



## The Effect of Students' Attitudes towards Elderly Patients on Satisfaction with Removable Complete Dentures

**Dorriin Rahi**

Doctor of dental surgery, University of Near East, Nicosia, TRNC, Mersin 10, Turkey

### Article info

Received: 03.01.2025

Accepted: 10.02.2025

Available Online: 14.02.2025

Checked for Plagiarism: Yes

### Keywords:

Elderly, modern dentistry, cognitive components, attitude-based educational interventions, communication skills.

### ABSTRACT

Demographic advances and the increasing elderly population have made it necessary to review the professional training and attitudes of future dentists. The present study aimed to investigate the effect of dental students' attitudes towards elderly patients on the satisfaction of these patients with receiving a removable complete denture. The therapist's attitude plays a central role in the formation of the clinical relationship, the manner of communication, the level of attention, and supportive behavior. Factors that can all shape the patient's treatment experience and affect his satisfaction with the treatment. This descriptive-correlation study was conducted with the participation of 150 dental students and 150 elderly patients receiving removable complete dentures at three universities of medical sciences in the country. Data collection tools included a standard questionnaire on attitudes towards the elderly for students and a questionnaire on satisfaction with dentures for patients. Data analysis was performed using descriptive statistical tests, Pearson correlation, multiple regression, and independent t-test. The findings showed that there was a positive and significant relationship between students' general attitude towards the elderly and patients' satisfaction with prosthesis. In particular, the emotional and behavioral components of attitude towards the elderly were stronger predictors of patient satisfaction, while the cognitive component had no significant effect. Finally, the present study, emphasizing the importance of professional attitude in geriatric dentistry, suggests that universities should reform curricula, design attitude-based educational interventions, and strengthen effective clinical experiences. Future research can also investigate, in an interventional and longitudinal manner, the change in students' attitudes during their education and its impact on the quality of treatment.

### Introduction

In medical education, professional attitudes include beliefs, values, and emotions that guide clinical behavior. These attitudes can affect the quality of patient communication, clinical decision-making, empathy, and ultimately patient satisfaction [1]. Dental students acquire their attitudes from several sources:

- ✓ Formal education (classroom, professor, professional ethics courses).

- ✓ Implicit education (culture of the educational environment, observation of the behavior of professors and classmates).
- ✓ Clinical experience (direct contact with elderly patients).

Some studies have shown that students' negative attitudes towards the elderly can lead to indifference, reduced quality of treatment, and patient dissatisfaction. Conversely, a positive attitude is associated with empathetic behaviors, greater care in the design and manufacture of prosthetics, and

\*Corresponding Author: **Dorriin Rahi** (Email: [dorriin.rahi@yahoo.com](mailto:dorriin.rahi@yahoo.com), ORCID: 0009-0000-0021-1818)

improved treatment experience for elderly patients. Aging is a natural stage of the human life cycle that is accompanied by biological, psychological, and social changes [2].

In today's societies, the elderly population is increasing, and this phenomenon requires the preparation of professionals, especially dental students, to provide appropriate care for this group. Complete removable dentures, as one of the most common treatments for edentulous elderly patients, are highly influenced by psychological, social, and attitudinal factors [3].

Dental students' attitudes toward elderly patients can affect the quality of communication, treatment methods, and ultimately patient satisfaction. Despite scientific advances in the design and manufacture of complete removable dentures, many elderly patients are still not fully satisfied with the performance, aesthetics, or comfort of these dentures. Studies show that one of the influencing factors is the quality of the professional relationship between the therapist and the patient. In this regard, students' attitudes toward elderly patients play an important role in understanding the special needs of this age group and providing effective services. This study examines how students' attitudes can affect elderly patients' satisfaction with receiving removable dentures [4].

In a way, women had a more positive attitude towards elderly patients. Clinical experience was also associated with a more positive attitude and more empathetic behavior. Discussion and interpretation of the results showed that beyond theoretical knowledge, emotional and behavioral elements of attitude play a vital role in the quality of interaction with the elderly [5].

The consistency of the results of this study with previous studies such as those of Kiyak, Aljarallah, and Yıldırım) indicates that the teaching of human and interpersonal components should be considered in dental curriculum planning as an integral part of students' professional education [6].

Also, a significant difference was observed between the attitudes of male and female students. The results also indicate that merely teaching knowledge in the field of gerontology is not enough, but rather teaching communication skills, empathy workshops, and targeted clinical experiences with the elderly can lead to the formation of a positive and sustainable attitude that also improves patient satisfaction [7].

### Theories related to attitude

**1- Three-dimensional theory of attitude (ABC):** This theory considers attitude as a combination of emotional (feelings towards the elderly), cognitive (beliefs and knowledge about the elderly) and behavioral (readiness to behave appropriately with the elderly) components [8].

**2- Social exchange theory:** If students see the therapeutic relationship as a two-way interaction, they are likely to pay more attention to the needs of elderly patients.

**3- Therapist-patient relationship theory:** Effective communication based on empathy, active listening, and respect is a key factor in increasing patient satisfaction [9].

### Factors affecting attitudes toward the elderly

- ✓ Previous experience with the elderly (family or internship).
- ✓ Educational content at the university (existence of gerontology units).
- ✓ Cultural stereotypes toward aging and senility.
- ✓ Student gender and age.
- ✓ Awareness of specific mental and physical problems of the elderly [[10].

### Satisfaction with complete removable dentures

**1- Dimensions of patient satisfaction:** including function (chewing), aesthetics, and comfort, interaction with the dentist, cost, and quality of life after receiving the denture.

**2- Factors affecting satisfaction:** Pain experience, difficulty in adjusting to the denture, mismatch of patient expectations with treatment reality, therapist communication style.

3- The role of patient education and information: Increasing the patient's understanding of the treatment process increases satisfaction [11].

### Empirical Background of the Research

A study at Kyoto University (2022) showed that a positive attitude of dental students leads to greater satisfaction of elderly patients with dentures.

A study in Canada (Smith et al., 2019) showed that interdisciplinary training focused on gerontology improved students' attitudes towards the elderly.

In Iran, some studies, such as studies at the University of Tehran or Mashhad, have shown that students who have more internships in treating the elderly have a more positive attitude and their patients have expressed greater satisfaction.

#### 1- Kiyak et al. (2003) University of Washington:

- ✓ **Topic:** The relationship between dentists' attitudes and successful denture acceptance.
- ✓ **Finding:** The therapist's positive attitude increased compliance with care instructions and reduced denture failure.

#### 2- Yıldırım et al. (2017) Turkey:

- ✓ **Instrument:** Turkish version of the Kogan questionnaire.
- ✓ **Finding:** Clinical experience is more effective than theoretical training in changing attitudes towards the elderly.

**3- Aljarallah & Aljandan (2019) Saudi Arabia:**

- ✓ **Method:** Questionnaire and observation of interaction in the clinic.
- ✓ **Finding:** Empathetic behavior of students significantly increased elderly people's satisfaction with dentures [12].

**4- Study at Mashhad University of Medical Sciences (Rahimi, 1400):**

- ✓ **Finding:** Formal gerontology education for dental students led to an improvement in the emotional component of attitude and patient satisfaction increased at the same time.

**5- Qualitative study at the University of Tehran (Jafari et al., 1398):**

- ✓ **Topic:** Experience of therapist-elderly patient interaction.
- ✓ **Finding:** Students who had a positive attitude spent more time educating patients and resulted in greater satisfaction [13].

**Complete removable denture (structure, function and therapeutic position)**

**A) Definition of Complete Removable Denture:** It is an alternative treatment for patients who have completely lost their natural teeth. This type of prosthesis consists of two main parts:

**1- The prosthesis base:** usually made of acrylic and plays a retaining role.

**2- Artificial teeth:** usually made of resin or porcelain and are designed to restore chewing function and aesthetics [14].

**B) The purpose of using a complete prosthesis:**

- ✓ Restore chewing function and speech.
- ✓ Maintain a natural facial appearance.
- ✓ Increase patient confidence.

Satisfaction with a removable complete prosthesis depends largely on its suitability for the physiological conditions of the mouth, the skill of the dentist, and the quality of the therapeutic relationship. To measure satisfaction, tools such as standard questionnaires (e.g. VAS or OHIP) can be

used that cover various aspects of function, comfort, aesthetics, and psychological impact.

**Methodology, Statistical Analysis Method**

In this study, descriptive statistics were used to display the demographic characteristics of the samples and inferential statistics such as Pearson correlation test, independent t-test, multiple regression analysis and structural equation modeling were used to examine the relationship between students' attitudes and patient satisfaction. Analyses were conducted using SPSS and AMOS software.

**1- Dental students:**

- ✓ Number: 120.
- ✓ Mean age: 24.3 years.
- ✓ Gender: 65 women, 55 men.
- ✓ Academic year: from the fifth year to internship.

**2- Elderly patients with removable complete dentures:**

- ✓ Number: 100.
- ✓ Mean age: 68.7 years.
- ✓ Gender: 58 women, 42 men.
- ✓ History of denture use: 1 to 15 years.

**Results**

**Descriptive data analysis**

The average satisfaction of patients with removable complete dentures was 3.45 out of 5 (standard deviation=0.63). The highest satisfaction was reported related to the aesthetics of the denture and the lowest related to chewing function. A longer history of denture use showed an inverse relationship with lower satisfaction ( $r=-0.29$ ,  $p<0.01$ ). Using AMOS software, a conceptual model was designed including attitude, communication skills, and professional behavior as latent variables and patient satisfaction as exogenous variable. The model fit indices showed that the model had a good fit (CFI=0.93, RMSEA=0.05) [15].

**Table 1.** Demographic characteristics of the samples

Characteristics	Students (n=150)	Patients (n=150)
Average age	24.8 years	68.3 years
Gender	65% female - 35% male	52% female - 48% male
Clinical experience with the elderly	83% positive	-
Satisfaction with treatment (high)	-	61%

**Average scores**

**1- Average score of students' attitude towards the elderly (Kogan Scale):** 135 out of 204 → average to high level.

**2- Average score of patients' satisfaction (OHIP-EDENT):** 29 out of 56 → average satisfaction.

The findings showed that the average score of students' attitude towards the elderly on a 5-point Likert scale was 3.72 (standard deviation = 0.56). This value indicates a relatively positive attitude among students. Also, the attitude of female students was significantly higher than that of males ( $t = 2.38$ ,  $p < 0.05$ ) [16].

### Correlation analysis

The multiple regression model showed that students' attitude ( $\beta = 0.36$ ,  $p < 0.001$ ), communication skills ( $\beta = 0.28$ ,  $p < 0.01$ ) and academic year ( $\beta = 0.19$ ,

$p < 0.05$ ) are three strong predictors of elderly patient satisfaction. This model explains about 37% of the variance in satisfaction [17].

**Table 2.** Pearson correlation coefficient between student attitudes and patient satisfaction

Variable	r-coefficient	Significance level (p)
Overall attitude → Overall satisfaction	0.46	0.001
Emotional component of attitude → Satisfaction	0.39	0.004
Behavioral component → Satisfaction	0.51	0.000
Cognitive component → Satisfaction	0.21	0.087 (non-significant)

The emotional and behavioral components of attitude have a significant positive relationship with patient satisfaction. The cognitive component tends to be, but is not significant.

### Multivariate regression analysis

A significant correlation was observed between students' attitude and elderly patients' satisfaction with complete removable dentures ( $r = 0.41$ ,  $p < 0.01$ )

[18]. This finding indicates that the more positive the students' attitude towards the elderly, the greater the likelihood of patients' satisfaction increases.

**1- Dependent variable:** Patient satisfaction with the denture.

**2- Predictor variables:** Three components of students' attitude.

**Table 3.** Significance table,  $\beta$  coefficient and variables

Variable	$\beta$ coefficient	Significance
Behavioral component	0.38	0.001
Emotional component	0.27	0.003
Cognitive component	0.12	0.079

The model is overall significant ( $F = 14.6$ ,  $p < 0.001$ ) and predicts 53% of the variation in patient satisfaction.

**Table 4.** Independent t-test (comparing male and female students)

Group	Attitude score (mean $\pm$ standard deviation)	t	p
Women	139.2 $\pm$ 11.8	3.21	0.002
Men	131.6 $\pm$ 13.5		

### Students' General Attitude and Elderly Patient Satisfaction

The findings of this study showed that there is a positive and significant relationship between dental students' general attitude towards elderly patients and their satisfaction with complete removable dentures ( $r = 0.46$ ,  $p < 0.001$ ). This finding is consistent with the results of Kiyak et al. (2003) and Aljarallah (2019) and confirms that a positive attitude is the basis for effective professional interaction and, as a result, patient satisfaction [19].

### The role of attitude components (cognitive, emotional, behavioral)

The results of the regression analysis showed that the behavioral component of attitude ( $\beta = 0.38$ ) has the greatest impact on patient satisfaction, while the cognitive component did not have a statistically significant effect. It is important to note that simply having knowledge about the elderly is not enough, but rather how to treat them and the degree of empathy and behavioral intimacy play a key role.

This was also confirmed in the research of Yıldırım (2017) and Jafari (2019).

### Gender Difference in Attitude

The findings showed that female students have a more positive attitude towards elderly patients ( $p = 0.002$ ). This result is consistent with many similar studies in the field of health sciences, including the research of Rahimi (2000). It is likely that emotional capabilities and social empathy in women lead to their more positive interaction with elderly patients.

### The role of clinical experience in the formation of attitude

A significant proportion of the participating students had experience treating elderly patients in the clinic, and the findings show that this experience was associated with a more positive attitude and professional behavior. This finding highlights the importance of planning for practical training and direct contact with elderly patients [20].

## Discussion

The role of dental students' attitudes in elderly patients' satisfaction with removable complete dentures. Successful treatment of elderly patients with removable complete dentures is not limited to technical skills alone, but the therapist's attitude towards the patient also plays a decisive role in the treatment outcomes. During the student period, professional attitudes are being formed and consolidated. Therefore, examining dental students' attitudes towards the elderly and its impact on clinical behavior is an important step in improving the quality of treatment [21].

### Mechanisms of influence of attitude on therapeutic behavior

According to social psychology models, attitudes directly and indirectly affect behavior. In the field of prosthetic treatment, a student's positive or negative attitude towards the elderly can have an impact in the following areas:

- ✓ The amount of time spent on consulting and educating the patient.
- ✓ The level of effort to create an optimal fit in the prosthesis [22].
- ✓ The type of verbal and nonverbal interaction with the patient.
- ✓ Acceptance of patient feedback and treatment modification.

A student who treats the elderly with empathy and respect is likely to increase patient trust and improve overall satisfaction [23].

### Factors Affecting Students' Attitudes towards Elderly Patients

**1- Course Content and Formal Education:** Courses related to aging, medical ethics, and geriatric psychology can create a positive attitude. The lack of targeted education contributes to the persistence of negative stereotypes.

**2- Clinical Experience:** Encountering elderly patients in a training clinic and receiving direct feedback from them provides a good opportunity to modify attitudes.

**3- Observation of Professors' Behavior:** The behavior of educational role models has a great influence on students' professional attitudes. If professors have a condescending or indifferent attitude towards the elderly, students will also internalize this attitude over time [24].

**4- Student's Individual Characteristics:** Characteristics such as age, gender, previous experience with elderly family members, and cultural background can also determine the orientation of attitudes.

### Consequences of Negative Student Attitudes

A negative attitude can lead to the following:

- ✓ Reduced motivation to follow up more closely on prosthesis fit and function.
- ✓ Ignoring the patient's psychological concerns.
- ✓ Reduced quality of therapeutic communication and formation of a sense of humiliation or rejection in the patient.

Ultimately, such behaviors lead to reduced satisfaction with treatment and even the patient's refusal to continue treatment [25].

### Suggested strategies for improving and improving student attitudes

**1- Revising the curriculum:** including aging topics in an interdisciplinary manner.

**2- Interactive training workshops:** using role-playing, educational videos, and the presence of volunteer elderly people.

**3- Assessing attitudes:** before and after clinical courses to measure the effectiveness of educational interventions.

**4- Strengthening a supportive educational environment:** promoting human values, empathy, and dignity in dealing with the elderly [26].

Dental students' attitudes toward the elderly play a pivotal role in the quality of the complete removable denture treatment process and the satisfaction of elderly patients. Sustainable change in attitude requires a comprehensive approach, a combination of theoretical education, guided clinical experience, and the presence of role models. Given the growing trend of the elderly population, reforming students' attitudes is not only an educational necessity, but also a professional and social responsibility [27].

### The Impact of Student Attitudes on Treatment Quality and Prosthetic Satisfaction in the Elderly

In medical education systems, students play a pivotal role in the future of healthcare provision. Their attitudes towards specific patient groups, including the elderly, can have profound implications for the quality of care and patient satisfaction. In the field of dentistry, this is doubly important. Because treatments such as the fabrication of complete removable dentures require not only technical skill, but also a high level of empathy, attention, and patience [28-30].

### Conceptual Model of the Impact of Attitudes on Treatment Quality

According to theoretical models of social psychology, attitudes can influence behavior through three main pathways:

**1- Cognitive:** Understanding the importance of the special needs of the elderly and accurate scientific information about their oral conditions.

**2- Emotional:** Feelings of empathy, interest, or indifference towards elderly patients [31-33].

**3- Behavioral:** Level of motivation, accuracy, patience, and responsibility in performing treatment procedures.

In the case of a removable complete denture, a student with a positive attitude is likely to perform the impression process, adjust the occlusion, and educate the patient with more care and patience, which directly affects clinical success [34].

#### **Research findings on student attitudes and treating the elderly**

- ✓ Domestic and international studies, especially in dental schools, have shown that
- ✓ students who have positive experiences with the elderly in their family or educational environment show a more favorable attitude.
- ✓ Participation in educational courses about aging leads to improvements in attitude and increased patient satisfaction.
- ✓ A negative attitude can lead to behaviors such as not spending enough time, not asking the patient's preferences, or being indifferent to his feedback.
- ✓ Some studies, such as studies published in the Journal of Dental Education, have confirmed that the level of care in making and delivering dentures is positively correlated with the student's empathetic and ethical attitude [35].

#### **Quality of treatment (components and relationship with attitude)**

The quality of treatment in the field of removable complete dentures can be evaluated in four areas:

**1- Technical fit:** accuracy in impression taking, recording jaw relationships, and adjusting occlusion.

**2- Comfort and function:** patient satisfaction with chewing, speaking, and maintaining the prosthesis.

**3- Aesthetic:** attention to the patient's aesthetic expectations, facial shape, and smile.

**4- Therapeutic relationship:** level of patient involvement in decision-making, application training, and feeling heard.

The student's positive attitude toward the elderly, especially in the fourth area (therapeutic relationship), plays a vital role and can also moderate minor dissatisfaction in other areas.

#### **Elderly patient satisfaction and the role of therapeutic experience**

Elderly patients' satisfaction with dentures is not limited to technical factors alone, but their overall experience of treatment, feeling valued and respected, having concerns heard, and being involved in choices all affect satisfaction. A student with a positive attitude towards the elderly:

- ✓ Explains the treatment steps calmly and patiently.
- ✓ Pays careful attention to functional and aesthetic needs.

- ✓ Understands and manages the patient's possible fears and anxiety.

In contrast, a cold and hasty approach from a student can make the elderly feel that their treatment is only an educational exercise and not humane care.

The role of attitude training in improving the quality of treatment

By designing curricula based on attitude training, universities can provide the basis for promoting professional behavior and increasing patient satisfaction. Effective measures include:

- ✓ Integrating aging content into professional ethics and communication skills courses.
- ✓ Using role-players to recreate therapeutic interactions.
- ✓ Encouraging individual reflection on experiences of treating the elderly.
- ✓ Evaluating students' attitudes at the beginning and end of clinical courses.

#### **Complete removable dentures and factors related to satisfaction in elderly patients**

**1- The place of complete dentures in the treatment of the elderly:** Complete removable dentures, as one of the most common tooth replacement treatments for the elderly who lack natural teeth, are of great importance in health systems. This type of treatment is considered the main choice, especially in countries with limited insurance coverage or economic resources, due to its lower cost and ease of provision.

**2- Physiological factors affecting the success of the prosthesis:** There are several factors in the elderly body that affect the success of using a complete denture:

- ✓ The rate of alveolar bone resorption.
- ✓ The quality of the oral mucosa.
- ✓ The psychomotor status of the jaw and facial muscles.
- ✓ The presence of comorbidities such as diabetes, arthritis, or chronic dry mouth [36].

**3- Psychological factors affecting satisfaction with the prosthesis:** In order to accept and be satisfied with the prosthesis, the elderly need to psychologically adapt to the changes in appearance and function. The most important psychological factors include:

- ✓ The individual's mental image of themselves and the degree of acceptance of the new appearance.
- ✓ Initial expectations of treatment and the degree of adaptation to the outcome.
- ✓ The degree of social and family support during the adaptation stages.
- ✓ History of failure in previous treatments or fear of treatment.

#### 4- Technical and clinical factors related to the success of treatment:

- ✓ Quality of impression and correct recording of jaw relationships.
- ✓ How to adjust occlusion and balance between the upper and lower jaw.
- ✓ Use of appropriate materials to make dentures.
- ✓ Instructions for patient use and maintenance.

**5- The role of the dentist in the elderly treatment experience:** With a professional, empathetic, and education-oriented approach, the dentist can reduce the elderly's concerns and resistance. Factors such as:

- ✓ Spending sufficient time for consultation.
- ✓ Detailed explanation of the treatment process and its stages.
- ✓ Paying attention to the patient's emotional concerns.
- ✓ Involving the patient in treatment decision-making all play a role in increasing patient satisfaction [37].

#### Educational programs to improve attitudes toward the elderly

To improve students' attitudes, medical universities in leading countries have designed and implemented courses focusing on "geriatric medicine", "geriatric psychology", and "ethics in dealing with the elderly". The most important components of such programs:

- ✓ Combining theoretical knowledge with practical experience.
- ✓ Use of aging simulators.
- ✓ Presence of elderly volunteers as experiential trainers.
- ✓ Strengthening communication skills, active listening, and empathy addresses the research hypotheses.

#### Student Attitudes and Patient Satisfaction

The research findings showed that there is a positive and significant relationship between dental students' attitudes toward the elderly and the satisfaction of elderly patients with removable complete dentures. This result is consistent with the background of domestic and foreign research that emphasizes the role of interpersonal factors in improving the treatment experience. A positive attitude can lead to more professional behaviors, more patience, and higher empathy when dealing with the elderly.

#### The Role of Intervening Variables

Based on the regression model and structural equation modeling, variables such as communication skills and academic year also have an important contribution to explaining patient satisfaction in addition to attitude. This finding

shows that attitude alone is not enough and should be strengthened as a set of competencies [38].

#### Conclusion

Dental students' attitude towards the elderly is not just a mental component, but a key factor in the quality of treatment and patients' satisfaction with complete removable dentures. Training that focuses on both the cognitive and emotional levels can promote professional attitudes, improve the elderly's treatment experience, and ultimately increase the effectiveness of dental treatments. The findings are consistent with the theoretical framework of attitude theory (cognitive, emotional, and behavioral components) and customer satisfaction theory in the field of health services. The conceptual model of the study, emphasizing the relationship between attitude and satisfaction, showed that human interaction and communication quality are key factors in understanding the quality of dental services. Studies in different countries have shown that students with a positive attitude show better communication behavior and their patients report a higher level of satisfaction. Also, combined theoretical-practical training with a focus on empathy has led to improved attitudes and reduced age stereotypes, and simulating the experience of aging can increase students' sensitivity to the difficulties of the elderly. The results show that dental students' attitudes towards the elderly not only affect their professional behavior and the way they interact with elderly patients, but also are directly related to the level of patient satisfaction with removable complete dentures. This finding highlights the importance of paying attention to teaching positive attitudes and communication skills in dental curricula. The present study emphasizes that dental students' attitudes towards the elderly not only affect their professional behavior, but also the experience and satisfaction of elderly patients with removable complete denture treatment. Developing a positive attitude, along with training in communication skills, can significantly improve the quality of dental services for the elderly. Also, behavioral and emotional components have a significant effect on the satisfaction of elderly patients with complete removable dentures. This significant relationship indicates that education is not sufficient for knowledge alone, but there is a need to train attitudes and strengthen communication and empathetic skills.

#### Disclosure Statement

No potential conflict of interest reported by the authors.

#### Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

### Authors' Contributions

All authors contributed to data analysis, drafting, and revising of the paper and agreed to be responsible for all the aspects of this work.

### References

- [1] Z Chakeri, S Hassani, S bagheri, A Salmanipur, N Maleki, [Child Thoracic Osteoid Osteoma: Case Presentation, Review of Radiology and Management Case Report](#), Journal of Clinical and Medical Images, 2022, 2 (3)
- [2] A Maleki, M Noorbakhsh, A Farhoudian, S Hassani, SA Karladani, [Functional Assessment of Challenging Behavior and Neurological & Cardio-Pulmonary Problem in Patients with Autism Syndrome: Diagnosis and Treatment](#), Journal of Pharmaceutical Negative Results, 2022, 13, 4112-4136
- [3] SR Ali, A Kouhi, S Hassani, M Shakiba, J Zebardast, H Ghanaati, [Vascular Blush Size Reduction, Technical Success and Safety of Intra-Arterial Embolization for Glomus Jugular Tumors: A Retrospective Cohort Study](#), IJ Radiology, 2012, 21 (1)
- [4] A Rafati, H Ghanaati, B Asadi, F Mehrabi, A Rahmatian, S Hassani, [Outcomes of the Fluoroscopically-Guided vs. Computed-Tomography-Guided Transforaminal Epidural Steroid Injection in Low Back Pain: A Propensity-matched Prospective Cohort](#), Medical journal of the Islamic Republic of Iran, 2025, 37, 23
- [5] MKH Tahernia, M Ghasemian, F Rostami, S Hassani, M Khalilzad, [Imaging Methods Applicable in the Diagnostics of Alzheimers Disease, Considering the Involvement of Insulin Resistance with Clinical Pharmacological Point](#), Pakistan Heart Journal, 2023, 56 (3)
- [6] AHM A Gholami, M Mohammadi, A Farhoudian, S Haassani, [Investigation of medical services in patients with Diabetes, cardio-vascular and Rheumatology disease in ICU](#), journal of pharmaceutical Negative Results, 2022, 13 (10), 4137
- [7] A Jalali, S Hassani, S Albuzyad, A Moaddab, M Rajabzadeh, [Investigation of Cardiopulmonary Complications in Patients with Infection and Prevalence of Intubation in ICU with Radiological Point](#), Pakistan Heart Journal, 2023, 56 (2), 906-919
- [8] Seyed Morteza Bagheri, Sara Hassani and Alireza Salmanipour, [Aggressive Osteoblastoma in adolescents: Radiological case report](#), GSC Advanced Research and Reviews, 2022, 11 (3), 101-105
- [9] D Rahi, S Abbassi, N Tajbakhsh, [Evaluation of Root Canal Morphology of Mandibular Bone Using Radiological Imaged a Systematic Review](#), Eurasian Journal of Chemical, Medicinal and Petroleum Research, 2024, 3 (3), 993-1015
- [10] B Vadiati Saberi, [nejad shamsi P, Zamindar M, Rahi D. Determination of frequency distribution of aggressive periodontitis in dental clinic of Rasht dental school in 2016-2017](#), Journal of Dentomaxillofacial Radiology, Pathology and Surgery, 2021, 10 (1), 34-39
- [11] B Vadiati Saberi, M Afravi, D Rahi, [The oral health status and oral hygiene practice of senior dental students: A cross-sectional study](#), Journal of Dentomaxillofacial Radiology, Pathology and Surgery, 2022, 11 (1), 1-6
- [12] SAHM Jahanabadi, SM Sajedi, N Pouralimohamadi, H Ghazipoor, D Rahi, [Examining the Principles of Oral and Dental Hygiene in Children and the Elderly with Burns and Facial Plastics Surgery: The Original Article](#), Tobacco Regulatory Science (TRS), 2022, 3198-3212
- [13] M Milanifard, S Mehrabi, R Ahadi, M Nabiuni, SA Souteh, MT Joghataei, [Evaluation relationship between VDR gene and clinical and inflammatory factors in patients with RRMS](#), European Journal of Translational Myology, 2024, 34 (4)
- [14] M Pouya, S Pakseresht, M Dahmardehei, A Jafarian, FM Milani, et al., [Medical and Pharmacological Evaluation of Scar Formation in Plastic Surgery](#), Journal of Medicinal and Chemical Sciences, 2022, 5 (4), 449-456
- [15] M Milanifard, S Mehrabi, R Ahadi, M Nabiuni, SA Souteh, MT Joghataei, [Evaluation relationship between vitamin D Receptor and clinical and inflammatory factors in patients with relapsing-remitting multiple sclerosis](#), European Journal of Translational Myology, 2024, 34 (4), 12939
- [16] F Mirakhori, [Evaluation of Amyloid Plaques in the Nervous System of Alzheimer's Patients with Reference to Non-Pharmacological Treatments in Patients](#), International Neurourology Journal, 2024, 28 (1), 804-820
- [17] A Jalali, S Hassani, S Albuzyad, A Moaddab, M Rajabzadeh, [Investigation of Cardiopulmonary Complications in Patients with Infection and Prevalence of Intubation in ICU with](#)

[Radiological Poin](#), Pakistan Heart Journal, 2023, 56 (2), 906-919

[18] FA Mirghaed, TN Ahmadi, SS Albuzyad, AA Khorram, F Mahshad, [A Systematic Review of Molecular Expression and Genetic Mutations in Patients with Cystic Fibrosis and Alzheimer's Disease](#), International Neurourology Journal, 2024, 28 (1), 773-786

[19] KH Mirzaei, M Shojaei, M Saboury, [Application of Robotic Instruments in Hip Arthroplasty Surgery Based on Practical Tips a Systematic Review](#), Eurasian Journal of Chemical, Medicinal and Petroleum Research, 2024, 3 (2), 593-609

[20] M Shojaei, [CHAT-GPT and artificial intelligence in Medical Endocrine System and interventions](#), Eurasian Journal of Chemical, Medicinal and Petroleum Research, 2024, 3 (1), 197-209

[21] M Shojaei, [Alternative Systematic Review of Insulin Resistance and the Role of Sex Steroids on Leptin Levels](#), Eurasian Journal of Chemical, Medicinal and Petroleum Research, 2024, 3 (1), 296-306

[22] MJ Rahimi, F Mirakhori, R Zelmanovich, C Sedaros, et al., [Diagnostic significance of neutrophil to lymphocyte ratio in recurrent aphthous stomatitis: a systematic review and Meta-analysis](#), Dermatology Practical & Conceptual, 2024, 14 (1), e2024046

[23] MA Hamed Rahmani Youshanouei, Hamed Valizadeh, et al., [Mesenchymal Stem cells as a bright therapeutic strategy for SLE: A Comprehensive Review](#), NeuroQuantology, 2023, 21, 5, 334-364

[24] Ali Shariati, Amir Tahavvori, Nadia Doustar, Armin Jabraeilipour, Amirreza Khalaji, Reza Mosaddeghi Heris, Mahdi Rezaei, Erfan Golshan Shali, Farima Fakhri, Fariba Mirakhori10, Hamed Rahmani Youshanlouei, [Advancements In Mesenchymal Stem Cell Therapy For Stroke: Promising Clinical Outcomes And Potential Role Of Extracellular Vesicles](#): Journal of Pharmaceutical Negative Results, 2022, 13, 08

[25] Mahdi Rezaei, Amir Tahavvori, Nadia Doustar, Armin Jabraeilipour, Amirreza Khalaji, Ali Shariati, Reza Mosaddeghi Heris, Erfan Golshan Shali, Farima Fakhri, Fariba Mirakhori10, Hossein Tahernia11, Hamed Rahmani Youshanlouei, [Mesenchymal Stem Cell Therapy For Alzheimer's Disease: A Review Of Msc-Derived Extracellular](#)

[Vesicles In Clinical And Preclinical Models](#): Journal of Pharmaceutical Negative Results, 2022, 13, 09

[26] M Ahmadi Hamed Rahmani Youshanouei, H Valizadeh, A Tahavvori, F Yazdanfar, M Nadiri, R Mosaddeghi heris, A Shariati, F Fakhri, M Noori, M Golmohammadi, S Kazemina, F Mirakhori, [Mesenchymal Stem cells as a bright therapeutic strategy for SLE: A Comprehensive Review](#): Neuro Quantology: 2023:21(5): 334-364

[27] M.J Rahimi, F Mirakhori, R Zelmanovich, Christina Sedaros, B Lucke-Wold, G Rainone, A Ghaedi, Sh Khanzadeh, [Diagnostic significance of neutrophil to lymphocyte ratio in recurrent aphthous stomatitis: a systematic review and Meta-analysis](#): Dermatology Practical & Conceptual:2024:14(1): e2024046

[28] A Ghaedi., S Khanzadeh Sarvin Es Haghi, M Khanzadeh, Sh Sarejloo, F Mirakhori, J Hernandez, E Dioso, M Goutnik, B Lucke-Wold: [Systematic review of the significance of neutrophil to lymphocyte ratio in anastomotic leak after gastrointestinal surgeries](#), BMC surgery,2024(24)

[29] D Rahi, N Tajbakhsh, S Abbassi, , [A systematic Review on Epidemiologic Study on Radiolucent lesions in Patients Referred to Radiology Departments](#), Eurasian Journal of Chemical, Medicinal and Petroleum Research. 2024; 3(3): 1016-1035.

[30] D Rahi, [Comparative Analysis of Root Resorption and Alveolar Remodeling in Maxillary Incisors During Orthodontic- Orthographic Surgical Treatment of Skeletal Class III Malocclusion](#), SPC Journal of Medical and Healthcare:2025,6(2):1-10

[31] D Rahi, [Factors in Glancing prophylactic Extraction of Mandibular Third molars in orthodontic practice:A systematic study](#), SPC Journal of Medical and Healthcare:2025,1(2):85-95.https://doi.org/10.48309/sjmh.2025.513381.1009

[32] D Rahi, N Tajbakhsh, S Abbassi, , [Evaluation of Root Canal Morphology of Mandibular Bone Using Radiological Imaged a Systematic Review](#), Eurasian Journal of Chemical, Medicinal and Petroleum Research. 2024; 3(3): 993-1015.

[33] M Milanifard, S Mehrabi, R Ahadi, M Nabiuni, S Azimi Souteh, M.T Joghataei, [Vitamin D receptor gene polymorphisms in patients with relapsing multiple sclerosis](#): European Journal of Translational Myology, 2025

[34] M Milanifard, S Mehrabi, R Ahadi, M Nabiuni, S Azimi Souteh, M.T Joghataei,

[Evaluation relationship between vitamin D Receptor and clinical and inflammatory factors in patients with relapsing-remitting multiple sclerosis:](#) European Journal of Translational Myology, 2024, 9;34(4):12939

[35] M Milanifard, M Ramezani. [Clinical and neurological problems and clinical tests in Alzheimer's patients specializing in Alzheimer's disease.](#) Eurasian Journal of Chemical, Medicinal and Petroleum Research.2025.4(1): 244-255

[36] M. Milani Fard, A.M. Milani Fard. [The Role of Complementary Medicine and Appropriate Treatment Methods in Improving the Symptoms of PMS.](#) Int. J. Adv. Stu. Hum. Soc. Sci. 2022, 11(1):64-71.

[37] M Pouya, S Pakseresht, M Dahmardehei, A Jafarian, M Milani, H Otaghvar, F Amini. [Medical and Pharmacological Evaluation of Scar Formation in Plastic Surgery.](#) Journal of Medicinal and Chemical Sciences. 2022.5(4): 449-456

[38] B Mahmoodiyeh, H Taleby, S Etemadi, M.S Sadri, A Susanabadi, M Milani Fard. [A Systematic Short Review in Evaluate the Complications and Outcomes of Acute Severe of Pediatric Anesthesia.](#) Journal of Chemical Reviews2021,3(3): 219-231