



Perceptions of Patients and Professionals about the Path of a Patient with Periodontal Disease through the Health-care System

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Abstract

BACKGROUND: Periodontal disease or periodontitis is one of the most common chronic diseases worldwide. Examining the pathways of patients with periodontitis through the health-care system enables a more comprehensive approach to treatment and support that improves social inclusion and quality of life.

AIM: The aim of the study was to explore and understand the perceptions of people with periodontitis and key experts in the field regarding the treatment pathways and the key information, actors, structures, activities, processes, and factors that contribute to improving the treatment of patients with periodontitis.

MATERIAL AND METHODS: We used a qualitative research design with in-depth interviews to gather comprehensive data on individuals' perspectives and experiences related to periodontitis. A total of 12 patient interviews and 12 expert interviews were conducted.

RESULTS: Most interviewees only contacted a dentist when periodontitis symptoms such as gum swelling and tooth mobility became severe. This delayed response is attributed to limited health literacy and a lack of familiarity with basic oral health. Physicians often miss these symptoms or hesitate to treat them due to uncertainty, limited knowledge, or systemic pressures. Improvements in health care call for enhanced symptom recognition, patient education, and interprofessional collaboration to tackle these challenges efficiently.

CONCLUSION: The study underscores the need for improved health literacy and interprofessional collaboration in health care, highlighting that delayed treatment of periodontitis due to lack of symptom recognition and limited oral health knowledge necessitates more effective patient education and health-care provider training.

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Introduction

Periodontal disease or periodontitis is one of the most common chronic diseases worldwide, affecting around 19% of the adult population, according to the World Health Organization [1]. It is known for its insidious progression and often unnoticed symptoms and is therefore sometimes referred to as a "silent epidemic." The links between periodontitis and serious systemic diseases such as cardiovascular disease, diabetes, and cancer emphasize the need for a thorough understanding of the disease. Studies suggest that treatment of periodontitis can significantly improve quality of life and reduce health-care costs by improving overall health [2].

Researching the perspectives of people with periodontitis and analyzing the key players, structures, and processes within the health-care system is essential to improving health outcomes. A better understanding of the needs and barriers faced by patients enables targeted and effective support, leading to better disease management, fewer complications, and better overall health outcomes [3], [4], [5], [6]. Examining the pathways

of patients with periodontitis through the health-care system therefore enables a more comprehensive approach to treatment and support that improves social inclusion and quality of life.

Experts play a crucial role in designing and improving patient pathways due to their deep knowledge of medical, therapeutic, and diagnostic processes [7]. As primary observers of deficiencies in the system, they provide direct feedback that ensures changes are in line with the latest clinical guidelines and standards, improving safety, effectiveness, and evidence-based health-care practices [7]. In this way, experts not only improve the quality of health care but also ensure that patient pathways are developed in accordance with modern medical practice standards [8].

Studying the disease trajectories of patients with periodontitis is crucial for a better understanding of the disease, its complications, and its comorbidities [8]. Analyzing these courses reveals risk factors that influence disease progression and enable better prevention and early detection. It also reveals inadequacies in diagnostic and therapeutic processes, leading to more efficient health-care protocols and

better clinical outcomes [9]. This raises the question of how patients with periodontitis and experts in the field perceive the journeys of patients with periodontitis through the Slovenian health-care system.

Aim

The aim of the study was to explore and understand the perceptions of people with periodontitis and key experts in the field regarding the treatment pathways and the key information, actors, structures, activities, processes, and factors that contribute to improving the treatment of patients with periodontitis, to facilitate easier navigation through different forms of support and thus improve the quality of life of people with this chronic disease.

Material and Methods

To obtain comprehensive data on individual perspectives and experiences related to periodontitis, a qualitative research design utilizing in-depth interviews was carried out within the framework of the Ministry of Health of the Republic of Slovenia (No. V3-2327) and the project "Raising health literacy for effective navigation through the health-care system" co-funded by the Slovenian Research Agency and Ministry of Health Republic of Slovenia (No. V3-2327).

The main research goals were to: (1) examine periodontitis patients' experiences from initial symptoms to continuous treatment; (2) determine barriers and facilitators in healthcare and community support; (3) evaluate the involvement of various stakeholders in patient support; and (4) pinpoint deficiencies in health care and community resources to enhance health literacy and disease management.

Participants included a purposive, heterogeneous sample of individuals with periodontal disease to ensure a variety of demographic characteristics and experiences. Experts also participated, selected for their depth of knowledge of periodontitis and to enrich the data with professional insights. A total of six patient interviews and two expert interviews were conducted. The inclusion criteria for patients focused on direct experience with periodontitis and its treatment, whereas the experts were selected for their clinical and research expertise in secondary or tertiary health care. Interviews were semi-structured, conducted in an environment that ensured confidentiality and comfort, and tailored to participants' preferences. The research was approved by the Commission for Medical Ethics of the RS (No. 0120-62/2022/3). The data were analyzed using thematic analysis.

Results

Analysis of patient interviews

Most of the interviewees visited dentists only upon severe periodontitis symptoms such as gum swelling and tooth mobility, having missed early signs. GPs frequently overlooked gum disease in routine checkups. Dentist diagnosis methods varied: some immediately referred cases to specialists, whereas others, especially in private clinics, required patient initiative for referrals or attempted direct treatment. Common treatments involved oral hygiene education and gum cleaning, potentially including flap surgery, with long-term monitoring. The professionalism at the University Medical Center Ljubljana Dental Clinic was notably higher than some private clinics, underscoring better public health-care standards and highlighting the need for enhanced health literacy (Table 1).

Table 1: Thematic analysis with sub-themes, codes, and patient quotes on the periodontal patient journey and experience of care

Themes	Subtheme	Codes	Quotes
The patient journey	Recognizing late-stage symptoms	- The patient recognizes the disease when symptoms become severe	"/.../The doctor did not do what he could have done from the start. (Patient 1)
		- Personal dentist fails to recognize disease	
	Different practices of personal dentists by diagnosis	- Referral to a specialist at first suspicion	But because I had a very long period, but I went privately, so I had my first thorough cleaning, and they checked my condition. (Patient 2)
- Patients seek periodontist referrals			
- Treated by personal dentists (mainly private)			
Treatment	- Switching to the private sector over queues		
	- Educating patients on proper oral care	The visits include cleaning my teeth pockets and removing tartar/.../. The dentist detailed home oral care. (Patient 3)	
	- Performing dental cleanings and surgeries		
	- Routine patient check-ups		
		- Higher satisfaction with the Dental Clinic, lower with personal doctors and private clinics	I went private ... thinking it would be better/.../I was so disappointed ... (Patient 5)

Interviewees were initially unaware of many periodontitis aspects but appreciated the detailed information received after diagnosis at the University Medical Centre Ljubljana Dental Clinic, especially regarding treatment options and the risk of tooth loss. Patients valued the opportunity to engage with health-care providers at secondary and tertiary care levels, though primary care was noted for more accessible educational materials such as brochures. Despite effective communication at higher health-care levels, there were significant criticisms regarding early disease recognition and communication lapses by personal dentists. Systemic issues in the public health-care system, such as long waiting times and shortages of specialists, alongside a lack of early oral hygiene education, were highlighted as major barriers to effective periodontitis management (Table 2).

Patients highlighted the importance of being informed about periodontitis before dentist visits to improve communication and achieve better treatment

Table 2: Thematic analysis with sub-themes, codes, and patient quotes on sources of support and barriers in the periodontal patient journey

Themes	Subtheme	Codes	Quotes
Sources of support	Support structures	- Information support for the UKC Ljubljana dental clinic	<i>But periodontal disease itself, the causes are known, the treatment is known./...I still understood everything. (Patient 1)</i>
		- Dental emergency room	
	Actors	- Public and private dental clinics	<i>In fact, it was my wife who was my support./...She explained some things to me, what could have been. (Patient 4)</i>
		- Dentists	
Information	- Personal dentists	<i>When looking for information on periodontal disease, waiting times./...I looked at internet ... (Patient 2)</i>	
	- Family members		
Barriers	Information	- Other periodontal patients	<i>During my childhood, I was never explained the importance of oral hygiene and proper dental care. (Patient 2)</i> <i>My experience has been frustrating, especially because of the long queues and infrequent check-up intervals, which have prevented me from regularly monitoring my dental health. (Patient 2)</i>
		- Details on periodontal disease outcomes and treatments	
	Barriers	- Childhood dental neglect	
		- Unaware until symptoms	
		- Disinterest	
Barriers	- Shifting from public to private sector		
	- Dentist shortages and long queues at the primary level		
	- Shortage of periodontists		
		- Rare reviews	

outcomes. They suggested proactive engagement, such as asking questions and seeking early treatment, and desired more personalized care focused on early detection and education. The health-care system should enhance dentist–patient interaction time and expedite treatments. Early screening and oral hygiene education, especially in primary care and schools, are essential. Enhancing online engagement with credible information and patient experiences could also help inform treatment decisions. Emphasis was placed on increasing awareness of dental hygiene, particularly among the youth (Table 3).

Table 3: Thematic analysis with sub-themes, codes, and patient quotes on patient recommendations to improve the management of people with periodontal disease

Themes	Subtheme	Codes	Quotes
Patient recommendations to improve the management of people with periodontal disease	For patients	- Discussing disease and asking questions in medical exams	<i>So, they feel comfortable asking questions, regardless of having their own dentist, and can inquire about anything of interest. (Patient 5)</i>
		- Book an appointment with a dentist as soon as possible	
	For doctors	- More time for the patient	<i>Above all, it is important to listen to the patient as much as possible. To take time for the patient, to listen to them, to question them, let's say, more thoroughly. (Patient 1)</i>
		- Correct attitude, made patients feel cared for and listened to	
For the health system	For the health system	- Dentists would quickly notice early disease signs	<i>Yes, in fact, prevention is the first thing./...It seems to me that a lot more work should be done to make sure that such situations practically don't even occur, or that they are reduced to a minimum if possible. (Patient 3)</i>
		- Boost interaction time	
		- Speed up treatments and checkups	
	Web	- Screen for periodontal disease	<i>I mean, a health center or a dental clinic should publish key information on net and patients' experiences ... (Patient 5)</i>
		- Enhance primary periodontal education	
General	- Inform parents about oral hygiene	<i>I believe it's crucial to present this as a serious matter. (Patient 4)</i>	
	- Encourage dental teamwork		
		- Increased involvement of health-care institutions online	
		- Access to anonymized patient experiences	
		- Promoting dental health awareness among youth	

Analysis of interviews with experts

Experts on periodontitis highlight the importance of early symptom recognition, such as bleeding gums, and stress the need for continuous oral hygiene using tools such as interdental cleaners. Regular dental checkups and visits to dental hygienists are recommended to sustain oral health. Effective patient education often starts in primary care with symptom identification and proceeds with referrals to specialists. Information is mainly disseminated at secondary or tertiary health-care levels, emphasizing the importance of communication through various means including in-person and digital channels. Despite the Internet's role in information sharing, experts caution about its reliability and advocate for the pivotal role of personal dentists and dental hygienists, supported by professional associations and other resources (Table 4).

Table 4: Thematic analysis with sub-themes, codes, and quotes from experts on key information for periodontal disease management

Themes	Subtheme	Codes	Quotes
Key information for managing periodontal disease	Symptom recognition	- Bleeding gums	<i>The essential information is whether the gums bleed when brushing. (Expert 1)</i> <i>In any case, brush twice daily and floss nightly. (Expert 2)</i>
		- Proper brushing and cleaning of the interdental spaces	
	Oral hygiene	- Insisting on oral hygiene	
Information and the patient's journey in periodontal disease management	Regular checks	- Regular checks once a year	<i>Dentists should refer patients for regular check-ups. (Expert 2)</i> <i>Patients receive too little information at primary level./.../most information from the periodontist. (Expert 2)</i>
		- Not enough information from the personal doctor, mainly from the periodontist	
	Information mainly at the secondary and tertiary level	- Personal dentists, oral hygienists, periodontists	<i>Personal dentists, oral hygienists, and periodontists play a key role./.../and Internet and the Slovenian Association of Oral Hygienists ... (Expert 1)</i>
Key informants	- Outside the health-care system: the Internet and the Slovenian Association of Oral Hygienists		

Expert interviews highlight key issues in periodontitis management, notably at the primary care level where symptoms are often overlooked or untreated due to dentists' lack of expertise or insurance coverage issues. This neglect increases specialist demand, extends waiting times, and complicates treatments. Primary care's inadequate monitoring leads to frequent patient recurrences. General dentists provide insufficient patient education and fail to direct patients to additional resources, leading to a widespread misunderstanding of periodontal disease. At the secondary level, issues such as poor diagnostic data transfer and delayed specialist referrals worsen the situation, further obstructing timely and effective treatment due to limited options and long waiting lists (Table 5).

Recommendations to combat periodontitis emphasize raising disease awareness through educational campaigns, media outreach, and information distribution in health-care settings. Experts suggest a centralized web portal by the Ministry of Health showcasing visual disease impacts. Initiating treatment

Table 5: Thematic analysis with sub-themes, codes, and quotes from experts on barriers to patient management of periodontal disease

Themes	Subtheme	Codes	Quotes
Barriers to managing patients for periodontal disease management	Key barriers at the primary level	- Ignoring gum disease symptoms	<i>They prefer to do other services that bring more.</i> (Expert 2)
		- Neglecting periodontal treatment	
	Secondary level	- Queues due to untimely treatment	<i>And the health system ... the number of treatments, the number of services per patient is also limited.</i> (Expert 1)
		- Inadequate patient education	
		- Lack of time to talk to the patient	
		- Strict treatment caps	
		- Long queues	

and education at primary care levels, supported by health insurance, and focusing on adolescent monitoring, is crucial. Collaboration between dentists and dental hygienists is vital for comprehensive care, emphasizing patient engagement and oral hygiene education. Adopting preventative measures such as those in Scandinavian countries could enhance health outcomes and quality of life (Table 6).

Table 6: Thematic analysis conclusion with sub-themes, codes, and expert quotes on key recommendations for periodontal disease management

Themes	Subtheme	Codes	Quotes
Key recommendations for managing periodontal disease	Information and awareness-raising	Boosting awareness and prevention through traditional and digital channels	<i>I always say we are not raising awareness enough.</i> (Expert 2)
		Health system	<i>Personal dentists should recognize the disease earlier.</i> (Expert 1)
		- Monitoring dental tissues from adolescence in clinics	<i>That's why I always say, collaborate with the oral hygienists you've trained for challenging tasks. So, to work together...</i> (Expert 2)
		- Dentists working with hygienists	<i>Take time, to communicate with patients ...</i> (Expert 1)
	Parodontologists	Ample time to talk to patients and ask questions	<i>Hygienists could work in nursing homes, schools ...</i> (Expert 2)
	Oral hygienists	Introducing preventive check-ups with hygienists	<i>An example is Scandinavia, dental care prioritizes prevention...</i> (Expert 1)
	Patients	Preventive outreach to patients	

Discussion and Conclusion

The study shows the patient's journey through the health-care system and their experience of being diagnosed with periodontitis. Most interviewees only contacted a dentist until the disease was significantly advanced, as evidenced by symptoms such as gum swelling and tooth mobility. This is attributed to limited health literacy, as indicated by the interviewees' statements and other research [10], suggesting that patients may not recognize or understand early symptoms of periodontitis due to a lack of familiarity with basic oral health. In addition, treating physicians often did not recognize the symptoms of periodontitis or were reluctant to treat them. Reasons for this include

a lack of specific knowledge or experience with certain diseases and limited consultation time, which does not allow for a thorough examination of the patient. The reluctance to treat could be due to uncertainty about the best treatment approach or systemic issues such as cost pressures in the health-care system. Dentists' approaches to diagnosing periodontitis differ. Some immediately refer patients to specialists, whereas others rely on patient initiative for referrals, especially in the private sector. This can exacerbate inequalities in patient care [11]. Treatment involves educating patients on oral hygiene, cleaning periodontal pockets, and possibly flap surgery. Therapies are repeated regularly and monitored following general guidelines, but personalized approaches are essential based on each patient's condition and disease severity.

Interviews with patients emphasized that improving the quality of health care requires, above all, prompt action at the first sign of problems, preparing patients for the dental visit with prior knowledge of their health condition, and sufficient time to educate patients about periodontitis and encourage active dialogue by dentists. Such approaches improve communication and understanding between patient and doctor, contributing to better health outcomes [12]. The recommendations also recommend integrating health-care teams for more effective prevention and treatment, which is a major challenge for inter-organizational collaboration in health care due to numerous systemic, procedural, and personal barriers not only in Slovenia and Eastern European countries but also worldwide, reducing the quality and efficiency of health care [13].

Experts advise prioritizing symptom recognition and oral hygiene maintenance. However, barriers such as inadequate primary care competence and long wait times hinder prompt treatment. Patients in Scandinavia tolerate up to 3-months wait for non-urgent procedures [14]. In Slovenia, patients faced significant wait times for periodontal examinations in February 2024. Suggestions for improvement include raising awareness, prevention, centralized information, and enhanced collaboration among professionals. Training primary care dentists on periodontitis is crucial, inspired by Scandinavian health measures. Nonetheless, broader research is needed to generalize findings effectively due to the study's limitations.

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