


Prevalence and Associated Factors of Pterygium Among Adults Living in Kolla Diba Town, Northwest Ethiopia

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Background: Pterygium is a disfiguring disease that can potentially lead to blindness. It is more common in warm, windy and dry climates of tropical and sub-tropical regions of Africa. Globally, the prevalence ranging from 0.07% to 53%. Studies conducted on the prevalence of pterygium in developing countries were limited with a wider discrepancy between them. In this study, we aimed to assess the prevalence of pterygium and its associated factors among adults in Kolla Diba town.

Methods: A community-based cross-sectional study was done in Kolla Diba town from May 30-June 16, 2019. A systematic random sampling technique was used to select 627 study participants. The basic ophthalmic examination was performed using portable slit lamp, 3x magnifying loop with torch light and a pretested structured questionnaire was completed. The data entered into EPI INFO version 7 and analyzed using SPSS version 20. Descriptive statistics and binary logistic regression analysis were employed. P-values of <0.05 were considered statistically significant.

Results: A total of 605 study participants were involved with a response rate of 96.5%. Among them, 317 (52.4%) participants were males. The mean age of the respondents was 38.18 ± 15.56 with a range of (18–95) in years. The overall prevalence of pterygium was 112 (18.5% (95% CI (15.6–21.7)). Being widowed (AOR = 7.32 (95% CI: 2.88, 18.57)), outdoor occupation (AOR = 2.50 (95% CI: 1.46, 4.29)), sun exposure (AOR = 2.38 (95% CI: 1.28, 4.43)), wind exposure (AOR = 1.97 (95% CI: 1.04, 3.72)), alcohol drinking (AOR = 2.26 (95% CI: 1.48, 4.63)), and severe blepharitis (AOR = 2.45 (95% CI: 1.48, 4.05)) had statistically significant positive association with pterygium.

Conclusion: The prevalence of pterygium was relatively higher. Being widowed, outdoor occupation, sun exposure, wind exposure, alcohol drinking, and severe blepharitis were significantly associated with the development of pterygium.

Keywords: pterygium, marital status, prevalence, Kolla Diba, Ethiopia

Introduction

Pterygium is a benign, radially oriented, fleshy triangular/wing shaped abnormal fibro-vascular growth of the conjunctiva encroaching towards the central cornea in either one or both eyes.^{1,2} The main clinical presentations are redness, irritation, foreign body sensation, decreased vision and ocular discomfort.^{3,4} The severity of pterygium can be graded as grade 1, 2, 3 and 4 based on the location of pterygium head encroachment on the cornea.^{5,6} Genetics and other environmental factors such as wind, dry atmosphere, dust, chemicals, air pollution, geographical location, and

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hereditary factors may contribute to the development of pterygium.⁷ Pterygium is more common in warm, windy and dry climates of tropical and subtropical regions.^{8,9} The burden of pterygium is higher among individuals who live in rural residence, low economic status, illiterates, and outdoor workers, who spend a greater part of the day outdoors under excessive sun exposure, wind, and dust.¹⁰⁻¹³

Globally, the prevalence of pterygium ranges from 0.07% to 53% worldwide and 8.0% to 38.7% in Africa.^{2,3,6,12,14,15} In Ethiopia, the prevalence was 8.8% in Meskan district, Southern Ethiopia and 38.7% in Gondar city, Northwest Ethiopia.^{2,16}

Untreated pterygium may lead to visual impairment, cosmetic problems, restriction of ocular motility, significant socioeconomic problems and reduced quality of life.¹⁷⁻²¹ Even though the consequence is higher, it is possible to minimize the chances of being afflicted with pterygium by wearing UV protective sunglasses, wide-brimmed hats, caps and using an umbrella to reduce exposure to environmental irritants.^{2,6,10,15,22,23}

Pterygium is a common ophthalmic condition in “pterygium belt” regions, located between latitudes 40° N and 40° S of the equator.^{7,15,24} The exposure to environmental factors is also higher in Africa, including Ethiopia but the evidence is scarce on the prevalence of pterygium in this region.^{13,25-29} Therefore, this study aimed to determine the prevalence and associated factors of pterygium among adults in Kolla Diba town. The result of this study will be important for planning and implementing health care services and also act as baseline data for further studies.

Methods and Materials

Study Design, Setting, and Sampling

A community-based cross-sectional study was conducted in Kolla Diba town, Northwest Ethiopia, located 712km from the capital city of Ethiopia, Addis Ababa. The altitude of the town is 1827m above sea level. According to statistical data from Dembiya woreda Administrative office, Kolla Diba town has a total population of 25,831 with three kebeles including 5328 households. The total number of adults (≥ 18 years) living in Kolla Diba town was 15,534. In the town, there is one primary hospital and one health center.

A total of 627 sample size was determined by a single proportional formula by considering 10% non-response rate. In the study, 605 study participants were recruited and completed the questionnaire along with basic

ophthalmic examinations with a response rate of 96.5%. Households from all kebeles were chosen by using a systematic random sampling technique with a sampling fraction of eight. The first household was selected by the lottery method between, the 1st & 8th household and then continued in every 8th household. Finally, one adult in each participating household age ≥ 18 years old was randomly selected and recruited as a study participant.

The study was conducted under the Declaration of Helsinki and approved by the University of Gondar Ethical Review Board. Under the Ethiopian National Research Ethics Review Guideline, verbal informed consent was obtained from all adults ≥ 18 years old using an information sheet in the local language “Amharic”. Since the study did not involve invasive eye examination procedures, the university ethical review board approved verbal informed consent. The study participants’ agreements were first obtained verbally before data collection. Then the data were collected by trained senior optometrists. Those adults who had pterygium were prescribed sunglasses and referred to the University of Gondar tertiary eye care and training center for further examination and management.

Operational Definition

Sun exposure divided into two groups by crude cut off value of sun exposure duration: a participant who exposed to sunlight for above or equal to 5hrs per day for more than a year considered as exposed, whereas less than 5hrs per day considered as non-exposed.²⁶

Dust exposure: Any exposure to sawdust or wood-dust, chalk dust and sand/soil, dust for more than a year.²³

Grading of Pterygium

Grade 1: head of a pterygium at the limbus

Grade 2: head of a pterygium between the limbus and the un-dilated pupil margin

Grade 3: head of a pterygium at the pupil margin

Grade 4: head of a pterygium within the pupil margin³⁰

Data Collection

The pre-tested and structured questionnaire of local language “Amharic” was used to interview adults’ ≥ 18 years old. (Figure 1). The study tools were pre-tested in a nearby area of the study site that had not been sampled (Chuahit), on 5% of the sample who fulfilled the sampling inclusion criteria, to validate questions and observations. The collected data from

S.NO	QUESTION	RESPONSE	
1	Age	_____ Years	
2	Gender	1. Male 2. Female	
3	Marital status	1. Single 2. Married 3. Divorced 4. Widowed	
4	Educational status	1. Unable to read and write 2. Read and write only 3. Primary school 4. Secondary school 5. College/ university	
5	Occupation	Indoor (1) 1. Teacher 2. Student 3. Housewife 4. Office worker 5. Others(specify)	Outdoor (2) 1. Construction workers 2. Daily laborer 3. Farmer 4. Security guards 5. Others (specify)
6	Monthly income/ Household	_____ (ETB)	
7	Have you exposed to dust?	1. Yes 2. No	
8	For how many times do you exposed to sunlight per day?	1. For < 5hr/day 2. For ≥5hr/day	
9	Have you exposed to wind?	1. Yes 2. No	
10	For how many periods do you spend your time on outdoor activities?	1. For < 5hr/day 2. For ≥ 5hr/day	

Figure 1 Continued.

study participants include information's on socio-demographic characteristics, behavioral/lifestyle-related factors, and environmental factors. Face to face interviews by using standardized questionnaires were conducted with those selected participants. Standard basic ophthalmic examination by using a

portable slit lamp, torchlight, and 3x magnifying loop was done by trained senior optometrists to rule out the diagnosis of pterygium. On the fieldwork, the quality of data was cross-checked (5% of the filled questionnaire) for completeness, accuracy, and clarity through supervision daily.

11	Do you use sunglass/ hat/ cap/umbrella?	1. Yes 2. No
12	Have you drink alcohol?	1. Never 2. Past 3. Current
13	Did you smoke cigarette in your life?	1. Never 2. Past 3. Current
14	Did you use any traditional eye medications?	1. Yes 2. No
15	Do you have any family history of pterygium (among the first-degree relative)? (please show them the picture)	1. Yes 2. No
16	Do you have any history of fallen out lashes and scales on your eyelashes?	1. Yes 2. No
17	<p>Dry eye questionnaire</p> <p>Have you experienced these symptoms before?</p> <p>1. Do your eyes ever feel dry? 2. Do you ever feel a gritty or sandy sensation in your eyes? 3. Do your eyes ever have a burning sensation? 4. Are your eyes ever red? 5. Do you notice much crusting on your lashes? 6. Do your eyelids ever get stuck?</p>	<p>1. 'Never' 2. 'Rarely' 3. 'Sometimes' 4. 'Often' 5. 'All the time'</p> <p>(subjects considered, symptomatic when at least one (out of six) of the symptoms on the questionnaire was experienced often or all the time)</p>
18	Do you have a history of hypertension?	1. Yes 2. No 3. I don't know

Figure 1 Data extraction form/questionnaire.

Statistical Analysis

After coding, the data was entered into EPI INFO 7, exported and analyzed by using SPSS version 20. The descriptive statistics were carried out to compute different proportions and summary statistics. Model fitness was checked by using the Hosmer and Lemeshow. Variables were fitted into the model by using the backward stepwise method. The analytical statistics were done by using bivariate and multivariate logistic regression. Those variables with 95% CI and p-value less than 0.05 were considered as statistically significant factors of pterygium.

Results

A total of 605 participants was recruited and completed the questionnaire along with basic ophthalmic examinations with a response rate of 96.5%. Among them, 317 (52.4%) participants were males. The mean age of the respondents was 38.18 ± 15.56 with a range of (18–95) in years. Majority 188 (31.1%) of the respondents completed secondary school and almost half of the participants got married 303 (50.1%). Most of the participants were indoor workers 410 (67.8%). The majority of the participants had an income of ≤ 1000 ETB from the monthly median income of 2075.50 ETB. [Table 1](#).

Study participants who exposed to dust and wind were 337 (55.7%) and 350 (57.9%) respectively. Participants who exposed to sunlight for more than 5hrs per day were 280 (46.3%) and half of the respondents 302 (49.9%) spend most of their time on outdoor activities. [Table 2](#). Of the total study participants only 171 (28.3%) study participants used sunglasses or hats. Most of the study participants never smoked cigarettes, any history of dry eye and hypertension with 518 (85.6%), 503 (83.1%) and 558 (92.2%) respectively. [Table 3](#).

The overall prevalence of pterygium among adults living in Kolla Diba town was 112 (18.5% (95% CI (15.6–21.7))). Among those participants, 65 (58%) had unilateral pterygium. The majority of the participants 87 (77.7%) had pterygium on the nasal side and the rest 12 (10.7%) had temporal and 13 (11.6%) had double pterygium. Most of the study participants had grade 1 pterygium, 63 (56.3%) followed by grade 2 pterygium, 38 (33.9%) and the rest grade 3 and 4 accounts less than 8% in total. [Table 4](#).

From the Bi-variable logistic regression analysis; factors like age, gender, marital status, educational status, occupation, dust exposure, sun exposure, wind exposure,

Table 1 Socio-Demographic Characteristics Among Adults Living in Kolla Diba Town, Northwest Ethiopia, June 2019 (n=605)

Characteristics	Frequency	Percent (%)
Age (in years)		
18–26	169	27.9
27–35	161	26.6
36–48	133	22.0
≥ 49	142	23.5
Gender		
Male	317	52.4
Female	288	47.6
Marital status		
Single	179	29.6
Married	303	50.1
Divorced	80	13.2
Widowed	43	7.1
Educational status		
Unable to read and write	99	16.4
Read & write only	80	13.2
Primary school	100	16.5
Secondary school	188	31.1
College and above	138	22.8
Type of occupation		
Indoor*	410	67.8
Outdoor**	195	32.2
Monthly income (ETB)		
≤ 1000	172	28.4
1001–2000	134	22.1
2001–3635	148	24.5
≥ 3636	151	25.0

Notes: Where *(Teacher, office workers, shop keepers, bank accountant). *(Farmer, construction workers, daily laborers).

duration of outdoor activities, use of sunglasses or hat, drinking status, smoking status, use of traditional eye medication, severe blepharitis, history of dry eye and history of hypertension were independently associated with pterygium with the significant level of $p < 0.20$.

In multivariable logistic regression analysis factors such as marital status, occupation, sun exposure, wind exposure, drinking status, and severe blepharitis had a statistically significant association with pterygium. This study found that there is a positive association between marital status (being widowed) and the development of pterygium. The odds of developing pterygium among widowed participants were 7 times more likely as compared to single participants (AOR = 7.32 (95% CI: 2.88, 18.57)). Outdoor occupation workers such as farmers, day

Table 2 Environmental Factors Associated with Pterygium Among Adults Living in Kolla Diba Town, Northwest Ethiopia, June 2019 (n=605)

Variables	Frequency	Percent (%)
Dust exposure		
Yes	337	55.7
No	268	44.3
Sun exposure		
Non exposed (<5hr)	325	53.7
Exposed (≥5hr)	280	46.3
Wind exposure		
Yes	350	57.9
No	255	42.1
Time spent outdoor		
<5hr.	303	50.1
≥5hr.	302	49.9

Table 3 Behavioral/Lifestyle Factors Associated with Pterygium Among Adults Living in Kolla Diba Town, Northwest Ethiopia, June 2019 (n=605)

Variables	Frequency	Percent (%)
Use of sunglass or hat		
No	434	71.7
Yes	171	28.3
Drinking status		
Never	255	42.2
Past	86	14.2
Present	264	43.6
Smoking status		
Never	518	85.6
Past	64	10.6
Present	23	3.8
Use of traditional eye medication		
No	514	85.0
Yes	91	15.0
Severe blepharitis		
No	312	51.6
Yes	293	48.4
History of dry eye		
No	503	83.1
Yes	102	16.9
History of hypertension		
No	558	92.2
Yes	47	7.8
Family history of pterygium		
No	498	82.3
Yes	107	17.7

Table 4 Prevalence, Laterality, Location and Severity of Pterygium Among Adults Living in Kolla Diba Town, Northwest Ethiopia, 2019

Variables	Frequency	Percent (%)
Pterygium (n=605)		
Yes	112	18.5
No	493	81.5
Laterality		
Unilateral	65	58.0
Bilateral	47	42.0
Location		
Nasal	87	77.7
Temporal	12	10.7
Double (both side)	13	11.6
Severity		
Grade 1	63	56.3
Grade 2	38	33.9
Grade 3	9	8.0
Grade 4	2	1.8

laborers, taxi drivers, vendors, construction workers, were 2.50 times more likely to develop pterygium as compared to indoor workers such as office workers, teachers and so on (AOR = 2.50 (95% CI: 1.46, 4.29)).

Participants who had exposed to wind were 2 times more likely to develop pterygium than non-exposed (AOR = 1.97 (95% CI: 1.04, 3.72)). Alcohol drinking had a positive association with pterygium and those participants who had currently drink alcohol were 2.62 times more likely to develop pterygium as compared to non-drinkers (AOR = 2.26 (95% CI: 1.48, 4.63)). The odds of developing pterygium on study participants who exposed to the sun were 2.38 times more likely than non-exposed (AOR = 2.38 (95% CI: 1.28, 4.43)). Those participants who had severe blepharitis were 2.45 times higher risk of developing pterygium (AOR = 2.45 (95% CI: 1.48, 4.05)). [Table 5](#).

Discussion

The prevalence of pterygium of various studies in the world shows considerable variation, ranging from 0.07% to 53%, depending on the difference in various geographical and environmental factors.^{2,3,31,32}

In this community-based cross-sectional study the prevalence of pterygium among adults living in Kolla Diba town was 112 (18.5% (95% CI: 15.6–21.7)). This finding is lower as compared to the study conducted, in Gondar

Table 5 Binary Logistic Regression of Factors Associated with Pterygium Among Adults Living in Kolla Diba Town, Northwest Ethiopia, June 2019(n=605)

Variables	Pterygium		COR(95% CI)	AOR(95% CI)
	Yes	No		
Age				
18–26	23	146	1.00	1.00
27–35	22	139	1.00 (0.54, 1.88)	0.60 (0.28, 1.30)
36–48	34	99	2.18 (1.21, 3.92)	0.87 (0.38, 1.96)
≥49	33	109	1.92 (1.07, 3.46)	0.91 (0.38, 2.15)
Gender				
Female	39	249	1.00	1.00
Male	73	244	1.91 (1.25, 2.93)	1.03 (0.58, 1.83)
Marital status				
Single	20	159	1.00	1.00
Married	59	244	1.92 (1.12, 3.31)	1.44 (0.78, 2.65)
Divorced	19	61	2.48 (1.24, 4.96)	1.63 (0.75, 3.57)
Widowed	14	29	3.84 (1.74, 8.45)	7.32 (2.88, 18.57)***
Educational status				
Unable to read & write	22	77	2.53 (1.22, 5.24)	1.01 (0.38, 2.70)
Read & write only	18	62	2.57 (1.20, 5.51)	1.18 (0.47, 3.00)
Primary	22	78	2.50 (1.20, 5.17)	1.52 (0.64, 3.61)
Secondary	36	152	2.10 (1.10, 4.10)	1.44 (0.67, 3.10)
College & above	14	124	1.00	1.00
Occupation				
Indoor	41	369	1.00	1.00
Outdoor	71	124	5.15 (3.34, 7.96)	2.50 (1.46, 4.29)***
Dust exposure				
Non exposed	25	243	1.00	1.00
Exposed	87	250	3.38 (2.10, 5.46)	0.88 (0.42, 1.86)
Sun exposure				
Non exposed	26	299	1.00	1.00
Exposed	86	194	5.12 (3.19, 8.24)	2.38 (1.28, 4.43)**
Wind exposure				
No	19	236	1.00	1.00
Yes	93	257	4.50 (2.66, 7.60)	1.97 (1.04, 3.72)*
Duration/Time spent outdoor				
<5hr	29	274	1.00	1.00
≥5hr	83	219	3.58 (2.26, 5.66)	0.75 (0.33, 1.68)
Use of sunglass or hat				
Yes	23	148	1.00	1.00
No	89	345	1.66 (1.01, 2.73)	1.43 (0.82, 2.50)
Drinking status				
Never	24	231	1.00	
Past	16	70	2.20 (1.11, 4.40)	1.73 (0.81, 3.69)
Present	72	192	3.61 (2.20, 5.95)	2.62 (1.48, 4.63)**
Smoking status				
Never	84	434	1.00	1.00
Past	23	41	2.90 (1.65, 5.10)	1.26 (0.63, 2.48)
Present	5	18	1.44 (0.52, 3.97)	0.70 (0.21, 2.25)

(Continued)

Table 5 (Continued).

Variables	Pterygium		COR(95% CI)	AOR(95% CI)
	Yes	No		
Use of traditional eye medication				
No	84	430	1.00	1.00
Yes	28	63	2.28 (1.38, 3.76)	1.12 (0.60, 2.10)
Severe blepharitis				
No	30	282	1.00	1.00
Yes	82	211	3.65 (2.32, 5.76)	2.45 (1.48, 4.05)***
History of dry eye				
No	78	425	1.00	1.00
Yes	34	68	2.72 (1.69, 4.39)	0.88 (0.46, 1.67)
History of HTN				
No	97	461	1.00	1.00
Yes	15	32	2.23 (1.16, 4.27)	1.47 (0.66, 3.30)

Note: * $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$; 1.00 = reference.

Abbreviation: CI, Confidence Interval.

city (Ethiopia) 38.7%.² This discrepancy might be due to the difference in socioeconomic status and reference age group. In the study conducted in Gondar city, 71% of the study participants had a low monthly income (< 1000 ETB). But here in this study, only 28.4% of the study participants had low monthly income. As previous studies described as low economic status had positively associated with the prevalence of pterygium.^{11,26,28,33,34} Another reason might be an age cut off point as the present study involved all available inhabitants aged ≥ 18 years as compared to the study conducted in Gondar city (age >20 years). In contrast to few other studies, this study also shows lower prevalence than other studies conducted in Ghana 31.0%,¹⁸ 30.8% in Kumejima (Southwest Japan),³⁵ 37.46% in Duomen County (Republic of China)³² and 36.6% in Amazon Basin (Brazil).³⁶ This variation might be due to the difference in the target population, ethnicity and altitudinal variation.

This finding is higher when compared with the study conducted in Meskan district, Southern Ethiopia, which was 8.80%.¹⁶ This variation might be due to the difference in the target population and ethnicity (the prevalence of pterygium varied among different ethnic groups).^{5,9,24,37} The present study shows higher prevalence of pterygium in comparison to other studies conducted in Saudi Arabia (Alkhobar) 0.07%,³¹ 13.0% in Rural agrarian central India,²² 10.53% in China (Shandong province),²⁰ 4.40% in Japan,¹ 8.80% in South Korea,²⁶ 2.3% in Russia, 8.12% in Brazil (Sao Paulo (Botucato city)),³⁸ 11.24% in

Hawaii,²⁴ 5.90% in Spain,³ and 1.09% in Portugal.³⁹ This discrepancy might be due to the difference in geographical location, climatic change, altitudinal variation, lifestyle and other environmental factors. Most of the above studies were also done on older adults (40 years and above).

The present study finding is laying in between the highest and the lowest prevalence among different epidemiological studies in the world. This finding is in line with the study conducted in Southeastern Nigeria, Central Myanmar and in Riau Archipelago (tropical islands of Indonesia) which was 19.3%, 19.6% and 17.0% respectively.^{19,23,30} This is because Ethiopia, Nigeria, Central Myanmar and Riau Archipelago (Indonesia) located in a similar geographical region (pterygium belt tropical regions) in the tropics near the equator. These studies also had similar age group reference and study design.

In many works of literature marital status had no direct association with pterygium.^{2,13,28} But here in this study being widowed, had a positive association with pterygium. The reason may be due to aging since in this study widowed participants were older in age, despite still in debate, many authors revealed that pterygium is a degenerative (aging) disorder of the conjunctival tissue that leads to vascular proliferation.^{2,11,37,40,41} However; Age had no association with pterygium in this study, which is one part of the debate "It is not just a degenerative disease, but may be a proliferative disorder of the ocular surface".

Therefore, it is due to multifactorial, which includes genetics (which plays an important role in the pathogenesis) and other environmental factors such as wind, dry atmosphere, dust, chemicals, and air pollution may contribute to the development of pterygium.^{2,7,15,42,43}

The outdoor occupation was significantly associated with the increased prevalence of pterygium. This finding was supported by plenty of previous literature as an outdoor occupation is usually associated with many environmental factors like excessive UV radiation and dust exposure that predisposed to the development of pterygium.^{15,33,44} For instance, Nepalese people are equally involved in outdoor activities like farming, animal rearing, and manual labor to balance their needs, thus increased exposure to potential risk factors like ultraviolet radiation in outdoor jobs.⁴¹ Another study showed that people who spend more than three-quarters of their day outside were more likely to develop pterygium, thus outdoor activity is frequently associated with the degree of UVAF and can damage limbal stem cells by activation of matrix metalloproteinase and leads to pterygium.^{15,42,43,45}

This study found that there is a positive association between sun exposure and the development of pterygium. This might be because prolonged ultraviolet exposure causes a biological change in Bowman's membrane and that altered protein, so formed could then act as an endogenous or "pterygiogenic" factor.^{24,28,42} Many other previous studies also found a strong positive association between sun exposure and pterygium as excessive sun exposure causes damage to limbal stem cells by activation of matrix metalloproteinase, which leads to pterygium.^{24–26,33,42,46}

There was also a positive association between wind exposure and the prevalence of pterygium. This finding is supported by the study conducted in Hawaii, which showed that increased risk of exposure to wind while surfing and doing outdoor activities may contribute to pterygium development due to the entrance of airborne debris into the eye.²⁴

According to this study, alcohol drinking had a positive association with pterygium. This finding is also supported by previous studies and described as alcohol consumption was another lifestyle-related factor related to a low socioeconomic status that leads to the development of pterygium.^{15,33} But contrary to this, a study conducted in Xinjiang, China revealed that alcohol consumption had no influence on the development of pterygium.⁹

A significant association between severe blepharitis and pterygium was found and different authors reported

a similar finding. For instance, A study in Israel and others showed that severe blepharitis was significantly associated with pterygium development.^{13,21,28} In severe blepharitis, the inflammation and oxidative stress may play a putative role in pterygium pathogenesis by increasing the damage caused by UV radiation on the limbal basal stem cells and accelerating the multistep mutation pathway that leads to pterygium formation. Again in severe blepharitis, there is tear film abnormality which may cause a predisposition to the proliferation of fibro-vascular tissue.²⁸

Some of the data were subject to recall bias from study participants. This study did not conduct laboratory investigations to rule out other findings related to pterygium such as OSSN (ocular surface squamous neoplasia) and this may compromise the result. Being a cross-sectional study was also another limitation. It's difficult to determine causality between the risk factors and pterygium in this study.

Conclusion

The prevalence of pterygium in Kolla Diba town is about 18.5%, which is relatively higher. Marital status (being widowed), outdoor occupation, alcohol drinking, severe blepharitis, excessive sun exposure, and wind exposure had statistical significant associated factors for the development of pterygium.

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Disclosure

The authors report no conflicts of interest in this work.

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