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### RESEARCH ARTICLE

#### AWARENESS AND KNOWLEDGE OF EMERGENCY NURSES WORKING AT MAJOR HOSPITALS OF MINISTRY OF HEALTH IN TAIF CITY REGARDING RED EYE (CONJUNCTIVITIS).

Raed Awadh Saeed Alharthi, Abdullah Mastour Abdullah AlQarni, Saleh Mousa Saleh Althagafi,  
 Abdulsalam Saed Marzouq Alghamdi, Abdulrahman Ali Hassan alshamrani .  
 Medical Interns, Faculty of Medicine, Taif University, Saudi Arabia.

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Conjunctivitis, awareness, knowledge, causes, signs and symptoms, emergency nurses

#### Abstract

**Background:-**Conjunctivitis (red eye) is one of common eye disorders presented to Emergency Department. It is an infectious disease in most cases and can be transmitted within the emergency department between nurses and patients. Awareness and knowledge of any disease especially infectious type play important role in prevention of occurrence such this disease.

**Objectives:-** To assesses awareness and knowledge of causes, signs and symptoms of red eyes (conjunctivitis) and its associated factors among emergency nurses.

**Subjects and methods:** This cross-sectional study included all nurses representing different nationalities and both genders working at Emergency departments of major hospitals of Ministry of Health in Taif-city.

The study was carried out at the largest two general hospitals in Taif-city, belonging to Ministry of health namely King Faisal and King Abdul-Aziz specialized hospitals. The study was carried out throughout the period October- November, 2016. Data were collected through a valid self-report questionnaire.

**Results:-** One hundred and fifty-one nurses out of 201, responded by completing the questionnaire with a response rate of 75.1%.The age of them ranged between 22 and 50 years with a mean±SD of 32.1±5.0 years. Most of them (84.1%) were females. Almost two thirds of nurses were non-Saudis (70.9%). As regard etiology of conjunctivitis, the most known were microbial organisms such as bacteria/viruses (88.7%) while the least known were ocular trauma (41.7%). Regarding signs and symptoms, the most correctly recognized was eye turn reddish (92.7%) while the least recognized was blurred vision (49.7%). Collectively, 37.7%, 27.3% and 23.8% of nurses had insufficient knowledge regarding conjunctivitis causes, signs/symptoms and overall, respectively

**Conclusion:-**Knowledge of red eye (conjunctivitis) among emergency nurses is insufficient particularly regarding its etiology. Therefore, in-order to control infection in emergency room, their education in this regard is highly recommended.

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**Corresponding Author:- Raed Awadh Saeed Alharthi.**

Address:-Medical intern, Faculty of Medicine, Taif University, Saudi Arabia.

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**Introduction:-**

Conjunctivitis “red eye” is infection or inflammation of conjunctiva .It has many causes such as; bacteria, viral allergic and irritant substances.<sup>[1]</sup>The most frequent types presented at primary care setting are viral and bacterial.<sup>[2,3]</sup>

The most frequently reported clinical presentation of red eye (conjunctivitis) is sensation of presence of a foreign body in the eye, accompanied with mild photophobia, tearing and itching. On eye examination, the most frequent signs are eye discharge (either watery or purulent) accompanied with redness and crusted eyelids, especially in the morning after sleep. Visual acuity of patient usually is not affected in these cases. <sup>[4]</sup>

Conjunctivitis is a common clinical presentation worldwide. In Ghana and Nigeria, forty percent of case presented at primary care clinics and 15% of cases seen at eye clinics, respectively were diagnosed as conjunctivitis.<sup>[5,6]</sup> The differentiation between viral and bacterial conjunctivitis is very difficult clinically. <sup>[7]</sup>

Blindness is a rare complication of conjunctivitis, although it might happened as a result of patient`s ignorance and consequent late presentation at health care facilities.<sup>[8]</sup> Additionally, trials of traditional medications before asking for medical consultation is a common practice in developing countries.<sup>[9]</sup>

A Saudi study reported that dental hygienists and dentists had a higher incidence of conjunctivitis than dental technicians and dental assistants as a result of their direct contact with patients .<sup>[10]</sup> At a normal working distance, there is no area of safety from organism carrying droplets.<sup>[11]</sup> and bacteria may remain in suspension in the air for up to half minute .<sup>[12]</sup> There is a risk that the protective mechanisms of the eye may be overwhelmed by such high concentrations of pathogen..<sup>[10]</sup>

In developing countries, it has been observed that the level of knowledge regarding eye diseases in general is inadequate.<sup>[13-15]</sup>

This study aimed to assess the level of awareness and knowledge of red eye (conjunctivitis) and its associated factors among emergency nurses working at major hospitals in Taif-city .

**Subjects and methods:-**

This cross-sectional study included all nurses (all nationalities, both genders) working at emergency departments of major MOH hospitals in Taif city study (estimated number is 201). Taif-city located in the Western Saudi Arabia and has 9 hospitals. The study was carried out at the largest two general hospitals in Taif city, belonging to Ministry of health namely King Faisal and King Abdul-Aziz specialized hospitals. The study was carried out throughout the period October- November, 2016.

Data were collected through a self-report questionnaire. It has been used in another study, and proved to be valid and reliable. <sup>[16]</sup> It comprised of demographic data like age, sex, nationality, marital status, clinical experience since graduation, position and qualification and questions regarding causes of conjunctivitis, signs and symptoms, spread of disease.

Approval of the Research Ethics committee at Taif university was obtained. Written permissions from concerned authorities were obtained. Individual consent was a prerequisite for data collection.

Analysis was done using Statistical package for Social sciences (SPSS, 23) software. Total knowledge score and percentage were computed for nurses. Those scored 60% and over were considered having sufficient knowledge whereas those scored below 60% were considered having insufficient knowledge. Since the total score was abnormally distributed as evidenced by sample K-S test, non parametric statistical methods were adopted. Mann-Whitney test was used for comparison of two groups and Kruskal-Wallis test for comparison of more than two groups. Significance was determined at p value < 0.05.

**Results:-**

One hundred and fifty one nurses out of 201 invited, responded by completing the questionnaire with a response rate of 75.1%. Their age ranged between 22 and 50 years with a mean±SD of 32.1±5.0 years. Most of them (84.1%) were females. More than two thirds of nurses were non-Saudis (70.9%). Slightly more than half of them were

married (50.3%). The experience of 42.4% of them was 5 years or less. Majority of the respondents (98%) were staff nurses and 78.1% had Bachelor degree in nursing.

Table 2: summarizes the right answers of nurses regarding causes, signs and symptoms of conjunctivitis. As regard causes, the most known were microbial organisms such as bacteria/viruses (88.7%) while the least known were ocular trauma (41.7%). Regarding signs and symptoms, the most correctly recognized was eye turn reddish (92.7%) while the least recognized was blurred vision (49.7%). Overall, 23.8% of nurses had insufficient knowledge regarding conjunctivitis.

From table 3, knowledge score regarding cause of conjunctivitis was significantly higher among nurses aged over 40 years (mean rank was 82.97) compared to those aged below 30 years (mean rank was 64.23),  $p=0.037$ . No significant association between knowledge of conjunctivitis causes, signs/symptom and overall from one side and demographic characteristics of nurses from the other side.

**Table 1:-**Demographic characteristics of the participants (n=151).

	Categories	Frequency	Percentage
Gender	Males	24	15.9
	Female	127	84.1
Age (years)	<30	56	37.1
	30-40	85	56.3
	>40	10	6.6
Nationality	Saudi	44	29.1
	Non-Saudi	107	70.9
Marital status	Single	75	49.7
	married	76	50.3
Experience since graduation (years)	≤5	64	42.4
	6-10	62	41.1
	>10	25	16.5
Position	Head nurse	3	2.0
	Staff nurse	148	98.0
Qualification	Diploma	33	21.9
	Bachelor	118	78.1

**Table 2:-** Knowledge of emergency nurses in Taif regarding Red eye (conjunctivitis) (n=151)

	Correct response N (%)
<b>Etiology of conjunctivitis</b>	
Over crowding	107 (70.9)
Unhygienic surroundings	113 (74.8)
Direct contact with infected person	122 (80.8)
Ocular trauma	63 (41.7)
Microbial organism such as Bacteria/viruses	134 (88.7)
Allergies	96 (63.6)
Irritating substances or materials in the eye	105 (69.5)
Environmental factors such as smoke, dust or pollen	94 (62.3)
Chemical splash in the eye	95 (62.9)
<b>Clinical presentation of conjunctivitis</b>	
Eye turn reddish	140 (92.7)
Itching in the eye	139 (92.1)
Watery secretion from the eyes	127 (84.1)
Redness in the inner eyelid	108 (71.5)
Pus formation in the eyes	87 (57.6)
Increased amount of tears	123 (81.5)
Thick yellow discharge from eyes, which crust over the eyelashes, especially after sleep	99 (65.6)
Green or white discharge from the eyes	92 (60.9)
Burning eyes	130 (86.1)
Inflamed eyes	124 (82.1)
Blurred vision	75 (49.7)
Photophobia	78 (51.7)

**Table 3:-** Knowledge about conjunctivitis among participants according to their demographic characteristics

	Knowledge of etiologies			Knowledge of clinical presentation			Overall knowledge		
	Median	IQR	Mean rank	Median	IQR	Mean rank	Median	IQR	Mean Rank
<b>Gender</b>									
Male	6	3-8.75	70.02	9	8-10.75	76.98	15.5	10.25-	71.35
Female	7	5-8	77.13	10	7-11	75.81	16	17	76.88
<b>p-value</b>	0.460			0.904			0.569		
<b>Age (years)</b>									
<30	5	4-7	64.23	9	6-10.75	69.16	15	12.25-17	65.95
30-40	7	5-9	82.65	10	7-11.5	81.54	16	13-19	82.78
>40	7	4.75-9	82.97	8.5	5-11.25	67.25	16	10-18.25	74.65
<b>p-value</b>	0.037			0.203			0.080		
<b>Nationality</b>									
Saudi	7	5-8	73.08	9	8-11	75.34	15	13-17	72.76
Non-Saudi	7	4.25-8	77.67	10	7-11	76.38	16	12-18.75	77.85
<b>p-value</b>	0.530			0.887			0.490		
<b>Marital status</b>									
Single	7	5-8	77.09	10	7-11	76.05	16	13-19	76.83
Married	6	4.25-8	74.93	9	7.25-11	75.95	16	12-18	75.18
<b>p-value</b>	0.759			0.990			0.815		
<b>Position</b>									
Head nurse	6	4-6	60.50	11	9-11	106.0	17	13-17	88.50
Staff nurse	7	5-8	76.31	9	7-11	75.39	16	13-18	75.75
<b>p-value</b>	0.531			0.226			0.616		
<b>Qualification</b>									
Diploma	7	5-9	82.99	9	7-11	75.50	16	12-19	78.58
Bachelor	6	4-8	69.79	9.5	7.25-11	76.44	16	13-18	73.71
<b>p-value</b>	0.061			0.894			0.492		
<b>Experience (years)</b>									
≤5	6	4-8	70.39	9	7-11	73.80	15	12.25-18	72.24
6-10	7	5-8	81.57	10	7.75-11	80.10	16	13-19	81.65
>10	9	4-8	76.54	12	6-11	71.46	21	11-18	71.62
<b>p-value</b>	0.348			0.607			0.413		

**Discussion:-**

It is thought that the conjunctivitis is common complain among general population and level of awareness and knowledge are suboptimal among nurses, particularly those working in emergency departments who are in close contact with patients. However, lacking of studies identifying the size of this situation in Saudi Arabia generally and Taif particularly enforced us to carry out the present study.

The current study revealed that almost a quarter of emergency nurses had insufficient knowledge regarding etiology, and clinical presentation of conjunctivitis.

Fortunately, majority of nurses (92.7%) knew that eye turn reddish in conjunctivitis. This figure agrees with that reported in a similar study carried out in India among dentists and dental auxiliaries where 95.4% of subjects had

reported that redness of eye was the clinical feature of conjunctivitis<sup>[16]</sup> and a study carried out in United Kingdom among general practitioners (90.9%).<sup>[17]</sup>

Physicians, dentists, and nurses have differing perspectives and agendas for the identification and management of conjunctivitis based on their beliefs regarding the condition and the need for management, economic considerations and public health policy.<sup>[18]</sup>

Regarding etiology of conjunctivitis, 80.8% of nurses working in emergency departments in the current study reported that direct contact with infected person was the cause of conjunctivitis. This figure was very close to that reported among dentists and dental auxiliaries in India (80.9%),<sup>[16]</sup> whereas in UK, only (58.5%) of general practitioners have used past history of contact with infected person for diagnosis of conjunctivitis.<sup>[17]</sup> Bacterial and viral forms of conjunctivitis can be spread easily from infected person to others. They can be spread by coughing or sneezing. Bacteria or viruses can get in eyes through contact with contaminated objects.<sup>[19]</sup>

Evidence suggested that 64% of cases of conjunctivitis are self-limited and resolving within two to five days without treatment. Topical antibiotics are prescribed in an attempt to shorten the illness, reduce complications and re-infection in bacterial cases. However, evidence for their effectiveness is limited.<sup>[20]</sup> Therefore educating health care staff including nurses regarding the self-limiting nature of the disease and the minimal need for antibiotics is important for changing their management expectations.

Up to our knowledge, this is the first study to assess awareness and knowledge of red eye (conjunctivitis) among healthcare staff (nurses) at least in our region. The results of the study were reasonable and can be generalized over other regions in the Kingdom.

**Conclusion:** Awareness and knowledge of red eye (conjunctivitis) among emergency nurses is insufficient particularly regarding its etiology. Therefore, in order to control infection in emergency room, their education in this regard is highly recommended.

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