LIFESTYLE PATTERN AND IMPACT OF NUTRITION EDUCATION PROGRAM ON THE KNOWLEDGE OF POLICE OFFICIALS WORKING ON SHIFT BASIS IN CHENNAI

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Abstract

This research was carried out to study the influence of shift work on diet and sleep quality of the police officials in Chennai city. Police is an inherently demanding occupation with a need for shift work system in order to provide service around the clock to meet the requirements of the society. The objectives of the study is to examine the lifestyle pattern of male and female police officials working on shift basis, to provide a profound insight into their lives, and to plan interventional strategies to promote healthy lifestyle without comprising their performance output. A sample of 200 police officials working on shift basis participated in the study. The subjective dietary assessment methods and Pittsburgh Sleep Quality Index (PSQI) were used to assess the diet and quality of sleep respectively. It was evident from the study that shift work system alters negatively the various aspects of diet and sleep thereby, serves as a risk factor for various metabolic disorders. A Nutrition Education Program was conducted to build awareness on easily adaptable and sustainable lifestyle modifications to improve their over lifestyle.

Keywords: *Police Officials, Shift Work, Pittsburgh Sleep Quality Index, Nutrition Education Program.*

Introduction

The progressing productivity of current society demands work across time zones. Thus, working shifts outside the regular working hours is prevalent in modern industrialized work places (Gordon et al., 1986). To meet the economic and societal demands of our society, it is becoming growingly necessary for employees to work outside the typical working hours. Shift work is prevailing in various industries such as food manufacturing units, entertainment, security, health care, and transportation. Thus, it has been embodied into society and not only limited to requisite services but also occurs in other goods and services production branches (Akerstedt and Wright, 2009). The matter of police scheduling is of supreme importance in achieving significant service area coverage on daily basis (Amendola et al., 2011). Thus, to meet the requirement, shift system of working in police stations is unavoidable.

While shift work is obligatory to meet many of the round-the-clock necessity of the global society, it was never without cost (Kosmadopoulos et al., 2020). Owning to the classic characteristics of shift work, the habitual diet and sleep pattern of the police officials were disrupted, further predisposing shift workers to adverse health effects in particular obesity, diabetes mellitus and cardiovascular diseases. In general, it has been exemplified that shift work is related to induce a huge spectrum of adverse health consequences, ranging from sleep disturbances to the development of obesity, hypertension, diabetes mellitus, cardiovascular, gastrointestinal, neuropsychic diseases, and also risk of cancers (AM et al., 2020) (Kosmadopoulos et al., 2020). Thus, this study brings to light the importance of quality diet and sleep which has a combined influence on the overall health status of the police officials working on shift basis.

Objectives of the Study

1. To study the dietary pattern of police officials working on shift basis in Chennai city.
2. To determine the sleep quality of the police officials using the Pittsburgh Sleep Quality Index (PSQI).
3. To weigh up the impact of nutrition education program on the knowledge and attitude of the police officials.

Materials and Methods

Police officials both men and women placed in different police departments namely Law and Order, Crime, Traffic and Armed Reserve working on shift in and around Chennai South Zone (comprising Adyar, Selaiyur and Tambaram ranges) were selected for the study. Permission to conduct the study was obtained through the administrative office of the Joint Commissioner of Police.

Tools used for the Study

Questionnaire: A well framed questionnaire utilizing Google forms as a survey administration software was employed to elicit information on the dietary habits and the modifications in the eating pattern due to shift-work of the subjects.

Dietary assessment: A Food Frequency Questionnaire and 24 hours dietary recall methods were used to assess the dietary pattern of the subjects.

Food Frequency Questionnaire yield data on the frequency of consumption of food and beverage over a specified period while 24 hours dietary recall provides an estimation of the total daily calorie intake per day.

Pittsburgh sleep quality index (PSQI): The Pittsburgh Sleep Quality Index (PSQI) is a self-administrated questionnaire that determines the quality of one's sleep over a 1-month time interval.

Nutrition Education Program: Nutrition Education Program is conducted to build awareness on the importance of diet and sleep and their impact on an individual's health and performance output. The program was delivered to the subjects using the suitable tools. The program was conducted to 30 police officials who gathered at J2 Adyar police station, Adyar, Chennai - 600020.

The Audio Visual Aids used for the Nutrition Education Program were Power Point presentation highlighting the importance of lifestyle modifications, healthy diet and sleep pattern for shift workers and a pamphlet was distributed containing information focusing on possible lifestyle modifications that could be adopted by the police officials.

A quiz was conducted before the education program and after the education program to assess the knowledge gained by the subjects.

Results and Discussion

The study consisted of 200 police officials out of which a majority of the subjects 73.5 per cent of police officials were male while 26.5 per cent were female. It is evident that because of the challenges faced in this job more men are employed than women.

Table 1 Age of the Subjects N=200

Age group (years)	Number	Per cent
20 – 40 years	143	71.5
40 – 60 years	57	28.5
Above 60 years	0	0

A majority of the police officials, 71.5 per cent of them falls between the age group of 20 – 40 years while 28.5 per cent falls between the age group of 40 - 60 years.

Table 2 Meal Consumption Pattern of the Police Officials Working on Shift N=200

Number of meals consumed in a day	Number	Per cent
1 meal	27	13.5
2 meals	52	26
3 meals	121	60.5
More than 3 meals	0	0
Frequently skipped meal in a day		
Breakfast	151	75.5
Lunch	36	18
Dinner	13	6.5
Reason for skipping meals		
No time to cook	11	5.5
I have food but, no time to eat	77	38.5
Work load	46	23
Stress	10	5
No appetite	10	5

To reduce weight (Obesity)	27	13.5
Habitual	19	9.5

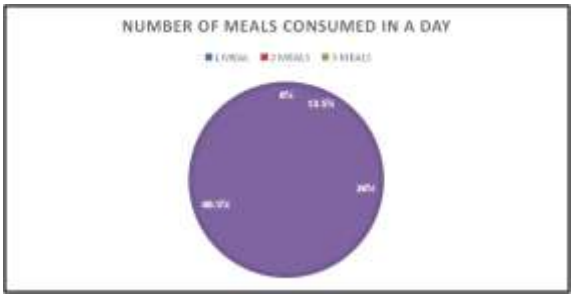

Figure 1 Number of Meals Consumed in a Day by the Police Officials

It is evident that a higher number, 60.5 per cent of police officials consumed three meals per day, 26 per cent of the officials consumed two meals per day while 13.5 per cent of the officials consumed only one meal per day.

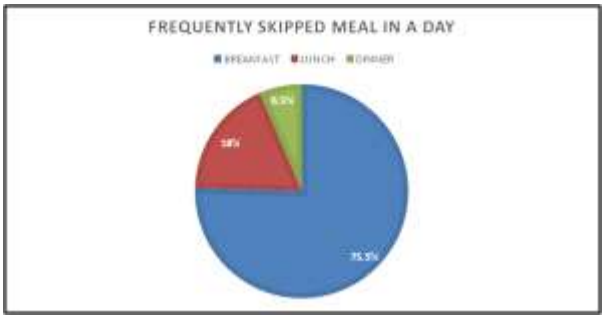

Figure 2 Frequently Skipped Meal in a Day

Three fourth (75.5 per cent) of police officials skipped their breakfast frequently than any other meal of the day. 18 per cent of the police officials skipped their lunch while 6.5 per cent of the subjects skipped their dinner frequently.

Figure 3 Reason for Skipping Meals

The various reasons stated by the police officials for skipping meals were, 38.5 per cent of police officials have responded, "I have food but, no time to eat", 13.5 per cent have responded, "to reduce weight", 23 per cent have responded, "workload", 9.5 per cent responded, "it is a habit" while 5 per cent of the subjects responded, " due to stress" and "lack of appetite" as their main reason for skipping meals.

The change in the work time and lack of sleep due to shift work could be the main reason for improper dietary habit among the police officials.

Table 3 Frequency of Consuming Food Outside during Night Shifts N=200

Frequency of consuming food outside	Number	Per cent
Everyday	34	17
Twice a week	35	17.5
More than twice a week	81	40.5
Rarely	49	24.5
Never	1	0.5

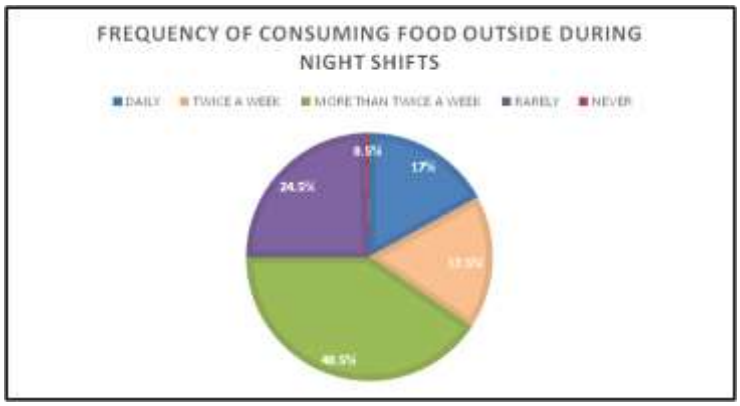

Figure 4 Frequency of Consuming Food Outside During Night Shifts

It is evident from the Table, that close to half (40.5 per cent) of police officials were consuming outside food more than twice a week, nearly one fourth of the subjects (24.5 per cent) rarely consumed food outside, while 17 and 17.5 per cent of police officials were consuming outside food daily and twice a week respectively. Only 0.5 per cent of the official never consumed food outside.

Police officials preferred to consume food outside because of shift work.

Table 4 Nutrient in take of the Police Officials

Group	Category	Nutrients	RDA	Actual intake	Per cent*
Men	Sedentary work (N=147)	Energy (Kcal/d)	2320	2638	+13
		Protein (g/d)	60.0	58.20	-3.04
		Fat (g/d)	25	44.96	+57.06
		Iron (mg/d)	17	16.044	-6
		Calcium (mg/d)	600	531.29	-12.14
Female	Sedentary work (N=53)	Energy (Kcal/d)	1900	2218	+15.4
		Protein (g/d)	55.0	43.22	-24
		Fat (g/d)	20	24.98	+22.14
		Iron (mg/d)	21	20.3	-3.38
		Calcium (mg/d)	600	523.12	-14

***Excess or deficit in the intake of nutrients expressed in per cent.**

RDA: National Institute of Nutrition, ICMR.

Based on the reported data of dietary assessment, both male and female police officials belonged to sedentary lifestyle and it was noted that, both male and female officials had excess energy and fat intake than the RDA while protein intake was less than the RDA. Iron and calcium intake fell short of the daily requirement.

Table 5 Quality of Sleep
Pittsburgh Sleep Quality Index (PSQI)

Quality of sleep - Scores based on PSQI		Number	%
Good sleep	**<5**	34	17
Poor sleep	**>5**	166	83

The sleep quality of the officials was assessed using a standard tool (Pittsburgh Sleep Quality Index) after obtaining prior permission. The tool consists of seven components pertaining to sleep (Subjective sleep quality, Sleep latency, Sleep duration, Habitual sleep efficiency, Sleep disturbances, Use of sleeping medication and daytime dysfunction)

From the data collected and compiled, it is observed that a high majority, 83 per cent of police officials reported to have Poor sleep or were sleep deprived due to the shift work pattern while only 17 per cent of the officials had a good sleep.

Nutrition Education Programme

Table 6 Mean Pre-Test and Post-Test Scores of the Nutrition Education Programme

Score	Mean ± S.D	t value	Level of significance (per cent)
Pre – test scores	4.3 ± 1.6	1.68	2
Post – test scores	7.3 ± 1.2		

The nutrition education program was conducted to a smaller group of the officials highlighting the importance of lifestyle modifications, healthy diet and sleep pattern for shift workers that could be adopted by the police officials. A pre-test post-test quiz was used to evaluate the knowledge gained by the officials. From the table, it can be inferred that there was a significant (2 per cent) difference

between the pre-test and post-test scores, which indicates that the nutrition education program was beneficial to the officers who participated in it.

Conclusion

On grounds of the demanding service of police officials to the society, spontaneous and flexible alterations in shift work system has always been very challenging. Thus, in order to address this situation, careful understanding of one's shift work schedule is important to incorporate applicable dietary habits depend on their schedule. Awareness on the influence of shift work on overall health status is important. Keeping the findings of the study as base, a nutrition education program was conducted with an aim of creating awareness to the shift workers on healthy balanced diet, meal recommendations during night shift, meal timing, more desirable snack and beverage options, significance of physical activity and better sleeping habits.

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