Mini-Review

Xerostomia and its Consequences in Sjögren Syndrome: A Mini- Review

Nauman Ismat Butt[1], Nubera Ahmed[2], Muhammad Matee Ullah[3], Hafiz Zaki Naeem[4]

[1-4]Department of Medicine & Allied, Azra Naheed Medial College, Superior University Lahore Pakistan

Corresponding Author: **Dr. Nauman Ismat Butt**, Assistant Professor, Department of Medicine & Allied, Azra Naheed Medial College, Superior University Lahore Pakistan **Email:** nauman_ib@yahoo.com

Abstract

Background: Addressing the lesser known aspects of rheumatologic diseases, especially Sjögren Syndrome (SS), is essential to increase disease awareness and improve patient care.

Objective: To highlight oral consequences of xerostomia in Sjögren syndrome (SS).

Methods: A narrative mini-review of current literature was conducted focusing on salivary dysfunction and xerostomia in SS.

Results: The systemic aspects of Sjögren syndrome are usually well-managed, but salivary gland hypofunction and xerostomia are not as well-managed. Hypofunction of salivary glands in SS results in reduced antimicrobial activity, reduced buffer capacity and reduced remineralizing capacity of saliva resulting in a pathogenic environment. Affected patients experience rapid progression of caries, periodontal disease and candidiasis, in addition to experiencing pain and discomfort. The hypofunction of salivary glands does not improve even with immunomodulatory treatment because of permanent damage and fibrosis.

Conclusion: It is important to incorporate preventive dentistry and risk assessment in SS patients to reduce complications, morbidity and healthcare costs.

Keywords: Sjögren syndrome, Xerostomia, Saliva, Oral hygiene, Rheumatic diseases, Pakistan

Received: 07-01-2026 Revision: 23-03-2026 Accepted: 30-04-2026

How to cite: Butt NI, Ahmed N, Ullah MM, Naeem HZ. Xerostomia and its Consequences in Sjögren Syndrome: A Mini-Review. Avicenna J Health Sci. 2026;03(01): 34-37

Introduction

The aim of this narrative mini-review is to highlight the less recognized and treated oral manifestations of rheumatic disorders, especially focusing on Sjögren syndrome (SS). It is known that the systemic manifestations of autoimmune rheumatic disorders are well monitored and treated in recent years, especially with the advances in immunomodulatory therapy. However, the same cannot be said regarding the oral manifestations, which have not been accorded the importance they deserve.[1,2] Sjögren Syndrome (SS) is a systemic autoimmune disease characterized by lymphocytic infiltration and progressive dysfunction of exocrine glands, especially the salivary and lacrimal glands.[2,3] Hyposalivation and xerostomia are some of the most common and disabling manifestations of SS. Saliva plays an essential role in maintaining oral health through cleansing action, acid buffering capacity, antimicrobial action, lubricating action, and enamel remineralization.[4,5] The impairment of these mechanisms after a decrease in saliva flow will result in a cariogenic and infection-prone oral environment. Thus, patients with SS have oral morbidity despite proper systemic treatment of their condition. Oral complications associated with SS do not only involve pain. There is the deterioration of dentition, nutritional problems, speech impedement and psychological problems which lead to poor quality of life.[4,5] However, assessment of oral health care does not seem to be part of rheumatic care programs. This mini-review sheds light on the effects of xerostomia on SS patients and emphasizes the need for preventive and interdisciplinary oral healthcare.

Methods

A narrative review of the available literature on xerostomia and oral symptoms in SS patients was undertaken through recent peer-reviewed studies and review articles. Various aspects of salivary dysfunction, oral symptoms, prevention and treatment were discussed to summarize clinically relevant findings.

Results

Reduced antimicrobial, buffering, lubricating and remineralizing functions of saliva contribute to

increased risk of caries, periodontal disease, candidiasis and functional impairment. The main oral consequences of salivary hypofunction in SS are summarized in Table 1.

Table 1: *Consequences of Xerostomia in Sjögren Syndrome and Their Clinical Implications*

Salivary dysfunction consequence	Mechanism and role of reduced saliva	Clinical manifestations	Impact on patient care
Reduced antimicrobial activity	Decreased protective proteins and antimicrobial factors in saliva	Increased susceptibility to oral candidiasis, mucosal infections, angular cheilitis and halitosis	Requires monitoring for infections and preventive oral care
Reduced buffering capacity	Impaired neutralization of dietary and bacterial acids	Increased dental plaque acidity and rapid progression of dental caries	Increased need for fluoride therapy, dietary counseling and caries prevention
Reduced remineralizing capacity	Lower availability of calcium, phosphate and protective salivary components	Enamel demineralization, cervical and root caries, tooth surface damage	Early restorative intervention and remineralization strategies are required
Reduced lubrication	Decreased mucosal moisture and impaired mechanical protection	Oral dryness, mucosal discomfort, fissuring, burning sensation, difficulty wearing dentures	Symptomatic treatment with saliva substitutes and lubricants may improve comfort
Altered oral microbial environment	Loss of saliva-mediated microbial regulation	Increased risk of periodontal disease and fungal overgrowth	Regular periodontal assessment and individualized recall intervals are important
Impaired oral function	Reduced saliva affects mastication, swallowing and speech	Difficulty eating dry foods, dysphagia, speech problems and altered taste	Can contribute to nutritional problems and reduced quality of life
Chronic gland destruction	Autoimmune inflammation causes progressive fibrosis and irreversible salivary gland hypofunction	Persistent xerostomia despite systemic immunomodulatory therapy	Highlights importance of early oral assessment and preventive management
Psychosocial effects	Persistent discomfort and visible oral deterioration	Reduced self-esteem, social discomfort and impaired quality of life	Requires recognition of oral symptoms as part of systemic disease management

Discussion

Although the systemic manifestations, such as fatigue, arthralgia, and extraglandular disease, are certainly emphasized in rheumatologic management, the increasing incidence of dental disease, as a consequence of SG dysfunction, is often underestimated. SS patients frequently experience rapidly progressive cervical and root caries, even with good previous oral health habits.[1,2] This can occur through an atypical pattern, including incisal edges and smooth surfaces, which are less commonly involved. Increased incidence of periodontal disease, oral candidiasis, angular cheilitis, fissuring of the mucous membranes, dysgeusia, and burning mouth syndrome have also been documented.[2,6] Mucous membrane weakness and decreased lubricating ability can cause pain, inability to tolerate dental prostheses, and food sensitivities. This can lead to early restoration and subsequent early loss of teeth. The effects of these are not limited to dentition. Masticatory and deglutition difficulties may affect dietary habits and lead to nutritional deficiencies.[2] Speech problems, halitosis, and evidence of dental deterioration may impair social interactions and self-esteem and have a negative impact on the quality of life.[1,6] Xerostomia in SS is not only a sign of discomfort but is also a causative agent of progressive structural damage. Salivary dysfunction in SS is a chronic process that is usually progressive in nature. Despite systemic immunomodulatory therapy, there is little chance of improvement in saliva flow once gland destruction has occurred. In addition, several medications used in the management of rheumatologic diseases, including anticholinergics and certain antidepressants, can exacerbate xerostomia.[7,8] Although saliva substitutes and sialogogues provide symptomatic relief, they do not provide the complete protective benefits of endo-

genous saliva.[2,8] Hence, preventive dentistry assumes great significance. However, oral health is compartmentalized and is not part of the mainstream rheumatologic care process.[9,10] Risk assessment is not universally part of the care process. Quantified salivary flow rates, questioning patients regarding dry mouth symptoms, and timely referral of patients to dental practitioners with experience in salivary hypofunction are all part of the care process. Topical fluoride of high concentration, remineralizers, antimicrobial agents, salivary stimulants, dietary advice, and reduced recall intervals are all evidence-based intervenetions that could help reduce the burden of this disorder.[2,6] Xerostomia is a consequence of impaired salivary gland function and continuous gland degeneration. The mouth requires saliva to function due to its antimicrobial activity, buffering capacity and mineral content. Thus, less saliva leads to poor oral health in SS patients. Furthermore, the psychosocial consequences of xerostomia must also not be overlooked. The physical decline of oral health, speech problems, bad breath and constant discomfort can cause negative self-image and social isolation.[11,12] Thus, oral signs of disease must be addressed from both perspectives. Interdisciplinary collaboration among rheumatologists, oral medicine specialists, dentists, and primary care providers would be beneficial in the long-term management to improve the over-all health and quality of life in SS patients.[11,12] Referral and management protocols would also be helpful and would possibly decrease the complexity of future dental procedures, healthcare costs, and tooth loss. Dental care for SS patients should be considered a necessary disease management procedure rather than cosmetic. This reality must be reflected in healthcare policies and insurance schemes. With regard to the established relationship between the pathophysiology of autoimmune diseases of the salivary glands and oral disease, it is considered that the provision of preventive and therapeutic dental care for this patient group is part of their medical management.

Further studies are needed to evaluate the clinical and economic outcomes of the oral-systemic model of care for patients with rheumatic diseases. There is also a need for increased awareness of this disease within the medical community for the early diagnosis of SS, as oral signs of this disease have been established as one of its earliest manifestations. The oral health of individuals cannot be separated from their general health status. When this dimension of oral health is neglected in autoimmune rheumatic disease patients, unnecessary suffering and reduced quality of life result.

Conclusion

Xerostomia in SS can have serious implications for mouth-related issues, functioning abilities and social psychology. It is, therefore, imperative to integrate preventive dentistry care and oral risk screening in rheumatologic care practices in order to minimize the complications arising from xerostomia.

Conflict of Interest / Disclosure: Nil.

Funding Source: Nil.

Authors' Contribution:

NIB: Conception and design, literature research, manuscript writing, review and corrections.

NA: Conception and design, manuscript review and corrections.

MMU: Literature research, manuscript writing.

HZN: Literature research, manuscript review and corrections.

References

1. Liu SC, Lu MC, Koo M. Oral Manifestations of Sjögren's Syndrome: Recognition, Management, and Interdisciplinary Care. Medicina (Kaunas). 2025;62(1):5. Doi: 10.3390/medicina62010005.
2. Zhan Q, Zhang J, Lin Y, Chen W, Fan X, Zhang D. Pathogenesis and treatment of Sjogren's syndrome: Review and update. Front Immunol. 2023;14:1127417. Doi: 10.3389/fimmu.2023.1127417.
3. Butt NI, Waris B, Ghoauri MSA, Afzal A, Riaz MW. Secondary Sjögren's syndrome in sero-positive rheumatoid arthritis. Pak J Ophthalmol. 2025;41(3): 320-323. Doi: 10.36351/pjo.v41i3.2080.
4. Bowman SJ, Seror R, Porcher R, Arends S, de Wolff L, Verstappen G, et al. Primary Sjögren's Disease: a review of unmet need, outcome measures, therapeutic advances and health economic impacts. Lessons from the NEw Clinical Endpoints in primary Sjögren's Syndrome: an Interventional Trial based on stratifYing patients (NECESSITY) Innovative Health Initiative (IHI). Ann Rheum Dis. 2025;84(7):1068-1089. Doi: 10.1016/j.ard.2025.05.004.
5. Roblegg E, Coughran A, Sirjani D. Saliva: An all-rounder of our body. Eur J Pharm Biopharm. 2019;142:133-141. Doi: 10.1016/j.ejpb.2019.06.016.

6. Reckelkamm SL, Alayash Z, Holtfreter B, Nolde M, Baumeister SE. Sjögren's Disease and Oral Health: A Genetic Instrumental Variable Analysis. J Dent Res. 2024;103(3):263-268. Doi: 10.1177/00220345231218903.

7. Ito K, Izumi N, Funayama S, Nohno K, Katsura K, Kaneko N, et al. Characteristics of medication-induced xerostomia and effect of treatment. PLoS One. 2023;18(1):e0280224. Doi: 10.1371/journal.pone.0280224.

8. Rughwani V, Miao-Jonasson J, Marklund B, Mossberg K, Almståhl A, Lynge-Pedersen AM, et al. Xerostomia in primary care: a register-based study of prevalence, medication categories, and associated risk factors. Front Oral Health. 2025;6:1684568. Doi: 10.3389/froh.2025.1684568.

9. Vujovic S, Desnica J, Stevanovic M, Mijailovic S, Vojinovic R, Selakovic D, et al. Oral Health and Oral Health-Related Quality of Life in Patients with Primary Sjögren's Syndrome. Medicina (Kaunas). 2023;59(3):473. Doi: 10.3390/medicina59030473.

10. Hirsh JM, Boyle DJ, Collier DH, Oxenfeld AJ, Nash A, Quinzanos I, et al. Limited health literacy is a common finding in a public health hospital's rheumatology clinic and is predictive of disease severity. J Clin Rheumatol. 2011;17(5):236-41. Doi: 10.1097/RHU.0b013e318226a01f.

11. Ghani S, Qamar I, Malik T, Butt NI, Safdar S, Kazi SHR. Quadriparesis as a presentation of Sjögren syndrome-induced distal renal tubular acidosis with hypokalemia and osteomalacia. J Trop Health. 2025;1(4):34-38. Doi: 10.4038/joth.v1i4.44.

12. Dua AB, Sparks JA. Highlights of Interdisciplinary Care in Rheumatology. Rheum Dis Clin North Am. 2024;50(3):xiii-xiv. Doi: 10.1016/j.rdc.2024.05.002.