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ORIGINAL RESEARCH

Experts Perspectives on Current Practices and Challenges of Diagnosis and Treatment of Dry Eye Disease across Europe and Central Asia

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ABSTRACT

***Introduction*:** Dry eye disease (DED) is a multifactorial disease of the ocular surface characterized by a loss of homeostasis of the tear film, and accompanied by ocular symptoms, in which tear film instability and hyperosmolarity, ocular surface inflammation and damage, and neurosensory abnormalities play etiological roles. Affecting up to 60% of individuals worldwide, DED imposes a significant physical, psychosocial, and economic burden. Its diagnosis remains challenging owing to heterogeneous clinical presentations, poor correlation between signs and symptoms, and limited access to advanced

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diagnostic tools. This study aimed at exploring real-world clinical practices in the diagnosis and management of DED across Europe and Central Asia by gathering experts' perspectives.

Methods: A panel of experts comprising 15 specialists from tertiary referral centers across 10 countries convened to discuss diagnostic workflows and treatment strategies for DED.

Results: The consensus emphasized that symptom questionnaires, slit-lamp examination, tear break-up time, and corneal and conjunctival staining represent the cornerstone of diagnosis. Tear osmolarity testing was used less frequently, primarily owing to cost and limited resource availability. Most cases managed in specialized centers were moderate-to-severe, underscoring the need for comprehensive and multidisciplinary evaluation. Treatment practices emphasized a stepwise approach, with first-line therapy comprising conventional measures such as environmental and behavioral modifications, tear substitutes, and lid hygiene. Cyclosporine A (CsA) eye drops were reserved for patients with an insufficient response to first-line therapy or with clinically significant ocular surface inflammation. In these cases, experts indicated that concomitant short-term glucocorticosteroids with CsA may be used initially, followed by CsA monotherapy for long-term disease control. Regular follow-up and patient education were considered essential to support treatment adherence and efficacy. Interdisciplinary collaboration, particularly with rheumatologists and mental health professionals, was regarded as critical for managing systemic comorbidities and addressing psychosocial impacts.

Conclusions: This consensus highlights the value of sharing experts' experience to harmonize care standards and optimize clinical outcomes. Early recognition of ocular surface inflammation, timely initiation of immunomodulatory therapy, and integrated multidisciplinary care are essential for improving patient quality of life across diverse healthcare settings.

Keywords: Dry eye; Diagnostic tools; Cyclosporine A; Interdisciplinary collaboration; Tear instability; Inflammation

Key Summary Points

Why carry out this study?

Dry eye disease (DED) is a highly prevalent, multifactorial condition associated with significant physical, psychosocial, and economic burden; however, diagnostic and treatment practices vary widely across regions.

There is an unmet need to harmonize clinical approaches and optimize patient journey through shared experts' experience in Europe and Central Asia.

The study aimed at exploring real-world clinical practices in the diagnosis and management of DED by collecting experts' opinions from tertiary referral centers across 10 countries.

What was learned from the study?

Experts agreed that symptom questionnaires, slit-lamp examination, tear break-up time, and ocular surface staining represent the cornerstone of diagnosis, while tear osmolarity testing is used less frequently owing to cost and resource limitations. Cyclosporine A eye drops, initially combined with glucocorticosteroids, are considered essential for managing moderate-to-severe DED cases unresponsive to first-line therapy or characterized by clinically significant inflammation; regular follow-up and patient education deemed critical for treatment success.

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Despite slight local differences, consistent diagnostic and treatment strategies emerged, highlighting the importance of early recognition of ocular surface inflammation and timely initiation of immunomodulatory therapy.

Interdisciplinary collaboration, particularly with rheumatologists and mental health professionals, is vital for comprehensive care and may inform future guidelines to standardize DED management across diverse healthcare settings.

INTRODUCTION

The term "dry eye disease" (DED) refers to a heterogeneous group of disorders with various underlying causes and pathogenic mechanisms [1]. The Tear Film and Ocular Surface Society and Dry Eye Workshop III (TFOS DEWS III) Report recently defined DED as a "multifactorial, symptomatic disease characterized by a loss of homeostasis of the tear film and/or ocular surface, in which tear film instability and hyperosmolarity, ocular surface inflammation and damage, and neurosensory abnormalities are etiological factors" [2]. Tear osmolarity may result either from increased tear evaporation, leading to evaporative DED, or from reduced tear production, characteristic of aqueous-deficient DED [3, 4]. Approximately 10% of patients with DED have the aqueous-deficient form, while the remaining ones present with evaporative or mixed types [5–7].

DED affects between 5 and 60% of individuals worldwide [8]. This wide variation in reported prevalence is attributed to differences in population characteristics, geographic regions, and diagnostic criteria used across studies [8, 9]. The prevalence of DED is higher among women and older people [10]; other important risk factors include prolonged use of digital devices and exposure to environmental pollution [4, 11, 12].

DED is associated with a broad spectrum of symptoms, including ocular discomfort, burning, stinging, pain, and altered visual acuity [1, 4]. These manifestations arise from tear instability and/or damage to the ocular surface [13]. Impaired visual quality can significantly affect daily activities such as reading, watching television, driving, and working [10, 14–17].

Beyond physical symptoms, DED can impose a significant psychosocial burden. Patients often experience frustration, anxiety, and depressive symptoms, particularly in more severe or recalcitrant cases [18–24]. Therefore, the impact of DED extends beyond ocular discomfort, contributing to absenteeism, reduced workplace productivity, and diminished overall quality of life [4, 25]. Importantly, patient-reported symptoms and clinical signs of DED often do not correlate, complicating both diagnosis and assessment of treatment efficacy [8].

Given its chronic nature, high prevalence, and substantial treatment costs, DED is increasingly recognized as a public health concern in developed countries. The growing demand for ocular lubricants, along with significant out-of-pocket expenses and healthcare system costs, underscores the considerable economic and societal burden of this condition [1, 4, 9].

Increasing evidence of the association between DED and factors such as autoimmune diseases, hormonal changes, and systemic pharmacotherapy has enhanced understanding of DED among medical professionals beyond the field of ophthalmology [1]. However, despite the growing awareness and the availability of international guidelines, clinical practice often varies considerably across countries and healthcare systems. These differences may be attributed to disparities in access to diagnostic tools and treatments, reimbursement policies, physician training, and patient demographics. In this context, collecting experts' insights from different regions enables meaningful comparisons of clinical approaches, identification of common challenges, and the exchange of effective strategies used in everyday practice. Such initiatives can contribute to the harmonization of care standards, optimization of patient journey, and support for the implementation of evidence-based treatment pathways tailored to local contexts.

Therefore, the aim of this study was to explore current real-world practices and challenges in the diagnosis and management of DED by collecting perspectives of experts working across Europe and Central Asia.

METHODS

A panel of experts comprising 15 specialists (14 ophthalmologists and 1 rheumatologist) working in tertiary referral centers for ocular surface diseases located in Europe and Central Asia (Bulgaria, Czech Republic, Hungary, Italy, Poland, Romania, Slovakia, Ukraine, Kazakhstan, and Uzbekistan) was convened to provide insights into current clinical practices for the diagnosis and management of DED. A meeting was held in Krakow (Poland) prior to the European Dry Eye Society Congress. No formal predefined selection criteria were applied, but participation was reserved to ophthalmology experts with certified clinical experience in ocular surface diseases who agreed to participate in the discussion and were available to contribute with their expert opinion.

This study was based solely on expert opinions and did not involve human participants, identifiable patient data, human biological material, or patient images. Accordingly, ethics committee approval was not required. Consent to participate and consent to publish were not applicable. As no human participants or identifiable human materials were involved, Declaration of Helsinki requirements were not applicable. All panelists participating in the study were also authors of the manuscript.

Before the meeting, participants were asked to submit materials describing the practical aspects of DED diagnosis and treatment in their respective countries. These materials were reviewed by 2 leading experts (G.G. and E.W.) to develop a list of questions to guide the discussion of the meeting. The face-to-face meeting started with three presentations: the first focused on new diagnostic tools (A.W.), the second on patient profiles and early identification of DED (G.G. and E.W.), and the third on interdisciplinary collaboration in the management of DED associated with Sjögren's disease (M.M.). Ten questions addressing key aspects of clinical practice in the diagnosis and treatment of DED were presented to all participating experts (Table 1). For each question a face-to-face panel discussion was conducted aimed at formulating consensus answer reflecting the opinion endorsed by most experts (>80%).

Table 1 Questions posed to the experts during the panel discussion

Diagnosis	1. How do you reach the diagnosis of dry eye?
	2. Which tool(s) do you have available at your center for dry eye diagnosis?
	3. How do you stage dry eye cases according to severity?
	4. What is the percentage of your dry eye cases according to the different severity stages?
Treatment	5. Which percentage of your cases are not fully controlled by first-line treatment?
	6. In which cases do you prescribe CsA eye drops?
	7. Do you prescribe CsA eye drops as the only therapy or in combination with other(s)?
	8. How do you evaluate the efficacy of CsA eye drops therapy over time?
	9. How do you manage CsA eye drops therapy over time?
	10. In which cases do you refer a patient with dry eye to the rheumatologist?

CsA, Cyclosporine A

RESULTS

During the meeting, all questions ($n = 10$) were discussed, and the responses were formulated with a unanimous (100%) consensus (Table 2).

Diagnosis

The diagnostic complexity of DED arises from its multifactorial etiology and heterogeneous clinical manifestations. Consequently, an accurate

Table 2 Summary of experts' consensus on questions related to the diagnosis and treatment of dry eye disease

Diagnosis	1. The most important tools for diagnosing DED are symptom questionnaires, tear break-up time, corneal and conjunctival staining, and slit-lamp examination
	2. All-in-one diagnostic devices are useful and user-friendly tools suitable for all patients for evaluating DED. They are recommended at the initial stage of assessment to collect questionnaire score and analyze lipid layer characteristics, noninvasive break-up time, corneal and conjunctival staining, tear meniscus height, and infrared meibography
	3. DED severity should be assessed primarily on the basis of the intensity of discomfort/pain symptoms, and the extent of corneal/conjunctival fluorescein staining, and, additionally, Schirmer test value
	4. In our tertiary referral centers, most DED cases (about 85%[a]) are moderate-to-severe
Treatment	5. First-line therapy is ineffective in approximately 30–40%[a] of patients managed in our specialized centers
	6. CsA treatment should be initiated as early as possible in DED cases that are resistant to first-line therapy and/or when signs of ocular surface inflammation, such as corneal damage highlighted by fluorescein staining, are present
	7. At the initiation of second-line antiinflammatory treatment, CsA eye drops should be combined with topical glucocorticosteroids, which should be gradually tapered over the subsequent 4–8 weeks[b]. After this period, CsA should be continued as monotherapy
	8. The efficacy of CsA therapy should be assessed based on ocular discomfort symptoms, corneal and conjunctival staining and, to a lesser extent, Schirmer test
	9. Patients receiving CsA therapy should be evaluated 2–3 months[b] after treatment initiation, and again after 6–12 months[b]. The decision to continue or discontinue CsA should be reached after at least 6 months of treatment. If there is evidence of clinical improvement without any adverse effects, the therapy may be continued
	10. Referral to a rheumatologist should be considered in case of: persistent signs/symptoms despite targeted treatment, presence of risk factors for autoimmunity (e.g., family history), and/or extraocular clinical systemic symptoms, such as dry mouth, chronic fatigue, or arthralgia/arthritis, and skin changes with sunlight hypersensitivity with/without laboratory abnormalities such as cytopenia/s, hypergammaglobulinemia autoantibodies production (ANA/RF; others) if assessed

ANA, antinuclear antibodies; CsA, Cyclosporine A; DED, dry eye disease; RF, rheumatoid factor

[a]Approximate estimates provided by the participating experts based on their clinical experience

[b]The proposed time ranges are indicative and should be individualized according to disease severity, degree of ocular surface inflammation, clinical response, and treatment tolerability

diagnosis relies on the integration of patient-reported symptoms, physical examination findings, and diagnostic test results [26]. Common diagnostic methods include: symptom questionnaires—most commonly the Ocular Surface Disease Index (OSDI), the 5-item Dry Eye Questionnaire (DEQ-5), and the Symptom Assessment iN Dry Eye (SANDE), although TFOS DEWS III currently recommends the OSDI-6 as the preferred screening questionnaire; tear break-up time (TBUT); Schirmer test; epithelial staining; tear osmolarity measurement; and infrared meibography [9, 27, 28]. Several challenges were considered to complicate DED diagnosis, including the poor correlation between signs and symptoms, the subjective nature of conventional tests, the absence of universally accepted diagnostic criteria, and the diversity of underlying causes. Experts highlighted that in routine clinical practice, time constraints—due to the time-consuming nature of comprehensive testing—and resource limitations, such as equipment availability and cost, must be considered. A key challenge reported by most practitioners is how to perform all necessary tests within the limited time allocated for each patient. Experts agreed that the most important tools for diagnosing DED include symptom questionnaires, slit-lamp examination, TBUT, as well as corneal and conjunctival staining. This diagnostic approach aligns with current recommendations [9, 27]. In contrast, tear osmolarity—although considered the most reliable single parameter for both diagnosing and classifying DED [28]—is not commonly used in real clinical practice owing to its relatively high cost. All experts reported routinely using a slit lamp equipped with a digital camera for image acquisition, and most of them indicated access to all-in-one devices that integrate multiple assessment tools into a single system (e.g., OCULUS Keratograph 5 M, IDRA SBM Sistemi, TearCheck E-Swin, C.DIAG Lumibird Medical, among others). Examples of outputs obtained with such systems are provided in Figs. 1, 2, and 3. Experts emphasized that, due to the noninvasive nature of all-in-one diagnostic devices, these systems can be beneficial for evaluating all patients—including those with mild DED or even without any symptoms—as a screening tool for studying ocular surface status before eventually proceeding with more in-depth or invasive examinations. Anterior segment optical coherence tomography (AS-OCT) can be used to measure tear meniscus height and area, as well as to assess meibomian gland dropout. More recently, high-resolution AS-OCT with a resolution of 3 microns has enabled imaging of the individual layers of the tear film [4]. Artificial intelligence (AI)-based methods (e.g., corneal epithelium-telangiectasias-meibomian gland atrophy-obstruction [eTAO] score or CSI Dry Eye Software) enable rapid and standardized evaluation of diagnostic tests through digital image processing using computer-vision-based

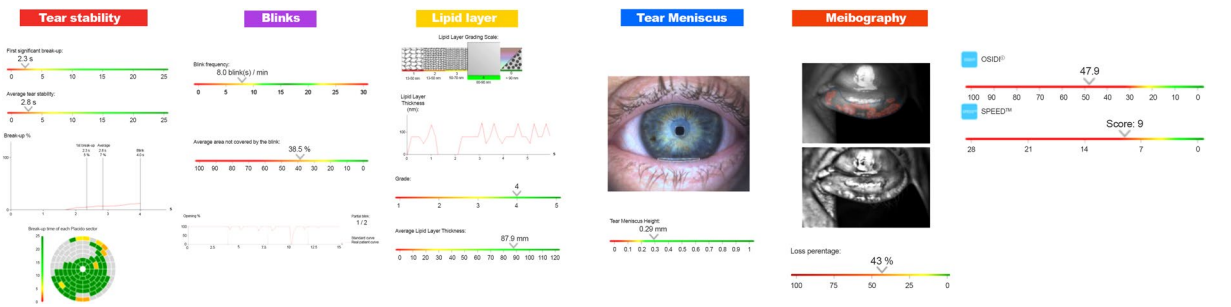

Fig. 1 C-Diag dry eye diagnostic platform demonstrating comprehensive ocular surface evaluation in a 72-year-old male patient with psoriatic arthritis. The integrated assessment displays tear film stability parameters, blink frequency analysis, lipid layer interferometry with average thickness measurement, tear meniscus height quantification, infrared meibography, and questionnaires. Color-coded visualization indicates normal (green) to pathological (red) ranges for each parameter, illustrating the multifactorial tear film dysfunction commonly associated with systemic inflammatory conditions

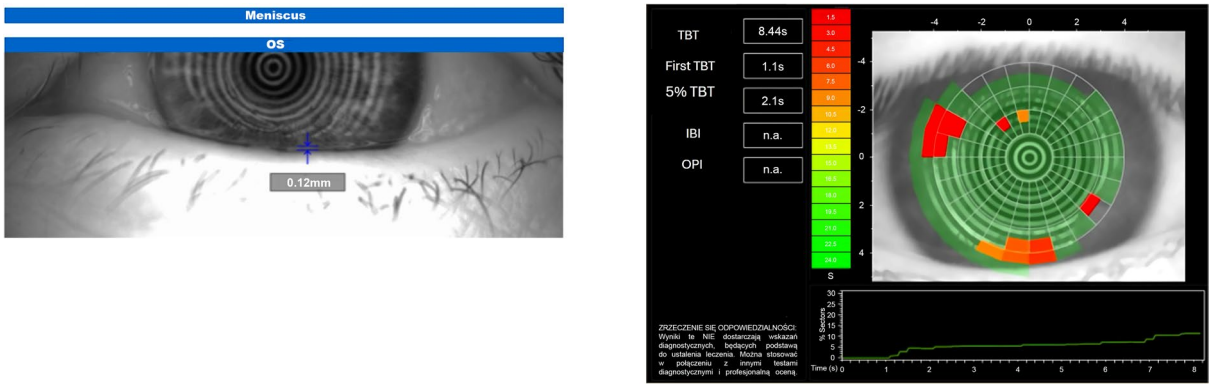

Fig. 2 Topcon MYAH multifunctional platform imaging of a 52-year-old patient with ocular rosacea, demonstrating the system's auxiliary dry eye diagnostic capabilities beyond its primary applications in myopia management and contact lens fitting. Tear meniscus height measurement, and Tear brake-up time with circular topographic mapping illustrating regional tear break-up patterns characteristic of evaporative dry eye secondary to rosacea-associated meibomian gland dysfunction

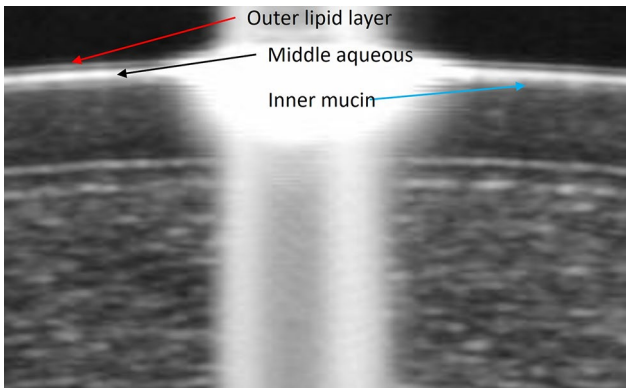

Fig. 3 Optopol REVO HR spectral-domain optical coherence tomography (SD-OCT) of a healthy 35-year-old individual, providing high-resolution cross-sectional imaging of normal precorneal tear film architecture. The anterior segment tomography clearly delineates the intact trilaminar tear film structure with well-defined outer lipid layer, middle aqueous phase, and inner mucin layer adherent to the ocular surface epithelium

AI algorithms [4]. AI-enhanced grading supports objective quantification of qualitative measurements and significantly reduces inter-observer variability.

In terms of staging, DED is traditionally classified into severity levels on the basis of the frequency and intensity of signs and symptoms [28]. Reported frequencies of mild, moderate, and severe DED differ across published studies [29–32], which may be partly explained by the weak correlation between clinical signs and symptoms, as well as differences in patient populations across centers [9]. Experts agreed that, in their clinical experience, approximately 10–20% of cases are mild, 50–70% moderate, and 20–30% severe. These proportions are consistent with those reported in a large study involving over 15,000 Indian patients [32]. The relatively high proportion of moderate and severe cases may reflect the nature of the centers where the experts practice—tertiary referral centers specialized in ocular surface diseases—while patients with milder signs and symptoms are more likely to be managed by general ophthalmologists. Experts agreed that the most important criteria used in staging patients with DED are the

intensity of ocular discomfort/pain symptoms, the amount of corneal and conjunctival staining and, in selected cases, the Schirmer test value. Other suggested tools include short TBUT and meibomian gland alterations or dropout, which are also useful for classifying DED subtypes [3, 27]. Overall, the presence of corneal and conjunctival staining is considered the parameter with the strongest correlation with severe DED [33–37].

Treatment

The goals of DED treatment are to restore ocular surface homeostasis, stabilize the tear film, reduce ocular discomfort symptoms, and improve overall patient well-being [38]. According to the published expert recommendations, a stepwise approach is advocated, with first-line therapy for DED consisting of conventional measures such as environmental and behavioral modifications, regular use of tear substitutes, and lid hygiene. Escalation to topical antiinflammatory treatment, including corticosteroids and/or cyclosporine A (CsA), should be considered when symptoms and/or signs are insufficiently controlled despite first-line treatment [3]. Experts agreed that approximately one-third of patients do not achieve adequate symptom relief and/or improvement in clinical signs with first-line supportive treatment alone. This poor outcome is explained by the high proportion of severe DED observed in their clinical practice. They reported that CsA eye drops are prescribed in case of DED resistant to first-line therapy and/or when signs of inflammation, such as corneal fluorescein staining, are present. This approach is consistent with previous recommendations [3]. It is also important to note that patients referred to experts' centers are typically already using the first-line therapies with poor satisfaction.

Experts agreed that when CsA therapy is started, it should be combined with topical glucocorticosteroids, which should be gradually tapered over the subsequent 4–8 weeks. After this period, CsA eye drops can be continued as monotherapy. This combined approach is considered beneficial because, due to its distinct mechanisms of action, CsA has a slower onset of antiinflammatory effects, while the rapid action of glucocorticosteroids can help bridge the delay [3]. Following this regimen, patients often experience symptom improvement more quickly, which may enhance treatment compliance. If patients report ocular discomfort when instilling eye drops, the use of tear substitutes prior to CsA application is recommended, as this can alleviate the burning, stinging, and irritation commonly associated with CsA use [39]. Experts also emphasized that patient education on disease course and treatment outcomes expectation is critical for ensuring treatment adherence [3].

Although it is well established that initiating short-term glucocorticosteroid therapy concurrently with topical CsA improves the rapid relief of DED symptoms and signs and enhances the local tolerability of CsA [40–43], the risk of glucocorticosteroid-related side effects [3] should be carefully considered and monitored. In contrast, CsA eye drops can be used more safely over prolonged periods [9, 44].

Experts agreed that the efficacy of CsA therapy should be assessed on the basis of changes in ocular discomfort symptoms, corneal and conjunctival staining, and—to a lesser extent—Schirmer test. Improvements in Schirmer test values typically are detected after at least 6 months of treatment. The first follow-up evaluation should be conducted 2–3 months after treatment initiation. Then, a comprehensive ocular surface workup should be performed 6–12 months after starting CsA therapy to guide the decision on whether to continue or discontinue the treatment. If there is clinically meaningful improvement without adverse effects, therapy may be continued. However, nonclinical factors—such as product cost or availability—should also be considered, particularly in countries where CsA is not reimbursed.

Conversely, CsA treatment should be discontinued in case of poor tolerability, lack of clinical efficacy, or patient's decision [3]. Regarding long-term use, CsA can be continued indefinitely; however, if sustained clinical improvement is

achieved, tapering or complete discontinuation may also be considered [3].

Multidisciplinary Collaboration

Multidisciplinary collaboration is increasingly recognized as essential for the comprehensive management of DED [45]. Ophthalmologists play a central role in evaluating ocular surface signs and symptoms, performing diagnostic tests, and prescribing targeted topical therapies [45]. However, when there is a discordance between patient-reported symptoms and clinical signs, or when conventional topical treatments are ineffective, underlying systemic comorbidities may be involved [46, 47]. DED frequently coexists with autoimmune rheumatic diseases—such as Sjögren's disease, rheumatoid arthritis, systemic sclerosis, and systemic lupus erythematosus—making rheumatologic input essential for identifying and managing systemic drivers of ocular surface inflammation that may exacerbate DED signs and symptoms [47–50]. Conversely, from a rheumatologic perspective, ophthalmological evaluation is crucial for the diagnosis and management of autoimmune diseases associated with DED [47, 48, 51]. Given the poor correlation between ocular signs and symptoms in the setting of DED, all patients with rheumatic diseases should be assessed by an ophthalmologist [50]. Conditions such as Sjögren's disease often require confirmation of ocular surface involvement—such as epithelial damage or tear deficiency—through specialized tests including the Schirmer test, slit-lamp examination, and ocular surface staining [48]. Moreover, regular eye monitoring supports treatment decisions and facilitates early detection of ocular complications, reinforcing interdisciplinary collaboration as a cornerstone of comprehensive patient care. Experts agreed that referral to a rheumatologist is warranted when DED remains uncontrolled despite targeted treatment, or when risk factors are present, such as female sex combined with a positive family history of autoimmune diseases. Referral is also indicated when extraocular or systemic symptoms are observed, including dry mouth or arthralgia, which fall outside the scope of ophthalmological management. Furthermore, chronic fatigue should not be overlooked, as it may be an early indicator of Sjögren's disease [52].

Support from mental health professionals is essential when patients present with depression, anxiety, stress, or neuropathic ocular pain [46]. Evidence indicates that these conditions are highly prevalent among patients with DED, with meta-analytic data showing that depression or anxiety can be present in up to 40% cases. Significant associations have been observed between symptom severity and elevated scores of mood disorder, even in the absence of objective ocular signs [46, 53, 54]. Moreover, medications such as antidepressants and anxiolytics can reduce tear production and worsen DED symptoms [45, 46]. For these reasons, close collaboration between ophthalmologists and mental health professionals is essential [46].

DISCUSSION

This experts-based summary reflects real-world clinical practices in the management of DED across ophthalmology centers in Europe and Central Asia specialized in ocular surface diseases. Despite some local differences, the consistent use of symptom questionnaires, tear film assessment, and ocular surface staining emerged as the cornerstone of DED diagnosis. This is in line with the TFOS DEWS III report, which advocates a standardized, evidence-based diagnostic framework to improve consistency across clinicians. DEWS III also underscores that DED is a multifactorial, symptomatic disease for which diagnosis should integrate symptom assessment with objective clinical signs. Accordingly, the report recommends the OSDI-6 as the preferred screening questionnaire and supports confirmation of diagnosis only when symptom positivity is accompanied by objective findings, including reduced noninvasive tear breakup time, increased tear osmolarity, and/or characteristic ocular surface staining [2]. On the other hand, the high prevalence of moderate-to-severe cases highlights the importance of early recognition

of inflammatory DED and timely initiation of immunomodulatory therapy.

CsA, initially combined with glucocorticosteroids, plays a central role in managing patients who are unresponsive to first-line treatment and/or present with corneal fluorescein staining or ocular surface inflammation. Patient education on disease course and treatment effects expectation was also identified as a critical factor for enhancing treatment adherence and improving clinical outcomes. Finally, multidisciplinary collaboration, particularly with rheumatologists and mental health professionals, is essential in DED cases not responding to topical treatment and/or when systemic comorbidities are suspected.

While consensus was ultimately achieved on all statements, some differences of opinion were noted regarding practical aspects of diagnosis and treatment. The main area of divergence concerned the role of the Schirmer test in both diagnosis and treatment monitoring. Some participants considered it as a useful routine test, whereas others judged it as a less reliable tool to be employed as a support for the diagnosis. By contrast, opinions on tear osmolarity, timing of CsA initiation, and tapering of glucocorticosteroids were largely aligned, and any divergences reflected the different geographic settings (e.g. logistic aspects) rather than disagreement on key therapeutic principles. This consensus complements previous initiatives aimed at harmonizing DED management. Notably, the Italian Dry Eye Consensus Group used a modified Delphi methodology involving 35 Italian experts over four rounds of structured voting and achieved over 96% agreement on key treatment principles [55]. In another international effort, Messmer et al. brought together 29 experts from 14 European countries to develop recommendations for inflammatory DED management using anonymous online voting with a consensus reached if > 75% of experts scored a statement > 7 [3]. Although our methodology differed in that it relied on face-to-face discussion rather than iterative anonymous voting, several areas of convergence were evident. Like these earlier consensus papers, our findings support a structured, stepwise approach to DED management, emphasize the importance of identifying and treating ocular surface inflammation, and recognize the role of topical anti-inflammatory therapy, including CsA, in patients with clinically severe DED. A notable difference is that the European panel recommendations focused specifically on inflammatory DED and the practical use of topical CsA and glucocorticosteroids, whereas our consensus addressed broader real-world clinical management patterns. In addition, the Italian Delphi initiative placed particular emphasis on longitudinal management algorithms and patient engagement, while our discussion-based approach was designed to capture expert practice perspectives from routine clinical settings.

This study has several limitations that should be acknowledged. First, it was based on expert opinions rather than prospective clinical or epidemiologic data; therefore, a degree of subjectivity is unavoidable, and some statements may reflect personal clinical experience or local therapeutic practice. At the same time, these opinions were not formulated in isolation, but were broadly aligned with established consensus publications, including the TFOS DEWS III report for diagnostic methodology and the European panel recommendations for the management of inflammation in DED. Accordingly, the findings should be interpreted as a reflection of expert-informed real-world practice rather than as independent evidence-based treatment recommendations. Additionally, this study was based on the opinions of ophthalmology experts practicing at tertiary referral centers specialized in ocular surface diseases. Therefore, the responses are likely to reflect the case mix typically seen in such centers, where more complex and severe forms of DED are overrepresented compared with general ophthalmology practice. This may partly explain the high proportion of moderate-to-severe disease reported in the survey. It should also be acknowledged that several quantitative responses in the survey, particularly those presented in Table 2 as items 4 and 5, were based on approximate expert estimates. As such, these figures reflect the respondents' clinical experience and perceptions rather than systematically collected epidemiologic data,

which should be considered when interpreting the finding. Moreover, the discussed questions were developed for the purposes of this expert-opinion survey and were not formally validated; therefore, variability in question interpretation and response framing may have introduced validation bias. Moreover, although the panel included experts from Europe and Central Asia, the reported views may reflect regional differences in clinical practice, treatment access, and healthcare organization, thereby introducing geographic bias and limiting the generalizability of the findings beyond these settings.

CONCLUSIONS

This consensus reported the experience on DED diagnosis and treatment collected by experts working in third-referral centers for ocular surface diseases located in Europe and Central Asia. Sharing the current practices and challenges will help supporting the harmonization of DED care and improving patient's journey across different healthcare settings.

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Declarations

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Ethical Approval. This study was based solely on expert opinions and did not involve human participants, identifiable patient data, human biological material, or patient images. Accordingly, ethics committee approval was not required. Consent to participate and consent to publish were not applicable. As no human participants or identifiable human materials were involved, Declaration of Helsinki requirements were not applicable. All panelists participating in the study were also authors of the manuscript.

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