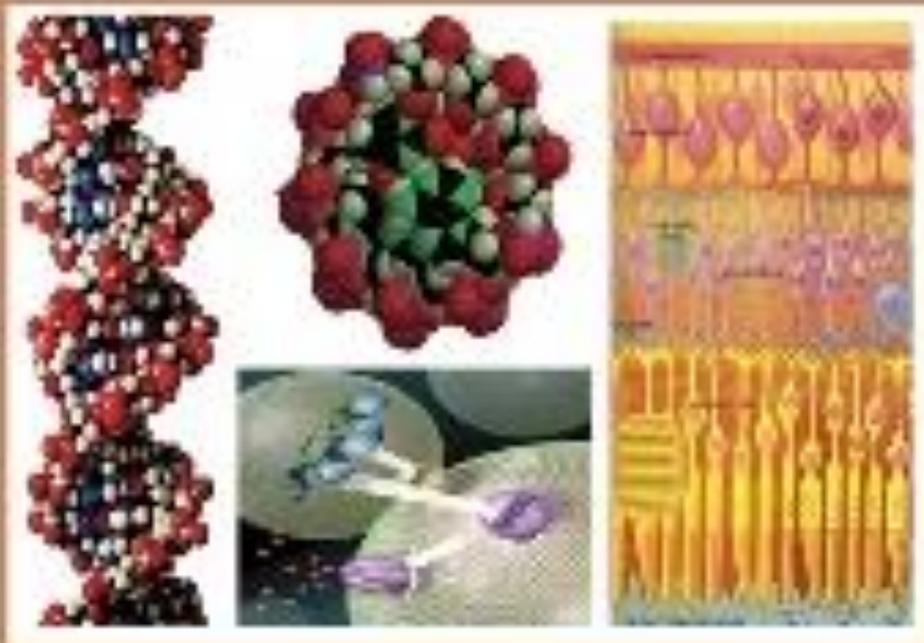




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Health Status of Traffic Police in Duhok Governorate, Kurdistan Region- Iraq

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ABSTRACT

Background: Since the working conditions have a significant impact on one's health. Because of their line of work, traffic cops are continuously exposed to health risks all over the world. **Aim:** To assess the health status of traffic police in Duhok Governorate and common health issues that arise from their line of work. **Methods:** In the province of Duhok, a cross-sectional study was carried out between September and December of 2023. Using a non-probability convenient sampling technique. Interviews were conducted using a pretested questionnaire following informed consent. Data pertaining to the physical health profile and sociodemographic profile were gathered. **Results:** In all, 150 traffic police who were older than 25 were included in the study. Of the total population, 100% were men, and 49.333% had completed secondary school. Of the respondents, 45 (or 30%) had diabetes, 88 (or 58.667%) had hypertension, 12 (8%) had respiratory issues, 43 (or 28.667%) had headache issues, 68 (or 45.333%) complained of musculoskeletal pain, and 32 (or 21.333%) had eye issues. Of the traffic police, 79 (52.667%) were smokers. The majority of the study's sample, comprising 99 traffic cops with over 15 years of experience, and 92 traffic cops with over 6 hours of work, are included in the study. **Conclusion:** We came to the conclusion that the majority of police officers experience fatigue from their jobs and that these conditions are brought on by their jobs. The majority of police officers disregard physical examinations and do not wear any protective gear.

INTRODUCTION

The workplace, where people spend eight to ten hours a day, plays a big role in a person's environment. Therefore, a work environment has a significant impact on health. Despite the fact that there are many different kinds of environments, the physical environment is the one that has the biggest impact on health (Radhakrishna *et al.*, 2016). During their work, traffic police officers are frequently exposed to various environmental factors such as heat, ultraviolet radiation, noise, fumes, blowing horns, dust in the air, and exhaust from moving vehicles, as a result, they are susceptible to physical illnesses (Cassino *et al.*, 1999; Ranganadin *et al.*, 2013). Several studies have demonstrated that certain people are more exposed to air pollution than others as a result of their employment (Choudhary & Tarlo, 2014). When travelling on busy roads for extended periods of time, getting stuck in traffic, or waiting at bus stops, traffic cops are subjected to high levels of air pollution (Basher *et al.*, 2023).

As cities around the world become more urbanised, the number of vehicles on the road is growing extremely quickly, causing major issues with traffic congestion. Throughout their working hours, traffic cops must deal with hundreds of noisy, polluting vehicles in order to maintain a steady flow of traffic congestion (Sridher *et al.*, 2017).

Due to the numerous exposures, they endure during their workdays, traffic constables are vital to the smooth operation of traffic in large cities and pose a serious risk to their health (Satapathy *et al.*, 2009). Additionally, traffic cops are susceptible to varicose veins in their legs because they must stand at traffic intersections for extended periods of time (Dhakal *et al.*, 2017).

Risks to one's health at work can come from a variety of sources, such as occupational injuries, illnesses, and diseases, long-term exposure to specific chemicals, or physically demanding work (Jahan *et al.*, 2023). According to the International Labor Organization (2018), 2.2 million people per year, or an average of 6,000 people per day, lost their lives to work-related illnesses and accidents (Rini *et al.*, 2023).

Traffic police assigned to traffic enforcement frequently jeopardize their health for the benefit of the public and face increased risks in the line of duty. As a result, traffic police are subject to ongoing occupational health risks and hazards, which can lead to serious health issues (Mishra & Purushothama, 2019).

Traffic police are the group most exposed to the harmful health effects of air pollution, compared to 98% of the general population (Chean *et al.*, 2019; Majumder *et al.*, 2012), despite their stressful jobs and demanding workloads (Krishnamurthy & Sharma, 2021). Numerous studies have demonstrated the serious health effects of air and noise pollution caused by traffic. Because traffic police officers work in close proximity to motor vehicles, the traffic environment has a significant impact on their health (Welch *et al.*, 2013). The respiratory tract's reaction to vehicle pollution is one of the risk factors that could set off an asthma attack. Chronic exposure to vehicle exhaust fumes can cause lower respiratory symptoms like coughing, dyspnea, and inhalation pain (Basher *et al.*, 2023). A European study found that while vehicular pollution accounts for 50% of air pollution-related deaths, air pollution only accounts for 6% of all deaths (Shrestha *et al.*,

2011).

Traffic exposure has been linked to a number of harmful health effects such as depression (Purba & Demou, 2019; Patil *et al.*, 2014), a decreased lung function and increased respiratory morbidity (Shrestha *et al.*, 2011; Makwana *et al.*, 2015), impaired glucose metabolism, eye problems (Pratt *et al.*, 2014), skin allergy and dermatitis (Makwana *et al.*, 2015), hearing loss, psychological problems, occupational cancer (Patil *et al.*, 2014), lung cancer (Mona *et al.*, 2019), musculoskeletal disorder (Lim *et al.*, 2012); stress (Krishnamurthy & Sharma, 2021), cardiovascular disease (Raaschou-Nielsen *et al.*, 2012), fatigue and communicable diseases (WHO, 2011), early biological aging, and diabetes (Hoxha *et al.*, 2009).

Dust concentration and exposure duration have been found to be directly correlated with the frequency of obstructive, restrictive, and mixed functional pulmonary diseases. Chronic bronchial issues can result from prolonged dust exposure (Basher *et al.*, 2023). Numerous stressors in the traffic police working environment increase the risk of mental health problems in traffic cops. The police work environment ranks third in terms of occupational stress, according to surveillance of occupational stress and mental illness reports (Shrestha *et al.*, 2011). In order to determine the relationship between occupational stressors and police officers' mental well-being, Purba A and Demou E conducted a systematic review. The study's findings indicate that factors such as long working hours, job demands and pressure, and a lack of support are significantly associated with poor mental outcomes (Patil *et al.*, 2014). They run the risk of developing ergonomic problems when they stand still for extended periods of time (Tawiah *et al.*, 2022).

It is widely acknowledged that traffic police officers are among the most vulnerable professions in the world because of the numerous health risks they face on a daily basis, which can range from respiratory issues

to psychological distress (Chettri *et al.*, 2015).

It should be noted that the traffic police in Duhok Province do not wear protective masks while on duty despite the area being a high-traffic zone and a critical air pollution area. Thus, a study was carried out to determine the knowledge of preventive measures among and evaluate the health status of traffic police in Duhok province, Kurdistan Region. Most people are unaware of the potential for preventable occupational health hazards. Consequently, the workplace needs to establish a safety culture. It must guarantee both health and safety at work.

MATERIALS AND METHODS

This cross-sectional study was conducted from 25th September 2023 to 3rd December 2023 at the different traffic zones of Duhok governorate [Duhok center (Najmaldin, 2023), Semel district (Hassan & Mohammed, 2023) and Zakho Independent Administration (Kamil *et al.*, 2016)], Kurdistan Region of Iraq among 150 traffic polices who were selected. The participants of this research included traffic constables on roads performing their duty during the process of data collection. First, Traffic police officers were informed and briefed on the purpose of the study. After we obtained prior permission and informed consent from the Police Directorate, data was collected on a questionnaire. Blood sugar was measured by using Glucose Oxidase method, blood pressure was conducted by electronic device for measuring pressure and blood oxygen saturation (SpO₂) was measured by Oximeter, The height and weight of all traffic police were also measured. All traffic police constables of identified areas in Duhok, available at the booth and giving informed consent, were interviewed.

All study participants were informed well in advance about the day and date on which the study was to be done and they were asked to come to traffic police stations, according to their scheduled date. Data was collected on a structured questionnaire through an interview-based technique. Closed-ended as well as open-ended questions were included in the survey.

The questionnaire was based on five components, covering socio-demographic profile, physical health status, mental health status and social health status. In the last component questions related to their exposure to accidents and use of personal protective equipment were asked. Data was entered, coded, cleaned and analyzed on a PC computer with GraphPad Prism 5 (Hassan, 2023). Frequency tables were the formats in which the data was displayed. The standard blood pressure, Blood sugar and blood oxygen saturation (SpO₂) results shown in Tables 4, 5 and 6 were obtained from a specialist at Azadi Hospital, which is located in Duhok City. According to the latest statistics, the total population of Duhok province is 1,700,088 people. Approximately 450,000 people live in the city of Duhok. Duhok province had 270,315 official transportation vehicles by the end of 2023. These included trucks (70,732), private vehicles (173,324), rental vehicles (17,923), construction (3,456), agricultural (4,836) and motorcycles (44). Therefore, the traffic police in Duhok Province are monitoring, controlling and regulating this transportation and cater to the municipality area and the adjoining districts.

RESULTS AND DISCUSSION

The sociodemographic profile of traffic police is displayed in Table 1. In the Duhok governorate, 150 traffic constables were the subjects of the study. There were 150 male participants who were traffic police personnel. The maximum percentage of responders, 50 (33.333%), belonged to the 36–40 age range. Of the policemen, 47 (31.333%) were older than 40, and none were younger than 25. This is almost similar to the study done by Pareshprajapati *et al.*, and Sridher, *et al.* (Sridher *et al.*, 2017; Prajapati *et al.*, 2015). The main reason for women not preferring this job and not participating can be attributed to the social situation in the region, the nature of the job and it requires more physical demand.

Only 5 (3.333%) of the participants had no formal education or no certificate, according to the data on their educational

status. Of the participants, about 45 (30%) have completed their primary education, 74 (49.667%) have finished their secondary education, and 26 (17.334%) have finished their higher education, such as a BA or MA. In general, the majority of them 65% studied up to Undergraduate, this result was consistent with Kar S and Singh S. and with Krishnamurthy and Sharma, this may be due to the maximum qualification for recruitment was matriculation (Singh & Kar, 2015; Krishnamurthy & Sharma, 2021).

Most of the respondents 140 (93.333%) were married, 9 (6%) were single, and only 1 (0.667%) had been divorced (Table 1). This is almost similar to the study done by Krishnamurthy and Sharma, and Basher et al (Krishnamurthy & Sharma, 2021; Basher et al., 2023). Due to social and religious traditions, the majority of people in Kurdistan got married during this age. Of the total respondents, 60 (40%) fell within the height range of 171–175 cm. Of the policemen, none were shorter than 160 cm, but 28 (18.667%) were taller than 175 cm. This is almost similar to the study done by Krishnamurthy and Sharma (Krishnamurthy & Sharma, 2021). No one under 160 cm in height is allowed to apply for traffic police jobs in Kurdistan.

The majority of them 108 (72%) weighed more than 70 kg. Of the total, only 4 (2.667%) weighed less than 61 kg, and 21 (14%) weighed more than 90 kg. More than 61 (40.667%) people were overweight and obese. Similarly, in the study by Satapathy *et al.* (Satapathy *et al.*, 2009), but is reversed to

the study done by Krishnamurthy and Sharma (Krishnamurthy & Sharma, 2021). The types of food and beverages that traffic cops consume, the preference for driving over walking, and inactivity are the main contributors to their obesity. They ought to receive instruction on the value of a healthy diet and regular exercise. If we compare the height and weight of the participants and calculate the standard weight, we see that more than half of the policemen were overweight.

Among those surveyed, 137 (91.333%) had served for more than ten years. When taking into account the number of years of service, 4 (2.667%) had less than six years, 47 (31.333%) between six and fifteen years, and 99 (66%) had service more than fifteen years (Table 1). This is almost similar to the study done by Sridher, et al and Yeasmin, et al (Sridher *et al.*, 2017; Yeasmin *et al.*, 2021). The reason for the low number of low-service traffic police is that there haven't been any opportunities for recruitment in several years. Out of the respondents, 92 (61.333%) had more than six hours of work, while only 58 (38.667%) had less than six hours of work. Six (4%) respondents rated it less, 35 (23.333%) rated it suitable, and the majority of respondents, 109 (72.667%), felt that the working hours were excessive. This result was not inconsistent with Krishnamurthy and Sharma (Krishnamurthy & Sharma, 2021), and Rini et al (Rini *et al.*, 2023). The primary reason why the police might believe that their work is not worth the effort is due to pay disparities, delays, and a pricey market.

Table 1. Socio-demographic characteristics of the traffic policemen respondents.

Variables		Number (150)	Percentage (100%)
Gender	Male	150	100
	Female	0	0
Age (Years)	20-25	0	0
	26-30	7	4.667
	31-35	46	30.667
	36-40	50	33.333
	Over 40	47	31.333
	Education status	Non (Without a certificate)	3
	No formal education	2	1.333
	Primary school	45	30
	Secondary school	74	49.333
	Undergraduate	10	6.667
	Postgraduate	16	10.667
Material status	Married	140	93.333
	Unmarried	9	6
	Divorced	1	0.667
Height (cm)	155-160	0	0
	161-165	13	8.667
	166-170	49	32.667
	171-175	60	40
	Over 175	28	18.667
	Weight (kg)	50-60	4
	61-70	38	25.333
	71-80	47	31.333
	81-90	40	26.667
	Over 90	21	14
Years of service as a traffic policeman	1-5	4	2.667
	6-10	9	6
	11-15	38	25.333
	16-20	86	57.333
	21-25	10	6.667
	Over 25	3	2
Working hours	> 6	58	38.667
	6-8	65	43.333
	>8	27	18
Do you find the working hours reasonable?	Suitable	35	23.333
	Less	6	4
	Extra	109	72.667

Our study shows that traffic police have a high prevalence of eye irritation 32 (21.333%), diabetes mellitus 16 (10.667%), dermatitis 15 (10%), cough 34 (22.667%), wheezing 25 (16.667%), hypertension 7 (7.333%), varicose veins 14 (9.333%), anxiety 19 (12.667), fatigue 9 (6%), and chronic bronchitis 9 (6%), headache 43 (28.667%), hearing Loss 18 (12%), tinnitus 15 (10%), musculoskeletal pain 68 (45.333%), as shown in Table 2. Most participants had musculoskeletal pain

(45.333%) and least participants had fatigue (6%) and chronic bronchitis (6%). A similar result was found in another study, in which the highest prevalence of musculoskeletal pain was (56.1%) (Jahan *et al.*, 2023). The standing hip carries most of the body weight and prolonged standing may cause fatigue of muscles around the hip. As a result, the lower back assumes a severely arched position to allow the weight to be distributed on the back, resulting in lumbar strain causing back pain. In the present study, the prevalence

of Tinnitus was 10%. This finding was lesser and not consistent with the finding of Dhakal, *et al.* where 35.5% had tinnitus (Dhakal *et al.*, 2017). In the present study, 32 (21.333%) reported eye problems like eye irritation. This may be related to the nature of the work, which involves exposure to a dusty, dirty environment, the glare of strong lights at night, and the irregular use of sunglasses.

With the exception of 23 (15.333%) people, most participants 127 (84.667%) had no noncommunicable diseases to suffer from. Also, 32 (21.333%) people are taking

medication regularly and 118 (78.667%) are not taking any medication. Most of the policemen are smokers 79 (52.667%), 8 (5.333%) sometimes smoke and 63 (42%) of them had negative attitudes towards smoking and do not smoke (Table 2). In a similar study in Chennai City, 19.4% reported smoking (Satapathy *et al.*, 2009; Chean *et al.*, 2019). Traffic police authorities in Kurdistan should strengthen their strategies in both occupational disease prevention and smoking cessation among traffic police.

Table 2: Previous illness, medication use, smoking and infection with the disease while working.

Variables		Number (150)	Percentage (100%)
Health ailments (choose more than one)	Eye irritation	32	21.333
	Cough	34	22.667
	Wheeze	25	16.667
	Dermatitis	15	10
	Fatigue	9	6
	Anxiety	19	12.667
	Varicose veins	14	9.333
	Diabetes mellitus	16	10.667
	Hypertension	11	7.333
	Chronic bronchitis	9	6
	Headache	43	28.667
	Hearing Loss	18	12
	Tinnitus	15	10
	Musculoskeletal Pain	68	45.333
Are you suffering from any noncommunicable diseases?	Yes	23	15.33
	No	127	84.667
Do you use any drugs?	Yes	32	21.333
	No	118	78.667
Do you smoke?	Yes	79	52.667
	No	63	42
	Sometimes	8	5.333

It was noticed that the appropriate personal protective equipment was not being used by traffic police. This might be the result of their ignorance of the health risks associated with the occupational hazards to which they are exposed. Only during peak traffic hours (10%, 4%, and 4%, respectively) do traffic police wear gloves, masks, and protective glasses on a daily basis. Furthermore, 79.333%, 80.667%, and 78% of the participants, respectively, did not wear

gloves, a mask, or protective glasses. Only 8 (5.333%) of the total respondents used sunburn protection cream, while 135 (90%) did not (Table 3). This outcome was in line with Dhakal *et al.*'s findings, which showed that 88.2% of traffic police did not wear safety glasses. Approximately 50% of traffic cops wore masks, and 45% applied sunburn cream (Dhakal *et al.*, 2017). Furthermore, this result was in line with Panta *et al.*'s findings (Ingle *et al.*, 2005), which showed that 79.4%

of traffic police did not wear sunscreen, 64.9% did not wear sunglasses, and 39% did not wear facemasks.

Unless they become ill, a significant percentage of participants 84 (56%) never pay attention to routine health check-ups. Routine health checkups are attended to by the remaining 20 (13.333%), 29 (19.333%), and 17 (11.333%) people at least once every three months, six months, and a year, respectively. Out of 150 respondents, just 1 (0.667%) claimed that their workplace was not dusty, while the majority (149; 99.333%) claimed that it was. Every respondent (100%) believes that the fumes and chemical vapours they handle at work originate from there (Table 3).

They reported gas and fumes (92.4%), dust (94.9%), and other workplace hazards in a similar study conducted in Dhaka (Basher *et al.*, 2023).

Heat, UV light, and noise exposure cause disorders of the ears, nose, throat, eyes, and skin in traffic police (Gowda & Thenambigai, 2020). Of those who responded to the survey, 148 (98.667) felt their workplace was noisy; only 2 (1.333%) claimed they did not hear any wheezing or noise at work. The health effects of noise annoyance are undesirable, and exposure to ambient noise can impair traffic police officers' hearing (Nerweyi & Al-Sulaivany, 2020).

Table 3: Protective Measures and Habit of the Respondent

Variables	Number (150)	Percentage (100%)
Wearing protective glasses	Everyday	15
	Never	119
	Sometimes (during peak hours)	16
Wearing mask	Everyday	6
	Never	121
	Sometimes (during peak hours)	23
Wearing of gloves	Everyday	6
	Never	117
	Sometimes (during peak hours)	27
Sunburns protective cream	Daily	8
	Never	135
	Sometimes (during peak hours)	7
Regular health checkup	At least once in 3 months	20
	At least once in 6 months	29
	At least once in year	17
	Only when I fall sick	84
Presence of dust	Yes	149
	No	1
Presence of gas and fumes	Yes	150
	No	0
Presence of noise	Yes	148
	No	2

Table 4, indicates that, of the 150 participants, the majority had high blood pressure (Stage 1 hypertension 33; 22%), Stage 2 hypertension 55; 36.667%), and hypertension crisis 3; 2%), in accordance with the prescribed limit and tests we performed. Just 21 people, or 14%, had normal blood

pressure. In a similar vein, Aggarwal Sumit *et al.*'s study of traffic police in Akola, Maharashtra, revealed that 15.82% of them had hypertension (Dutta & Pal, 2010). Sridher *et al.* conducted the other comparable study (Sridher *et al.*, 2017).

Table 4: Blood pressure ranges and condition of the participants.

Blood pressure category	Systolic mm Hg (upper number)	Diastolic mm Hg (lower number)	Number (150)	Percentage (100%)
Normal (Healthy)	Less than 120	Less than 80	21	14
Elevated	120-129	Less than 80	38	25.333
Stage 1 hypertension (High blood pressure)	130-139	80-89	33	22
Stage 2 hypertension (High blood pressure)	140 or higher	90 or higher	55	36.667
Hypertension crisis	Over 180	Over 120	3	2

We used blood glucose charts 2-3 hours after meals as the standard because the tests were conducted a few hours after work resumed (Table 5). According to the specified limit and the tests we ran, 45 (30%) of the subjects were diabetic. Furthermore, only 44 (29.333%) had normal glucose, while 61 (40.667%) had impaired glucose. In a similar vein, studies conducted by Aggarwal Sumit *et al.* revealed 11.98% of participants had diabetes (Aggarwal *et al.*, 2021), while Sridher *et al.* in Chennai City discovered 23%

of participants had the disease (Sridher *et al.*, 2017). This study has shown that certain factors, such as diet, work environment, stress from the job, exhaustion, and crowding, can cause sleep disturbances, depression, fatigue, dissatisfaction, and smoking among traffic police. These factors are also known to be risk factors for diabetes and hypertension. The study found that 32 traffic police, who also had diabetes, had high blood pressure, and most of whom did not know it.

Table 5: Blood glucose ranges and condition of the participants.

Mg/Dl	Blood glucose chart			Variable	
	Fasting	After eating	2-3 hours after eating	Number (150)	Percentage (100%)
Normal	80-100	170-200	120-140	44	29.333
Impaired glucose	101-125	190-230	140-160	61	40.667
Diabetic	126+	220-300	200+	45	30

Table 6, shows that 12 (8%) of the participants had low oxygen levels, 14 (9.333%) had decreased oxygen levels, 39 (26) had tolerable oxygen levels (barely noticeable effect), and only 85 (56.667%) had normal oxygen levels. 79.6% of respondents who had worked in Dhaka for less than ten years reported having respiratory health issues, while 87% of respondents who had worked there for more than ten years reported having these issues. This indicates that the respondent had numerous respiratory issues after being exposed to air pollution for more than ten years. Similar findings were also

reported by a number of studies (Islam *et al.*, 2013). The number of respondents who reported having respiratory issues was higher among smokers than among nonsmokers. It's because smoking lowers lung capacity and causes respiratory issues. The same conclusion was reached in multiple studies (Satapathy *et al.*, 2009; Ingle *et al.*, 2005). The majority of the samples in the study by Gowda and Thenambigai, which was carried out in a metropolitan area, had rhinitis, a cough, and breathing problems (Gowda & Thenambigai, 2020).

Table 6: Blood oxygen saturation (SpO2) and condition of the participants.

Blood oxygen saturation (SpO2)		Number (150)	Percentage (100%)
100-98%	Normal oxygen levels	85	56.667
97-95%	Tolerable oxygen levels (barely noticeable effect)	39	26
94-90%	Decreased oxygen levels	14	9.333
> 90%	Low oxygen level	12	8
> 80%	Severe hypoxia (possible hospitalization)	-	-
> 70%	Acutely dangerous oxygen levels	-	-

Diabetes and blood oxygen levels had minimum and maximum values of (82, 99) and (53, 305), respectively. Additionally, the mean value was 126.5 and 96.32, respectively. One sample t-test indicated that there were significant relationships among the participants (Table 7). The Kurdistan Region's air pollution problem has grown significantly in recent years. This can be attributed to a number of factors, including deforestation, increased traffic, rapid industrialization, high rates of smoking among the populace, and increased generator use. People who are exposed to chemicals and toxic gases from vehicles for extended periods of time may develop allergies and irritation in their lungs and airways (Dutta &

Pal, 2010). Age, gender, smoking, and socioeconomic status are independent risk factors for chronic obstructive pulmonary disease in Dhaka residents, according to a recent cross-sectional study (Islam *et al.*, 2013).

The traffic police authorities in Kurdistan should take careful note of this information, possibly for the purpose of better staffing plans. These might include setting a weekly limit on the amount of time traffic police officers spend working outside, providing training and retraining, and providing, enforcing, and monitoring compliance with the use of personal protective equipment during outdoor work.

Table 7: Statistical analysis of blood oxygen level and diabetes

	Blood oxygen level	Diabetes	One sample t-test		
				Blood oxygen level	Diabetes
Minimum	82	53			
Maximum	99	305	Actual Mean	96.32	126.9
Mean	96.32	126.5	t, df	t= 241.5 df= 91	t= 25.65 df= 91
Mode	98	100	P value (two-tailed)	< 0.0001	< 0.0001
Std. Deviation	3.826	47.45	Significant (alpha=0.05)?	Yes	yes
Median	98	115	-	-	-
Std. Error	0.3989	4.947	-	-	-
Coefficient of variation	3.97%	37.39%	-	-	-

Conclusions and Recommendations:

The traffic police in the province of Duhok suffer from a wide range of different health conditions. Hardly any of the traffic police were using personal protection. They are at a heightened risk of contracting non-

communicable diseases and lack sufficient knowledge regarding occupational hazards. They need to receive health education about the risks involved in order to improve their perception of the health hazards associated with their jobs. Programmes for health

education and regular screenings must be put in place. They should be given consideration because they oversee the public's well-being. The maintenance of traffic is greatly aided by traffic police. The work of traffic police is difficult work, which has a direct effect on their quality of life. They are required to labour under extremely unfavorable conditions, such as long hours, standing, a lack of restrooms, etc. We recommend using personal protective measures, such as a mask, sunglasses, sunburn protective cream, wearing gloves, continuously interchanging, drinking water regularly, washing after duty, taking rest and so on. Regular health check-ups should be conducted as soon as possible. We recommend regular exercise since it promotes weight loss and better health.

Declarations:

Ethical Approval:The Environmental Sciences Department Ethics Review Committee at Zakho University granted ethical approval. Prior to the commencement of the survey, each respondent provided their informed consent. The identity of the participants was kept private.

Conflict of interest: The authors declare no conflict of interest.

Contributions:I hereby verify that all authors mentioned on the title page have made substantial contributions to the conception and design of the study, have thoroughly reviewed the manuscript, confirm the accuracy and authenticity of the data and its interpretation, and consent to its submission.

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Availability of Data and Materials: All datasets analysed and described during the present study are available from the corresponding author upon reasonable request.

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