Original Article

An assessment of perceived stress among police personnel in Puducherry, India

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ABSTRACT

Background: Currently stress is an important health issue in view of increasing trend of non-communicable diseases at a global level. There is paucity of data on stress among vulnerable groups like police personnel. Aim: To assess the stress level and its associated factors among police personnel. Methods: A cross-sectional study was conducted among 296 police personnel in urban Puducherry, India. Perceived stress level was assessed by Cohen’s Perceived Stress scale and classified into low (0-11), average (12-15), high (16-20), and very high (21-40) levels based on the stress scores obtained. Data were analyzed by proportion, chi-square test, and binomial logistic regression analysis. Results: About two-thirds of the police personnel belonged to the age group of 25-39 years (68.2%). About 56.1% of the police personnel were designated as police constables. Majority of the police personnel had high and very high levels of stress (83.8%). Hypertension and body mass index (BMI) were found to be significantly associated with stress level categories in univariate analysis. With respect to question item analysis, majority of the police personnel were sometimes and fairly often had one or the other symptoms of stress. Multiple regression analysis showed that those with hypertension had 2.23 times more [95% confidence interval (CI): 1.295-3.847] severe and very severe stress levels compared to those with mild and moderate levels of stress. Conclusion: Stress level is high among police personnel, which needs to be addressed by appropriate intervention measures.

Key words: India, perceived stress level, police personnel

INTRODUCTION

The stress in various occupations differs according to the nature of work and its influencing factors. Globally, police work is considered to be one of the stressful occupations. Police are at high risk of developing cardiovascular diseases due to work-related stress.[1] With the increase in burden of non-communicable disease risk factors in many countries, there is a need to identify the burden of stress and its associated factors among the police personnel. A recent study showed that majority of policemen (88.89%) had moderate level of stress. Stress score was significantly high among overweight, diabetes, hypertensive, and depressed policemen.[2]

Every global level, very few studies have been conducted to assess the level of stress among police personnel.[2-8] Therefore, such a study group has been chosen as the target of this study. Such studies will be useful to understand the problem of stress...
level and its associated factors, so that appropriate interventions can be initiated for the benefit of such a vulnerable group. With this background, the study was conducted among the police personnel of urban Puducherry, India.

METHODS

The present cross-sectional study was conducted among the police personnel residing in the police quarters of Dhanwantri Nagar, urban Puducherry, India. This study was a part of main study which assessed the prevalence of hypertension among police personnel. The study was conducted among 296 police personnel during the period April 2013-September 2013. Approval was obtained from the Institution Ethics Committee before commencement of the study. Due written permission was obtained from the Inspector General of Police before initiating the study. Written informed consent was taken from the subjects.

House-to-house visit was carried out to contact the subjects and the data were collected by using a structured questionnaire. Training was given to the interviewer on data collection methods. Baseline data on socio-demographic characteristics were collected by interview method. The blood pressure (BP) and anthropometric measurements including height, weight, and waist circumference were taken. Self-reported diabetes, current use of alcohol, and smoking status were assessed by using a questionnaire. Data on smoking and alcohol use were taken based on the lines of WHO STEPwise approach to chronic disease risk factor Surveillance (STEPS) instrument[9] and then categorized as follows. Current smoking was considered if the subject had smoked at least one cigarette or beedi in the last 1 month of the interview. The subjects with a minimum of 30 ml of 40-50% alcohol intake at least three times a week were considered as current alcohol users. Stress was assessed by Cohen’s Perceived Stress scale and classified into categories, namely low (0-11), average (12-15), high (16-20), and very high (21-40), based on the stress scores.[10]

Statistical analysis

The collected data were entered in Statistical Package for Social Sciences version 16 (SPSS v. 16). Findings of stress on different question items were expressed in percentages. Stress level was analyzed by using univariate analysis to find out the association of related variables. We categorized the stress level into two groups as low and average (0-15) and high and very high (16-40), which was used as the dependent variable. Binomial logistic regression analysis was done by enter method. All the variables present in univariate analysis, namely age, designation, current smoker, current alcohol use, hypertension, self-reported diabetes, and body mass index (BMI), were included as predictor variables in the model. P value <0.05 was considered as statistically significant.

RESULTS

About 68.2% (202/296) of the police personnel belonged to the age group of 25-39 years. About 56.1% (166/296) of them were designated as police constables. About 83.8% (248/296) of the police personnel had high and very high levels of stress [Table 1].

With respect to the question items on stress assessment, majority of the subjects were sometimes and fairly often had one or the other symptoms of stress. For the questions on “handling personal problems” [(fairly often: 132 (44.6%), very often: 47 (15.9%)] , “things were going your way” [(fairly often: 121 (40.9%), very often: 48 (16.2%)] , and “controlling irritations in your life” [(fairly often: 154 (52.0%), very often: 35 (11.8%)] , majority answered with fairly often and very often choices [Table 2].

About 34.5% (102/296) of the police personnel had hypertension, including both new and old cases; 10.1% (30/296) had self-reported diabetes. About 46.1% (137/296) of the police personnel were overweight and 8.1% (24/296) were obese. Hypertension and BMI were found to be significantly associated with stress level categories in univariate analysis [Table 3].

Binomial logistic regression analysis showed that those with hypertension had 2.23 times more [95% confidence interval (CI): 1.295-3.847] severe and very severe stress levels compared to those with mild and moderate levels of stress [Table 4].

DISCUSSION

Our study highlighted the fact that perceived stress level is high among police personnel, which stresses the need for certain strategies to reduce its level. Other Indian studies also showed high stress level among police personnel.[2,3] There is limited data on the magnitude of stress at a global level.[4-8] A study done on Malaysian police found the overall prevalence of stress as 38.8%.[9] Another study done in Italy showed that about 60% of workers had moderate or severe stress. The study showed a statistically significant higher prevalence

| Stress level Number (%) | n = 296 |
|-------------------------|--|
| Low (0-11)              | 14 (4.7) |
| Average (12-15)         | 34 (11.5) |
| High (16-20)            | 97 (32.8) |
| Very high (21-40)       | 151 (51.0) |
among younger subjects compared to older subjects, in contrast to our study.\(^6\) A study from Brazil showed that out of 35.8% with higher stress level, 68.4% were in the resistance phase, with 31.6% almost burned out.\(^7\) Various studies showed differences in prevalence rates because of different methodologies adopted, various instruments used for assessment, work place environments, and working definitions used in the study.

Regarding the associated factors of stress, it was found that stress was more in hypertensive subjects than in Table 2: Questionnaire item analysis of the stress level among police personnel

| Question items                                                                 | Never (%) | Almost never (%) | Sometimes (%) | Fairly often (%) | Very often (%) |
|--------------------------------------------------------------------------------|-----------|------------------|---------------|------------------|--------------|
| Upset because of something that happened unexpectedly?                      | 24 (8.1)  | 2 (0.7)          | 108 (36.5)    | 140 (47.3)       | 22 (7.4)     |
| Unable to control the important things in your life                          | 4 (1.4)   | 24 (8.1)         | 127 (42.9)    | 107 (36.1)       | 34 (11.5)    |
| Nervous and stressed                                                         | 10 (3.4)  | 36 (12.2)        | 82 (27.7)     | 121 (40.9)       | 47 (15.9)    |
| Handling personal problems                                                  | 2 (0.7)   | 16 (5.4)         | 99 (33.4)     | 132 (44.6)       | 47 (15.9)    |
| Things were going your way                                                   | 2 (0.7)   | 10 (3.4)         | 115 (38.9)    | 121 (40.9)       | 48 (16.2)    |
| Could not cope with all the things that you had to do?                      | 4 (1.4)   | 26 (8.8)         | 105 (35.5)    | 143 (48.3)       | 18 (6.1)     |
| Able to control irritations in your life?                                    | 2 (0.7)   | 12 (4.1)         | 93 (31.4)     | 154 (52.0)       | 35 (11.8)    |
| You were on top of things                                                    | 2 (0.7)   | 4 (1.4)          | 92 (31.1)     | 164 (55.4)       | 34 (11.5)    |
| Angered because of things that were outside your control?                    | 8 (2.7)   | 18 (6.1)         | 88 (29.7)     | 132 (44.6)       | 50 (16.9)    |
| Difficulties were piling up so high that you could not overcome them?        | 12 (4.1)  | 30 (10.1)        | 63 (21.3)     | 144 (48.6)       | 47 (15.9)    |

Table 3: Associated factors of stress among police personnel (n = 296)

| Variables                        | Low (%) | Average (%) | High (%) | Very high (%) | Total | \(\chi^2, P\) value |
|----------------------------------|---------|-------------|----------|---------------|-------|-------------------|
| Age, years                       |         |             |          |               |       |                   |
| 25-39                            | 12 (5.9)| 26 (12.9)   | 68 (33.7)| 96 (47.5)     | 202   | 4.883, 0.559      |
| 40-49                            | 1 (1.8) | 5 (8.9)     | 18 (32.1)| 32 (57.1)     | 56    |                   |
| 50-59                            | 1 (2.6) | 3 (7.9)     | 11 (28.9)| 23 (60.5)     | 38    |                   |
| Designation                      |         |             |          |               |       |                   |
| Home guard                       | 3 (11.5)| 4 (15.4)    | 8 (30.8) | 11 (42.3)     | 26    | 8.65, 0.471       |
| Police constable                 | 9 (5.4) | 21 (12.7)   | 56 (33.7)| 80 (48.2)     | 166   |                   |
| Head constable                   | 2 (2.4) | 7 (8.5)     | 24 (29.3)| 49 (59.8)     | 82    |                   |
| Subinspector                     | 0 (0.0) | 2 (9.1)     | 9 (40.9) | 11 (50.0)     | 22    |                   |
| Current smoker                   |         |             |          |               |       |                   |
| Yes                              | 4 (6.3) | 6 (9.4)     | 17 (26.6)| 37 (57.8)     | 64    | 2.416, 0.491      |
| No                               | 10 (4.3)| 28 (12.1)   | 80 (34.5)| 114 (49.1)    | 232   |                   |
| Current alcohol use              |         |             |          |               |       |                   |
| Yes                              | 7 (4.7) | 23 (15.4)   | 45 (30.2)| 74 (49.7)     | 149   | 4.787, 0.188      |
| No                               | 7 (4.8) | 11 (7.5)    | 52 (35.4)| 77 (52.4)     | 147   |                   |
| Hypertension                     |         |             |          |               |       |                   |
| Yes                              | 4 (3.9) | 9 (8.8)     | 24 (23.5)| 65 (63.7)     | 102   | 10.161, 0.017*    |
| No                               | 10 (5.2)| 25 (12.9)   | 73 (37.6)| 86 (44.3)     | 194   |                   |
| Diabetes (self-reported)         |         |             |          |               |       |                   |
| Yes                              | 0 (0.0) | 2 (6.7)     | 11 (36.7)| 17 (56.7)     | 30    | 2.618, 0.454      |
| No                               | 14 (5.3)| 32 (12.0)   | 86 (32.3)| 134 (50.4)    | 266   |                   |
| Body mass index (kg/m²)          |         |             |          |               |       |                   |
| <25                              | 8 (5.9) | 6 (4.4)     | 52 (38.5)| 69 (51.1)     | 135   | 19.06, 0.004*     |
| 25-30                            | 3 (2.2) | 24 (17.5)   | 38 (27.7)| 72 (52.6)     | 137   |                   |
| >30                              | 3 (12.5)| 4 (16.7)    | 7 (29.2) | 10 (41.7)     | 24    |                   |

*P value < 0.05 considered as statistically significant
those without hypertension. But this finding should be interpreted cautiously since temporal association of stress with hypertension cannot be ascertained from this study. Various other studies also demonstrated that stress is more among hypertensive subjects compared to normotensive subjects.[11] The factors including age, designation, current smoking and alcohol use, BMI, and diabetes were not found to be associated with stress in our study. Studies have shown that personality factors may mitigate or increase the strain induced by environmental stressors.[8] Also, it was found that differences among officers in their tendency to generally perceive work stressors as stressful and also agreement among officers in viewing some stressors as more stressful than others will have an effect on the perceived stress level.[12] Depression and alcohol abuse were also associated with stress disorders among police personnel.[13]

Strengths and limitations
This study gives valuable information on the magnitude of stress among police personnel in a selected area of urban Puducherry. The current study adds to the knowledge of other similar studies done at a global level.[2-8] Systematic review of such health problems may enable to strengthen the totality of evidence. Since the study was conducted among police personnel, the findings may not be applicable to a different cadre of police personnel. There may be selection bias, since the data were collected among police personnel residing in the police quarters and all the police personnel from Puducherry were not included. We could not assess certain associated factors like personal and family problems that lead to stress. The study is cross sectional and stress was evaluated based on the subjective nature, which may vary in different settings.

CONCLUSION
Stress level is high among police personnel. Further multicentric analytical studies may explore the factors associated with stress. Stress-reducing techniques like personal management and counseling may help to tackle the stress among police personnel.

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Table 4: Determinants of stress among police personnel: Binomial logistic regression analysis

| Variables                        | AOR (95% CI)     | P value |
|----------------------------------|------------------|---------|
| Age, years                       |                  |         |
| 25-39                            | 1.253 (0.524-2.995) | 0.612   |
| 40-49                            | 0.862 (0.339-2.195) | 0.756   |
| 50-59                            |                  |         |
| Designation                      |                  |         |
| Home guard                       | 0.937 (0.264-3.326) | 0.920   |
| Police constable                 | 0.758 (0.265-2.172) | 0.606   |
| Head constable                   | 0.515 (0.181-1.468) | 0.214   |
| Subinspector                     |                  |         |
| Current smoker                   | 1.649 (0.864-3.148) | 0.130   |
| Current alcohol use              |                  |         |
| No                               | 0.710 (0.425-1.187) | 0.191   |
| Yes                              |                  |         |
| Hypertension                      |                  |         |
| Yes                              | 2.232 (1.295-3.847) | 0.004*  |
| No                               |                  |         |
| Diabetes (self-reported)         |                  |         |
| Yes                              | 1.100 (0.461-2.627) | 0.830   |
| No                               |                  |         |
| Body mass index                  |                  |         |
| <25                              | 0.481 (0.186-1.243) | 0.131   |
| 25-30                            | 0.419 (0.162-1.087) | 0.074   |
| >30                              |                  |         |

AOR = Adjusted odds ratio, *P-value <0.05 considered as statistically significant
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