

## PREVALENCE AND ASSESSMENT OF MENTAL STRESS IN POLICE PERSONNEL AS AN OCCUPATIONAL HAZARD

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### ABSTRACT

**Aim:** To assess mental stress as occupational health hazard in police personnel. **Objectives:**

- i) To study in detail about psycho galvanometer.
- ii) To study mental stress as an Ayurvedic review and modern perspectives
- iii) To study Man and mind in both Ayurvedic and Modern Perspectives.

**Method:** Observational survey study conducted on 150 participants. This whole study includes all Police personnel so the source of collection of the police personnel was from police head quarter Pune. The study was carried out to analyze prevalence of mental stress in police personnel of pune police head quarter. The police personnel were selected using cluster sampling method. **Result:** Out of 150 Participants, moderate stress was observed on maximum participants

of 116 (77.33%) by using ISMA Questionnaire and 97(64.67%) participants were having moderate stress by using G.S.R (psycho-galvanometer). It was observed that there was direct statistical relationship between stress and nidra, khalitya while there was no any direct statistical relationship between stress and shirashool and Aruchi. **Statistical Analysis:** The present survey along with the statistical analysis and interference shows occupational stress is moderately observed in Police Personnel and hence appropriate measures should be implemented to tackle such occupational related hazards. **Conclusion:**

1. Occupational stress has become a common and costly health problem. Stress and its impact on mental health and physical health of police personnel are not addressed adequately by the concerned authorities and health professionals in India.
2. In the present observational study police personnel were selected using cluster sampling method. 150 police personnel were selected randomly and observed stress by using International Stress Management Association's questionnaire (25 questions) and psychogalvanometer.
3. By using questionnaire it was found out that out of 150 participants, maximum participants of 116(77.33%) have moderate stress and by using psychogalvanometer, it was observed that maximum participants of 97(64.67%) shows moderate stress (200-300 ohms).
4. In the present study due to occupation stress, it was observed that there is direct statistical relationship between stress and khalitya, nidra & no relationship of stress between headache and aruchi.
5. Thus, the present study shows that occupational stress is commonly observed in police personnel; hence appropriate measures are to be implemented to tackle such occupation related hazards.

**KEYWORDS:** Mental stress, Manas, Occupation-Police personnel, Questionnaire.

## INTRODUCTION

In this present era, life style is changing rapidly and it is becoming faster and more techno savvy and the time to relax is decreasing. Hence, a person is over worked & stressed. This in turn leads to physical & mental uneasiness, which again leads to stress and its related problems.

The widely accepted definition of health is that given by W.H.O. in 1948 in preamble to its constitution which is as follows "Health is state of complete physical mental and social well-being and not merely an absence of disease or infirmity." This statement clearly signifies importance of mental health along with physical and social well-being.

Mental health is not mere absence of mental illness. Good mental health is ability to respond to the many varied experiences of life with flexibility and the sense of purpose. More recently mental health has been defined as a state of balance between the individual and the

surrounding world, a state of harmony between oneself and others, a co- existence between realities of the self and that of other people and that of environment.

Ayurveda defined health of a person as health to physical body and mind together. Health means balance, harmony and equilibrium in all the physiological activities of body and mind. Our body is composed of tridoshas, tissues and wastes (dosha-dhatu and mala). The activities of all these elements require the strength of digestive fire (Agni). Co-ordinated activities of all these elements give the alertness of senses, which leads to freshness of mind. This harmonious situation gives us pleasure and eternal happiness to soul.

Balanced state of tridoshas, tissues and waste products will keep up the physiological activities of the body. But for the complete health balance at the stable level is also required to our sensory and motor organs should be alert and active, mind should be well co-ordinated, cheerful and fresh and the soul should experience the eternal happiness.

Tridoshas, Dhatu and Mala get nourishment from the food. One should also take the care of sensory organs by following simple daily rituals like oil massage for skin; putting oil drops in nose and ear, collyrium (eye ointment prepared from ghee) for the eyes. Similarly, one should be very careful about the use of our senses. Contact of senses with the sensory objects, should be optimal and not too much, too less or perverted. Proper cleanliness of sensory organs is also essential to keep our senses alert and active.

Imbalance in the functions of Doshas, Dhatus, Mala and Indriyas disturb the mind. Mental upset is also due to excessive agitation (rajas) or ignorance (tamas). This happens because of undue ambitions, hatred, jealousy, anxiety and fear. To prevent this one must follow ethical code of conduct. Many times mental health is neglected and that is why in evening apparently healthy looking individuals, we find many psychological imbalances. In the present era, mental stress is common. This stress cause many physical problems like hypertension, hyperacidity, arthritis etc.

Some decade ago, a mind and body were considered as independent entities. However, researchers have discovered that psychological factors can include all kinds of illness, not simple mental ones. They include condition such as essential hypertension, peptic ulcers and bronchial asthma. Some major mental illnesses such as depression and Schizophrenia have biological component. The underlying inference is that there is a behavioral psychological or

biological dysfunction and a disturbance in the mental equilibrium is not merely in relationship between the individual and the society.

Although, mental health is an essential component of health, the scientific foundations of mental health are not yet clear. Therefore, we do not have precise tool to assess the state of mental health unlike physical health. Psychologist has mentioned the following characteristics as attribute of a mentally healthy person:

- A mentally healthy person is free from internal conflicts; he is not at “war” with himself.
- He is well adjusted, i.e., he is able to get along well with others. He accepts criticism and not easily upset.
- He searches for identity
- He has strong sense of self-esteem.
- He knows himself, his needs, problems and goals
- He has good self-control- balances rationality and emotionality
- He faces problems and tries to solve them intelligently, i.e., coping with stress and anxiety.

Assessment of mental health at the population level may be made by administering mental status questionnaires by trained interviewer. The most commonly used questionnaires seek to determine the presence and extent of organic disease and of symptoms that could indicate psychiatric disorders; some personal assessment of mental well-being is also made. The most basic decision to be made in assessing mental health is whether to assess mental functioning that is the extent to which cognitive or affective impairments impede role performance and subjective life quality, or psychiatric diagnosis.

Three levels of health promotion programme include awareness, lifestyle change and supportive environment. Occupational stress is related to one’s job. It often stems from unexpected responsibilities and pressures that do not align with person’s knowledge, expectations and inhibiting one’s ability to cope. Occupational stress can increase when workers do not feel supported by supervisor or other staff.

In Ayurveda the term “Stress” is not defined individually but it is due to the dushti of Raja and Tama gunas related to Manovaha Srotas and can be given a relation with Manasik Bhava. Due to the dushti of this Manovaha Srotas, there can be symptoms like Bhaya, Krodha, Shoka, Moha, Lobha, Chinta etc which leads to mental stress i.e. Manasik Bhava. Vayu i.e

Vata also plays an important role in the dushti of this Manovaha Srothas. When Vayu gets vitiated, it affects the Mana, which in turn affects the Manovaha Srotas and the above mentioned symptoms occur.

Law enforcement is an occupation with some peculiar characteristics that can cause work stressors, and policing job is one of the most stressful. The reasons for stress are many - negative working environment, long duration of working hours, lack or lesser time for family, irregular or improper eating habits, need to take tough decisions very quickly, sleepless nights, poor living and working conditions, issues with seniors, inadequate time for leisure activities, difficulties in personal life etc. The police personnel are one of the few professionals where people are expected to face physical dangers and, if necessary, to risk their lives as well as face significant stress in many other aspects.

Occupational stress is associated with a number of adverse organizational outcomes and many studies consistently found that the higher levels of job stress lead to lower levels of job satisfaction. This finding has important implications for any kind of organization especially police, because job satisfaction has been shown to predict poorer levels of commitment, outcome, and an increased likelihood of resigning from the work. Stress among policemen may present in the forms of fatigability, depression, difficulty to concentrate, irritability, impulsive behaviour, etc. Stress also has a negative impact on the physical health, and both physical and mental illness make the employee unfit for work, and it impacts job satisfaction and reduces work performance.

Occupational stress has become a common and costly health problem. Stress and its impact on mental health and physical health of police personnel are not addressed adequately by the concerned authorities and health professionals in India. The current study focused on two different types of stresses in police personnel, i.e. operational and organizational stress. Operational stress means the stress associated with doing the job and organizational stress is the stress associated with the organizational culture within which the job is performed in both male and female police officers.

### **Need for study**

The present study examines police personnel, whose occupation is generally perceived as highly stressful. The mental stress caused by daily living or working situations may lead to

various minor and major health problems and subsequent changes in job performance and quality of life.

Hence, this study was undertaken to assess the level of stress among police personnel and to find the association of specific factors with the level of stress among police personnel

### **AIM AND OBJECTIVES**

**Aim:** To assess mental stress as occupational health hazard in police personnel.

#### **Objectives**

- i) To study in detail about psycho galvanometer.
- ii) To study mental stress as an Ayurvedic review and modern perspectives
- iii) To study Man and mind in both Ayurvedic and Modern Perspectives

#### **Hypothesis**

Mental stress as an occupational hazard is significant in police personnel.

#### **Null Hypothesis**

Mental stress as an occupational hazard is not significant in police personnel.

### **MATERIALS AND METHODS**

This chapter gives the detailed information about

- a. *Type of Study*
- b. *Sample size*
- c. *Collection of Data*
- d. *Subjective and Objective Parameters*

Mentally stressed police personnel were evaluated completely by questionnaire and GSR meter (Galvanic Skin resistance). Tools used for study was

Questionnaire –Open and Attached

Interview –Individual & Tests, Scales.

Type of study –Observational survey study.

Sample Size – This study includes 150 Police personnel.

Collection of Data –This whole study includes all Police personnel so the source of collection of the police personnel was from police head quarter pune.

## **METHODOLOGY**

An observational study to analyze prevalence of mental stress in police personnel of pune police head quarter was carried out. The police personnel was selected using cluster sampling method.

### **Selection criteria**

#### **Inclusion**

Personnel who are age group of 30 to 58 years was included.

Police personnel available at the time of visit only were selected.

Police personnel irrespective of sex, religion, socio economical status was included.

#### **Exclusion**

Personnel who was not passed or who was below the mark in questionnaire.

A personnel suffering from any systemic disorder was excluded.

Personnel who was below the age of 30 years and above age of 58 years.

Pregnant police personnel was excluded.

### **Parameters**

#### **Objective parameters**

Actual readings of the G.S.R were recorded.

Standardized questionnaire to evaluate mental Stress was used.

#### **Criteria for assessment of stress.**

Mental stress questionnaire (25 questions)

4 points or less- Mild stress

5-13 points - moderate stress

14 or more - severe stress

## Isma Questionnaire

Sr no	Questionnaire	Yes	No
1	I FREQUENTLY BRING WORK HOME AT NIGHT		
2	NOT ENOUGH HOURS IN THE DAY TO DO ALL THINGS THAT I MUST DO		
3	I DENY OR IGNORE PROBLEMS IN THE HOPE THAT THEY WILL GO AWAY		
4	I DO THE JOBS MYSELF TO ENSURE THEY ARE DONE PROPERLY		
5	I UNDERESTIMATE HOW LONG IT TAKES TO DO YHINGS		
6	I FEEL THAT THERE ARE TO MANY DEADKINES IN MY WORK OR LIFE THAT ARE DIFFICULT TO MEET		
7	MYSELF CONFIDENCE OR SELFIESTEM IS LOWER THAN I WOULD LIKE IT TO BE		
8	I FREQUENTLY HAVE GUILTY FEELING IF I RELAX AND DO NOthings		
9	I FIND MYSELF THINKING ABOUT PROBLEMS EVEN WHEN I AM SUPPOSE TO BE RELAXING		
10	I FEEL FATIGUE OR TIRED WHEN I WAKE UP AFTER AND ADEQUATE SLEEP		
11	I OFTEN NODE OR FINISH OTHER PEOPLE SENTENSES WHEN THEY SPEEK SLOWELY		
12	I HAVE TENDENCY TO EAT TALK WALK AND DRIVE QUICKLY		
13	MY APPETITE HAS BEEN CHANGE HAS EITHER DESIRE TO BRING OR HAVE LOSS OF APPETITE OR MAT SKIP MEALS.		
14	I FEEL IRRITATED OR ANGRYIF CAR OR TRAFFIC IN FRONT SEEMS TO BE GOING TOO SLOWELY OR I BECAME VERT FRUSTATED AT HAVING TO WAIT QUEUE		
15	IF SOMETHING OR SOMEONE REALLY ANNOYS ME I WILL BOTTLE UP MY FEEKINGS.		
16	I HAVE PLAY SPORTS OR GAMES I REALLY TRY TO WIN WHOEVERI PLAY		
17	I EXPERIENCE MOOD SWING, DIFFICULTY IN MAKING DECISIONS, CONCENTRATION AND MEMORY IS IMAPIRED		
18	I FIND FOULD AND CRITICIZED OTHER RATHER THAN PRAISING, EVEN IF IT IS DESERVED		
19	I SEEN TO BE LISTENING EVEN THOUGH I AM PRE OCCUPIED WITH MY THOUGHTS		
20	MY SEX DRIVE LOWER CAN BE EXPERIENCES CHANGES TO MENSTRUAL CYCLE		
21	I FIND MY GRINDING MY TEETH		
22	INCREASING MUSCULAR ACHES AND PAIN SPECIALLY IN NECK, HEAD, LOWER BACK AND SHOULDER		
23	I AM ENABLE TO PERFORM TASK AS WELL AS I USE TO MY JUDGEMENT IS CLOUDED OR NOT AS GOOD AS IT WAS		
24	I FIND I HAVE GREATER DEPENDENCY ON ALCOHOL, CIGARETTES, NICOTIN OR DRUGS		
25	I FIND THAT I DON'T HAVE TIME FOR ANY INTEREST OR HOBBIES OUTSIDE OF WORK		

**Measurement of psycho galvanometer**

Score of G.S.R. in ohms

Grade 1 = 100-200 ohms severe stress (High)

Grade 2 = 200-300 ohms moderate stress (medium)

Grade 3 = 300 onwards mild stress (low)

**Subjective parameters****Nidra (sleeping hours)**

Normal sleep for 7 – 8 hrs / night	-----	0
Sleep for 5 – 6 hrs / night	-----	1
Sleep for 4 – 5 hrs / night	-----	2
Sleep for 3 – 4 hrs / night	-----	3

**Khalitya (hair fall)**

No hair fall	-----	0
Hair fall noticed only while combing in morning	-----	1
Hair fall always during combing	-----	2
Visible baldness	-----	3

**Headache**

Absent	-----	0
Present	-----	1

**Aruchi**

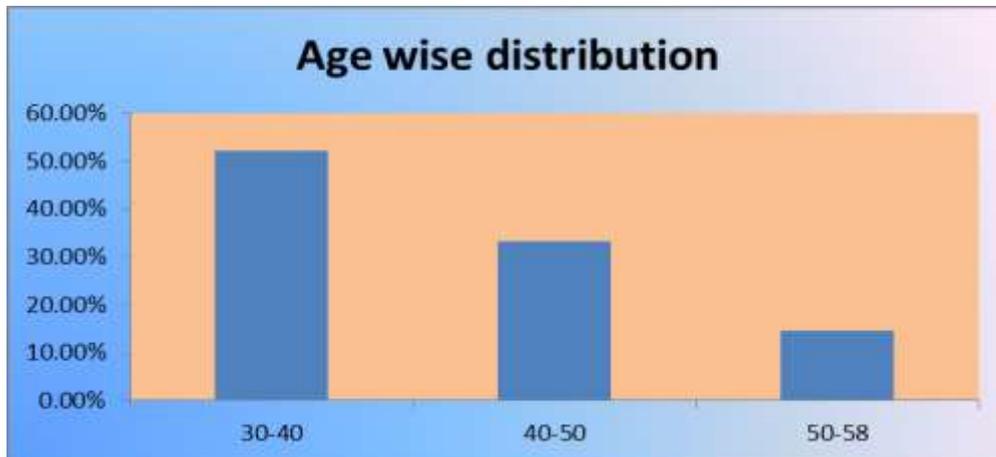
Normal	-----	0
Tastelessness	-----	1
Mistaken taste	-----	2

**Observations and Statistical Analysis***Analysis of demographic variables.*

### 1. Age-wise distribution

Following is the table and graph of mental stress according to their age.

Age Group	Count	Percentage
30-40	78	52.00%
40-50	50	33.33%
50-58	22	14.67%
Total	150	100.00%

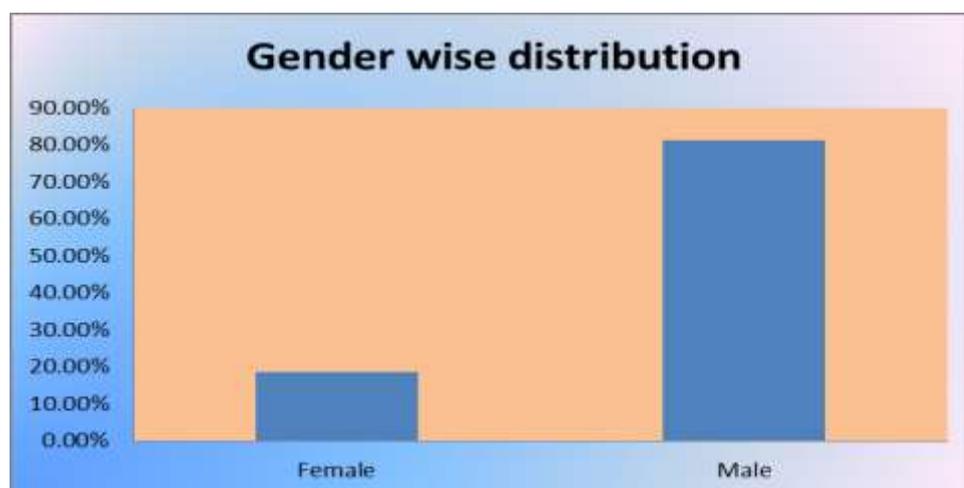


**Observation:** From above table and graph, we seen that the percentage of mental stress in the age group 30-40 yrs. is more than any other age group and it is 52%.

### 2. Gender-wise distribution

Following is the table and graph of mental stress according to their gender.

Gender	No. of patients	Percentage
Female	28	18.67%
Male	122	81.33%
Total	150	100.00%



**Observation:** From above table and graph, we seen that the percentage of mental stress in male is 81.33% and that of female is 18.67%.

### 3. Occupation distribution

Following is the table and graph of mental stress according to their designation.

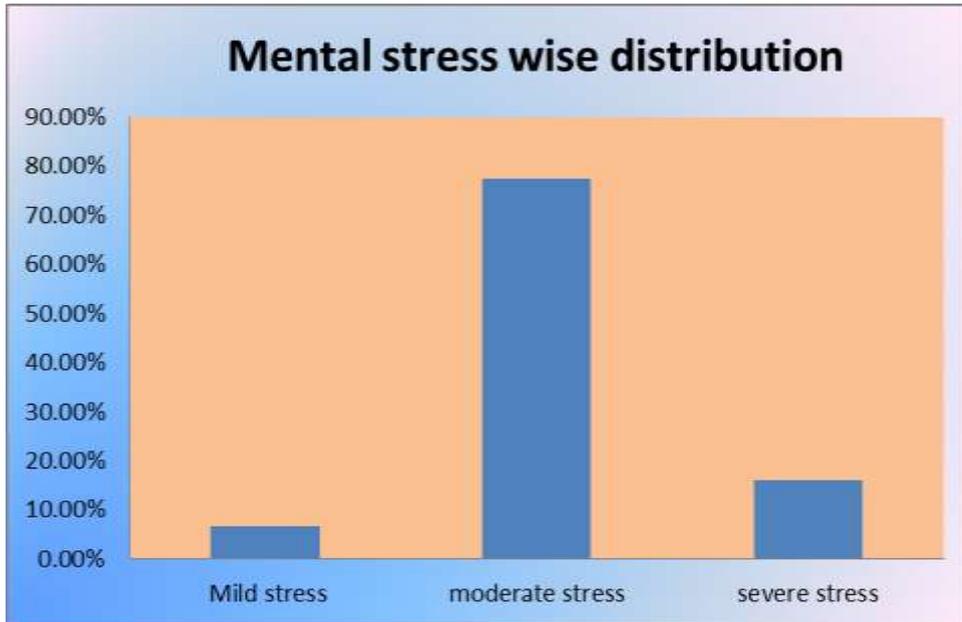
Designation	Count	Percentage
Police Constable	47	31.33%
Police Head Constable	17	11.33%
Police Naik	36	24.00%
Police Sub Inspector	16	10.67%
Senior Police Constable	27	18.00%
Senior Police Naik	7	4.67%
Total	150	100.00%



**Conclusion:** From above table and graph, we seen that maximum i.e. 31.33% respondents who were police constable.

### 4. Mental stress (Using Questionnaire)

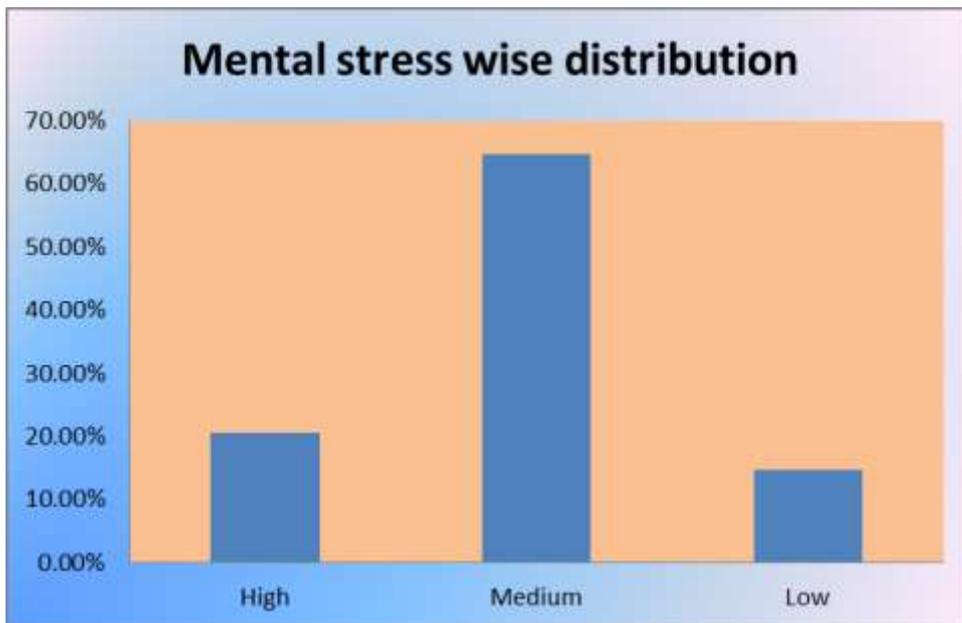
Mental stress	No of patients	Percentage
Mild stress	10	6.67%
moderate stress	116	77.33%
severe stress	24	16.00%
Total	150	100.00%



From Mental stress questionnaire in 77.33% no. of patients moderate stress were found.

**5. Mental stress (Using psycho galvanometer)**

Mental stress	No of patients	Percentage
High	31	20.67%
Medium	97	64.67%
Low	22	14.67%
Total	150	100.00%



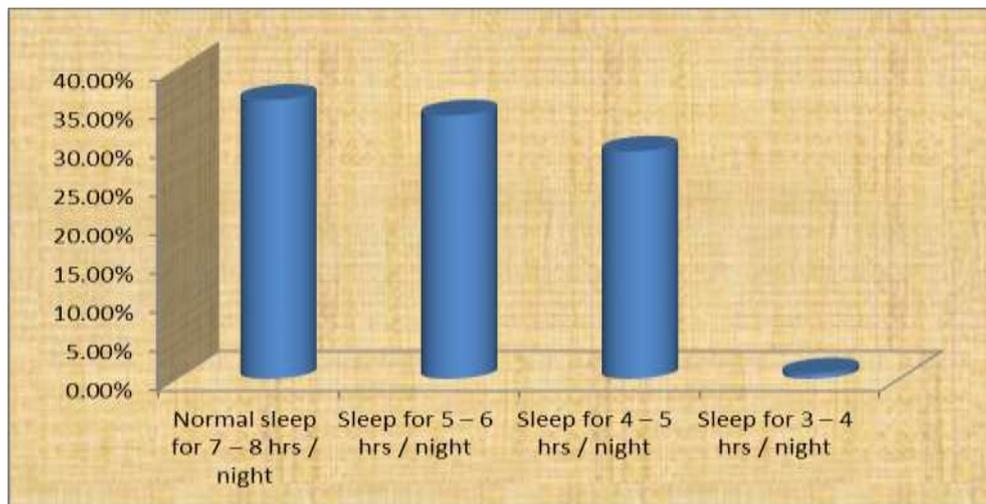
If mental stress measurement taken by using psycho galvanometer we found that in 64.67% no. of patients medium stress were found.

### To associate mental stress in police personnel with demographic variables

#### 1) Nidra

- Age

Age	30-40	40-50	50-58	Total	Percentage
Normal sleep for 7 – 8 hrs / night	34	15	5	54	36.00%
Sleep for 5 – 6 hrs / night	29	13	9	51	34.00%
Sleep for 4 – 5 hrs / night	15	22	7	44	29.33%
Sleep for 3 – 4 hrs / night	0	0	1	1	0.67%
Total	78	50	22	150	100.00%



$H_0$  = Nidra is independent on age in mental stress of police personnel.

$H_1$  = Nidra is dependent on age in mental stress of police personnel.

Following is the table of result chi square test.

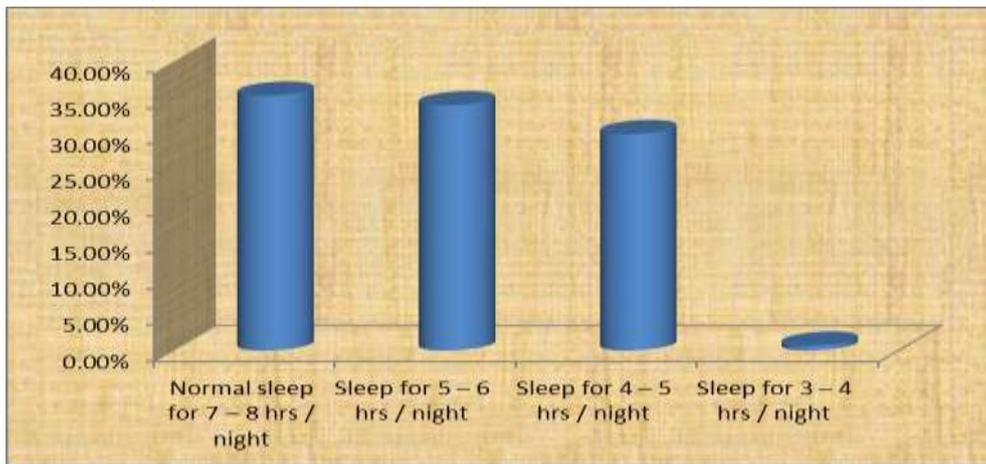
Test-Statistic	P-value	Decision
18.8801	0.025	Reject $H_0$

**Conclusion:** From above table, as P-value were less than 0.05 we reject the null hypothesis ( $H_0$ ). We conclude that, Nidra is dependent on age in mental stress of police personnel.

It is possible because most of police in between 30-40yrs i.e. in young generation had more duties in night shift.

- Gender

Gender	Male	Female	Total	Percentage
Normal sleep for 7 – 8 hrs / night	47	7	54	35.33%
Sleep for 5 – 6 hrs / night	33	18	51	34.00%
Sleep for 4 – 5 hrs / night	41	3	44	30.00%
Sleep for 3 – 4 hrs / night	1	0	1	0.67%
Total	122	28	150	100.00%



$H_0$  = Nidra is independent on Gender in mental stress of police personnel.

$H_1$  = Nidra is dependent on Gender in mental stress of police personnel.

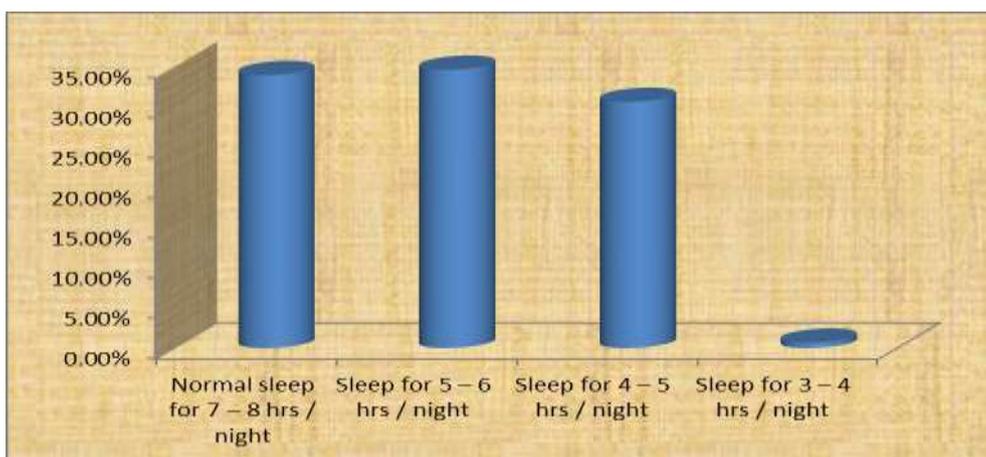
Following is the table of result chi square test.

Test-Statistic	P-value	Decision
14.23425	0.002603	Reject $H_0$

**Conclusion:** From above table, as P-value is less than 0.05 we reject the null hypothesis ( $H_0$ ). We conclude that, Nidra is dependent on gender in mental stress of police personnel. It is possible because most of male police had more duties in night shift.

• Occupation

Designation	Police Constable	Police Head Constable	Police Naik	Police Sub Inspector	Senior Police Constable	Senior Police Naik	Total	percentage
Normal sleep for 7 – 8 hrs / night	15	6	15	4	12	2	54	34.00%
Sleep for 5 – 6 hrs / night	11	5	12	7	13	3	51	34.67%
Sleep for 4 – 5 hrs / night	21	6	9	4	2	2	44	30.67%
Sleep for 3 – 4 hrs / night	0	0	0	1	0	0	1	0.67%
Total	47	17	36	16	27	7	150	100.00%



$H_0$  = Nidra is independent on occupation in mental stress of police personnel.

$H_1$  = Nidra is dependent on occupation in mental stress of police personnel.

Following is the table of result chi square test.

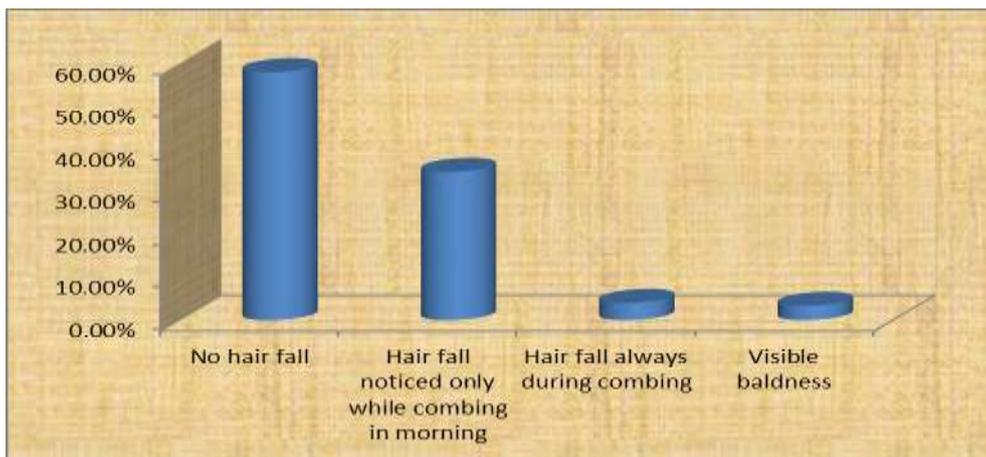
Test-Statistic	P-value	Decision
26.914	0.0294	Reject $H_0$

**Conclusion:** From above table, as P-value is less than 0.05 we reject the null hypothesis ( $H_0$ ). We conclude that, Nidra is dependent on occupation in mental stress of police personnel. Hence we conclude that lower post police have less sleeping hrs than other. Overall Conclusion on nidra: time for sleeping decreases mental stress increases in police personnel.

2) *Khalitya*

- Age

Age	30-40	40-50	50-58	Total	percentage
No hair fall	50	28	9	87	58.00%
Hair fall noticed only while combing in morning	25	20	7	52	34.67%
Hair fall always during combing	3	2	1	6	4.00%
Visible baldness	0	0	5	5	3.33%
Total	78	50	22	150	100.00%



$H_0$  = khalitya is independent on age in mental stress of police personnel.

$H_1$  = khalitya is dependent on age in mental stress of police personnel.

Following is the table of result chi square test.

Test-Statistic	P-value	Decision
32.282	0.0001	Reject $H_0$

**Conclusion:** From above table, as P-value were less than 0.05 we reject the null hypothesis ( $H_0$ ). We conclude that, khalitya is dependent on age in mental stress of police personnel. As age increases khalitya increases.

• **Gender**

Gender	MALE	FEMALE	Total	percentage
No hair fall	77	10	87	58.00%
Hair fall noticed only while combing in morning	37	15	52	34.67%
Hair fall always during combing	3	3	6	4.00%
Visible baldness	5	0	5	3.33%
Total	122	28	150	100.00%



$H_0$  = khalitya is independent on Gender in mental stress of police personnel.

$H_1$  = khalitya is dependent on Gender in mental stress of police personnel.

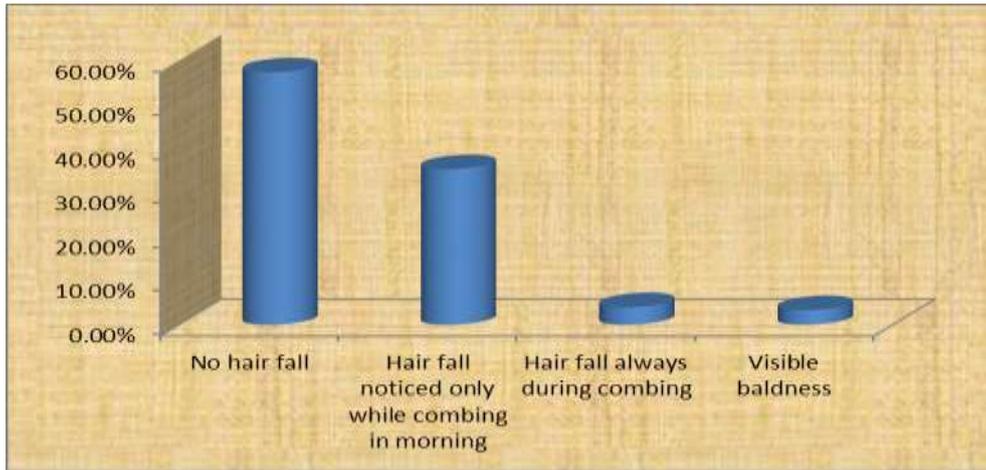
Following is the table of result chi square test.

Test-Statistic	P-value	Decision
14.23425	0.002603	Reject $H_0$

**Conclusion:** From above table, as P-value is less than 0.05 we reject the null hypothesis ( $H_0$ ). We conclude that, khalitya is dependent on gender in mental stress of police personnel. Male mental stress police personnel have more khalitya than female.

• **Occupation**

Designation	Police Constable	Police Head Constable	Police Naik	Police Sub Inspector	Senior Police Constable	Senior Police Naik	Total	percentage
No hair fall	32	7	16	7	23	2	87	57.33%
Hair fall noticed only while combing in morning	13	6	18	8	3	4	52	35.33%
Hair fall always during combing	2	1	2	0	1	0	6	4.00%
Visible baldness	0	3	0	1	0	1	5	3.33%
Total	47	17	36	16	27	7	150	100.00%



$H_0$  = khalitya is independent on occupation in mental stress of police personnel.

$H_1$  = khalitya is dependent on occupation in mental stress of police personnel.

Following is the table of result chi square test.

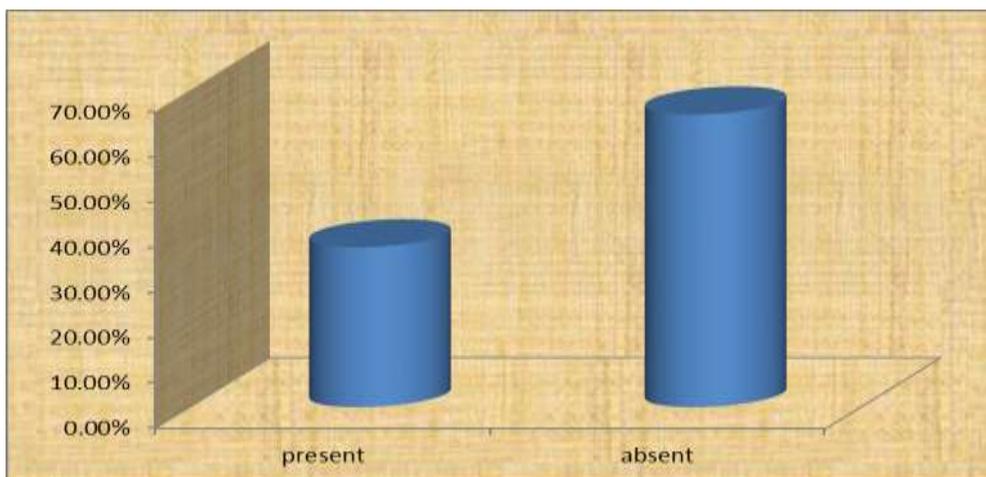
Test-Statistic	P-value	Decision
33.489	0.004	Reject $H_0$

**Conclusion:** From above table, as P-value is less than 0.05 we reject the null hypothesis ( $H_0$ ). We conclude that, khalitya is dependent on occupation in mental stress of police personnel. Overall Conclusion on khalitya: As mental stress in police personnel increases khalitya increase.

3) Headache

- Age

Age	30-40	40-50	50-58	Total	percentage
present	33	13	7	53	35.33%
absent	45	37	15	97	64.67%
Total	78	50	22	150	100.00%



$H_0$  = headache is independent on age in mental stress of police personnel.

$H_1$  = headache is dependent on age in mental stress of police personnel.

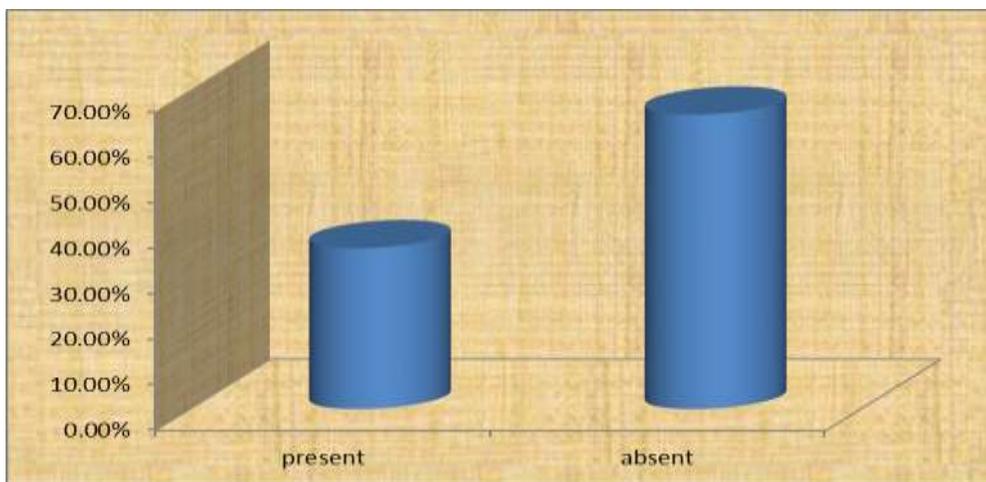
Following is the table of result chi square test.

Test-Statistic	P-value	Decision
0.15836	0.9239	Accept $H_0$

**Conclusion:** From above table, as P-value were less than 0.05 we accept the null hypothesis ( $H_0$ ). We conclude that, headache is independent on age in mental stress of police personnel.

• **Gender**

Gender	Female	Male	Total	percentage
present	9	44	53	35.33%
absent	19	78	97	64.67%
Total	28	122	150	100.00%



$H_0$  = headache is independent on Gender in mental stress of police personnel.

$H_1$  = headache is dependent on Gender in mental stress of police personnel.

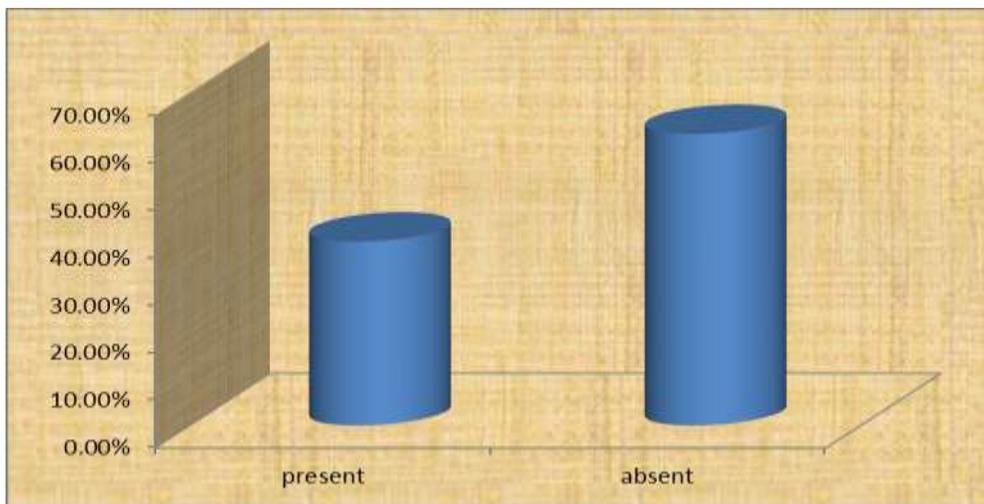
Following is the table of result chi square test.

Test-Statistic	P-value	Decision
0.695337	0.404355	Accept $H_0$

**Conclusion:** From above table, as P-value is greater than 0.05 we accept the null hypothesis ( $H_0$ ). We conclude that, headache is independent on gender in mental stress of police personnel.

- Occupation

Designation	Police Constable	Police Naik	Police Head Constable	Senior Police Naik	Police Sub Inspector	Senior Police Constable	Total	percentage
Present	16	12	6	3	5	11	53	38.67%
Absent	31	24	11	4	11	16	97	61.33%
Total	47	36	17	7	16	27	150	100.00%



$H_0$  = headache is independent on occupation in mental stress of police personnel.

$H_1$  = headache is dependent on occupation in mental stress of police personnel.

Following is the table of result chi square test.

Test-Statistic	P-value	Decision
0.2116	0.99898	Accept $H_0$

**Conclusion:** From above table, as P-value is greater than 0.05 we accept the null hypothesis ( $H_0$ ). Conclude that, headache is independent on occupation in mental stress of police personnel. Overall Conclusion on Headache: Headache in police personnel does not depend on mental stress.

#### 4) Aruchi

- Age

Age	30-40	40-50	50-58	Total	Percentage
Normal	50	33	13	96	64.00%
Tastelessness	27	17	9	53	35.33%
Mistaken taste	1	0	0	1	0.67%
Total	78	50	22	150	100.00%



$H_0$  = aruchi is independent on age in mental stress of police personnel.

$H_1$  = aruchi is dependent on age in mental stress of police personnel.

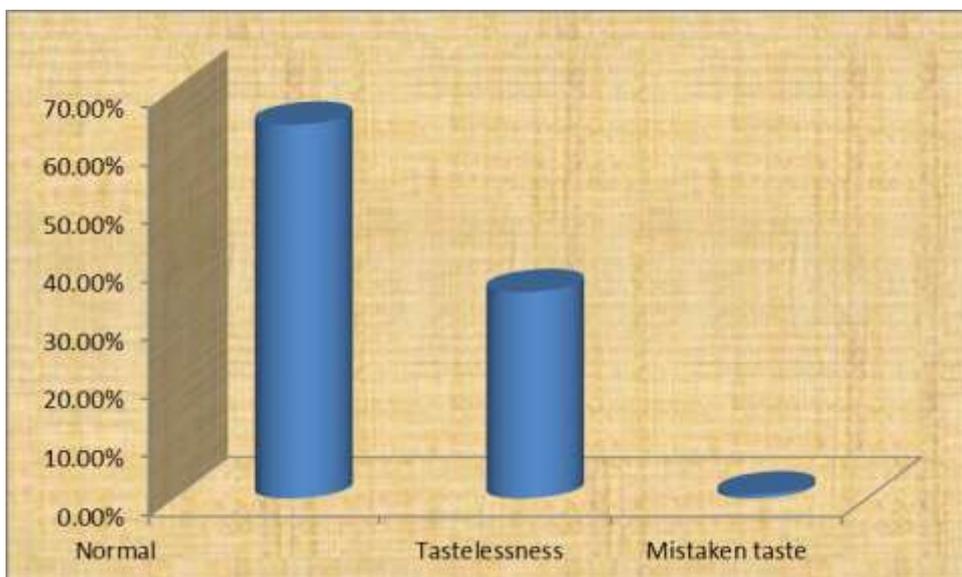
Following is the table of result chi square test.

Test-Statistic	P-value	Decision
1.835	0.93	Accept $H_0$

**Conclusion:** as P-value is greater than 0.05 we accept the null hypothesis ( $H_0$ ). conclude that, aruchi is independent on age in mental stress of police personnel.

• Gender

Gender	Female	Male	Total	percentage
Normal	15	81	96	64.00%
Tastelessness	13	40	53	35.33%
Mistaken taste	0	1	1	0.67%
Total	28	122	150	100.00%



$H_0$  = aruchi is independent on Gender in mental stress of police personnel.

$H_1$  = aruchi is dependent on Gender in mental stress of police personnel.

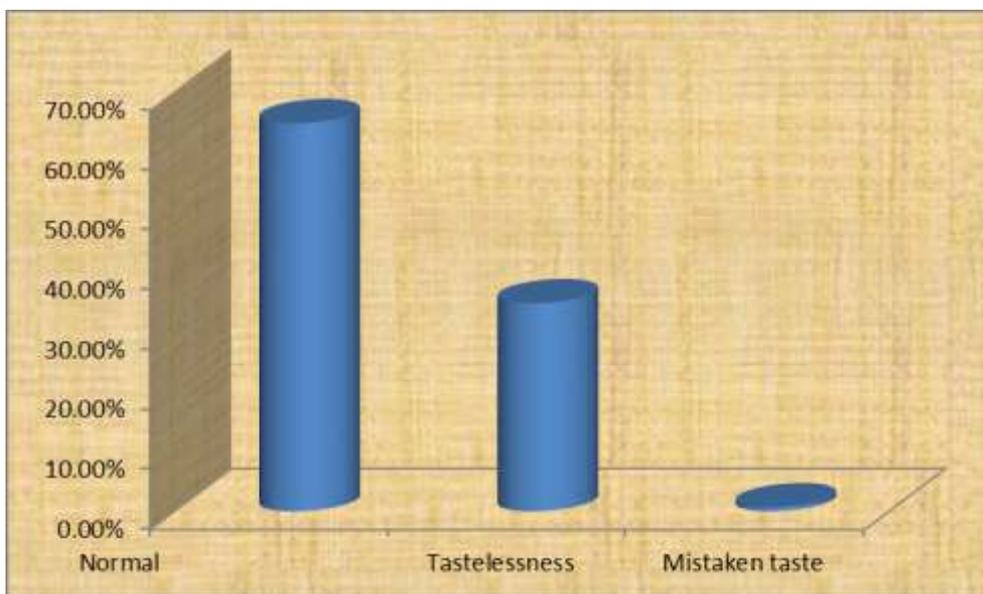
Following is the table of result chi square test.

Test-Statistic	P-value	Decision
2.013951	0.365322	Accept $H_0$

**Conclusion:** as P-value is greater than 0.05 we accept the null hypothesis ( $H_0$ ). Conclude that, aruchi is independent on gender in mental stress of police personnel.

• Occupation

Designation	Police Constable	Police Head Constable	Police Naik	Police Sub Inspector	Senior Police Constable	Senior Police Naik	Total	percentage
Normal	29	10	20	13	18	6	96	64.67%
Tastelessness	18	7	16	3	8	1	53	34.67%
Mistaken taste	0	0	0	0	1	0	1	0.67%
Total	47	17	36	16	27	7	150	100.00%



$H_0$  = aruchi is independent on occupation in mental stress of police personnel.

$H_1$  = aruchi is dependent on occupation in mental stress of police personnel.

Following is the table of result chi square test.

Test-Statistic	P-value	Decision
9.6861	0.4685	Accept $H_0$

**Conclusion:** as P-value is greater than 0.05 we accept the null hypothesis ( $H_0$ ). Conclude that, aruchi is independent on occupation in mental stress of police personnel. Overall Conclusion on aruchi: Aruchi in police personnel does not depend on mental stress.

## DISCUSSION

**Age wise distribution-** Maximum participants were in the age group of 30-40 years of age i.e 87 (58%). The reason behind may be due to the fact that they are mostly exposure to external related issues and fields of Law and order and also they are the key bread winners for the family.

**Gender wise distribution-** maximum participants were male 125(83.3%) as compare to only 25(16.7%) female. This may be due to the fact that there were less female personel present when the survey was conducted.

**According to occupations-** maximum participants were police constables 60 (40%). The reason behind may be due to the fact that they are appointed for security purpose as well as they are time consuming related field work which not only hamper their physical health but also their mental and social well- being.

**According to Nidra (duration of sleep):-**maximum 60(40%)participants sleeping hours are 5-6 hours. Anidra or Lack of sleep is due to vitiation of vata and pitta dosha which is mainly due to irregular dietary pattern and exposure to ushna, vayu for longer time along with manas related nidana as chintya, kroda leads to disturbance of manovaha srotas and does leads to anidra. Sleep is considered as one of the main cause for stress related diseases and maximum no. of participants are showing less sleeping hours due to their professional related duties.

**According to khalitya (symptoms of Hair fall):-** khalitya or hair fall is due to vitiation of pitta and vata dosha. 62(41.3%) participants shows symptoms of hairfall especially while combing during morning time. This may be due to chintya, agnimandya, ajeerna and aruchi experience by the participants due to their heavy work and irregular dietary pattern which leads to vitiation of dosha and along with manasika dosha i.e rajas and tama which leads to hairfall like symptom.

**According to symptom of Shirashoola(Headache):-** Out of 150 participants, 101 (64.4%) were often complaining of headache after work, the reason behind may be due increase work load and continuous exposure to external environment especially for those appointed for

external field work which leads to vitiation of dosha especially vata dosha which in return vitiates manovaha stotas and its related doshas and cause shirashoola.

**According to symptoms of Aruchi (tastelessness):-** Out of 150 participants, 29(19.3%) were complaining of tastelessness and 46(30.6%) were complaining of mistaken taste. The reason behind this may be due to irregularity of diet or asatmya ahara and vihara which leads to agnimandya and ama production and shows various lakshanas one of which is aruchi or tastelessness.

**According to Questionnaire:-** According to International Stress Management Association, the above 25 questionnaire is used to assess mental stress of participants related to their routine life style and occupation. Thus, these questionnaires were used for this study and it was found out that 150 participants, 29 participants have mild stress, 94 participants have moderate stress and 27 participants are having severe stress. Also, there was a major difference in the t calculated value and P values and here there was significant difference and hence  $H_0$  rejected. According to G.S.R- Galvanic skin reflex is a test used to assess mental reaction by determining how skin resistance changes when a voltage is applied to electrodes in contact with the skin by an instrument psycho-galvanometer. It was observed that 48 participants are showing mild stress (300 ohms onwards), 82 participants show moderate stress (200-300 ohms), 20 participants show severe stress (100-200 ohms). Also, there is significant difference in the t calculated values and P value, hence  $H_0$  was rejected.

## RESULT

The present survey study along with statistical analysis shows that police personnel, whose occupation is generally perceived as highly stressful.

Psycho-galvanometer & Questionnaire proved to be an easy and efficient instrument in measuring stress & psychosomatic arousal in a person.

## CONCLUSION

Due to the changes in the life style, many newer diseases are being introduced in the society. Improper diet habits and continuous work load has led to different kinds of mental and physical stress on humanity.

Today, with the rapid diversification of human activity, we come face to face with numerous causes of stress and the symptoms of stress and depression.

Stress can be understood as pathology in Manovaha Strotas due to the aggravation of Manasika Dosha like Raja and Tama.

Vata dosha also plays a key role in development of various symptoms of stress and depression like Shiro-shoola, Nidra Nasha etc.

Psycho-galvanometer along with Questionnaire proved to be a easy and efficient tools in measuring stress & psychosomatic arousal in a person.

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