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ORIGINAL RESEARCH

# Comparison of the Diagnosis and Management of Demodex Blepharitis Between Eye Care Practitioners in India and Australasia – A Survey-Based Comparison

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**Aim:** The primary aim of this study was to compare how eyecare professionals in disparate regions of the world diagnose and manage Demodex blepharitis. A secondary aim was to explore interprofessional differences in diagnostic and management practices.

**Methods:** Ophthalmologists and optometrists from India and Australia/New Zealand, were invited to complete an online survey on Demodex blepharitis. Clinical practice patterns relating to patients with Demodex blepharitis, with details of how they investigate and manage Demodex blepharitis in clinical practice, were collected along with clinician demographics and general perceptions on eyelid health. Mann–Whitney U, and Fisher's exact tests were used for statistical analysis.

**Results:** A total of 261 eyecare professionals completed the survey, comprising 207 from India (84% optometrists) and 54 from Australia and New Zealand (91% optometrists). Almost 70% of practitioners across the 3 countries recognized Demodex blepharitis as a cause of ocular discomfort, yet only 45% reported attempting to identify Demodex in their patients. There were significant differences noted in clinical practice between those in Australasia and India. Perceived prevalence of Demodex blepharitis also differed (60% in Australasia vs 27% in India; $p<0.01$), as well as, the choice of slit lamp magnification used to detect the mites (25x in Australasia vs 16x in India; $p = 0.02$), preferred treatment option to manage Demodex blepharitis (tea tree oil in Australasia vs Standard lid hygiene in India; $p = 0.01$), treatment duration (from 3–4 weeks to over 12 weeks in Australasia vs 3–4 weeks in India; $p = 0.02$) and treatment application frequency (once daily in Australasia vs twice daily in India; $p = 0.01$).

**Conclusions:** This study highlights differences in clinical evaluation and treatment practices between eyecare professionals in India and Australasia. Overall, practitioners in Australia and New Zealand were more evidence-based in their investigation and management. However, in both regions, interprofessional differences in perceived optimal treatment duration and frequency were reported.

**Keywords:** Demodex blepharitis, practitioners' perspective, ocular surface, dry eye

## Introduction

Demodex folliculorum and Demodex Brevis have been termed "ubiquitous" organisms that inhabit humans across the globe.[1,2] The role of Demodex mites in causing disease remains widely debated, since Demodex mites are considered to be part of the normal ocular microbiota. However, over-colonisation of Demodex mites on the eyelids may lead to symptoms of ocular irritation, itching, and inflammation along the eyelid margin, subsequently leading to chronic blepharitis.[3]

Ocular surface conditions, such as Demodex blepharitis, did not have widely available standardised practice guidelines and were managed according to the practitioner's understanding and judgement. Thus, it is up to the individual practitioner to administer the adequate treatment. Therefore, practitioners must be up to date with recent clinical knowledge in order to appropriately diagnose and manage the condition. A recent review has shown a dramatic increase in studies regarding Demodex mites in the past two decades.[3] However, to the best of the study team's knowledge, no research has been performed

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that compares the diagnostic and management approaches of eye care professionals across Australasia and India in the context of Demodex blepharitis. Therefore, the primary aim of this study was to compare how eyecare professionals in disparate regions of the world, currently diagnose and manage Demodex blepharitis. A secondary aim was to explore interprofessional differences in diagnostic and management practices.

## Methodology

The study was conducted in the form of a cross-sectional, online survey administered between September 2020 and March 2021, in collaboration with the University of Auckland in New Zealand. The School of Health and Life Sciences ethics committee at Glasgow Caledonian University (Approval code – *HLS/LS/A19/039)* and the University of Auckland Human Participants Ethics Committee *(Reference number – 019870)* granted ethical approval to conduct the study, in accordance with the tenets of the Declaration of Helsinki.[4] The survey conducted adhered to the General Data Protection Regulations and followed the established guidelines by Checklist for Reporting Results of Internet E-Surveys (CHERRIES).[5] A downloadable information sheet was displayed in a pdf format before the start of the survey and an agreement to take part in the survey was accepted as consent to participate. All responses were anonymous, protecting participant identity. A digital link to the survey was advertised through professional associations and in the professional press using Research Analysis Data Capture (REDCap).[6]

The survey questionnaire formulated previously by the study team was adapted and modified.[7] This modification was made by consulting Professor Jennifer Craig at the University of Auckland. A sub-question was added to confirm the prescribing status of any optometrist responders. Changes were also made regarding the practitioner's demographics in order to determine whether the respondent was trained in Australia or New Zealand, their current region of practice and whether the practice was based in an urban or a rural area. Additionally, the term itching was changed to lid margin itch as one of the options for question regarding common symptoms for Demodex blepharitis. Overall, the survey comprised a total of 23 questions divided into two sections. The first section focused on the practitioners' demographics along with their general views on eyelid health. Questions about the diagnostic techniques that eye care practitioners employed in their practice followed. The second section of the survey was completed only by respondents who confirmed that they routinely look for Demodex mites in their patients. The survey ended at this point for those respondents who indicated that they did not look for Demodex in their patients. The second section of the survey consisted of 8 questions asking about identifying Demodex blepharitis on the slit-lamp, clinical features (including signs and symptoms), confirming the presence of mites and choice, duration and frequency of treatment.

Only completed responses were analysed and compared to responses from Indian practitioners.[7] Data were analysed in SPSS version 26 (IBM, SPSS Inc. Chicago, IL USA). A Shapiro–Wilk test confirmed the non-normality of the data, therefore non-parametric statistics were used to analyse the data. Comparisons across multiple independent groups were performed using the Kruskal–Wallis (one-way ANOVA on ranks) test, and post-hoc comparisons were performed using the Dunn-Bonferroni approach as appropriate. Comparison across two independent samples was performed using a Mann–Whitney *U*-test. To determine an association between two categorical variables, a chi-square test was performed and where the cell count was less than 5, Fisher's exact test was performed. A *p*-value of less than *0.05* was considered statistically significant. Due to similarities in the educational curriculum and scope of practice, data from Australia and New Zealand were combined and referred to as arising from Australasia.

## Results

The responses from a total of 261 participants that included 33 ophthalmologists and 174 optometrists from India, and 5 ophthalmologists and 49 optometrists from Australasia, were analysed. The results from this study indicate a varying degree of experience among the respondents, ranging from less than 5 years to more than 20 years of experience. Eye care practitioners in Australasia had more clinical experience than their Indian counterparts ($p<0.01$) (Table 1) and a greater number of eye care practitioners in Australasia reported looking for Demodex mites in their patients, as compared to their Indian counterparts (83% vs 35%, respectively, $p<0.01$). More than 68% of Indian eye care practitioners responded that they did not receive any training for the detection and treatment of Demodex blepharitis, while the remaining practitioners received it in the form of a webinar (5%), article (11%), lecture (14%) and other means (2%). In

**Table 1** Difference in Years of Clinical Experience, as Reported by Eye Care Practitioners. Overall, Practitioners in Australasia Had Greater Clinical Experience Than Practitioners in India (P<0.01)

| Experience | Less than 5 years | 5–10 years | 11–20 years | 20+ years |
|---|---|---|---|---|
| Eye care practitioners in Australasia (n=54) | 11.1% | 16.7% | 18.5% | 53.7% |
| Eye care practitioners in India (n=207) | 65.2% | 18.8% | 9.7% | 6.3% |

contrast, more than 45% of eye care practitioners from Australasia reported being trained in the detection and treatment of Demodex blepharitis in the form of a lecture, 30% in the form of an article, 14% in the form of a webinar and other means, while only 10% of respondents reported not having received any training. Differences were also observed concerning the working environment. For example, the majority of optometrists in India were working in hospitals (60%, n=104), while most optometrists in Australasia worked in community practice (90%, n=44). Similarly, the majority of ophthalmologists in India were hospital-based (91%, n=30), whereas most Australasian ophthalmologists reported working in private ophthalmological practices (80%, n=4).

A Kruskal Wallis test revealed a significant difference in the estimated prevalence of Demodex mites among different groups of eye care practitioners (p<0.01). Post-hoc comparisons (Dunn-Bonferroni) indicated differences in prevalence estimates between ophthalmologists and optometrists in India (17% vs 30%, respectively; p=0.02), between ophthalmologists in India and optometrists in Australasia (17% vs 60%, respectively; p<0.01), and between optometrists in India and optometrists in Australasia (30% vs 60%, respectively; p<0.01; Figure 1).

Around 83% of eyecare practitioners (n = 45/54) in Australasia reported looking at patients' eyelids for Demodex mites, compared to only 35% (n = 72/207) of eyecare practitioners in India ($X^2(1)$ p<0.01). Therefore, out of 261 total respondents, 144 (55%) finished the survey at this point and did not proceed to the 2nd section.

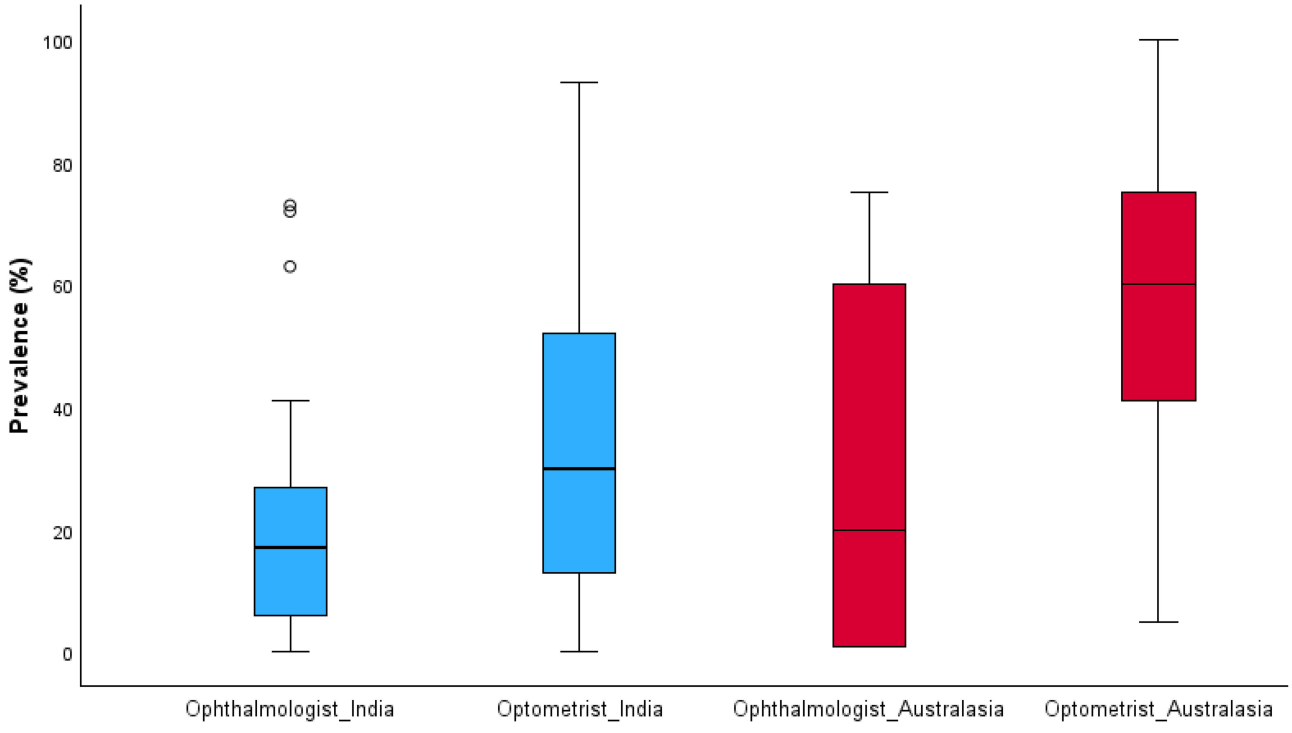


**Figure 1** Box plot showing the prevalence of Demodex mites as estimated by eye care practitioners. There was a significant difference in estimated prevalence between ophthalmologists and optometrists in India (p<0.05), ophthalmologists in India and optometrists in Australasia (p<0.01), and optometrists in India and optometrists in Australasia (p<0.01).

A Mann–Whitney *U*-test was performed to evaluate any difference in the slit-lamp magnification used to observe Demodex mites, between practitioners in India and Australasia. Optometrists in Australasia (68.3%, n=28) were more likely to use 25x or higher slit lamp magnification to look for Demodex mites than optometrists in India (37.7%, n=20) ($p<0.01$). Similarly, ophthalmologists in Australasia (75%, n=3) were more likely to use 25x and higher magnification to look for Demodex mites than their Indian counterparts (47.4%, n=9). However, the difference between ophthalmologists in the two regions did not reach statistical significance ($p=0.21$).

Optometrists in Australasia perceive cylindrical dandruff (CD) on the eyelashes, followed by red inflamed eyelids, to be the most common clinical features of Demodex blepharitis, while optometrists in India consider CD and crusts/flakes on the eyelashes to be the most common clinical signs in these patients. Ophthalmologists in both regions similarly reported CD as the most common clinical feature of Demodex blepharitis.

Itching (n = 65) was reported to be the most common symptom observed in patients suffering from Demodex blepharitis ($X^2(3) = 72.7$, $p<0.01$), followed by crusting on the eyelids (n = 31), dryness in the eyes (n= 19) and other (n = 2). While optometrists in India and Australasia and ophthalmologists in India specified the presence of CD as their preferred method to confirm the presence of Demodex blepharitis, the ophthalmologists in Australasia preferred eyelash epilation.

Differences were also observed with regard to treatment strategies. The majority of optometrists in both India and in Australasia selected patient comfort as their primary treatment goal (40% and 56% respectively), as did ophthalmologists in Australasia (100%). Indian ophthalmologists, in a more rigorous approach, sought to eliminate the mites (53%) and improve meibomian gland function (26%) ($p<0.01$) as their goal.

Eye care practitioners in the two regions adopted different approaches to combat Demodex blepharitis in their patients. In India, optometrists favoured standard lid hygiene, whereas in Australasia the optometrists preferred tea tree oil (TTO) wipes/cleansers ($p<0.01$; Figure 2). Similarly, the majority of ophthalmologists in India preferred standard lid hygiene, whereas ophthalmologists in Australasia applied a more targeted approach with a 50% TTO mixture as their treatment of first choice ($p=0.04$; Figure 3).

Inconsistencies were also observed with regard to treatment duration. For example, the majority of Indian optometrists recommended 3–4 weeks of treatment, while Australasian optometrists' recommendations for treatment

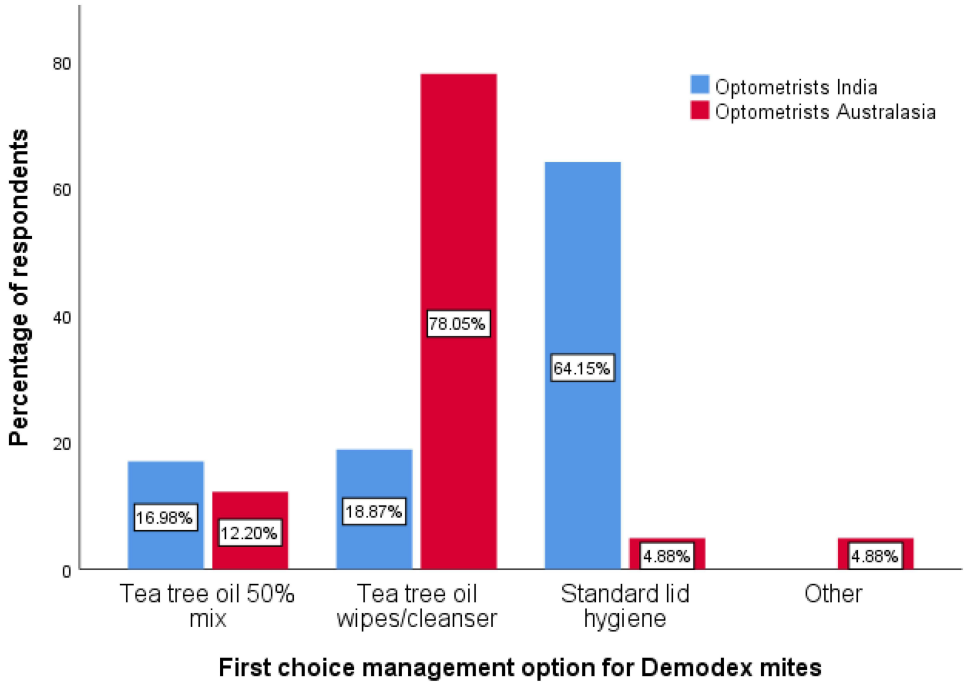


**Figure 2** Bar chart showing Demodex management options employed by optometrists in India and Australasia. Optometrists in India favoured standard lid hygiene, whereas optometrists in Australasia favoured TTO wipes/cleansers ($p<0.01$).

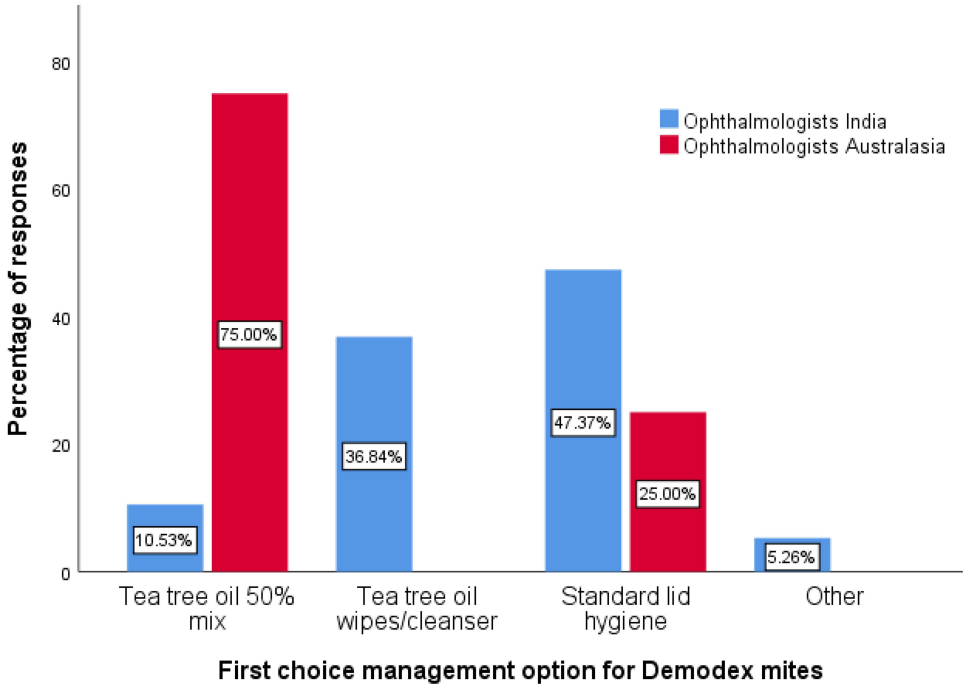


**Figure 3** Bar chart showing Demodex management options employed by ophthalmologists in India and Australasia. The majority of ophthalmologists in India preferred standard lid hygiene, whereas ophthalmologists in Australasia were more rigorous with a 50% TTO mixture as their first choice of treatment (p=0.04).

duration ranged from 3–4 weeks to more than 12 weeks (p<0.01; Figure 4). Treatment durations of 3–4 weeks up to more than 12 weeks were also favoured by the ophthalmologists in both India and Australasia (p=0.73; Figure 5).

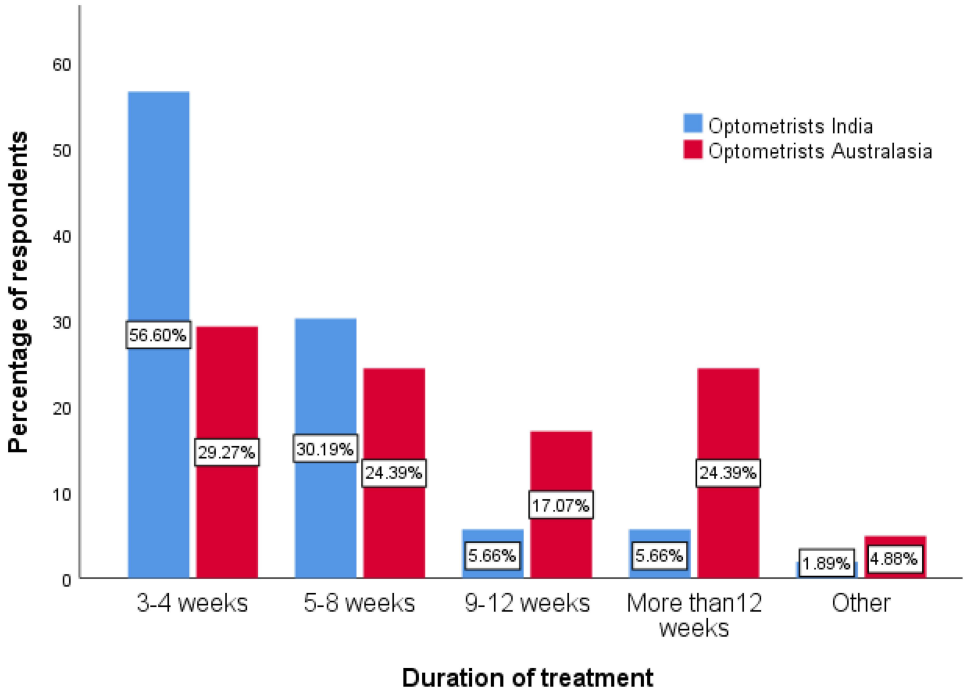


**Figure 4** Bar chart showing differences in duration of treatment, as recommended by optometrists in India and Australasia. The majority of Indian optometrists recommended 3–4 weeks of treatment, while optometrists in Australasia, recommended a range of durations from 3–4 weeks to more than 12 weeks (p<0.01).

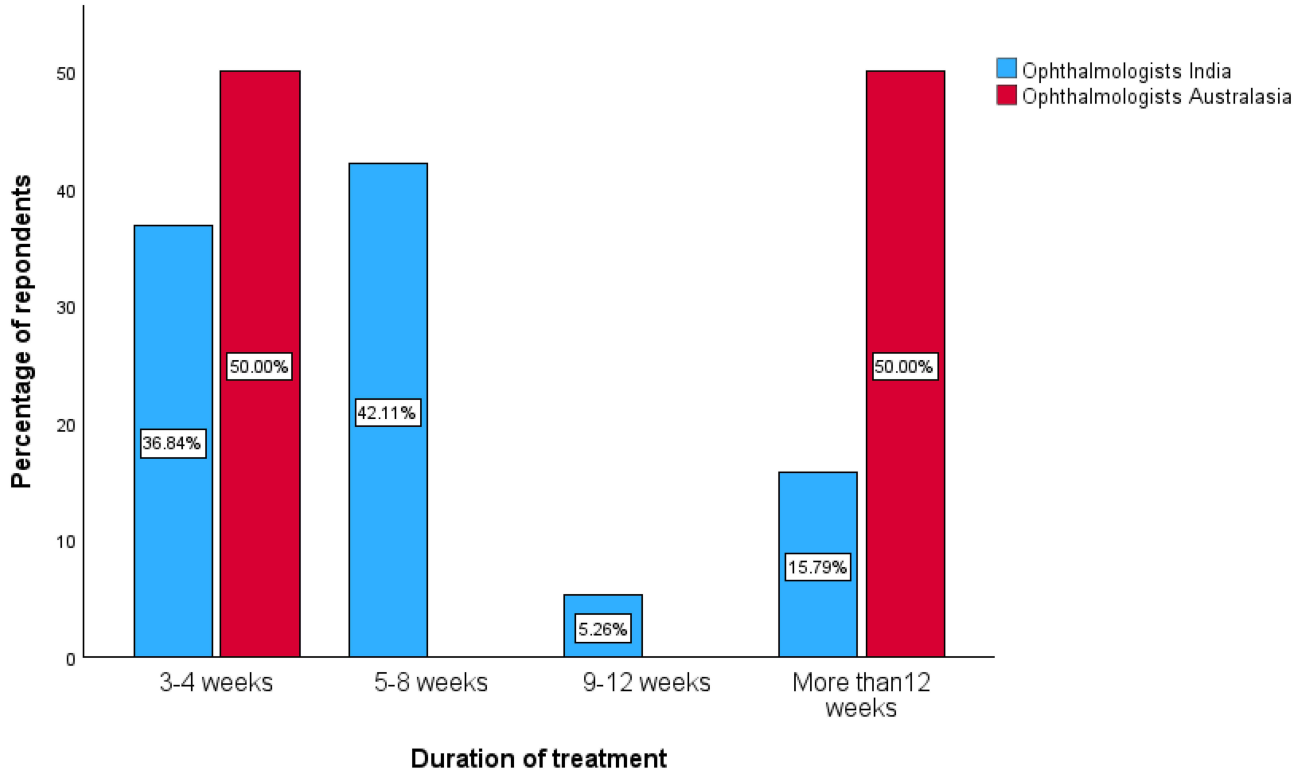


**Figure 5** Bar chart showing no significant difference in the recommended treatment duration was observed between ophthalmologists in India and Australasia (p=0.73).

Treatment frequency was assessed according to geographical location. Both optometrists (p<0.01) and ophthalmologists (p=0.02) in India preferred to implement treatment twice a day, whereas those in Australasia preferred to implement once-daily treatment (Figures 6 and 7, respectively).

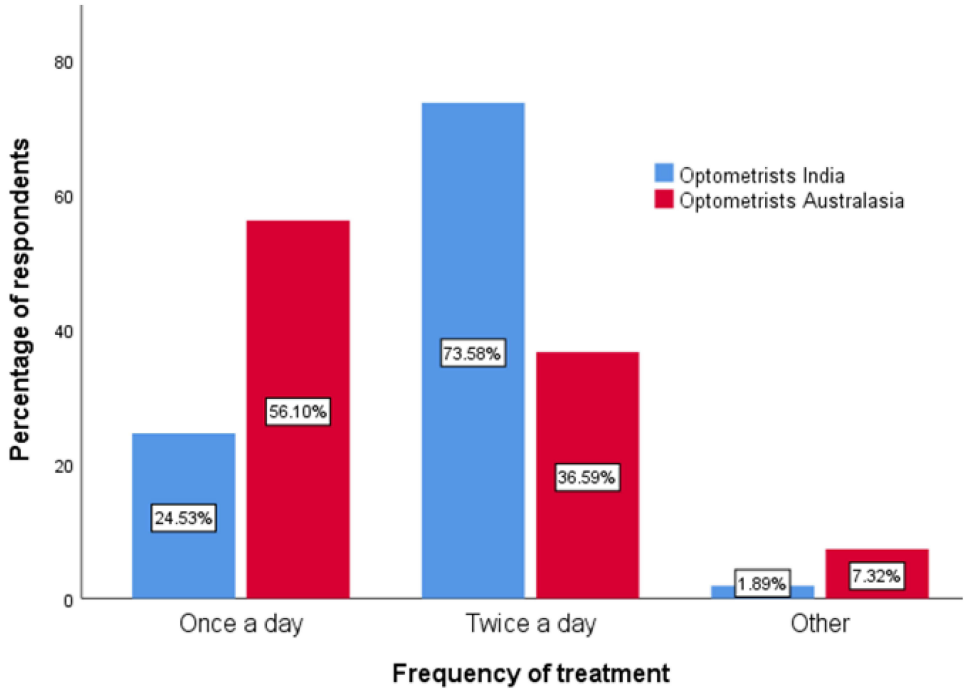


**Figure 6** Bar chart showing the difference in recommended frequency of treatment between optometrists in India and Australasia (p<0.01).

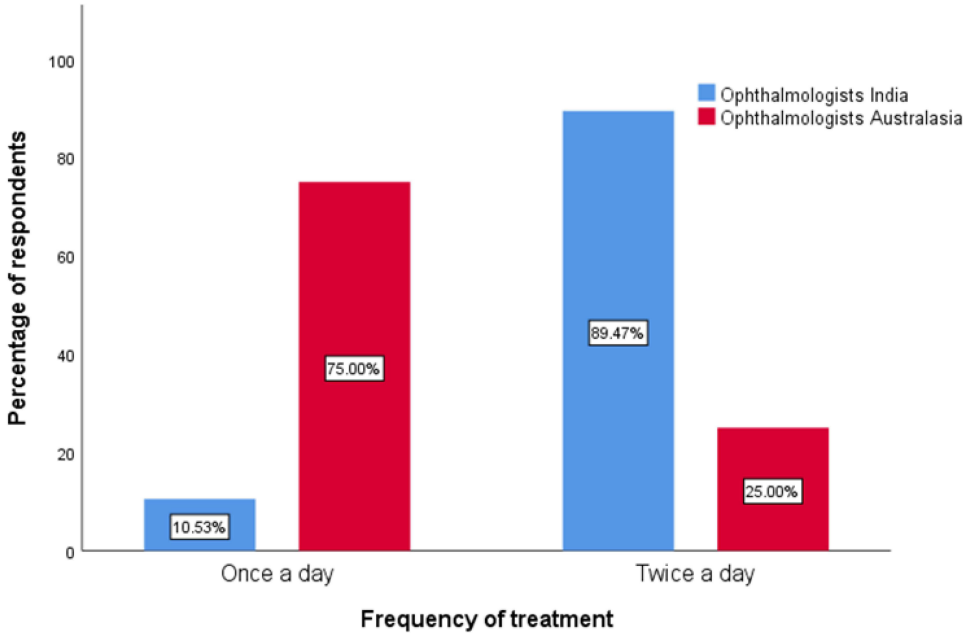


**Figure 7** Bar chart showing the difference in recommended treatment frequency between ophthalmologists in India and Australasia (p=0.02).

## Discussion

The study compared clinical practice behaviours among optometrists and ophthalmologists in India and Australasia in relation to the diagnosis and management of Demodex blepharitis. In this study, the prevalence of blepharitis in the general population was estimated to be 40% by Indian practitioners and 52% by Australasian practitioners ($p<0.01$) while that due specifically to Demodex was estimated to be 25% by Indian practitioners and 36% by Australasian practitioners ($p<0.01$). The prevalence of Demodex mites in people affected with blepharitis was estimated to be 27% by Indian practitioners and 60% by Australasian practitioners ($p<0.01$). The estimated prevalence of Demodex across different published studies is highly influenced by the nature of the study, including its inclusion and diagnostic criteria, study sample, age-range and co-morbidities, varying from 14% to as high as 100%.[3,8,9] It is essential to take note of the fact that studies reporting the prevalence of Demodex mites are based on clinical investigations, whereas prevalence values reported in the current study are estimates based on practitioners' self-reported experiences. Moreover, the prevalence values will be influenced by how proactively clinicians look for the condition. As seen in this study, the majority of practitioners from Australasia reported assessing patients for Demodex blepharitis and therefore the prevalence values estimated by them were higher when compared to the low prevalence estimates that might be expected from the lower number of practitioners investigating Demodex blepharitis in India. The additional training received by Australasian practitioners on this topic likely impacts the result observed.

Eye care practitioners in Australasia had more clinical experience, had received appropriate training and used a higher magnification under the slit lamp to look for Demodex mites, as compared to their Indian counterparts. Eyecare services in India are inequitably divided among ophthalmologists, optometrists, ophthalmic technicians, refractionists (healthcare workers in remote areas skilled at performing refraction), orthoptists, and ophthalmic assistants.[10] In India, ophthalmology has a robust and well-defined residency program with a vast number of patients and a diverse range of ocular disorders being seen on a daily basis.[11] However, since cataract is still the major cause of preventable blindness, most ophthalmologists focus on surgical training.[12] On the other hand, despite being present for over five decades, optometric education in India is still not recognised or licensed and therefore lacks appropriate practice guidelines.[10] Moreover, refractive error still remains a major cause of visual impairment in India. Therefore, it can be inferred that most of the optometric workforce might be involved in managing the burden of visual impairment due to uncorrected refractive error.[13] Historically, optometry in Australia and New Zealand had similar roots but has evolved considerably since that

time. Advances in the optometric curriculum have supported regulatory changes that allow optometrists to upgrade their competence by undertaking a broader role in diagnosing and treating various ocular conditions in both Australia and New Zealand. Furthermore, the endorsement for scheduled medicines in Australia[14] and Medicines (Designated Prescribers: Optometrists) Regulation 2005 in New Zealand[15] has encouraged optometrists to raise their professional standards, allowing them greater scope in diagnosing and managing various ocular conditions. Conversely, in India, there is no statutory body for optometrists, and optometrists do not have any such rights to prescribe therapeutic medicines.

The results of this study indicated that practitioners from all three countries reported itching, as the most common symptom observed in patients suffering from Demodex blepharitis. In their study, Cheng et al[16] reported itching to be directly proportional to the Demodex count and patients reporting itching were at more than 2.5 times greater risk of harbouring Demodex mites. CD is considered as a hallmark for confirming the presence of Demodex mites and optometrists in India and Australasia relied on CD to confirm the presence of Demodex mites. Conversely, the majority of ophthalmologists in Australasia preferred epilation to confirm the presence of Demodex mites, although the number of ophthalmologists who responded to this section of the survey was only 4 and therefore may not accurately represent the actions of all ophthalmologists. Although epilation is the conventional method for detecting Demodex mites, not all clinics/practices will have the necessary resources, such as the availability of a microscope of sufficient magnification to view the epilated eyelashes. Furthermore, one of the major drawbacks of epilation is that the number of eyelashes epilated varies and can be unpleasant and concerning for patients. Therefore, various new techniques for example, eyelash rotation and lateral eyelash traction have been developed which are efficient, can be easily conducted with minimal resources and complement routine clinical investigation.[17] It was also observed that CD and crusts/flakes on eyelashes were the clinical features preferred by Indian optometrists to look for Demodex mites, whereas CD and red inflamed eyes were the clinical features preferred by optometrists in Australasia. While these terminologies have been used interchangeably for Demodex blepharitis, it has been suggested to make a distinction between these types of debris and use CD only for referring to Demodex blepharitis.[3] Moreover, optometrists in Australasia seem to utilise CD as a clinical feature for investigating Demodex blepharitis which aligns with the evidence which suggests that CD are pathognomonic of Demodex.

Optometrists in India and Australasia and ophthalmologists in Australasia aimed to improve patient comfort as their primary treatment goal, while ophthalmologists in India were more focused on eliminating the mites. This discrepancy can be attributed to the widely debated role of Demodex mites. Though Demodex is considered as a part of normal ocular microbiota, over-colonisation on the eyelids may change the anterior segment ecosystem from homeostasis to disease as one of the core pathological mechanisms in ocular Demodex infection is their overpopulation.[1,18] Therefore, eliminating the mites from the anterior segment may help in bringing the disease under control. It may, however, also destabilize the ocular ecology, since Demodex mites have been suggested to act as buffers by regulating the anterior segment ecosystem.[18] The majority of practitioners (70%) from both of the regions agreed that Demodex mites were a cause of ocular discomfort and nearly 50% of practitioners believed Demodex mites affect both sexes equally. However, only 45% of practitioners looked for Demodex mites in their patients over both the regions. This included 35% of practitioners within India and 83% of practitioners within Australasia, indicating that Demodex blepharitis is an overlooked condition in India. This could be due to a gap in training among Indian practitioners or perhaps it relates to different priorities faced by practitioners in India which requires focus on managing other sight-threatening ocular conditions.

The results also show differences in treatment approach. For example, the majority of optometrists in India preferred standard lid hygiene, while the majority of optometrists in Australasia preferred TTO wipes/cleansers. Similarly, among ophthalmologists, the majority of Indian ophthalmologists preferred standard lid hygiene, followed by TTO wipes/cleansers, whereas most ophthalmologists in Australasia listed 50% TTO as their treatment of first choice. While the standard lid hygiene includes warm compresses, which aim at improving the general health of the eyelid, it is not effective at eradicating Demodex mites.[18] Therefore, advising standard lid hygiene for Demodex blepharitis would not be a suitable treatment option. TTO is a natural essential oil extracted from the leaves of *Melaleuca alternifolia* and is native to the Australian continent.[19] TTO, due to its antimicrobial and anti-inflammatory properties, has been reported as a promising agent to eradicate Demodex mites and is used in different forms and at different concentrations.[20] Nevertheless, TTO can be toxic in higher concentrations and can cause ocular irritation.[21]

Differences were also observed with respect to the duration and frequency of treatment. While the majority of optometrists in India preferred 3–4 weeks of treatment, optometrists in Australasia had evenly distributed opinions, with treatment ranging from 3–4 weeks to more than 12 weeks. Similarly, the majority of ophthalmologists in India were divided between 3–4 weeks and 5–8 weeks of treatment, whereas ophthalmologists in Australasia also had an evenly distributed opinions for 3–4 weeks and more than 12 weeks. Furthermore, eye care practitioners in India advised patients to perform the treatment twice a day, while their Australasian counterparts preferred to perform it once a day. This could also reflect the differences in treatment modalities as TTO once daily could minimise the risk of toxicity/irritation.

TTO has been shown to be effective at eradicating Demodex mites in a dose-dependent manner, however, no clear protocol exists regarding its duration and frequency. Furthermore, due to its potentially toxic properties, the clinical management guidelines of the College of Optometrists in the UK recommend 50% TTO to be used only by "experienced practitioners".[22] Gao et al,[23] in their subsequent studies administered 50% TTO in an in-office setting weekly, whereas TTO shampoo was used twice daily for 1 month and once daily afterwards.[24] Both of the studies observed varying degrees of irritation with the TTO formulations but were effective in improving the signs and symptoms such as reduced ocular discomfort and conjunctival inflammation. However, in a recent randomised cross-over study, researchers demonstrated the potential for some commercially available demodectic cleansers to induce ocular surface toxicity and subjective ocular discomfort.[25]

This study indicates an apparent lack of awareness among Indian optometrists with regard to diagnostic and management strategies for Demodex blepharitis. According to the Optometry Council of India (a self-regulatory body), the number of eye care practitioners in India, excluding ophthalmologists, could be over 42,000. This comprises optometrists, orthoptists, ophthalmic technicians and refractionists.[26] However, according to an estimate, there are only around 9000 optometrists with a 4-year graduate training qualification.[27] Furthermore, when compared to developed countries, the ratio of optometrists and population is reported to be 1:10,000, whereas it increases drastically (to 1:600,000) in India and is lowest in rural areas (1:1,000,000).[28,29] A previous survey of 563 optometrists in India reported that, although nearly 80% of optometrists are involved in providing clinical services (refraction, contact lenses and dispensing), less than 50% perform clinical investigations.[27] Data from this study also observed that there were fewer Indian optometrists involved in diagnosing Demodex blepharitis, as compared to optometrists in Australasia (30% vs 84% $p<0.01$). Furthermore, in their study, Venugopal et al,[10] reported that senior optometrists in India had more knowledge and exposure with regard to the scope of practice, when compared to junior optometrists. The need to raise the optometry standards in India was highlighted two decades ago[30] and since then significant progress has been made,[13] although, it might be expected to take several years following scope expansion to reflect this in clinical scenarios. Recently, the National Commission for Allied and Healthcare Professions Act 2021 has been formulated to enhance the quality of education, along with central and state registers, to raise the competency standards of optometry in India.[31] The lack of therapeutic rights to treat various ocular conditions and limited if any availability of clinical products containing TTO are likely further reasons for the majority of optometrists in India recommending standard lid hygiene. It has also been reported previously that products containing TTO might not be available and authorised for clinical use in certain countries.[32]

Conversely, eye care practitioners in Australia and New Zealand self-reported recommending various formulations of TTO to combat Demodex blepharitis. Being a native plant of the region, TTO is promoted by the Australian Tea Tree Industry Association[33] and is easily manufactured and made available commercially across the region. One of the surveys investigating important and essential ocular topics among ophthalmologists, optometrists and general practitioners in New Zealand reported blepharitis as an "important or essential" condition to be diagnosed and treated. The survey results were used to incorporate anterior segment diseases into the undergraduate and postgraduate teaching curriculum, to enhance the knowledge of ophthalmologists, optometrists and general practitioners in New Zealand.[34] According to the Tertiary Education Commission, New Zealand has about 730 practicing optometrists[35] and Australia has more than 6000 optometrists, with nearly 66% of them being therapeutically endorsed.[36] According to an estimate, the ratio of optometrists to the population in Australia is 19.6:100,000[37] and this has been termed as "sufficient to meet the needs of Australian population overall".[38] The optometrist-to-population ratio in New Zealand is only slightly less at 15.5:100,000, with an increase in TPAs from 21.8% in 2008 to nearly 75% in 2018.[39] The additional training has facilitated practitioners in both Australia and New Zealand to be more up-to-date with the literature in conducting clinical investigations. Despite having prescribing rights, discrepancies were still observed, with TTO use being preferred at

different concentrations between ophthalmologists (50% mix) and optometrists (wipes/cleansers) in Australasia. Additionally, there was a wide range of duration of treatment, indicating that even highly trained practitioners need a standardised protocol to commence appropriate management. Certain drugs such as ivermectin[40] and the recently approved lotilaner 0.25% ophthalmic solution[41] have been suggested to combat Demodex blepharitis.

One of the limitations of this study is the low number of responses from ophthalmologists. It can be proposed that having an ophthalmology collaborator in the region could have enhanced survey participation. Furthermore, despite Optometry Australia posting the survey link to their members in Australia, only a low number of optometrists from Australia participated in the survey. Moreover, the lack of standardised investigation protocols for Demodex blepharitis at the time, could also be a potential reason for both ophthalmologists and optometrists being hesitant to participate for fear of answering incorrectly. Furthermore, the participants in this study were self-selecting and may not represent the general professional community. Recently, Delphi consensus studies in the US and UK have achieved a consensus regarding diagnosis and management of Demodex blepharitis.[42–44] Guidelines from these consensus studies would assist practitioners in managing Demodex blepharitis more effectively.

## Conclusions

The study compared clinical practice patterns among eye care practitioners in India and Australasia. The results from the above study indicate that regulating the profession and upskilling practitioners, to a therapeutic level as exists as is standard in Australia and New Zealand, aids in more confident and evidence-based clinical investigation. This was seen with optometrists in Australasia using higher magnification to examine the presence of Demodex mites and recommending appropriate miticidal treatments. Therefore, implementing advanced training in optometric practice would enhance clinical outcomes. However, even after advanced training, there was a lack of consensus with regard to the duration and frequency of treatment.

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## Disclosure

The authors report no conflicts of interest in this work.

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