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Physical well-being among traffic-police impact analysis due to noise

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Abstract

Aim: The aim and objective of this research were to identify the noise effect on the physical well-being of traffic police.

Methods: The data for the current study was gathered using a systematic questionnaire and interview schedule, which includes a general profile, working profile, health profile, and the Physical Well-Being Scale was used, body discomfort & intensity of pain which include body discomfort 8 questions and intensity of pain 10 questions) A sample of 60 respondents aged between 25-65 years.

Results: There is no significant difference between noise level and physical well-being but still the noise level has a great effect on them.

Conclusions: A traffic Police are extremely stressful. They must work in extremely uncomfortable conditions such as long working hours and standing positions. Traffic cops work in hazardous conditions with low physical well-being. It was determined that physical well-being among traffic officers may be caused by long working hours, job experience, and age.

Keywords: traffic police, physical well-being and Noise pollution

Introduction

Police personnel who direct traffic and road policing units and enforce traffic laws are known as traffic policemen or traffic cops. Every metropolitan city's existence is extremely long with its traffic cops, notably the constables, who play a critical role in keeping traffic moving in densely populated areas. Constables' physical well-being is an important factor in increasing their productivity. (Sibnath D, 2008).

Workplaces are an important element of a person's environment because they are where he spends at least 8 to 10 hours per day. As a result, the workplace has a significant impact on one's health. Although there are various sorts of habitats, the physical environment has a significant impact on health. 1. During their duties, traffic cops are constantly exposed to dust, automobile emissions, noise, fumes, ultra-violet radiation, heat, and other factors, making them vulnerable to physical diseases. They are also susceptible to stress problems as a result of work-related demands. 2. According to research by the Central Pollution Control Board, the Whitefield neighborhood of Lucknow India is a high-traffic zone with significant air pollution. 3. As a result, a study was done to determine the health status of traffic police officers. (Radhakrishna Veerabhadrha & Rajagopal Yeshwanth, 2016) [2].

Health is a means of functioning within one's environment, not a commodity (work, recreation, and living). Because the workplace is such an important element of a person's overall environment, work conditions have a significant impact on their health. Though there are various types of environments, the physical environment has the greatest impact on health. The main sources of pollution in the environment are air, noise, heat, radiation, and so on, and this is especially true in urban areas.

The working environment has a significant impact on the health of those who are exposed. When the period of exposure is increased, the health risks become more severe. This is especially true in circumstances where people are on traffic duty. These individuals must work in an environment that is polluted by fumes, car emissions, the use of horns, the blowing of dust into the air by a fast vehicle, and so on. Personnel also engages in near-sedentary work, as

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they rarely stand for lengthy periods of time or walk more than a few meters unless absolutely necessary. Many cities throughout the world are seeing a rapid increase in the number of automobiles as a result of urbanization, resulting in serious traffic congestion issues. To maintain a consistent flow of traffic, traffic cops must labor in the middle of hundreds of noisy and polluting automobiles during their shifts.

This is why it is reasonable to believe that the workplace environment has a significant impact on the health of those who are exposed. When the period of exposure is increased, the health risks become more severe. This is especially true in instances where people are on traffic duty (Behera M.D. *et al.*, 2009) [3].

They deal with a variety of distinct challenges and stressors on a daily basis. Working in such an environment all day has negative physical and psychological consequences. Due to a variety of causes, police officers are frequently overworked, causing them to overlook their overall health and, on occasion, indulge in harmful practices that harm their health.

The life of a Traffic Police Officer consists of long, unpredictable working hours, shift duty, and unexpected encounters with events requiring strong physical and psychological abilities. As a result, a study was done to analyze the health status of traffic police officers in Lucknow city and to identify risk factors, so that appropriate preventive actions might be proposed to protect their health. (Sridher, S and Thulasiram S *et al.* (2017) [5].

Noise pollution in mega cities is considered to be one of the most important and pressing problems. Increasing urbanization has led to mounting volumes of noise. Noise pollution is extra, annoying, disturbing, and physically harmful noise to the environment.

Any metropolitan city a common man's life moves along with its traffic. For them, life becomes smooth and less stressful, if the traffic is smooth. The traffic population has grown enormously in the last two decades. As a result, there is an enormous increase in vehicular traffic emitting exhaust and polluting the atmosphere. That is why the city of Ahmedabad is particularly challenging for those attempting to regulate the traffic. The traffic police, especially the constables play a significant role to keep the traffic moving where the population density is very high. This personnel has to undergo physical strain in an environment polluted by fumes, the exhaust of vehicles, use of blowing horns, blow of dust in the air by a speeding vehicle, etc. All these factors pose a health hazard. (Prajapati Paresh Modi 2, Krunal 2015).

A study by the National Institute of Occupational Safety and Health stated that 79% of workers with noise-induced hearing loss complain of tinnitus compared to 6% of adults without noise exposure (Anne, 2003). However, the routine use of properly selected and fitted HPDs, such as muffs and plugs, can effectively prevent and reduce such damages (Sliman A Abdelrahman 2015) [4].

Methods and Materials

Statement of the problem: Traffic police are an important part of the informal area because they maintain traffic on the road. Due to the noise of traffic or Transportation, their Psychological and mental health was affected. The present study is dealing with various aspects of noise levels on the

psychological well-being of traffic police.

Objectives of the study: To identify the noise effect on the physical well-being of traffic police.

Sample selection and sampling method: The researchers used a convenient sampling method to select 60 respondents for the present study this study is descriptive in nature.

Tools for data collection: The required information was collected through a structured questionnaire and interview schedule. The interview schedule consists of different parts namely, the Demographic profile, working profile, and health profile of the respondents. Physical Well-Being Scale was used, body discomfort & intensity of pain which include body discomfort 8 questions and intensity of pain 10 questions). Noise is reassessed by an audiometer. The data was collected from January to March 2022.

Result and Discussion

This result of the study was explained by Frequency, percentage, and ANOVA. The Following tables explain the results of analysing the various dimensions for noise level assessment and the physical well-being of traffic officers.

Statistical analysis: SPSS 20.0 software was used for statistical analysis. The effect of noise level psychological well-being on traffic police was also calculated using frequency percentage, mean, and standard deviation, and the significance was tested using ANOVA.

Table 1: Demographic profile of the respondents.

Demographic profile		Frequency (N = 60)	Percentage (%)
Age of the respondent			
1	25-35	16	26.7%
2	35-45	22	36.7%
3	45-55	17	28.3%
4	55-65	5	8.3%
Total		60	100%
Family type			
1	Joint	49	81.7%
2	Nuclear	11	18.3%
Total		60	100%
Family background			
1	Rural	26	43.3%
2	Urban	22	36.7%
3	Semi Urban	12	20.0%
4	Total	60	100.0%
Marital status			
1	Unmarried	6	10.0%
2	Married	54	90.0%
3	Total	60	100.0%

Majority of the Traffic police were aged between 35-45 years (36.7%), followed by 45-55 years (28.3%), 25-35 years (26.7%), and 55-65 years (8.3 %). According to data given in Table no. 1, Majority of the respondent belonged to a joint family (81.7%), and 18.3% were from the nuclear family. The family background of the majority of the respondent was Rural (43.3%), followed by Urban (36.7%), and Semi-Urban (20.0%). Majority of the respondent were married (90.0%), and only 10% were Unmarried.

Table 2: Distribution of the respondent according to the physical environment of the respondents.

S. N.	Physical environment	Number of the respondents (N = 60)
1	High level of noise	59 (1)
2	Poor level of lighting	23 (61.7)
3	Temperature of my work area during summer	7 (88.3)
4	Temperature of my work area during winter	22 (63.3)
5	Humidity in my work area	32 (46.7)
6	The level of air circulation	29 (48.3)
7	Air in my work area is clean and free of pollution	7 (11.7)
8	I am well protected to dangerous substances	16 (26.7)
9	Overall quality of physical environment in poor in my working area	37(61.7)
10	My work area is awfully crowded	43 (28.3)

According to Table No. 2. 1 percent of respondents work in areas with a high overall noise level. 29 percent say that the level of lighting is good in their working area, while 28.4 percent of the respondents say that the level of lighting is bad in their working area. 88.3 percent of respondents say that the temperature of their work area during the summer is usually uncomfortable because they lack proper facilities. 63.3 percent of the respondents say that the temperature of their work area during winter is usually comfortable, and 9.7 percent of the respondents feel uncomfortable during winter.

36.7 percent of the respondents say that the humidity of their work area is neither too high nor too low, and 46.7 percent of the respondents say that yes, the humidity of their work area is too high or too low. 11.7 percent of respondents say that air circulation is good in their work area, 93.5% of the respondents' work areas' air is polluted and 73.3% of the respondents are not protected from dangerous substances in their job. 61.7 percent of respondents said the overall quality of the physical environment is poor and 72.3% of respondents' work area is fully crowded.

Table 3: Distribution of the respondent according to body discomfort and age of the respondents.

S. N.	Item	Age of the respondent				F- value	P-value
		25-35 years	35-45 years	45-55 years	55-65 year		
		Mean±SD	Mean±SD	Mean±SD	Mean±SD		
1.	Feel backache while working for long hours.	3.13±.619	2.95±.375	3.35±.786	3.00±.000	1.603	.842
2.	Suffer from pain in the spinal cord during the occupation.	3.13±1.302	2.95±1.129	3.35±1.419	3.00±1.342	1.603	.180
3.	Suffer from musculoskeletal problems during occupation	2.50±1.095	3.05±.844	3.18±.883	3.20±.837	1.603	.160
4.	Feel pain in the neck at work.	2.94 ± .772	2.95±.653	3.41±1.004	3.80±1.095	2.328	.084
5.	I am not able to maintain comfortable body posture at standing position	2.25±.577	2.27±.935	2.65±.931	2.40±.894	.802	.498
6.	I had to flex or extend the joints of my limbs in while performing job.	1.81±1.047	2.64±1.761	2.24±1.300	2.60±1.300	1.080	.365
7.	Strained at neck and shoulder while working.	2.88±.719	3.00±.926	3.53±1.007	4.20±1.095	3.750	.016
8.	I feel uncomfortable while sleeping due to body pains.	2.31±1.702	2.77±1.688	3.06±1.600	3.40±1.140	.842	.477

Table 3 demonstrates that there exists no significant impact of age on body discomfort, the greater part ($\mu=3.13$) of back pain occurs in the age group above 25-35 years because they are working for long hours followed by the other four age groups. Traffic police who are in age 45-55 years are suffering from spinal pain because most of the time they are working in one body position that why they are facing spinal pain. The majority ($\mu=3.20$) of above 55-65 year of traffic police face Musculo-skeletal problems during work. Whereas ($\mu=3.80$) 55-60 year and above age group traffic police feel

neck pain. Data also indicates that most ($\mu=2.40$) of the traffic police who is in 55-65 years of age they are not able to maintain a comfortable body posture in a standing position. table also depicts that majority ($\mu=4.20$) of traffic police in 55-65 and above they are facing neck and shoulder strain due to this body pains 55-65 year and above years of traffic police feel uncomfortable during sleeping. It is clear from the data that as the age increases, the pain intensity starts increasing in the body part, which has a very bad effect on their working capacity.

Table 4: Distribution of the respondent according to body discomfort and working hours of the respondents.

S. N.	Item	Working hours			F-value	P-value
		6 hours or less	6-12 hours	More than 12 hours		
		Mean±SD	Mean±SD	Mean±SD		
1.	Feel backache while working for long hours.	3.00±.655	3.10±.409	3.27±.799	.533	.662
2.	Suffer from pain in the spinal cord during occupation.	3.40±1.298	2.76±1.300	3.07±1.223	1.644	.190
3.	Suffer from musculoskeletal problems during occupation	3.00±.845	2.76±1.023	3.27±.884	.968	.414
4.	Feel pain in the neck at work.	3.20±.862	3.24±.912	2.93±.799	.441	.725
5.	I am not able to maintain comfortable body posture at standing position	2.33±.617	2.41±.983	2.33±.816	.216	.885
6.	I had to flex or extend the joints of my limbs in while performing job.	2.20±1.146	2.41±1.524	2.20±1.699	.115	.951
7.	Strained at neck and shoulder while working.	3.07±.799	3.38±1.147	3.07±.799	.508	.678
8.	I feel uncomfortable while sleeping due to body pains.	3.33±1.718	2.59±1.427	2.73±1.870	1.126	.347

The above table no 4 explains that traffic police who are working more than 12 hours feel severe back pain. The table

also shows that there is no significant effect of working hours on body discomfort, ($\mu=3.24$) traffic police working for 6-12

hours also feel neck pain. The greater part ($\mu=3.27$) of respondents working More than 12 hours face Musculo-skeletal problems during work. The data also portrait that ($\mu=2.41$) traffic police bend or stretch their limb joints while

doing their job for 6-12 hours and ($\mu=3.38$) traffic police feel neck and shoulder strain when they are working for 6-12 hours.

Table 5: Distribution of the respondent according to intensity of pain and working hours of the respondents.

S. N.	Item	Working hours			F-Value	P-Value
		6 hours or less	6-12 hours	More than 12 hours		
		Mean \pm SD	Mean \pm SD	Mean \pm SD		
1.	Neck pain	1.47 \pm .834	1.28 \pm .649	1.20 \pm .561	.485	.694
2.1	Shoulders (right) pain	1.13 \pm .743	1.00 \pm .707	1.00 \pm 1.000	.653	.584
2.2	Shoulder (left) pain	1.47 \pm .915	1.31 \pm .930	1.13 \pm .915	.983	.408
3.1	Upper back pain	2.00 \pm .845	2.10 \pm .724	2.13 \pm .640	.098	.961
3.2	Upper arms right	1.40 \pm .632	1.24 \pm .689	1.27 \pm .594	1.479	.230
4	Upper arms left	.80 \pm .561	.83 \pm .539	1.00 \pm .655	1.120	.349
5.	Mid-back	2.00 \pm .655	1.79 \pm .940	1.80 \pm .775	.234	.872
6	Lower arms (rights)	.80 \pm .414	.79 \pm .491	.67 \pm .617	.976	.410
7.	Lower arms (left)	1.47 \pm .516	1.14 \pm .639	.87 \pm .915	2.787	.049
8.	Lower back	1.47 \pm .743	1.28 \pm .702	1.00 \pm .378	1.368	.262
9.	Buttocks	1.00 \pm .756	.97 \pm .731	.87 \pm .834	.705	.553
10.1.	Thighs (rights)	1.20 \pm .676	1.14 \pm .743	.93 \pm .884	.798	.500
10.2.	Thighs (Left)	1.00 \pm .724	1.21 \pm .726	1.13 \pm .743	.224	.879

Table no 5. The association between the intensity of body pain and the work duration of the respondent has been examined. Table 4 indicates that neck pain is experienced at maximum ($\mu=1.47$) during 6 hour or less. 6-12 hours which has medium range followed by more than 12 hours range and minimum body pain is at 6 hours or less. Although it has no significant differences, yet it clearly indicates that the intensity of neck pain seems to increase with work duration in day. It is obvious from the data that the intensity of pain in the right shoulder was expressed higher ($\mu=1.13$) in the work duration in day, and least ($\mu=1.00$) in 6 hours or less & 6-12 hours. The intensity of left shoulder pain was highest ($\mu=1.47$) in the 6hours or less and least ($\mu=1.13$) in the more than 12 hours. Pain in the left shoulder has a no significant difference among all work duration in the day and it affects 90% in the right shoulder. In both cases, the intensity of pain is increasing with work duration which may be due to the wrong posture.

demonstrates that the greater part ($\mu=2.13$) of upper back pain occurs in more than 12 hours of work duration followed by the other three Work duration in the day. The intensity of pain in the lower back shows significant differences up to 90% which increment with work duration ($\mu=2.00$) influenced the 6 hours or less.

The intensity of left shoulder pain was high ($\mu=1.47$) in the 6 hour or less work duration in a day and least ($\mu=1.13$) more than 12 hours. Pain in the left shoulder has a significant difference among all the work duration in the day and it is about 90% significant in the right shoulder. In both cases, the intensity of pain is increasing with work duration which may be due to muscles getting weekend with work duration.

Table 4 demonstrates that the greater part ($\mu=2.13$) of upper back pain occurs during the work duration followed by the other three groups in the day. The intensity of pain in the lower back shows the significant differences up to 90% which increment with work duration majority ($\mu=1.47$) influenced the 6 hour or less.

Conclusions

A traffic police is a very demanding job. They are required to labour in exceedingly inconvenient conditions, such as lengthy hours and standing positions. Traffic cops labour in dangerous situations and have a low level of physical well-being. Long working hours, employment experience, and age

have all been linked to physical well-being among traffic officers.

Limitation

The present study was conducted on the male respondents only due to the lack of availability of female traffic police workers in Lucknow city. Therefore, the gender differences were not analyzed.

Suggestions

After completing this research on traffic police workers, it is found that their working conditions and environment are very distressing and uncomfortable. As they were asked about their work-related problems, we got to know about the following provisions that may improve their overall well-being. They are as follows: one holiday in a week, medical check-ups should be done, and safety equipment must be provided with proper protection kits. It should be kept in consideration by policymakers and stakeholders that the working hours and work environment of traffic police workers impact both physical and mental health, which should be compensated with all the other facilities.

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