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#### RESEARCH ARTICLE

# EFFECTIVENESS OF WARM COMPRESSION ON TEAR PRODUCTION AMONG DRY EYE SYNDROMEAND ITS PREVELENCE: A NARRATIVE REVIEW

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## Manuscript Info

# Manuscript History

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#### Key words:-

Effectiveness, Warm compression, Dry eye syndrome, Prevalence

#### Abstract

An eye is a sensory organ that is responsible of light accommodation and vision. Ocular illnesses and a lower quality of life can result from any disruption in the anatomical or functional integrity of the eye, a crucial sensory organ that is responsible for light adaption and vision. Refractive errors, cataracts, glaucoma, diabetic retinopathy, age-related macular degeneration, and dry eye disease (DED) are common ailments. Estimated 2.2 billion people all around world reported of visual impairment, and at least 1 billion of casesmight have been prevented or have not yet been treated. The prevalence of DED in India varies from 18.4% to 54.3%, which is higher than estimates worldwide. Thickened meibum is liquefied, meibomian gland ducts are opened, and lipid secretion is encouraged by warm compression, also known as eyelid warming therapy, a straightforward, non-invasive treatment for dry eye condition.

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**Method**: A narrative review was conducted using warm compression, tear production, dry eye syndrome with its prevalence. The result, showed that around 30 studieswere narratively reviewed and according to inclusion criteria the study scrutinized;& narrowed down to 12 recent studiesunderwhich 6 studies represented prevalence of dry eye syndromei.e. 43% had mild dry eye syndrome, 30% dry eye syndromeassociated with watering (36.8%), followed by redness (25%), gritty sensation (20%) and burning sensation (18.7%). Itching and blurring of vision were observed in (13.1%) and (6.8%).

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Further, 6 studies supporting for warm compression withlow-level light therapy and warm compress with hot gel pack showed; It is assessed by Tear film lipid layer thickness which showed significant difference after treatment. Furthermore 6 studies showed that heating and massaging the eyelids improved the appearance of the upper lid meibomian glands (p = 0.025). With the above mentioned studies researcher is convinced that warm compression helps in reduce dry eye syndrome and improve tear production which researcher carry forward for further

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experimentation. Narrative review concluded that warm compression improvestear production and improve dry eye syndrome. Hence this can be generalised to larger population covering SDG goal 3.8, 3.9, 3D.

#### Introduction:-

One of the most prevalent and underdiagnosed ocular conditions nowadays is dry eye disease (DED), which is typified by unstable tear films, ocular discomfort, and diminished vision (Craig et al., 2017). Early recognition, health awareness, and nurse-organized preventative therapies are necessary to lower the burden on illness and improve ophthalmic health indicators at the community level. It is a multifactorial ailment of the tears and the ocular surface that is referred to as Dry Eye Disease (DED). Other names for this condition include Dry Eye Syndrome (DES), keratoconjunctivitis sicca (KCS), ocular surface disease (OSD), and dysfunctional tear syndrome (DTS). "The condition is described by discomfort, visual disturbance, and destabilisation of the tear film, frequently accompanied by hyperosmolarity of the tear film, swelling, impairment, and in certain cases, defects of the neurological sensory system. The main feature of DED is the unstable tear film, which results from brought on by variations in the function of the layer of lipids as well as in the amount, calibre, and accessibility of tear fluid. It is a major cause of symptoms and may be the primary cause for variations in the design and function of epithelia, which explains why swelling begins.

In warm compress procedure, warmthusually moist heatis applied on the eyelids to increase the stability of the tear film, particularly in patients with Meibomian Gland Dysfunction (MGD). Relaxing or softening meibumthe fluid secretion from glands in the eyelids clearing up glands and improving oil flow over the tear layer are the objectives. This enhances eye relaxation and inhibits the evaporation of tears. For the treatment of Dry Eye Disease (DED), especially cases associated with Meibomian Gland Dysfunction (MGD), warm compression is a straightforward, non-invasive, and generally advised treatment. To lessen a feeling of dry and ocular pain, the treatment entails administering regulated temperature (around 40–45°C) to the eyes while they are closed for 5–10 minutes. This helps to dissolve the thickened meibum, which helps to improve glandular secretion, and stabilise the tear film lipid layer. Devices like Bruder masks, Blepha Eye Bags, and Optic Care Wear are frequently utilised to guarantee protection while maintaining an even temperature. Meibomian discharge expression and tear film stability are improved even more by a little eyelid massaging after warm compression. Regular heated compression greatly increases Tear Film Break-Up Time (TBUT), according to several research.

# **Objectives:-**

- To find the studies of prevalence of dry eye syndrome.
- To find the studies of effect of warm compression on tear production among patient with dry eye syndrome.

#### Methodology:-

Study Design: A narrative review has been include in the study.

Study selection: screened titles and abstracts and reviewed thoroughly of the full text of eligible studies.

#### **Articles Included in this review:**

- 1. Clinical trial study
- 2. Cross Sectional Study
- 3. Randomized Control Trial
- 4. Prospective study

## **Inclusion Criteria:-**

- Study of last 10 years
- > Study which are available full and free text.
- Adult population age 18 years and above
- Study which are clinical trial and RCT.
- > The paper which was published in English language
- > Study which are studied on humans including male and male.

#### **Exclusion Criteria:-**

- The research studies which where abstract is available.
- Research studies which are available in other languages.

- Research studies which are done over animals.
- > Preprinted research studies are excluded.

## Following related research studies categorized into different sections as below:

**Section:** ITo find the studies related to prevalence of dry eye syndrome

**Section:** II To find the studies related to effect of warm compression on tear production among patient with dry eye syndrome

Section: ILiterature related to prevalence of dry eye syndrome

Study	Title		Sampling		Data Collection	Results
Study author, year, country	litte	Nature of the study	Sampling technique	Sample SIZE	tool	Results
Kasilanka Radhika, Pakalapat i Pradeep (2025)	Prevalence of dry eye disease among medical students in a tertiary care center:	A cross sectional study	Purposive sampling technique	100	Participants were evaluated using the Ocular Surface Disease Index (OSDI) questionnaire, average daily screen time and routine ophthalmological examination, Schirmer's test, and tear film break-up time (TBUT) as a screening method for identifying DED.	Prevalence of DED among study participants was 43%, with 30% of students having mild DED. There is a significant association between screen time and DED (p<0.05).
SunitaSab arwal et all( 2025)	Prevalence, Pattern and Associated Risk Factors of Dry Eye Disease From a Prospective Database of a Tertiary Eye Care Centre in Central India	prospectiv e cross- sectional study	systematic random sampling	2,560	subjective and objective methods comprising of the Ocular Surface Disease Index (OSDI) questionnaire, slit lamp examination, Schirmer's tests and fluorescein tear-film breakup time (FTBUT) test. Patients were categorised into mild, moderate, severe and very severe DED.	The prevalence of DED was estimated to be 25% in central India. of DED was observed to be watering (36.8%), followed by redness (25%), gritty sensation (20%) and burning sensation (18.7%). Itching and blurring of vision were observed in (13.1%) and (6.8%).
Xiaojuan	Prevalence of	Cross-	stratified	1,518	Demographic	overall
Chen et	symptomatic	sectional	cluster	participant	information,	prevalence of

al(2024)	dry eye and influencing factors	study	sampling technique	S	including sex, age and BMI, were collected. All participants underwent optometric tests, while Ocular Surface Disease Index (OSDI) and self-designed questionnaires were administered	SDE was 20.3% among adolescents in Nantong, China. Multiple logistic regression analyses showed that high myopia (aOR = 3.42, frequent use of eye drops (aOR = 2.31), a history of allergic conjunctivitis (aOR = 1.93, and frequent blinking (aOR = 3.23, were identified as risk factors for SDE
Vandana Misra et all(2024)	Prevalence of dry eye disease in rural population of district: Shahjahanpur , Uttar Pradesh, Northern India	prospectiv e study	Convenienc e sampling	272500	A simple questionnaire related to DED symptoms was given to patients during screeningWhatma n filter paper no 41 (measuring 5 mm × 35 mm) which was placed in the lower fornix at the lateral one-third of the lower lid margin. The extent of wetting of the strip was measured after 5 minutes and less than 10 mm of wetting was taken as dry eye (28).Schirmer's test was done	Out of 2, 72,500 patients screened, 76,196 (28 %) were symptomatic. Out of which 40,376 (52.98 %) were males and 35,820(47.06 %) were females.
Samrat Chatterje e et all(2021)	Prevalence of symptoms of dry eye disease in an urban Indian population	Cross- sectional study	two-stage cluster sampling	2378	Interviewers collected demographic and lifestyle data from participants aged ≥20 years. DED symptoms were	Prevalence for any positive symptom was 6.5% and 6.8% . The most reported symptoms was

				assessed using a standard six-item validated questionnaire. The presence of one or more of the six dry eye symptoms often or all the time was considered positive for DED symptoms	red eyes (2.8%) followed by burning sensation (1.8%), foreign body sensation (1.7%), dry eyes (1.2%), gummy eyes (1.2%), and crusts on eyelashes (0.8%). The associated risk factors were female sex, use of digital display, smoking and stay in an airconditioned environment.
Neha Srivastav a et all(2023)	Correlation of dry eyes with on- screen time among medical students	Cross-sectional study	253	all participants were given Schirmer 1 and tear film breakup time (TBUT) test. Patients with Schirmer 1 and TBUT reading <10 mm were identified as dryeye patients. After that, a predesigned questionnaire was applied to all dryeye participants that asked about different symptoms of dryeyes and screen time and the correlation between subjective symptoms of dryeyes, dryeye tests, and screen time was evaluated.	About 20.8% of medical students had dry eyes, and those who used their phones for 2–5 h had statistically higher rates of the condition. The length of breaks was also found to be strongly correlated with dry eye.

SECTION-II Literature related to Warm Compression effect on Tear Production among Dry eye syndrome

Antoinette Antwi(2024)  Thermal Ante effect on eyelid and tear film after low-level light therapy and warm compress  and warm compress  The male fellow level and tear film after low-level light therapy and warm compress group with Bruder mask (633 nm) for 15 minutes, the warm and the control group with Bruder mask (633 nm) for 15 minutes, the warm compress group with Bruder mask having nimutes, the warm compress group with an Eyelid mask having nimutes, the warm compress group with Bruder mask having nimutes, the warm compress group with Bruder mask having nimutes, the warm compress for 15 minutes, Eyelid temperature was mare and the control group of the disposable eyelid warming masks in the treatment of dry eye disease due to Meibomian gland dysfunction  Da-Hu Wang(2024)  Efficacy and safety of the disposable eyelid warming masks in the treatment of dry eye disease due to Meibomian gland dysfunction  Efficacy and disposable eyelid warming masks in the treatment of dry eye disease due to Meibomian gland dysfunction  Efficacy and disposable eyelid temperature was market eyelid temperature was eyelid te	Antwi(2024) effect on cycle of eyelid and tear film after low-level light therapy and warm compress compress.    Antwi(2024)   Part   P	SECTION-II Liter	rature related to		ression effect on	Lear	Production among Dr	y eye syndrome
eyelid and tear fin after low-level light therapy and warm compress group with Bruder mask (633 mm) for 15 minutes, the warm compress group with Bruder mask for 10 minutes, and the control group with Bruder mask for 10 minutes, and the control group with Bruder mask for 10 minutes, and the control group with Bruder mask for 10 minutes, and the control group with Bruder mask for 10 minutes, and the control group with a Red for the possible to the possible to the possible the possible to the	eyelid and warm compress    Control, warm compress, and low-level light therapy and warm compress group was treated with Fye-light mask (33 nm) for 15 minutes, the warm compress group with a relegibly mask having inactive LFDs for 15 minutes. Eyelid temperature was measured using the FLIR One Protection of the first the control group with an Eyelight mask having inactive LFDs for 15 minutes. Eyelid temperature was measured using the FLIR One Protection of the first the control group with an Eyelight mask having inactive LFDs for 15 minutes. Eyelid temperature was measured using the FLIR One Protection of the first the control group with an Eyelight mask having inactive LFDs for 15 minutes. Eyelid temperature was measured using the FLIR One Protection of the first the control group with an Eyelight mask having inactive LFDs for 15 minutes. Eyelid temperature was measured using the FLIR One Protection of the first temperature was measured using the FLIR One Protection of the first temperature was measured using the FLIR One Protection of the first temperature was measured using the FLIR One Protection of the first temperature was measured using the FLIR One Protection of the first temperature was measured using the FLIR One Protection of the first temperature was measured using the FLIR One Protection of the first temperature was defined to the first temperature was measured using the FLIR One Protection of the first temperature was measured using the FLIR One Protection of the first temperature was measured using the FLIR One Protection of the first temperature was measured using the FLIR One Protection of the first temperature was measured using the FLIR One Protection of the first temperature was measured using the FLIR One Protection of the first temperature was measured using the FLIR One Protection of the first temperature was defined to the first temperature was measured using the FLIR One Protection of the first temperature was defined to the first temperature was defined to the first temperature was defi	Antoinette	Thermal	Randomize	Randomisatio	35	Participants	Eyelid
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Da-Hu   Efficacy and Wang(2024)   Efficacy and Wang(2024)   Efficacy and Wang(2014)   Efficacy and Wang(2024)   Efficacy and Controlled, non-masked, two-center clinical trial.   Efficacy and warm compress significantly greater after treatment.   (95% CI), 13.1 mm (5.3 to 21.0 m	with an Eyelight mask having inactive LEDs for 15 minutes. Eyelid temperature was measured using the FLIR One Protection thermal camera and clinical measures of tear film stability were evaluated before and after treatment.  Da-Hu Efficacy and Wang(2024)  Efficacy and Wang(2024)  Safety of the disposable eyelid warming masks in the treatment of dry eye disease due to Meibomian gland dysfunction  Efficacy and Wang(2024)  Da-Hu Efficacy and Wang(2024)  Efficacy and Wang(2024)  Efficacy and RCT Randomized, controlled, non-masked, two-center clinical trial.  Cone hundred and forty-four patients were treated by the masks or the hot towel twice daily for 12 weeks. Patients were evaluated at a baseline, 4-week and 12-week visiting for subjective symptoms, objective signs and safety assessments, including ocular symptom scores, ocular symptom scores, ocular symptom scores, ocular surface disease index (OSDI), tear break-up time (BUT), corneal fluorescein staining (CFS), Schirmer I test and tow-level light therapy and warm compress groups at all time points Tear film lipid layer thickness was significantly greater after treatment.  Mang(2024)  Efficacy and RCT Randomized, controlled, non-masked, two-center clinical trial.  Barbella temperature was measured using the FLIR One Pro thermal camera and clinical measures of tear film stability greater after treatment.  At 4-week visit, for 12 weeks. Patients were evaluated at a baseline, 4-week and 12-week visitis for subjective signs and safety served and CFS between two groups groups are 12-week visitis symptom scores, ocular surface disease index (OSDI), tear break-up time (BUT), corneal fluorescein staining (CFS), Schirmer I test addition, 40						-	
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staining (CFS), (P < 0.05). In Schirmer I test addition, 40	staining (CFS), (P < 0.05). In Schirmer I test addition, 40		1				` '	
Schirmer I test addition, 40	Schirmer I test addition, 40				i	l	corneal fluorescein	1:-:4
(0.00)	(SIT), meibum AEs occurred in						staining (CFS),	(P < 0.05). In
							staining (CFS),	(P < 0.05). In addition, 40
	quality, 27 patients						staining (CFS), Schirmer I test	(P < 0.05). In addition, 40

					meibumexpressibilit y, and adverse events (AEs).	(37.5%) in the treatment group, and 34 AEs occurred in 21 patients (29.17%) in the control group.
Justin E. Pettayil (2024)	Effect of Heating and Massaging of Meibomian Glands on Their Imaging	prospective study	randomisation	24	Lid warming was facilitated using a BlephaEyeBag which was heated in a microwave for 30 s at a power level of 800 W as per the manufacturer's instructions. The manual eyelid massage involved gentle manipulation using the index and middle fingers for 5 min, aligning with the gland directions.	Heating and massaging the eyelids improved the appearance of the upper lid meibomian glands (p = 0.025), while the lower lid glands showed no change (p = 0.782). Tear film stability (NIBUT) decreased slightly on the second lid eversion (p = 0.049) but improved immediately after heating (p = 0.034) and was sustained 5 minutes after massage (p = 0.031). Tear meniscus height (TMH) increased significantly with heating (p < 0.001) and remained higher after 5 minutes of massage (p = 0.011). Lid eversion had no effect (p > 0.05), blink rate was unchanged (median 24 blinks/min, range 8–59; p = 0.61), and no adverse effects were reported."

Mano PriyaVijayan, RenukaGugan(202 3)	Effect of Warm Compress Application using Optic Care Wear Vs Conventional Method on Level of Symptom Complex among Elderly Clients with Dry Eye Syndrome at Selected Old Age Home, Puducherry	experimenta l research design	non-probability convenience sampling technique	20	Research participants grouped into two groups, with 10 in the experimental group who received a warm compress using Optic Care Wear, and 10 in the control group who received a conventional warm compress application using a clean cotton cloth. Age (≥50), symptoms, and clinical measures associated with dry eye are the parameters considered for the selection for study. Pre-test and posttest evaluations of OSDI, TBUT, and Schirmer's Test scores, and statistical analyses using paired t-tests and chi-square tests were conducted.	Applying warm compresses with Optic Care Eyewear considerably lowered OSDI values. scores (12.92% reduction) compared to the conventional method (1.67% reduction). Furthermore , the experimenta l group manifested substantial enhancemen ts in TBUT ratings (32.50% increase) and Schirmer's Test ratings (36.98% increase) relative to Control Group (TBUT: 13.51% increase, Schirmer's Test: 11.26% increase)
Zara Arif (2024	Efficacy of Warm Compress Therapy on Tear Film Quality and Postoperative Dry Eye	randomized clinical trial	randomizatio n	60	intervention group, receiving warm compress therapy after surgery, or a control group receiving standard dry eye treatments for a six-week	Warm compress therapy mean standardised patient evaluation of eye

	Crmdnon-			1	duration	dmmass
	Syndrome				duration.	dryness
	after Cataract				Preoperative and	questionnair
	Surgery: A				postoperative	e at day one
	Randomized				evaluations will	was
	Controlled				include ocular	20.37±3.85
	Trial				surface disease	before the
					index and a	treatment
					standardised patient	
					evaluation of eye	2.37±1.36
					dryness	after the
					questionnaire to	treatment,
					measure dry eye	mean score
					symptoms and	of the
					quality of life. The	control
					normality of the	group before
					data was assessed	treatment
					using the	was
					Kolmogorov-	17.41±2.4,
					Smirnov test.	after the
						treatment
						was
						5.38±1.5.
						The mean
						score of
						ocular
						surface
						disease
						index of the
						warm
						compress
						therapy
						before and
						after
						treatment
						was
						$75.48\pm9.09$ ,
						18.07±4.45.
						and for
						control grou
						p54.11±11.3
						, and
						31.41±6.2,
						respectively.
						The mean
						difference in
						ocular
						surface
						disease
						index was
						22.7
						(p≤0.05)
Xueyi Zhou (2021)	Effects of	Experiment	Convenience	37	Participants, with	WC may
1100 (2021)	warm	al study	sampling	"	dry eye for more	temporarily
	compress(W	ar study	Samping		than following	increase tear
	compress( w			L	inan ionowing	mercase tear

C) on tear	surgery WC was	film
film, blink	performed using a	thickness
pattern and	heating eye mask.	and stability,
Meibomian	Tear film break-up	decrease
gland	time (TBUT), tear	partial blink,
function in	film lipid layer	and partly
dry eyes after	thickness (TFLLT),	augment
corneal	blink pattern,	Meibomian
refractive	Meibomian	gland
surgery	secretory function	function in
	were assessed	dry eye
	before and after	patients
	WC.	after corneal
		refractive
		surgeries.

# Discussion:-

According to primary data it has been analysed thatthere was a significant prevalence of Dry Eye Disease (DED) among medical students (43%), with 30% of cases being mild in severity. The results show that extended time spent on screens has a significant connection with DED occurrence (p < 0.05). In order to lessen the negative effects of digital screen exposure on ocular health, our findings highlight the necessity of education, preventative actions, and routine eye exams for medical students. Furthermore, study revealed that 25% population reported with Dry Eye Disease in Central India, under which tearing as the most reported as one of mostly reported symptoms. Findings highlight the need for early detection and preventive eye care to manage DED effectively. Moreover, symptomatic dry eye is a significant ocular health concern among adolescents in Nantong, China, where it is known to have a prevalence of 20.3%. The main risk factors have been found to be high myopia, frequent use of eye drops, allergic conjunctivitis, and excessive blinking. In order to safeguard teenage eye health in the age of digital media, these findings highlight the critical need for early screening, lifestyle changes, and educational initiatives.

Even after the rural population of Shahjahanpur, Uttar Pradesh, has an exceedingly significant rate of Dry Eye Disease (DED) at 28%. This is a major yet are frequently overlooked public health issue. considering that the prevalence is slightly greater in men (52.98%) than in women (47.06%), the results emphasise the critical need for early detection, community-based awareness campaigns, and easily accessible eye care facilities in order to address the growing problem of DED in rural India. Study suggests that the incidence of Dry Eye Disease (DED) within medical students was 20.8%, as well as there was an important association between the occurrence of dry eye symptoms and prolonged screen usage. The rates of prevalence were noticeably higher among students who used digital devices for two to five hours per day. Furthermore, infrequent screen breaks were significantly linked to higher DED symptoms, highlighting the importance of regular breaks, healthy screen habits, and early preventive eye care practices for medical students in the age of digital devices.

For warm compression the study showed that, in compared to the control group, warm compresses and low-level light therapy both markedly raised eyelid temperature and improved the dimension of the tear film lipid layer. Nevertheless, no apparent difference between the two treatment approaches was found. These results underline both interventions' potential as non-invasive, beneficial treatments for dry eye symptoms by confirming that they are similarly successful in improving eye surface health and tear film stability. According to the study's findings, Meibomian gland dysfunction-related Dry Eye Disease (DED) can be safely and effectively treated with disposable eyelid warming masks. Compared to the hot towel group, patients who used warming masks after 12 weeks of treatment reported substantial improvements in perceived symptoms as well as objective clinical indicators, such as OSDI scores, tear film stability, and corneal health (P < 0.05).

Both groups experienced moderate adverse effects, but they were generally well tolerated. These findings demonstrate that, when it comes to the long-term treatment of DED, eyelid warming masks provide a practical, reliable, and therapeutically advantageous substitute for conventional hot towel therapy. The research conducted indicated that both warm compress approaches benefitted individuals 50 years of age and above deal with dry eye complaints. In contrast to the conventional cotton approach, the Optic Care Wear compress displayed a higher

enhancement of OSDI, TBUT, and Schirmer's Test results. The substantial variations among groups were confirmed by statistical testing using chi-square and paired t-tests. The results demonstrate that consistent, routine warm compress therapy improves ocular comfort and tear film integrity. Optic Care Wear thus turned out to be a more effective, safe method of treating DED. A research project that used a heated eye mask for warm compression on 37 dry eye patients who had undergone refractive surgery revealed a substantial increase in the overall thickness of the lipid layer and the resilience of the tear film. Additionally, it strengthened Meibomian gland functionality and decreased partial blinks. According to the results, post-operative dry eye can be successfully managed temporarily using warm compress therapy. Therefore, it functions as a straightforward, non-invasive technique to improve the functioning of the ocular surface.

#### **Future Scope:-**

- Nurse-led eye care programs can be established in outpatient departments and community settings to teach proper techniques for warm and cold compression with blinking exercises.
- Standardized clinical protocols and demonstration guidelines should be developed to ensure uniformity and patient safety in practice.
- Follow-up assessments using tools like the Schirmer's test or Ocular Surface.
- Disease Index (OSDI) should be performed to monitor improvement and adherence.

#### Critique:-

- Existing literature tends to examine either the effectiveness of warm compression or the prevalence of dry eye syndrome separately. Very few studies attempt to combine these two essential aspects, making it difficult to understand whether populations with higher prevalence truly benefit from this therapy.
- Limited data in local population groups (students, elderly, digital users). Dry eye risk varies with lifestyle and demographics. However, population-focused research is lacking, especially in our region.
- Limited comparison with artificial tears, IPL, lid hygiene,

#### **Conclusion:-**

The analysis of relevant research strongly shows that warm compress therapy has significance for controlling Dry Eye Disease (DED) and enhancing the health of the eyes. Improvements in important clinical parameters like the Ocular Surface Disease Index (OSDI), Tear Film Break-Up Time (TBUT), Schirmer's Test, and Tear Film Lipid Layer Thickness (TFLLT) after applying warm compresses have been consistently reported in a variety of research designs, including randomised controlled trials, quasi-experimental, and prospective studies. When compared with standard cotton-made warm compresses, modern devices such as the Optic Care Wear, Bruder mask, and heated eye masks have demonstrated superior results, providing more consistent heat and convenience of use. Additionally, studies show that after refractive and cataract procedures, warm compress therapy improves postoperative tear film stability, decreases partial blinks, and increases Meibomian gland function. The majority of the data points to regular, controlled warm compress therapy as a safe, non-invasive, and successful way to help people with DED regain their Meibomian gland function, tear film stability, and ocular comfort. Dry eye syndrome (DES), a common ocular disease which manifests in discomfort, blurred vision, and degradation of the optical area, is characterised by decreased discharge of tears or increased tear evaporation. Non-pharmacological nursing techniques, including as warm compression and blinking exercises, have been shown to enhance meibomian gland activity and tear production, hence improving ocular surface health.

#### Reference:-

- 1. Antoinette Antwi, Augustine N Nti, Eric R Ritchey. Thermal effect on eyelid and tear film after low-level light therapy and warm compress. Clin Exp Optom. 2024 Apr; 107(3):267-273. Available at PMID: 37156225DOI: 10.1080/08164622.2023.2206950
- 2. Da-Hu Wang, Hua Guo, Wei Xu & Xin-Quan Liu. Efficacy and safety of the disposable eyelid warming masks in the treatment of dry eye disease due to Meibomian gland dysfunction. BMC Ophthalmology volume 24, Article number: 376 (2024)Published: 26 August 2024.Available AT: https://bmcophthalmol.biomedcentral.com/articles/10.1186/s12886-024-03642-z
- 3. Justin E. Pettayil, Samya Haque, Mohammed Fardin, Sandeep Kaur Dhallu, Sònia Travé-Huarte. Effect of Heating and Massaging of Meibomian Glands on Their Imaging. Medicina 2024, 60(10), 1603; https://doi.org/10.3390/medicina60101603 Available at https://www.mdpi.com/1648-9144/60/10/1603

# ISSN:(0) 2320-5407, ISSN(P) 3107-4928 Int. J. Adv. Res. 13(11), November-2025, 1324-1335

- 4. Kasilanka Radhika, Pakalapati Pradeep, Prevalence of dry eye disease among medical students in a tertiary care center: A cross sectional study.Indian Journal of Clinical and Experimental Ophthalmology. 11(1):111-115, 2025. | 10.18231/j.ijceo.2025.019 Available at https://ijceo.org/archive/volume/11/issue/1/article/21723#heading-2
- 5. Mano Priya Vijayan, Renuka Gugan, Pilot Study on Effect of Warm Compress Application using Optic Care Wear Vs Conventional Method on Level of Symptom Complex among Elderly Clients with Dry Eye Syndrome at Selected Old Age Home, Puducherry. Indian Journal of Science and Technology. September 202316(34):2767 2777. DOI:10.17485/IJST/v16i34.1614 Available athttps://www.researchgate.net/publication/374120673\_Pilot\_Study\_on\_Effect\_of\_Warm\_Compress\_Application\_using\_Optic\_Care\_Wear\_Vs\_Conventional\_Method\_on\_Level\_of\_Symptom\_Complex\_among\_Elderly\_Clients\_with\_Dry\_Eye\_Syndrome\_at\_Selected Old Age Home Puduche
- 6. Neha Srivastava, Lalit Sachdeva, Swati Agarwal, Neha Pednekar, Srivastava Ak. Correlation of dry eyes with onscreen time among medical students. Asian journal od Pharmaceutical and clinical research, VOL 16 ISSUE 9 SEPTEMBER 2023 / DOI: https://doi.org/10.22159/ajpcr.2023v16i9.47956
- 7. Samrat Chatterjee, Deepshikha Agrawal, Gul Sanowar, Rushi Kandoi,Prevalence of symptoms of dry eye disease in an urban Indian population. Indian Journal of Ophthalmology,2021 Apr 30;69(5):1061–1066. doi: 10.4103/ijo.IJO 1796 20 Available at: https://pmc.ncbi.nlm.nih.gov/articles/PMC8186626/
- 8. Sunita Sabarwal, Priyanka, Bruttendu Moharana, Rituka Gupta, Bhavana Sharma.Prevalence, Pattern and Associated Risk Factors of Dry Eye Disease From a Prospective Database of a Tertiary Eye Care Centre in Central India.Cureus Journal of Medical Science.February 12, 2025 DOI: 10.7759/cureus.78889 Available at: https://www.cureus.com/articles/340109-prevalence-pattern-and-associated-risk-factors-of-dry-eye-disease-from a prospective database of a tertiary eye care centre in central india#!/https://pmc.ncbi.nlm.nih.gov/articles/PMC11911549/
- Dr. Vandana Misra, Dr. Gireesh Mishra, Dr. VPS Tomar, Dr. Abhishek Bathla, Dr. V K Pal.Prevalence of dry
  eye disease in rural population of district: Shahjahanpur, Uttar Pradesh, Northern India: A prospective study.
  International Journal of Life Sciences, Biotechnology and Pharma Research Vol. 13, No. 10, October 2024
  Available at: https://www.ijlbpr.com/uploadfiles/9vol13issue10pp43-47.20241007035525.pdf
- 10. Xiaojuan Chen , Yue Zhou , Xian Gao , Yan Zhu , Qi Cai , Bianyu Yin , ZhiMin Sun , Yaojia Xiong , Yong Wang, Xiaobo Huang, Prevalence of symptomatic dry eye and influencing factors among Chinese adolescents: A cross-sectional study. PLoS ONE, 2024 Oct 29; Vol-19(10):doi:10.1371/journal.pone.0312725. Available at https://pubmed.ncbi.nlm.nih.gov/39471172/
- 11. Xueyi Zhou, Yang Shen, Jianmin Shang & Xingtao Zhou. Effects of warm compress on tear film, blink pattern and Meibomian gland function in dry eyes after corneal refractive surgery, BMC Ophthalmology volume 21, Article number: 330 (2021) Avaailable at https://pubmed.ncbi.nlm.nih.gov/34503464/
- 12. Zara Arif,Ummara Shafiq, Zaryab Khan, The Healer Journal of Physiotherapy and Rehabilitation Sciences. August 2025,5(2):363-367DOI: https://doi.org/10.55735/zamj0790 Available at: https://thehealerjournal.com/index.php/templates/article/view/458
- 13. Zhou X. et al. (2021). Effects of Warm Compress on Tear Film, Blink Pattern and Meibomian Gland Function in Dry Eyes after Corneal Refractive Surgery.BMC Ophthalmology.https://pubmed.ncbi.nlm.nih.gov/34503464/