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Mediating Role of Psychological Resilience on Illness Perception in Dental Patients

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Abstract

Aim: This study aimed to explore how dental patients perceived illness and assessed the psychological resilience during dental treatment.

Methods: This cross-sectional study was carried out with 360 dental patients. Data were collected by a questionnaire regarding Illness Perception Revised for Oral Health (IPQ-R-OH), Brief Resilience Scale (BRS), self-reported oral health status (good vs poor), levels of dental pain (absent vs present) and dental anxiety (0 point: no anxiety-10 points: severe anxiety). Self-reported general health status (0: poor health-100 points: excellent health) were assessed by visual analogue scale.

Results: All IPQ-R-OH subscale scores were adversely affected in the presence of "Poor Oral Health and Dental Pain" ($p<0.05$). The females exhibited higher score in the IPQ-R-OH Emotional Representations (18.65±7.16 vs.14.27±5.48) and lower scores of BRS (3.10±0.87 vs.3.50±0.69) and general health status (68.69±19.13 vs.74.75±18.64) than males ($p<0.05$). In the parallel mediation analysis, the IPQ-R-OH Emotional Representations score was positively associated with higher dental anxiety scores and negatively associated with lower BRS scores among females ($p<0.05$). In the simple mediation analysis, the elevated IPQ-R-OH Emotional Representations score was directly mediated by "Poor Oral Health and Dental Pain" in line with decrease in the BRS score, indirectly ($p<0.05$). IPQ-R-OH was found to be reliable and valid tool for the screening of illness perceptions.

Conclusion: Patient empowerment strategies regarding gender, dental pain, poor oral health and dental anxiety must be developed to improve the IPQ-R-OH Emotional Representations.

Keywords: Illness Perception, Oral Health, Dental Pain, Dental Anxiety, Psychological Resilience

INTRODUCTION

Oral diseases are among the most prevalent non-communicable diseases (NCDs), posing a significant public health challenge worldwide. Their high incidence rate, widespread prevalence and substantial treatment costs make oral health a vital focal point in healthcare planning and resource allocation (Donoff and Daley, 2020; Dye et al., 2007; Richmond et al., 2007).. Close

associations are available among oral health, psychological well-being, work productivity and dental anxiety (Baiju et al., 2017; Hajek et al., 2022; Karacayli et al., 2022; Mumcu et al., 2017).

Since psychological resilience supports coping strategies and recovery, a patient's personal beliefs and emotional responses to their symptoms may influence the assessment of outcomes in the management of chronic diseases (Mumcu et al., 2019; Sevimli et al., 2024; Yankouskaya et al., 2019). In this perspective, psychological resilience is a new concept for disease management (Mumcu et al., 2019).

Another point is the perception of illness used in disease management. In this context, the Illness Perception Questionnaire-Revised (IPQ-R) is widely used in chronic disease management. It reflects how patients interpret their conditions and form beliefs about its causes, consequences, controllability (Mumcu et al., 2019; Weinman et al., 1996). Among chronic diseases, patients' personal beliefs and emotional responses to their symptoms can influence outcome measures, especially musculoskeletal and ocular involvement in Behçet's disease (Mumcu et al., 2019). Female gender and younger age are components of the negative perception of illness in rheumatoid arthritis (Hashmi et al., 2022). Moreover, depression acts as a significant mediator for amplifying the negative impact of disease activity on both consequences of perceived illness and daily life performance in Takayasu arteritis (Erdal et al., 2021). Their integration of illness perception into the context of oral health remains relatively recent because its adaptation for oral health (IPQ-R-OH) remains relatively new and has been explored in only a limited number of studies (Ali et al., 2022; Mafla et al., 2019; Nelson et al., 2019; Villalobos-Galvis et al., 2017). Although patients are influenced by recurrent parotitis, anxiety and depression, and hyposalivation with ocular dryness in Sjögren disease (SjD) (Sevimli et al., 2024) limited information is available for oral health. It reflects the patients' beliefs about the causes and management of oral diseases, shaped by prior experiences and cultural influences (Gibbons et al., 2013; Mafla et al., 2019). Therefore, this study aimed to explore how dental patients perceived illness and assessed the psychological resilience during dental treatment.

1. RESEARCH METHODOLOGY

This cross-sectional study included 360 dental patients (F/M. 226/134; mean age: 39.24 ± 15.63 years) attending Faculty of Dentistry, Marmara University, a public university where is located on

Anatolian part of the Istanbul. It has large patient group with heterogeneous profile owing to the population in Istanbul.

In this study, the sample size calculation was made as 360 by using G- Power 3.1 free software program (the power of the test: 0.95, the effect size (d): 0.35). This study was performed according to the principles stated in the Declaration of Helsinki and was approved by the Ethics Committee of the Health Institute, XXX University (Approval Number: 15.03.2023-18).

The study was carried out using standardized face-to-face interviews (AK) conducted between May 10, 2023, and May 10, 2024. Data were collected by a questionnaire regarding Illness Perception Revised for Oral Health (IPQ-R-OH) (Villalobos-Galvis et al., 2017) and Brief Resilience Scale (BRS) (Doğan, 2015; Sevimli et al., 2024), self-reported oral health status (good vs. poor), dental pain (absent vs. present), reason for the last dental visit (check-up vs. treatment), frequency of daily tooth-brushing habit, alcohol consumption (present vs. absent), smoking habits (present vs. absent). In addition, dental anxiety level (0 point: no anxiety-10 points: severe anxiety) and self-reported general health status (0: poor health-100 points: excellent health) were assessed by visual analogue scale.

1.1. Data Collection Tool

This stratification was used to understand the differences or similarities of groups for the perception of illness and psychological resilience. Informed consent was obtained from all the patients participating in the study. Inclusion criteria were as follows: being 18 years of age or older and agreeing to participate in the study. Exclusion criteria were as follows: presence of pregnancy, uncontrolled chronic disease, psychiatric disorders, cancer and oral mucosal disorders.

A simple random sampling method was employed due to the homogeneous structure of the patient population. Prior to the actual study, a pilot study was conducted with 36 patients representing 10% of the total sample size.

Patient-Reported Outcome Measures

IPQ-R for Oral Health

Illness Perception scale (IPQ-R) as an assessment tool was developed by Weinmann (Weinman et al., 1996), taking into account the illness representations in Leventhal's self-regulation model and revised by Moss-Morris et al (Moss-Morris et al., 2002). The illness

perception scale is widely used in the management of chronic diseases. In our previous study, IPQ-R was validated into Turkish in patients with Behçet's disease and Takayasu arteritis as chronic diseases (Erdal et al., 2021; Mumcu et al., 2019). IPQ-R-OH scale as a new tool was used in this study, includes 36 items in 7 subgroups regarding; Timeline (chronic), Consequences, Control, Illness coherence, Timeline (cyclical) and Emotional representations and Hopelessness (Villalobos-Galvis et al., 2017). Each item is rated on a five-point Likert scale ranging from "strongly disagree" to "strongly agree". Subscale scores were calculated according to the order of the items in the questionnaire.

In IPQ-R-OH scale, the subscales include the following subtopics: "Consequences" reflects the perceived impact of the illness on physical, emotional, and social functioning. "Timeline - Chronic" captures beliefs about the expected duration of the illness. "Timeline-Cyclical" assesses perceptions of symptom variability and unpredictability. "Emotional Representations" measures the emotional distress and negative feelings associated with the illness. Finally, "Hopelessness" refers to the feelings of a subgroup of patients who perceive their oral health condition as "difficult to manage", and "unlikely to improve", reflecting pessimism regarding treatment outcomes. Elevated scores on the dimensions of Timeline, Consequences, Timeline-Cyclical, Emotional Representations and Hopelessness reflects strongly held beliefs regarding the number of symptoms attributed to the illness, its chronic and fluctuating course, and the emotional burden associated with the condition (Ashley et al., 2013; Villalobos-Galvis et al., 2017).

In IPQ-R-OH scale, Control reflects beliefs about the control or cure of the illness. Illness Coherence represents the degree of the conception and clarity individuals have about their conditions. High scores for the Control and Illness Coherence indicate positive beliefs about the illness and a stronger understanding of its nature and management (Ashley et al., 2013; Villalobos-Galvis et al., 2017).

The Brief Resilience Scale (BRS)

At that point, psychological resilience measured by the Brief Resilience Scale (Doğan, 2015; Smith et al., 2008a) also plays a crucial role in coping with illnesses (Sevimli et al., 2024). The Brief Resilience Scale (BRS) is a widely used psychological tool designed to measure an individual's ability to "bounce back" or recover from stress and adversity. The Brief Resilience

Scale (BRS) consists of a 6-item assessment of psychological resilience. Items 1, 3, and 5 are positively worded, while items 2, 4, and 6 are negatively worded (reverse coding). Items are scored by using a 5-point Likert scale, from 1 (strongly disagree) to 5 (strongly agree). The higher the scores are, the greater resilience levels the patients reflect (Doğan, 2015; Rojas et al., 2018; Smith et al., 2008a, 2013). Although this questionnaire was previously validated in Turkish (Doğan, 2015), the our previous study revalidated in patients with SjD (Sevimli et al., 2024). Patients were grouped according to their resilience levels as follows: (low resilience: < 3 points; normal resilience: 3–4.3 points; high resilience: 4.31–6 points) (Rojas et al., 2018; Smith et al., 2013).

1.2.Data Analysis

Data analysis was conducted using SPSS version 28 (IBM, SPSS Inc., Chicago, IL, USA). Since data were distributed non-normally according to Shapiro–Wilk test, non-parametric tests, namely, Mann-Whitney U, Kruskall-Wallis and Spearman Correlation Tests were also used in the study.

1.3.Validity and Reliability of IRQ-R-OH and BRS

The IPQ-R-OH was independently translated into Turkish by three bilingual researchers. The study group then reviewed the translations to identify and resolve any discrepancies. A final Turkish version was developed through consensus. Subsequently, two additional bilingual researchers translated the finalized version back into English and validated it against the original scale to ensure conceptual and linguistic equivalence. In a pilot study, translated form was pretested in patients (n=10).

The validity of the criteria was evaluated by self-reported oral health status (good vs. poor) and with dental pain (absent vs. present). Patients were classified as: ***"Good Oral Health without Pain"*** vs. ***"Poor Oral Health with Pain"*** as well as a ***"Heterogeneous Group"*** (good oral health with pain or poor oral health without pain). Convergent validity was assessed through correlations and mediation analysis with BRS score.

Reliability was evaluated in two ways: internal reliability (Cronbach's alpha) and external reliability, which was assessed by test–retest method, while internal reliability was assessed by Cronbach's alpha values for PROMs. The Cronbach's alpha values were 0.963 for Timeline-Chronic, 0.657 for Consequences, 0.670 for Control, 0.841 for Illness Coherence, 0.893 for Timeline-Cyclical, 0.878 for Emotional Representations and 0.743 for Hopelessness, which was

also found as 0.867 for BRS. Test–Retest reliabilities were performed in 10% of patients and found to be reliable for IPQ-R-OH and BRS scores ($p<0.05$).

1.4. Mediation Analysis

After the preliminary analyses, mediation analyses were performed for IPQ-R-OH subgroups as possible dependent variables (Y). Self-reported oral health status with dental pain as well as gender were defined as independent variables (X). Moreover, BRS score, dental anxiety scores and self-reported general health status were considered as probable mediators (M).

1.5. Ethical Approval

Ethical approval for the study was obtained from the Marmara University Health Sciences Institute Ethics Committee on 15 March 2023, under number 18.

2. ANALYSIS

This cross-sectional study included 360 dental patients (F/M: 226 /134, mean age: 39.24 ± 15.63 years). The information obtained from the questionnaires was as follows: Patients brushed their teeth 1.67 ± 0.69 times per day. Less than one-fourth of the sample group reported alcohol consumption (n= 70, % 19.4) and one-third reported smoking as a habit (n=108, %30). More than half of the patients were married (60.6%), and approximately one-third reported to be employed (37.2%) (Table 1). In the whole group, no significant difference was observed in the IPQ-R-OH and BRS scores caused by smoking or alcohol consumption. Neither did the education level affect these scales ($p>0.05$).

Table 1: The Profile of Dental Patients in the Study Group

	n	%
Gender		
Female	226	62.8
Male	134	37.2
Total	360	100
Employment status		
Employed	134	37.22
Unemployed	226	62.78
Total	360	100
Marital status		
Married	218	60.6
Single	142	39.4
Total	360	100
Alcohol Consumption	70	19.4
Smoking Consumption	108	30.0
	Mean	**SD**
Age (years) (n=360)	39.24	15.63
Frequency of tooth brushing/day	1.67	0.69
Dental Anxiety	3.09	7.24
Brief Resilience Scale (BRS) Score	3.25	0.83
Dental Pain Score	2.87	6.88
Self-Reported General Health Status Score	72.08	19.39
IPQ-R-OH Subgroups		
Timeline-Chronic (5–25 points)	8.05	5.54
Consequences (5–25 points)	13.92	4.12
Control (22–51 points)	38.73	4.99
Illness Coherence (9–25 points)	21.68	3.44
Timeline-Cyclical (4–20 points)	9.99	4.75
Hopelessness (4–10 points)	8.37	1.32
Emotional Representations (6–30 points)	17.01	6.91

When subgroup scores of IPQ-R-OH were compared according to gender, no significant difference was observed in the IPQ-R-OH subgroups ($p>0.05$), except for the Emotional Representations ($p=0.000$). An increase in IPQ-R-OH Emotional Representations score and a

decrease in BRS score (3.10±0.87 vs. 3.50±0.69) were observed for the female patients when compared to those for the males (p <0.001; p=0.000). Another point to be noted was that the Dental Anxiety score was higher and Self-Reported General Health Status was lower for the female patients than the males (3.98±7.85 vs.1.60±5.78; 68.69±19.13 vs. 74.75±18.64, respectively) (p<0.05) although dental pain sore was similar in both genders (p=0.115) (Table 2). In both gender groups, IPQ-R-OH Emotional Representations score was correlated with the Dental Anxiety score (r:0.50 p <0.001 for females and r:0.31 p <0.001 for males).

Table 2: Scores of IPQ-R-OH Subgroups and BRS According to Gender

	Female	**Male**	
IPQ-R-OH	**Mean±SD**	**Mean±SD**	**p**
• Timeline-Chronic	8.11±3.56	7.97±3.51	0.778
• Consequences	13.97±4.09	13.82±4.17	0.611
• Control	41.03±6.48	41.44±5.45	0.829
• Illness Coherence	21.46±3.47	22.04±3.35	0.113
• Timeline-Cyclical	10.26±4.85	9.55±4.55	0.17
• Hopelessness	8.37±1.32	8.15±1.91	0.932
• Emotional Representations	18.65±7.16	14.27±5.48	**<0.001**
BRS	3.10± 0.87	3.50±0.69	**0.000**
Dental Anxiety	3.98±7.85	1.60±5.78	**<0.001**
Dental Pain	3.15±6.61	2.40±7.31	0.115
Self-Reported General Health Status	68.69±19.13	74.75±18.64	**0.048**

As expected, patients with ***"Poor Oral Health and Pain"*** had worse scores of the IPQ-R-OH subgroups, the BRS, Dental Anxiety, Dental Pain and Self-Reported General Health Status compared to those with ***"Good Oral Health and No Pain"*** (p<0.05) (Table 3). Scores of the IPQ-R-OH subgroups regarding the Control, the Consequences and the Emotional Representations, Dental anxiety, Dental pain and Self-reported general health status in heterogeneous group were found to be poor compared those of the group with ***"Good Oral Health and No Pain"*** (p<0.05). ***"Patients with Poor Oral Health and Dental Pain"*** exhibited the most unfavorable scores when compared to those in ***"Heterogeneous Group"***, except scores of Hopeless, Dental pain and Dental anxiety (p<0.05). Moreover, this group was notably characterized by a higher prevalence of male individuals (p<0.05) (Table 3).

Table 3: IPQ-R-OH Subgroup Scores According to Oral Health Status and Presence of Dental Pain

	Good Oral Health without Dental Pain (Group 1, n=86)	**Poor Oral Health with Dental Pain (Group 2, n=86)**	**Patients with Good Oral Health and Dental Pain and Patients with Poor Oral Health without Dental Pain (Group 3, n=188)**	**p**		
	Mean±SD	**Mean±SD**	**Mean±SD**	**Group 1 vs. Group 2**	**Group 1 vs. Group 3**	**Group 2 vs. Group 3**
IPQ-R-OH						
Timeline-Chronic	7.00±3.07	9.48±3.74	7.89±3.44	**<0.001**	0.064	**<0.001**
Consequences	12.52±3.49	15.24±4.00	13.95±4.24	**<0.001**	**0.006**	**0.016**
Control	43.29±5.86	38.94±6.07	41.26±5.91	**0.001**	**0.019**	**0.003**
Illness Coherence	22.23±2.48	20.32±4.10	22.05±3.33	**0.001**	0.826	**0.001**
Timeline-Cyclical	8.56±4.36	12.30±4.58	9.59±4.64	**<0.001**	0.111	**<0.001**
Emotional Representations	14.44±6.83	19.91±6.49	16.85±6.66	**<0.001**	**0.004**	**0.001**
Hopelessness	7.88±1.93	8.59±1.35	8.34±1.44	**0.03**	0.169	0.21
Brief Resilience Scale	3.36±0.86	2.93±0.90	3.35±0.74	**0.003**	0.807	**<0001**
Dental Anxiety Score	2.11±4.54	3.30±8.13	3.62±7.33	**0.047**	**0.037**	0.678
Dental Pain	0±0	2.32±8.34	6.64±4.85	**<0001**	**<0001**	0.681
Self-Reported General Health Status	75.43±21.14	71.38±18.33	70.23±19.64	**0.019**	**0.023**	**<0001**
	n %	**n %**	**n %**			
Female	59 (68.6)	64 (74.4)	103 (54.8)			
Male	27 (31.4)	22 (25.6)	85 (45.2)			

After preliminary analyses were performed, two mediation analyses models were attained to examine several potential pathways. In Model-1 (simple mediation model), the elevated IPQ-R-OH Emotional Representations score was directly mediated by ***"Poor Oral Health and Dental***

Pain" (p=0.0013) (Figure 1). Decrease in BRS score was found to be a significant mediator for the model (p=0.0000). In this simple mediation model, the effect of **oral health status (Good Oral Health without Pain vs. Poor Oral Health with Pain)** on **IPQ-R-OH Emotional Representation** was examined through **psychological resilience (BRS)** as a mediator. The findings revealed that individuals with poor oral health and dental pain had significantly higher emotional illness perception (B = 2.4811, p < 0.001) (Table 4). Moreover, poor oral health significantly reduced psychological resilience (B = –0.2144, p = 0.0019), and lower resilience was associated with a more negative emotional illness perception (B = –1.1882, p = 0.0393). The indirect effect tested by bootstrap analysis was statistically significant, indicating that psychological resilience partially mediated the relationship between oral health status and emotional illness perception. Therefore, poor oral health influences emotional illness perception both directly and indirectly through reduced psychological resilience.

Table 4: Simple Mediation Model for IPQ-R-OH Emotional Representations

Path	**Effect Type**	**B**	**p**	**95% CI (LLCI–ULCI)**
Oral Health Status → Emotional Representation	Direct (c′)	2.4811	<0.001	—
Oral Health Status → BRS	a	-0.2144	0.0019	—
BRS → Emotional Representation	b	-1.1882	0.0393	—
Indirect via BRS	a×b	0.25	<0.05	Bootstrapped 95% CI excludes 0
Total Effect	c	2.73	<0.001	—

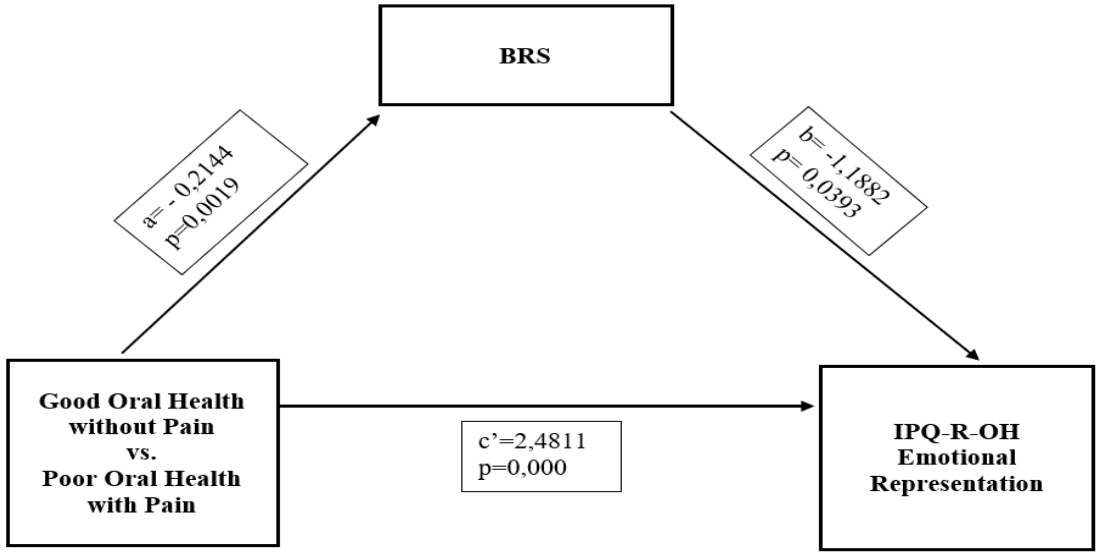


Figure 1: Simple Mediation Analysis for IPQ-R-OH Emotional Representations

In Model-2 (parallel mediation model), poor IPQ-R-OH Emotional Representations score was directly mediated by gender, namely female (p=0.0000). Decrease in Low BRS score (p=0.0002) and increase in Dental anxiety score (p=0.0000) in females were significant mediators for elevated IPQ-R-OH Emotional Representations score (Figure 2). Bootstrap analysis with 5000 replications were applied to estimate the effects of mediation and to generate 95% CI. Percentile bootstraps of the mediators were found to be effective in both models. In the parallel mediation model, gender (coded as 1 = female, 2 = male) was directly and significantly associated with the IPQ-R-OH Emotional Representation score (B = –3.1675, p < 0.001), indicating that female participants reported higher emotional illness perception than males. Gender also showed significant indirect effects through two mediators: psychological resilience (BRS) and dental anxiety. Specifically, female gender predicted lower psychological resilience (B = –0.4028, p < 0.001), and reduced resilience, in turn, was associated with higher emotional representation (B = –1.5212, p = 0.0002). Similarly, female gender was associated with higher dental anxiety (B = –2.4008, p = 0.0023), and dental anxiety negatively predicted emotional representation (B = 0.2487, p < 0.001) (Table 5). Both indirect pathways were statistically significant in bootstrap analysis (95% CI did not include zero), confirming that lower resilience and altered anxiety jointly mediated the relationship between gender and emotional perception. Overall, the model suggests

that female gender affects emotional illness perception both directly and indirectly through diminished resilience and anxiety responses.

Table 5: Parallel Mediation Model for IPQ-R-OH Emotional Representations

Path	Effect Type	B	p	95% CI (LLCI–ULCI)
Gender* → Emotional Representation	Direct (c')	-3.1675	<0.001	(-4.5454, -1.7896)
Gender → BRS	a_1	-0.4028	<0.001	—
Gender → Dental Anxiety	a_2	-2.4008	0.0023	—
BRS → Emotional Representation	b_1	-1.5212	0.0002	(-2.3238, -0.7186)
Dental Anxiety → Emotional Representation	b_2	0.2487	0.0000	(0.3395, 0.1579)
Indirect via BRS	a_1b_1	0.61	<0.01	Bootstrapped 95% CI excludes 0
Indirect via Dental Anxiety	a_2b_2	0.60	<0.01	Bootstrapped 95% CI excludes 0
Total effect	c	-4.38	<0.001	—

*1: Female, 2: Male

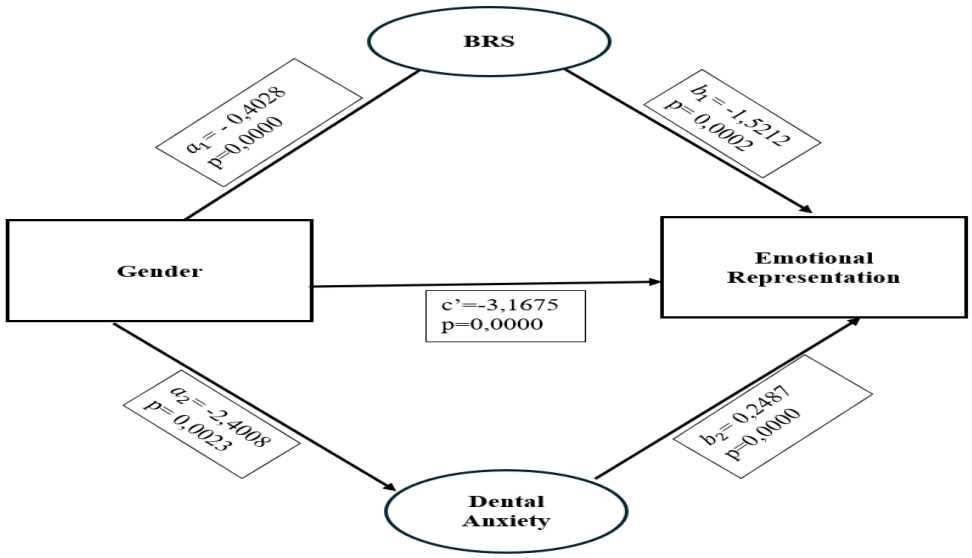


Figure 2: Parallel Mediation Analysis for IPQ-R-OH Emotional Representations

3. DISCUSSION

The perception of illness reflects how patients interpret their health status (Singh and Rejeb, 2024) while psychological resilience enhances the strategies to cope with and recover from chronic diseases (Smith et al., 2008b). Their integration into the context of oral health remains relatively recent. Therefore, this study aimed to assess illness perception of dental patients with a focus on the mediating role of psychological resilience during dental treatment.

The outcomes of this study provided valuable insights into several aspects of patient care and oral health management. Firstly, the results of the study revealed that the IPQ-R-OH Emotional Representations score was higher for the female patients than the males although the scores for the other subgroups were found to be similar for both genders. From this perspective, being a female may serve as a risk factor for more negative perceptions of illness. Similar results were reported in a study stating that Brazilian females exhibit a greater emotional burden in the perception of illness and lower resilience levels than males (Villalobos-Galvis et al., 2017). Older adult females have higher Emotional Representations scores and more negative oral health perceptions (Nelson et al., 2019), which was in line with our results. Sociodemographic and cultural characteristics may lead to misinterpretation of the effects of treatments or specific symptoms, regardless of actual correlations (Gholami et al., 2012). Moreover, even if they have been diagnosed alike, they may hold diverse perceptions of their own conditions. In a study on the perception of illness among patients diagnosed with cancer published by Ashley et al. (Ashley et al., 2013) similar scores are obtained as Timeline-acute/chronic factors, Timeline-Cyclical and Emotional Representations. The results of Mafla et al. (Mafla et al., 2019) show that less painful diseases reduce anxiety in patients similarly.

Secondly, in our study, the IPQ-R-OH Emotional Representations score was also associated with dental anxiety in females, consistent with the previous study, which found a significant positive relation between the IPQ-R-OH Emotional Representations score and dental anxiety, especially among females (Villalobos-Galvis et al., 2017). Another point to be noted was the significant mediator roles of BRS and Dental Anxiety, in which it was observed that female gender directly increased IPQ-R-OH Emotional Representations score. Finally, female participants exhibited lower psychological resilience, higher dental anxiety, and higher Emotional Representation scores compared with males. Clinically and conceptually, the results indicated that

being female was associated with a greater emotional burden in the illness perception for oral health.

The perception of illness shapes how patients interpret their health conditions while psychological resilience aids to cope with the poor health state and recovery in the management of the disease (Cui et al., 2025; Smith et al., 2008b). As the relations/connections between dental anxiety, perception of illness and psychological resilience are unknown in dental care, their integration into the dental care system remains limited. Therefore, these results were thought to be critical for oral health policies.

Psychological resilience plays a critical role in navigating challenging circumstances in life (Sevimli et al., 2024). The Brief Resilience Scale (BRS), developed to assess the ability to recover from stress, measures an individual's capacity to recover and regain functional stability following an adversity (Smith et al., 2008a) (Doğan, 2015). Similarly, it is reported that psychological resilience significantly moderates the connection between stress and burnout, showing that individuals with higher resilience levels experience fewer negative effects of stress or burnout (Hu et al., 2015). The meta-analysis (Vanhove et al., 2016) demonstrates that resilience acts as a critical buffer, reducing the risk of burnout by mitigating the adverse effects of stress. These findings support the vital/considerable role of psychological resilience in reducing the negative outcomes of stress and indicate that individuals with lower resilience levels are more vulnerable to the harmful effects of stress. In clinical practice, female patients with dental anxiety and limited capacity to cope with troublesome conditions must be helped to overcome these difficulties/psychological burdens by developing empowerment strategies for patients.

Oral diseases involving dental and periodontal tissues are widespread chronic conditions shaped by interrelated biological, psychological, and social factors within a biopsychosocial paradigm (Mafla and Patiño, 2019; Rath et al., 2025). In the study group, the presence of "poor oral health and dental pain" was associated with poor subgroup scores of IPQ-R-OH. These results were expected, especially regarding dental pain, as it is a prominent indicator of oral health problems. They trigger negative emotions that contribute to patients' psychological burden (Mohd Khairuddin et al., 2024) (Chaudhary and Ahmad, 2021). Oral health significantly impacts on mental health, daily activities and work life of an individual (Dye et al., 2007; Karacayli et al., 2022). Since illness perception provides the opportunity of early prevention as well as treatment

plans, it is critical point for the clinical practice and oral health management (Mafla and Patiño, 2019; Rath et al., 2025).

In the present study, IPQ-R-OH was found to be reliable and valid tool for the screening of illness perceptions. The patients' perceptions of oral health-related diseases offer a cognitive framework, through which patients interpret symptoms, assess health risks and make informed decisions. As active stakeholders in healthcare, their perception of the illness also plays a pivotal role in promoting oral health, recognizing treatment needs, and maintaining adherence to therapeutic interventions. However, the adaptation of this instrument for use in the contexts of oral health remains relatively novel and is still emerging in the literature (Ali et al., 2022; Mafla et al., 2019; Nelson et al., 2019; Villalobos-Galvis et al., 2017).

This study is the first to evaluate illness perception using the IPQ-R-Oral Health scale, along with psychological resilience as patient-reported outcomes. Mediator analyses contributed to a comprehensive and holistic understanding of the observed relationships. The study had some limitations, the cross-sectional design of the study and lack of population-level data limited the generalizability of its results. Although the heterogeneity of the patient group in the Faculty of Dentistry, reflecting the diverse population of Istanbul, may increase variability, long-term multicentre and field studies are necessary for generalization of the study, the assessment of causal relations and implementation of results into the oral health policies. Therefore, our results must be interpreted in these limitations. Moreover, Cronbach's alpha values for Results" and "Control" subscales in the IPQ-R-OH scale were found close to low limit level. Since each subgroup score was evaluated separately and no total score was calculated for IPQ-R-OH, the subscales were used in the analyses. Yet, results should be considered in this limitation.

4. CONCLUSION

Since IPQ-R-OH Emotional response was affected by female gender, dental anxiety, poor oral health with dental pain and low psychological resilience, patient empowerment strategies must be developed to improve the compliance and resilience of dental patients. These strategies may include patient education programs and materials addressing dental anxiety, dental pain and low psychological resilience, especially among female patients in the perspective of oral health policies.

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