: Bar diagram showing response of question 26 among acne cases

On correlation analysis between question 26 (facet-negative feeling) and psychological domain, the Pearson correlation coefficient of r = 0.422 was found indicating a moderate positive correlation between these two variables. This suggests that higher levels of negative feelings are associated with higher impact in the psychological domain, reflecting a decline in psychological well-being. The significance level was noted at p = 0.000, which indicate that this correlation is statistically significant at the 0.01 level.

Discussion

Acne vulgaris is a common dermatological condition that significantly affects the quality of life (QoL), particularly among adolescents and young adults. It is well established that acne impacts self-esteem, social interactions, and emotional well-being, and these effects may be further exacerbated by scarring.

In this hospital-based cross-sectional study of 130 patients with acne vulgaris, a female predominance (65%) was seen, consistent with findings from Hosthota et al. and Andri et al.14,15 The mean age of participants was 22.45 ± 4.73 years, similar to studies by Hosthota et al., Ng et al. and Morshed et al., 14,16,17 Most patients belonged to the younger age group, reflecting heightened concern regarding appearance and social interactions during early adulthood. Grade II acne was the most common presentation, aligning with findings from Hosthota et al. and Deuri et al.[14,18]

Among females, 54.12% reported premenstrual flare, consistent with hormonal influence reported by Stoll et al.19 Dietary factors aggravated acne in 25.38% of cases, comparable to study by Aryal et al. and Gupta et al.[8,20]

In WHOQOL-BREF analysis, the psychological domain was the most affected, with the lowest mean score. This aligns with studies by Ng et al., McGrath et al., and Nijhawan et al.[16,21,22] who also reported significant psychological impact. A weak negative correlation (r = –0.091) between acne severity and psychological scores was observed, similar to trends reported by Kamamoto et al.[23] although stronger associations have been noted in other populations.

Physical, social, and environmental domains also showed weak negative correlations with acne severity (r = –0.142, –0.055, –0.046 respectively). While physical and social impacts did not follow a linear pattern, severe acne was associated with lower environmental scores, which may relate to reduced access to opportunities or perceived social limitations. Comparable observations have been noted by Hosthota et al. and Ghaderi et al. 14, 24 Overall, acne vulgaris demonstrates a measurable impact on multiple QoL domains, with psychological effects being the most prominent. The weak correlation between acne severity and QoL domains highlights that even mild to moderate acne can significantly affect patients' well-being.

Although impairment in quality-of-life domains was observed, the correlation between acne severity and quality of life scores was weak. This may be explained by the fact that quality of life is influenced not only by clinical severity but also by subjective perception, psychological factors, and social context. Patients with mild acne may experience significant distress due to cosmetic concerns, while some with more severe acne may have better coping mechanisms. Additionally, acne grading is an objective clinical assessment, whereas quality of life measures is subjective, which may contribute to the weak correlation. Also, this study used convenience sampling, which may introduce selection bias. As participants were recruited from a hospital setting, the findings may not be fully representative of the general population.

Conclusion

Acne vulgaris affects various aspects of quality of life, with more impact on the psychological domain. Understanding the relationship between acne severity and quality of life is essential for developing comprehensive treatment strategies. In addition to addressing the physical manifestations of acne, early identification of psychological distress, patient education, and empathetic physician–patient communication is crucial in reducing its psychosocial burden. Integrating psychological assessment tools, providing reassurance regarding disease course, and considering timely referral for counseling when needed can help to reduce the negative psychological impact. Moreover, further research is needed to deepen our understanding regarding how acne severity correlates with quality of life, facilitating the establishment of stronger correlation between these variables.

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