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LIFESTYLE- RELATED BEHAVIOURS AND STRESS LEVELS AMONG POLICE PERSONNEL IN CHENNAI, TAMILNADU

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ABSTRACT

Police personnel were found to be at high risk for stress, anxiety, and depression dueto work nature. The present study focused on a preliminary investigation of the stress levels and lifestyle behaviour of police personnel in Chennai, India. The study was performed by collecting information regarding demographic details, anthropometric data, lifestyle behaviour and stress levels of the participants using dedicated questionnaires. Among 215 respondents 79 were maleand 136 were female. Majorly, the respondents were between the age group of 20-30 years (76.3%). The lifestyle behaviour of the study participants was assessed and the results revealed that there was a significant association between sugar consumption (p=0.006) and duration of sleep (p=0.016) with Body Mass Index of the participants. The perceived stress levels of the participants were assessed using Perceived Stress Scale and the scores of the PSS denoted that, 192 (89.3 %) participants were moderately stressed, 15 (6.9 %) study participants were highly stressed and only 8 (3.7%) participants had low stress levels. Nutrition insights onthe need of physical activity, stress management, and healthy eating habits was delivered to the focus groups. According to the study's findings, appropriate and balanced nutrition, physical activity, adequate sleep, and stress management are essential for living a healthy lifestyle.

Keywords: Lifestyle behaviour, stress levels, police personnel, mental health, sleep disturbance

INTRODUCTION

Despite all the shortcomings and limitations, police officers play a very significant role in maintaining law and order in the society. Police officers suffer disproportionately from a variety of adverse health outcomes, including sleep disruption, psychological stress, depression, suicide, metabolic disorders, heart disease, diabetes, and higher mortality **[1]**. The impact of formal pressure from police organization and police subcultures often lead to the stress concerned with occupational social and family lives which leads to physical and emotional ailments. Repeated Work-related pressure exposure to a variety of stressors can lead to changes in food consumption perhaps due to the generation of negative emotions elicited by stress that can lead to changes in body mass. Busy and challenging work life and poor control of health lead to high morbidity among police personnel. It appears that, intake of fat may have an acute effect on mood, leading to symptoms of anxiety and depression It appears that intake of fat may have an acute effect on mood, leading to symptoms of anxiety and depression Dietary modification can prevent the development of cardiovascular disease (CVD) and diabetes, and stress-related mental disorders, including major depression and posttraumatic stress disorder (PTSD), are associated with an increased risk for CVD **[2]**.Therefore, periodic health checks and lifestyle promotional activities are highly recommended to maintain a healthy police force **[3]**.

OBJECTIVES

• To determine the socioeconomic profile of selected participants.

• To assess the anthropometric status of the selected respondents.

• To investigate the lifestyle behaviour among the selected police personnel.

• To find the association between BMI and lifestyle behaviour of the respondents.

• To assess the perceived stress level of the selected participants.

• To provide nutritional insights on healthy dietary habits, food choices and to tackle stress at work to all the selected police personnel.

METHODOLOGY

The cross-sectional study was conducted among police personnel from Chennai, Tamilnadu (n=215), and Simple Random Sampling was used to select the respondents for this research. The questionnaire was disseminated to 500 participants, of which, only 215 respondents had completed the survey. The standard lifestyle pattern and stress questionnaires, for the present study, were adapted from the short questionnaire to assess changes in lifestyle-related behaviour Archana Kumari, 2020 and Perceived Stress Scale [S] Cohen,1994, respectively. The participants were contacted and informed about the study.

Prior to the study, the consent of the participants was obtained. Throughout the study, the anonymity and the confidentiality about the study participants was maintained. The questionnaires were circulated among the police personnel according to their language preference (Tamil/ English). The questionnaire comprises sections that deals with socio demographic profile, anthropometric profile, lifestyle pattern and their stress scale. A Three- point Likert Scale was used to collect information on lifestyle related behaviour and perceived stress scale from the participants.

All the data collected during the study were tabulated and analyzed statistically using appropriate statistical instruments for clear interpretation and discussion. The statistical tools such as descriptive and analytical methods were used. Methods such as univariate and bivariate statistical tests including Chi-square test, paired t-test, analysis of variance ANOVA(one way), and Pearsons's correlation in Statistical Package for the Social Sciences (SPSS) software (Version 27) were applied on the collected data for analysis.

RESULTS

The sociodemographic data collected from the selected police personnel consists of their precinct or zone, their age, gender, marital status and monthly income and were tabulated **(Table 1)**. The height and weight were collected from the respondents and the body mass index (BMI) was calculated and the interpretations resulted that majority of the participants had normal healthy BMI, N= 136 (63.26%) **(Table 2)**. The values derived from the Sociodemographic and Anthropometric data were statistically analyzed to find that there was a strong association between the aforementioned criteria **(Table 3)**. The stress levels of the study participants were obtained using perceived stress scale and the results were demonstrated as three major categories viz., mild, moderate and high stress. **(Table 4)**. The dietary behaviours **(Table 5)** and lifestyle behaviours **(Table 6)**. were associated with the Body Mass Index of the respondents (n=215) using Chi-square test of independence. Similarly, a significant association was determined between the duration of sleep and the Body Mass Index of the participants. Other factors of lifestyle related behaviour exhibited least significance when associated with the BMI of the respondents. One way analysis of variance (ANOVA) **(Table 7. a.)** was performed on lifestyle related factors based on BMI of the respondents followed by a conforming test-Post-hoc test **(Table 7.b.)**, was carried out and the results were interpreted.

Table 1: Socio-demographic profile of the participants

Socio-Demographic Factors	Parameters	Frequency (Numbers)	Percentage (%)
Position/ Rank	**Inspector of Police**	4	1.9
	SI	4	1.9
	Head Constable	9	4.2
	Police Constable	198	92.1
Precinct/Zone	**Chennai**	206	95.8
	Other	9	4.5
Age	**< 20**	13	6.0
	20 - 30	164	76.3
	31 - 40	27	12.6
	> 40	11	5.1
Sex	**Male**	79	36.7
	Female	136	63.3
Marital Status	**Single**	134	62.3
	Married	81	37.7
Income	**< 15000**	32	14.9
	15000 - 49999	175	81.4
	50000 - 75000	5	2.3
	> 75000	3	1.4

Table 2: Categorization of study participants based on BMI (n=215)

UNDERWEIGHT (<18.5 Kg/m^2)		NORMAL (18.5 Kg/m^2 – 24.9 Kg/m^2)		OVERWEIGHT (25 Kg/m^2 – 29.9 Kg/m^2)		OBESE- I (30 Kg/m^2 – 34.9 Kg/m^2)		OBESE-II (35 Kg/m^2 – 39.9 Kg/m^2)	
N	%	N	%	N	%	N	%	N	%
42	19.53	136	63.26	32	14.88	4	1.86	1	0.47

*BMI Classified based on WHO guidelines

Table 3: Socio-demographic factors and Body Mass Index (n=215)

Variables	Category	N (%)			P value
		Underweight	Normal	Overweight	
Age of the respondents	**<20 years**	7 (3.25)	5 (2.32)	1 (0.46)	*0.000***
	20- 30 years	32 (14.88)	120 (55.81)	12 (5.81)	
	31-40 years	0 (0)	12 (5.58)	15 (6.97)	
	>40 years	0 (0)	2 (0.93)	9 (4.18)	
Sex of the respondents	**Male**	0 (0)	49 (22.79)	30 (13.95)	*0.000***
	Female	39 (18.13)	90 (41.86)	7 (3.25)	
Marital Status	**Unmarried**	32 (14.88)	96 (44.65)	6 (2.79)	*0.000***
	Married	7 (3.25)	43 (20)	31 (14.41)	
Monthly income of the respondents	**<15000**	13 (6.04)	16 (7.44)	3 (1.39)	*0.000***
	15000-49999	26 (12.09)	122 (56.74)	27 (12.55)	
	50000- 75000	0 (0)	1 (0.46)	4 (1.86)	
	>75000	0 (0)	0 (0)	3 (1.39)	
* Significant at the 0.05 level ** Significant at the 0.001 level NS- Not Significant					

Table 4: Categorization of study participants based on Perceived Stress Scale scores (n=215)

Category	Number (N)	Percentage (%)
Low Stress	8	3.70
Moderate stress	192	89.3
High stress	15	6.90
Total	215	100

Table 5: Dietary pattern and Body Mass Index. (n=215)

Variables	Category	N (%)			P value
		Underweight	Normal	Overweight	
Maintenance of a regularmeal pattern	**Rarely**	16 (7.44)	62 (28.83)	15 (6.97)	0.312
	Frequently	14 (6.51)	41(19.06)	7 (3.25)	
	Always	9 (4.18)	36 (16.74)	15(6.97)	
Consumption of fastfoods (pizza, burger, pasta or noodles)	**Rarely**	29(13.48)	86 (40)	27 (12.5)	0.403
	Frequently	9 (4.11)	44 (20.4)	7 (3.25)	

	Always	1 (0.46)	7 (3.25)	3 (1.39)	
Consumption of friedfoods (fried bread/ poori, fried snack such as fries, bhujia, mathri, etc)	**Rarely**	15 (6.97)	56 (26.04)	15 (6.97)	
	Frequently	22 (10.23)	76 (35.34)	22 (10.23)	0.791
	Always	2 (0.93)	7 (3.25)	0 (0)	
Consumption of processed (like popcorn, chips, candies, chocolate, canned foods)	**Rarely**	22 (10.23)	75 (34.88)	27 (12.55)	
	Frequently	12 (5.58)	57 (26.52)	8 (3.72)	0.081
	Always	5 (2.32)	7 (3.25)	2 (0.93)	
Fruits and vegetables intake	**Rarely**	12 (5.58)	28 (13.02)	4 (1.86)	
	Frequently	14 (6.51)	59 (27.44)	19 (8.83)	0.294
	Always	13 (6.04)	52 (24.18)	14 (6.51)	
Maintenance of a balanced diet by including healthy ingredients (wholewheat, pulses, legumes, eggs, nuts, fruits and vegetables)	**Rarely**	17 (7.90)	45 (20.93)	7 (3.25)	
	Frequently	13 (6.04)	58 (26.97)	12 (5.58)	*0.034**
	Always	9 (4.18)	36 (16.74)	18 (8.37)	
Intake of 2-3 servings of milk or milk products (curd, buttermilk, cheese, paneer etc)	**Rarely**	19 (8.83)	47 (21.86)	8 (3.72)	
	Frequently	11 (5.11)	60 (27.90)	16 (7.44)	0.105
	Always	9 (4.18)	32 (14.88)	13 (6.04)	
Consumption of pulses,egg or meat	**Rarely**	18 (8.37)	52 (24.18)	6 (2.79)	
	Frequently	14 (6.51)	60 (27.90)	22 (10.23)	0.081
	Always	7 (3.25)	27 (12.55)	9 (4.18)	
Consumption of sugar-sweetened bevera ges(juice, soft drinks, flavored soda)	**Rarely**	13 (6.04)	56 (26.04)	17 (7.90)	
	Frequently	20 (9.30)	69 (32.09)	16 (7.44)	0.744
	Always	6 (2.79)	14 (6.51)	4 (1.86)	
Consumption ofconfectioneries	**Rarely**	22 (10.23)	74 (34.4)	26 (12.09)	
	Frequently	13 (6.04)	53 (24.60)	8 (3.72)	0.390
	Always	4 (1.86)	12 (5.58)	3 (1.39)	
Consumption of junkfood/fast food due to boredom/ distress/ disappointment	**Rarely**	23 (10.69)	68 (31.62)	25 (11.62)	0.195
	Frequently	12 (5.58)	45 (20.93)	6 (2.79)	
	Always	4 (1.86)	26 (12.09)	6 (2.79)	
Consumption of sugar/honey jaggery	**Rarely**	33 (15.34)	110 (51.1)	19 (8.83)	*0.006**
	Frequently	5 (2.35)	24 (11.16)	14 (6.51)	
	Always	1 (0.46)	5 (2.32)	4 (1.86)	

Significant at the 0.05 level. NS- no significance

Table 6: Lifestyle factors and Body Mass Index. (n=215)

	Physical activity				
Participation in moderate intensity exercises (brisk walking, static jogging, home based aerobic workouts, treadmill, etc)	**Rarely**	26 (12.09)	87 (40.46)	20 (9.30)	
	Frequently	10 (4.65)	36 (16.74)	11 (5.11)	
	Always	3 (1.39)	16 (7.44)	6 (2.79)	0.758
Performing household chores (cooking, laundry or cleaning)	**Rarely**	15 (6.97)	39 (18.13)	14 (6.51)	
	Frequently	8 (3.72)	48 (22.32)	13 (6.04)	0.294
	Always	16 (7.44)	52 (24.18)	10 (4.65)	
Participation in leisure related activities (grocery shopping, walking in park or gardening)	**Rarely**	19 (8.83)	69 (32.09)	16 (7.44)	
	Frequently	9 (4.18)	41 (19.06)	14 (6.51)	0.631
	Always	11(5.11)	29 (13.40)	7 (3.25)	
	Other lifestyle related behaviour				
Sitting time at work	**3-6 hours**	33 (15.34)	113(52.55)	29 (13.4)	
	7-8 hours	2 (0.93)	13 (6.04)	3 (1.39)	0.871
	>8 hours	4 (1.86)	13 (6.04)	5 (2.32)	
Duration of sleep	**3-6 hours**	28 (13.02)	91 (42.32)	18 (8.37)	
	7-8 hours	10 (4.65)	46 (21.39)	14 (6.51)	*0.016**
	>8 hours	1 (0.46)	2 (0.93)	5 (2.32)	
Consumption of alcohol	**More than once in a week**	1 (0.46)	6 (2.79)	2 (0.93)	
	On special occasion	0 (0)	1 (0.46)	2 (0.93)	0.727
	On weekend	0 (0)	1 (0.46)	1 (0.46)	
Frequency of smoking	**1-3 cigarettes per day**	0 (0)	1 (0.46)	0 (0)	0.486

	4-6 Cigarettes per day	0 (0)	2 (0.93)	1 (0.46)	
	7-9 Cigarettes per day	0 (0)	0 (0)	2 (0.93)	
	>10 Cigarettes per day	0 (0)	0 (0)	1 (0.46)	
* Significant at the 0.05 level. NS- no significance

Table 7. a: One way analysis of variance (ANOVA) of lifestyle related factors based on BMIof the respondents (n=215)

Variables	Sources of Variation	Sum of Squares	df	Mean Square	F	Sig.
Consumptionof Sugar and BMI	BetweenGroups	3.975	2	1.987	5.852	*.003**
	Within Groups	72.006	212	.340		
	Total	75.981	214			
Sitting time at work and BMI	BetweenGroups	.174	2	.087	.243	.784[ns]
	Within Groups	75.808	212	.358		
	Total	75.981	214			
Hours of sleepand BMI	BetweenGroups	2.940	2	1.470	4.266	*.015**
	Within Groups	73.042	212	.345		
	Total	75.981	214			
* Significant at the 0.05 level.   NS- No Significance

Table 7.b: Post-hoc test for Lifestyle related factors based on BMI of the respondents. (n=215)

Tukey HSD
Dependent Variable	(I) Consumption of sugar/ honey jaggery	(J) Consumption of sugar/ honey jaggery	Mean Difference (I-J)	Sig.
BMI of the participants	Rarely	Frequently	-.296*	*.010**
		Always	-.386	.106[ns]
	Frequently	Rarely	.296*	*.010**
		Always	-.091	.897[ns]
	Always	Rarely	.386	.106[ns]
		Frequently	.091	.897[ns]
	(I) Duration of sleep	(J) Duration of sleep	Mean Difference (I-J)	Sig.
BMI of the participants	3-6 hours	7-8 hours	-.130	.289[ns]
		>8 hours	-.573*	*.021**
	7-8 hours	3-6 hours	.130	.289[ns]
		>8 hours	-.443	.110[ns]
	>8 hours	3-6 hours	.573*	*.021**
		7-8 hours	.443	.110[ns]
* Significant at the 0.05 level.   NS- No Significance

DISCUSSION

The interpretation from **Table 1** concludes that most of the participants (n=215), were police constables (92.1%). Majorly, the respondents were female (63.3%) and were between the age group of 20-30 years (76.3%). It was observed that, majority of the participants were unmarried (62.3%). A greater number of the participants (81.4%) were found out to be receiving a monthly income of Rs.15000 to 49999.

Table 2, entails the BMI of the participants categorized based on WHO guidelines for BMI and interprets that the majority of the participants fall under the normal weight category i.e., N = 136 (63.26%). About 32 (14.88 %) of the study participants were found to be obese. Obesity-related disease complications reduce life quality and expectancy and increase health-care costs [4].

The socio demographic factors were

associated with the Body Mass Index of the respondents   using Chi-square test of independence, and the test results in **Table 3**. showed a strong significant association between age, sex, marital status and monthly income of respondents and Body Mass Index of the corresponding respondents (p=0.000).

The stress levels of the study participants were obtained using perceived stress scale. Measurement of perceived stress is often added to capture respondents' experiences of general work-related issues and overall stress in life **[5]**. Majority of police personnel (89.30%) were found to have moderate stress and (6.90 %) were found to have high stress. Thus, most of the police personnel were found to have experienced moderate to high stress.

The lifestyle related behaviours were associated with the Body Mass Index of the respondents (n=215)   and the results revealed that there was a significant association between consumption of sugar/ honey/ jaggery by the respondents and Body Mass Index of the corresponding respondents (p=0.006). Similarly, a significant association was determined between the duration of sleep and the Body Mass Index of the participants(p=0.016). While sleep serves important regulatory functions for mental health, sleep disturbances may impair brain neuroplasticity and stress immune

pathways, hence contributing to mental disorders **[6]**.

Other factors of lifestyle related behaviour exhibited least significance when associated with the BMI of the respondents.

Significant variation between groups in consumption of sugar was observed for BMI as determined by one-way ANOVA (F (2,212) = 5.852, p=0.003).

Similarly, significant variation between groups in hours of sleep and BMI was observed for BMI as determined by one-way ANOVA (F (2,212) = 4.266, p= 0.015). Statistically significant variations were observed between the treatment as the data were analyzed using Post-Hoc- Tukey's Honest Significant Difference test. The results revealed that, the BMI of the participants consists of statistically significant variation observed between participant groups consuming sugar/ honey/ jaggery rarely and those consuming sugar/ honey/ jaggery frequently (p=0.010). But no significant variance was noticed between the participant groups always consuming sugar/ honey/ jaggeryand those consuming them rarely or frequently.

Similarly, the BMI of participants, consists of statistically significant variation observed between participant groups with duration of sleep of up to 3-6 hours and those with duration of sleep>8 hours (p=0.021). But there was no significant variance between the participant groups with duration of sleep

of up to 7-8 hours and those with duration of sleep up to 3-6 hours or >8 hours.

CONCLUSION

Most of the study participants are Class II obese and their average BMI is above 35 kg/m^2. The Sugar consumption (F=5.852, p=0.003) and Duration of sleep (F=4.266, p=0.015) were found to have significant association with BMI. Stress at the workplace is a global issue faced by individuals and organizations. Police officers are considered to be one of the most stressful occupations globally [7]. The perceived stress levels of the participants indicated that 89.3% participants were moderately stressed. There is a need to provide adequate social and welfare support system for police personnel in general and particularly for those who are more prone to stressors. A relaxing, non-tensed, friendly, and comfortable working atmosphere should also be always made available to them. The education sessions on diet and health could be planned well in advance to motivate the study participants to comply with lifestyle modification. Adherence to healthy diets may modify the association between BMI and mortality [8]. Therefore, reinforcement on diet and exercise will help them to lead a healthy lifestyle.

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