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Original Article

Mental Health and Quality of Life Among Iranian Women with Anogenital Warts: A Cross Sectional Case-Control Study

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Abstract

Background: Anogenital warts may impair health-related quality of life (HRQoL) and mental health, yet data in Iranian women are scarce. We compared HRQoL and mental health between women with and without anogenital warts in Babol, Iran.

Methods: This cross-sectional case–control study (February–September 2022) recruited a single-centre convenience sample of 108 women aged 18–65 years (54 dermatologist-confirmed cases; 54 controls without current or prior warts). Participants completed the 36-Item Short Form Health Survey (SF-36) and the Brief Symptom Inventory-53 (BSI-53). Analyses were conducted in IBM SPSS Statistics (version 22) using two-sided tests; $p < 0.05$ was considered statistically significant.

Results: Mean age was similar in cases and controls (30.57±7.69 vs 31.74±9.62; p=0.488). Compared with controls, cases had lower SF-36 physical functioning (p=0.014), role limitations due to physical health (p=0.036), bodily pain (p=0.001), and Physical Component Summary scores (p=0.012). BSI-53 subscales and total score did not differ between groups (total p=0.801). Within cases, HPV-risk groups differed for SF-36 Bodily Pain and BSI-53 Depression (omnibus p=0.013 and 0.049). High-risk women had worse pain (59.25±23.95 vs 77.50±16.29) and higher Depression scores (8.23±6.36 vs 2.70±3.30) than low-risk women (Bonferroni p=0.048 and 0.044). Lower Bodily Pain scores indicate more severe pain.

Conclusion: Anogenital warts were associated with poorer physical HRQoL, while general psychological symptom scores were comparable between groups. High-risk HPV status may help identify women who could benefit from pain-focused management and brief distress screening; longitudinal multicentre studies are warranted.

Keywords: Papillomavirus Infections, Quality of Life, Mental Health, Women, Iran

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Introduction

Human papillomavirus (HPV) is among the most common sexually transmitted infections. To date, over 200 genotypes have been identified, approximately 40 of which affect the genital tract [1]. HPV genotypes are broadly classified as low-risk types, typically linked to benign lesions (including HPV 6 and 11, which cause genital warts), and high-risk types particularly HPV-16 and HPV-18 associated with cervical and other anogenital malignancies [2].

HPV prevalence varies based on population characteristics and screening contexts. In the Middle East, a recent systematic review reported a prevalence rate of %14.9 among women undergoing cervical screening [3]. In Iran, a national systematic review estimated an overall HPV prevalence of %23 among Iranian women [4]. Additionally, regional laboratory data from southern Iran indicated a prevalence as high as %32.9, with a notable presence of high-risk genotypes, particularly HPV-16 [5].

Anogenital warts (condylomata acuminata) are benign lesions that typically present as raised papules or warty growths and may cause itching, pain, bleeding, or discomfort [6]. Although not malignant, their recurrence and ongoing treatment needs can impose a notable care burden and may negatively affect health-related quality of life (HRQoL) [7]. Patient-reported outcomes highlight pain and psychological distress particularly anxiety and depressive symptoms as key contributors to reduced HRQoL, especially in more severe or recurrent disease [8]. Beyond physical symptoms, qualitative research highlights psychosocial consequences such as stigma, fear of transmission, and changes in intimacy and sexual adjustment [9]. Studies using generic quality-of-life instruments also report impairment in pain/discomfort and psychological domains among affected patients [8, 10]. Collectively, these findings indicate that genital warts are not merely a dermatologic manifestation of HPV but a condition with physical, sexual, and psychosocial sequelae that merit systematic assessment [6].

HPV diagnosis and follow-up may affect psychological well-being, although findings are inconsistent across studies [11]. Some reports describe increased anxiety/depressive symptoms after HPV-related testing and disclosure of results [12]. Other studies suggest that anxiety and related outcomes may not change substantially over time following HPV screening [13]. These mixed findings highlight the need for studies using validated mental health instruments in clinically confirmed populations and in under-studied regional settings [11]. Although HPV epidemiology in Iran has been increasingly documented, research specifically examining mental health and HRQoL among Iranian women with clinically diagnosed anogenital warts remains limited, particularly in northern Iran [4]. Accordingly, this study aimed to compare mental health and HRQoL between women with clinically diagnosed anogenital warts and women without current or prior anogenital warts in Babol, Iran.

Methods

Ethical considerations

The study was approved by the Ethics Committee of Babol University of Medical Sciences (approval code: MUBABOL.HRI.REC.1400.199). All participants provided written informed consent, and confidentiality was maintained in accordance with the Declaration of Helsinki.

Study Design and Population

A cross-sectional case–control study was conducted between February and September 2022 at the dermatology clinic of Yahya Nejad Hospital in Babol, Iran. Participants were recruited consecutively during the study period, and all outcomes were obtained at a single time point; no longitudinal follow-up was performed.

Participants were recruited using convenience sampling from women attending the dermatology clinic during the study period. Diagnosis was confirmed by an attending dermatologist and clinical characteristics including treatment modality were recorded. A total of 108 women aged 18–65 years were enrolled, including 54 cases with anogenital warts and 54 controls without a current or prior history of anogenital warts. Controls were recruited from non-patient companions of clinic attendees during the same period and were confirmed to be wart-free based on self-report and clinical screening.

Eligible participants were women aged 18–65 years. Cases were women with anogenital warts confirmed by a dermatologist, whereas controls had no current or previous history of anogenital warts. Participation was voluntary. General exclusion criteria (applied to both groups) were pregnancy; a history of major psychiatric disorders or current use of psychotropic medications; cognitive impairment or inability to complete the questionnaires; and incomplete questionnaire responses. In addition, women whose genital lesions were clinically suggestive of non-HPV causes (e.g., inflammatory or other infectious conditions) were not included in the case group.

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Sample size estimation

The sample size was calculated to compare two independent means (cases vs controls), using SF-36 Vitality as the primary outcome. Based on prior data (mean±SD: 55.54±15.21 vs 63.91±15.86), the expected mean difference was 8.37 points [14]. Assuming a two-sided α of 0.05 (Z = 1.96) and 80% power (Z = 0.84), the required sample size was estimated using the standard formula for comparing two independent means, resulting in 54 participants per group; therefore, a total of 108 women were enrolled.

$$n = \frac{(Z_{\alpha/2} + Z_{\beta})^2(\sigma_1^2 + \sigma_2^2)}{(\mu_1 - \mu_2)^2}$$

Data Collection Tool and Variables

A structured checklist was used to collect demographic variables, including age, marital status, educational level, and occupation. Clinical information (anatomical site of warts, treatment modality, and HPV risk category) was recorded by a dermatologist based on medical records and clinic documentation.

Brief Symptom Inventory (BSI-53)

The Brief Symptom Inventory-53 (BSI-53), a short form of the Symptom Checklist-90-Revised (SCL-90-R), comprises 53 items assessing nine symptom dimensions: somatization, obsessive–compulsive symptoms, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism [15]. Items are rated on a five-point Likert scale ranging from 0 ("not at all") to 4 ("extremely"). In addition to subscale scores, a total BSI-53 score was calculated as the sum of item scores (higher scores indicate greater symptom burden). When BSI raw scores are converted to standardized T-scores using normative data, a commonly used clinical case-rule defines clinically significant distress as a Global Severity Index (GSI) T-score ≥63 or a T-score ≥63 on at least two symptom dimensions [16].

Reported correlations between BSI-53 and SCL-90-R subscales range from 0.92 (psychoticism) to 0.98 (paranoid ideation) [17]. In an Iranian validation study, internal consistency was acceptable to good, with Cronbach's alpha values ranging from 0.71 to 0.85 across subscales [18].

Quality of life (SF-36)

Health-related quality of life was assessed using the 36-Item Short Form Health Survey (SF-36), which measures eight domains: physical functioning; role limitations due to physical problems (role physical); role limitations due to emotional problems (role emotional); vitality; mental health; social functioning; bodily pain; and general health. SF-36 item responses were transformed into domain-specific scores ranging from 0 to 100. In general, higher scores indicate better health-related HRQoL. Domain scores were analyzed separately. Physical and Mental Component Summary scores were calculated by summing the four domains corresponding to each component. Notably, for the Bodily Pain domain, higher scores specifically reflect less pain (i.e., lower pain severity). No overall SF-36 total score was calculated or used for inference [19].

The Persian version of the SF-36 has demonstrated acceptable reliability, with reported Cronbach's alpha coefficients ranging from 0.76 to 0.91, and its content validity has been confirmed by expert review [20]. The original SF-36 also shows high internal consistency (Cronbach's alpha 0.93) [19].

Bias control

Self-reported measures may be subject to social desirability bias; therefore, questionnaires were completed anonymously to reduce response bias.

Data analysis

Data were analysed using IBM SPSS Statistics (version 22; IBM Corp., Armonk, NY, USA). Normality was assessed using the Shapiro–Wilk test and visual inspection of histograms. Continuous variables were compared using independent-samples t tests, or Mann–Whitney U tests when distributions were non-normal. Categorical variables were compared using chi-square tests or Fisher's exact tests, as appropriate. Comparisons across HPV risk categories (low, moderate, high) were performed using one-way ANOVA, or Kruskal–Wallis tests when appropriate; when the omnibus test was significant, Bonferroni-adjusted post-hoc pairwise comparisons were conducted. Statistical significance was set at $p < 0.05$ (two-sided). Analyses were conducted on complete cases; questionnaires with substantial missing data were excluded.

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Results

In this cross-sectional case–control study comparing mental health and health-related quality of life between women with and without anogenital warts, 108 women were enrolled (54 cases with dermatologist-confirmed anogenital warts and 54 controls without current or prior anogenital warts).

Most articipants were married, and the majority had education above the diploma level. Baseline sociodemographic characteristics were generally comparable between groups; however, occupational status differed significantly between cases and controls (Table 1). Detailed baseline characteristics are shown in Table 1.

Table 1: Baseline sociodemographic characteristics of the participants

Variable	Total (N=108)	With anogenital warts (N=54)	Without anogenital warts (N=54)	p value
Age (years), Mean ± SD	31.15 ± 8.70	30.57 ± 7.69	31.74 ± 9.62	0.488
Duration of marriage (years), Mean ± SD	6.66 ± 7.91	6.87 ± 7.32	6.44 ± 8.52	0.781
Marital status, n (%)				0.477
Single	37 (34.3)	16 (29.6)	21 (38.9)	
Married	65 (60.2)	34 (63.0)	31 (57.4)	
Widowed	6 (5.6)	4 (7.4)	2 (3.7)	
Occupation, n (%)				0.002**
Housewife	54 (50.0)	35 (64.8)	19 (35.2)	
Employed	54 (50.0)	19 (35.2)	35 (64.8)	
Education level, n (%)				0.193
Under-diploma	17 (15.7)	12 (22.2)	5 (9.3)	
Diploma	29 (26.9)	14 (25.9)	15 (27.8)	
Above-diploma	62 (57.4)	28 (51.9)	34 (63.0)	

Values are presented as mean ± SD or n (%). Two-sided p values were obtained using the independent-samples t test (continuous variables) and the chi-square test (categorical variables). Statistical significance is defined as *p < 0.05; **p < 0.01

Among women with anogenital warts, the mean duration of infection was approximately 9.5 months. Most patients had received cryotherapy (%88.9), and more than half were classified as low-risk HPV (%55.4). Clinical characteristics of the case group are summarized in Table 2.

Between-group comparisons (Table 3) showed that women with anogenital warts had significantly lower SF-36 scores in selected physical health–related domains, including physical functioning (p = 0.014), role limitations due to physical health (p = 0.036), bodily pain (p = 0.001), and the Physical Component Summary (p = 0.012). No statistically significant between-group differences were observed in BSI-53 subscale scores or total score (all p > 0.05).

As shown in Table 4, one-way ANOVA indicated significant differences across HPV risk categories for SF-36 Bodily Pain (p = 0.013) and BSI-53 Depression (p = 0.049).

Table 2: Clinical characteristics of women with anogenital warts (n = 54)

Variable	N (%)
Treatment method	
Cryotherapy	48 (88.9)
Cautery	6 (11.1)
HPV risk category	
Low risk	31 (55.4)
Moderate risk	13 (24.1)
High risk	10 (18.5)
Duration of infection (months), Mean ± SD	9.48 ± 8.81

Values are presented as n (%) unless otherwise indicated (Mean ± SD).

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Table 4 reports the omnibus (overall) ANOVA p values, whereas Bonferroni-adjusted pairwise p values are reported in the Results text. To keep the presentation concise and avoid overloading the table with multiple pairwise comparisons, adjusted p values are provided in the narrative rather than adding additional columns or a separate table. Bonferroni-adjusted post-hoc comparisons showed that the high-risk subgroup had lower Bodily Pain scores than the low-risk subgroup (59.25 ± 23.95 vs 77.50 ± 16.29; adjusted $p = 0.048$) and higher Depression scores (8.23 ± 6.36 vs 2.70 ± 3.30; adjusted $p = 0.044$), indicating more severe pain (lower SF-36 Bodily Pain scores) and greater depressive symptoms in the high-risk subgroup.

Table 3: SF-36 and BSI-53 scores in women with anogenital warts and controls

Domain	With anogenital warts (N = 54), Mean ± SD	Controls (N = 54), Mean ± SD	P- value
Quality of life (SF-36)			
Physical functioning	71.20 ± 26.58	82.36 ± 22.56	0.014*
Role limitations due to physical health	58.33 ± 35.02	71.70 ± 31.78	0.036*
Role limitations due to emotional problems	58.06 ± 39.49	52.20 ± 42.11	0.463
Vitality (energy/fatigue)	55.09 ± 15.49	58.77 ± 15.68	0.242
Mental Health	61.70 ± 12.66	60.78 ± 15.75	0.654
Social functioning	62.73 ± 18.08	58.73 ± 23.84	0.294
Bodily pain	70.19 ± 21.68	84.81 ± 21.65	0.001**
General health	57.96 ± 17.63	52.55 ± 19.70	0.144
Physical component summary	257.69 ± 75.59	291.42 ± 64.77	0.012*
Mental component summary	237.59 ± 64.65	230.48 ± 76.25	0.638
Mental health (BSI-53)			
Somatization	5.75 ± 6.34	5.87 ± 4.97	0.269
Obsessive–compulsive	6.89 ± 5.75	5.59 ± 4.69	0.320
Interpersonal sensitivity	3.89 ± 3.58	4.02 ± 3.71	0.924
Depression	6.79 ± 6.31	5.06 ± 4.72	0.175
Anxiety	6.00 ± 5.08	5.46 ± 4.63	0.505
Hostility	3.77 ± 3.25	3.44 ± 3.06	0.607
Phobic anxiety	2.15 ± 2.57	2.67 ± 3.14	0.515
Paranoid ideation	5.11 ± 4.95	4.74 ± 4.31	0.953
Psychoticism	4.25 ± 4.84	3.69 ± 3.72	0.980
Total BSI-53 score	47.77 ± 41.22	43.78 ± 34.13	0.801

Values are presented as mean ± SD. Two-sided p values were obtained using the independent-samples t test. Abbreviations: SF-36, Short Form-36; BSI-53, Brief Symptom Inventory-53. Statistical significance is defined as *$p < 0.05$; **$p < 0.01$.

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Table 4: SF-36 and BSI-53 domain scores by HPV risk category among women with anogenital warts

	Variable	Low risk (N=31), Mean ± SD	Moderate risk (N=13), Mean ± SD	High risk (N=10), Mean ± SD	P-value
Quality of life (SF-36)	Physical Functioning	77.10 ± 24	62.69 ± 29.83	64 ± 27.76	0.167
	Role limitations due to physical health (Role Physical)	64.52 ± 34.62	53.85 ± 43.11	45 ± 19.72	0.273
	Role limitations due to emotional problems (Role Emotional)	55.95 ± 39.81	76.92 ± 39.40	40.10 ± 30.72	0.075
	Vitality (Energy/Fatigue)	56.77 ± 13.69	54.62 ± 16.38	50.50 ± 19.92	0.543
	Mental Health	61.16 ± 12.65	64.62 ± 14.50	59.60 ± 10.57	0.609
	Social functioning	63.71 ± 16.25	62.50 ± 24.47	60 ± 15.36	0.857
	Bodily Pain	77.50 ± 16.29	61.15 ± 25.63	59.25 ± 23.95	0.013*
	General health	54.03 ±15.83	61.92 ± 19.42	53.25 ± 19.49	0.151
	Physical Component Summary	273.15 ± 69.26	239.62 ± 99.88	210.20 ± 53.32	0.217
	Mental Component Summary	237.59 ± 59.70	258.65 ± 79.44	230.48 ± 76.25	0.207
Mental health (BSI-53)	Somatization	3.70 ± 6.46	6.31 ± 6.43	6.20 ± 6.34	0.532
	Obsessive-compulsive	3.50 ± 4.60	7.69 ± 6.94	7.61 ± 5.20	0.116
	Interpersonal sensitivity	2.10 ± 3.14	3.62 ± 3.52	4.61 ± 3.56	0.142
	Depression	2.70 ± 3.30	6.69 ± 6.66	8.23 ± 6.36	0.049*
	Anxiety	3 ± 3.80	7 ± 6.19	6.58 ± 4.61	0.105
	Hostility	2.30 ± 3.23	3.92 ± 3.42	4.32 ± 3.17	0.239
	Phobic anxiety	0.80 ± 1.87	2.08 ± 2.25	2.74 ± 2.81	0.118
	Paranoid ideation	2.30 ± 4.34	4.69 ± 5.28	6.32 ± 4.68	0.072
	Psychoticism	1.60 ± 2.98	5.15 ± 5.69	4.81 ± 4.72	0.143
	Total Score	23.10 ± 29.41	51.08 ± 46.70	55.13 ± 39.62	0.093

Values are presented as mean ± SD. Omnibus p values are from unadjusted one-way ANOVA; when the omnibus test was significant, Bonferroni-adjusted post-hoc pairwise comparisons were conducted and the adjusted p values are reported in the Results text. Abbreviations: SF-36, 36-Item Short Form Health Survey; BSI-53, Brief Symptom Inventory-53. Statistical significance is defined as *$p < 0.05$ and **$p < 0.01$.

Discussion

The present study found that women with anogenital warts, compared with women without a history or clinical evidence of anogenital warts, had lower scores on the physical domains of the SF-36, including physical functioning, role limitations due to physical problems, bodily pain, and the Physical Component Summary score. In contrast, no significant between-group differences were observed in the BSI-53 total score or its subscales. In within-group analyses based on HPV risk classification, the high-risk HPV subgroup reported more severe pain (i.e., lower SF-36 Bodily Pain scores) and higher depressive symptoms (i.e., higher BSI-53 Depression scores) than the low-risk subgroup. Overall, these findings suggest that the disease burden in this sample was expressed primarily through functional limitations and physical pain/discomfort, whereas general psychological symptoms were less evident at the between-group level.

Regarding quality of life, the observed physical impairments align with evidence identifying pain/discomfort as a key contributor to reduced QoL among individuals with anogenital warts [8, 10]. This concordance may reflect the fact that pain and discomfort are immediate, salient symptoms that directly restrict daily functioning and are readily captured by generic HRQoL tools. Other studies suggest

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that poorer QoL is associated with behavioural and clinical indicators of lesion burden (e.g., duration, number, and size of lesions), which may translate into persistent physical discomfort, more frequent health-care utilisation, and greater role limitations [21, 22]. Taken together, variations across studies may partly reflect differences in clinical severity, recurrence patterns, or symptom duration, which can shift the magnitude and breadth of HRQoL impairment.

Nevertheless, not all studies have reported uniform reductions in generic HRQoL domains, and some have suggested that generic tools may under-capture condition-specific impacts [14]. Differences across studies may reflect variation in disease severity, recurrence, cultural context, and sampling strategy, as well as the limited sensitivity of generic instruments for capturing anogenital warts–specific impacts [23]. In particular, generic instruments may fail to fully reflect psychosexual concerns, stigma-related distress, and relationship strain that are frequently described by patients [9]. Thus, discrepancies may arise when psychosexual or stigma-related burdens are prominent but not fully represented in generic HRQoL scores.

In the mental health domain, the absence of between-group differences in BSI-53 scores does not necessarily indicate a lack of psychosocial consequences. Rather, it may indicate that the psychological impact of anogenital warts is not consistently captured by general symptom inventories and may be more salient in domains such as sexual function, self-image, and relationship quality [24].

Qualitative evidence also indicates that experiences such as shame, stigma, fear of transmission, and changes in intimacy can be highly salient in daily life and clinically meaningful, even when they are not captured as high scores on generic symptom inventories [9].

A systematic review has also highlighted that HPV diagnosis and related clinical pathways (including follow-up and treatment procedures) can affect mental health and sexual functioning, supporting the relevance of psychosexual assessment alongside generic symptom screening [11]. Therefore, differences between studies may reflect whether the assessment emphasises general symptom distress (e.g., BSI-53) versus condition-specific psychosocial and sexual outcomes. Nevertheless, some studies have reported poorer psychological outcomes among individuals affected by HPV-related conditions, including higher anxiety and depressive symptoms [8, 10, 14].

In contrast to those reports, we found no significant between-group differences in BSI-53 scores. This may reflect methodological and contextual factors, including strict exclusion criteria, the use of companions of clinic attendees as controls, and the limited sensitivity of a general symptom inventory to HPV-specific concerns (e.g., stigma, worries about transmission, and relationship-related strain) [9, 11]. HPV-related distress may be most pronounced around the time of diagnosis and early follow-up and therefore may not be detected as a stable between-group difference in a single time-point assessment. Additionally, broader HPV-related literature suggests that HPV diagnosis and follow-up can trigger short-term anxiety and distress in some patients, although long-term effects may vary by context and clinical pathway [25].

Within the case group, women classified as high-risk HPV reported lower SF-36 Bodily Pain scores (indicating more severe pain) and higher BSI-53 Depression scores than those in the low-risk category. This within-case pattern is clinically meaningful and may reflect perceived disease threat, greater worry about future outcomes [26], or differences in disease burden and recurrence concerns [27]. Other data indicate that markers of disease burden are associated with reduced QoL, with lesion duration, number, size, and severity consistently related to poorer QoL outcomes [10, 21]. Although HPV risk classification is primarily oncologic, evidence suggests that high-risk HPV infection can be associated with substantial psychosocial burden, including stigma and maladaptive cognitive processes such as rumination, and recurring infection has been linked to higher stigma [28, 29]. Accordingly, women classified as high-risk may report greater concern about future outcomes and recurrence, which may be reflected in worse pain and higher depressive symptoms. These findings support a bio–psycho–social approach in which psychosocial assessment and appropriate support complement lesion-directed management, particularly for higher-risk subgroups [28].

In routine practice, the management of women with anogenital warts may be enhanced by addressing pain-related functioning alongside lesion-directed treatment. In our within-case analyses, the high-risk HPV subgroup reported worse bodily pain scores and higher depressive symptom scores than the low-risk subgroup; therefore, clinicians may consider brief, targeted assessment of distress particularly depressive symptoms when patients report substantial pain or express concerns about recurrence. Such an approach may help identify individuals who could benefit from supportive counselling and, when indicated, referral for further psychological evaluation.

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This single-centre, convenience-sampled study from one hospital in Babol may have limited generalisability. Its cross-sectional design precludes causal inference. Occupational status differed between groups, and residual confounding may remain. Outcomes were self-reported, which may introduce information and social-desirability bias in this stigmatised condition. Finally, recruiting controls from companions of clinic attendees may have attenuated between-group differences in mental health.

Conclusion

Women with anogenital warts reported poorer physical aspects of HRQoL, particularly pain-related and role-functioning domains, compared with controls. Although overall psychological symptom scores did not differ between groups, differences within the case group by HPV risk category suggest that clinical risk perceptions and disease-related factors may shape specific psychological responses. These findings highlight the importance of integrating HRQoL assessment and targeted psychosocial support into routine care for women with anogenital warts. Future longitudinal and multicentre studies with condition-specific psychosocial measures are warranted to clarify directionality and improve generalisability.

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Data availability

The datasets generated and/or analysed during the current study are not publicly available due to ethical restrictions and participant privacy. Data may be made available upon reasonable request, subject to approval by the Research Ethics Committee of Babol University of Medical Sciences. Requests should be directed to: research@mubabol.ac.ir.

Author's contribution

Conceptualization: A.Sh.K.; Methodology: M.E.H., P.Gh., S.J.K.; Investigation: M.E.H.; Validation: M.E.H.; Statistical analysis: H.Gh.; Writing – original draft preparation: M.E.H., H.Gh. (Methods and Results); Writing – review and editing: M.E.H., P.Gh., S.J.K., H.Gh., A.Sh.K.; Supervision: A.Sh.K. All authors read and approved the final version of the manuscript.

Conflicts of interest

The authors declare that there is no conflict of interest regarding the publication of this paper.

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Ethical Statement

The study was approved by the Ethics Committee of Babol University of Medical Sciences (approval code: MUBABOL.HRI.REC.1400.199) and was conducted in accordance with the Declaration of Helsinki.

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