

A Study of Health Problems and Life Style Factors

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Abstract: *Health significantly impacts human life and is influenced by daily lifestyle habits. An increase in health issues like obesity, diabetes, and sleep disorders is attributed to unhealthy practices such as irregular sleep and poor diet. The study, "A Study of Health Problems and Lifestyle Factors Using Statistical Methods," explores the correlation between lifestyle behaviours and health problems through a survey of 301 respondents. It identifies key lifestyle factors sleep duration, exercise habits, dietary patterns, body type, and water intake that correlate with various health issues. Findings indicate that unhealthy lifestyles lead to more health problems, whereas balanced habits promote better health. The study underscores the importance of healthy living for preventing chronic conditions and enhancing overall quality of life.*

Keywords: *Health Problems, Lifestyle Factors, Statistical Methods, Questionnaire Survey, Water Intake.*

I. INTRODUCTION

Health is a fundamental aspect of human life and plays a crucial role in determining the overall well-being and quality of life of individuals. A healthy individual is physically active, mentally stable, and socially productive. However, in recent years, there has been a noticeable increase in various health problems due to changing lifestyles. Modern living patterns, altered food habits, reduced physical activity, irregular sleep schedules, and increased dependency on processed foods have significantly influenced the health status of people. Lifestyle factors are the everyday habits and behaviours that individuals adopt in their daily routines. These include sleeping patterns, dietary habits, water consumption, physical exercise, and other routine activities. Such lifestyle behaviours directly or indirectly affect physical and mental health. Unhealthy lifestyle choices can lead to problems such as obesity, high blood pressure, diabetes, joint pain, digestive disorders, and sleep-related issues. On the other hand, maintaining a balanced diet, engaging in regular exercise, and following healthy daily habits can reduce the risk of many diseases and improve overall health.

Health problems not only affect individuals physically but also impact their daily activities, work efficiency, and social interactions. Chronic health conditions may reduce productivity and lower the quality of life. Therefore, it is important to understand the connection between lifestyle habits and the occurrence of health problems. By identifying these relationships, individuals can be encouraged to adopt healthier behaviours and preventive measures. The study of health problems in relation to lifestyle factors is significant because it provides insights into how daily habits influence long-term well-being. With growing awareness about preventive healthcare, more attention is being given to lifestyle modifications as a means of improving health outcomes. Recognizing patterns between lifestyle practices and health conditions helps in promoting better health awareness and encouraging positive behavioural changes. The present study focuses on examining various health problems and analysing their relationship with different lifestyle factors. By understanding how daily habits contribute to physical health conditions, the study aims to highlight the importance of maintaining a balanced and healthy lifestyle..

II. OBJECTIVES

To study the relationship between age group and daily water intake among individuals.

To analyze the distribution of health problems among the surveyed individuals.

To compare junk food consumption habits between males and females.



To examine whether sleep duration varies across different age groups using the Chi-square test.
 To study the relationship between gender and caffeine consumption using the Chi-square test.
 To determine whether body type is associated with exercise frequency using the Chi-square test.
 To examine the association between sleep duration and caffeine consumption.
 To compare the BMI distribution between males and females using the Mann-Whitney U test.

III. METHODOLOGY

The present study is based on primary data collected through a structured questionnaire survey. The research aims to analyse the relationship between lifestyle habits and health problems among individuals.

Sample Size Determination

The sample size was determined using Yamane's formula (1967):

$$n = \frac{N}{(1+N \times e^2)}$$

Where:

n = Sample size

N = Population size

e = Error (at 5% I.o.s)

The total population of the study area was approximately 10,000 individuals, and the calculated sample size resulted in 301 respondents.

A stratified random sampling technique was used to ensure proper representation of different groups in the population. The study was conducted among villagers of Chinchwad, Maharashtra, and the questionnaire contained close-ended questions related to demographic characteristics, lifestyle habits, and health conditions. Both qualitative and quantitative approaches were used. Data were collected using the survey method and personal observation through questionnaires filled by 301 individuals.

IV. GRAPHICAL REPRESENTATION

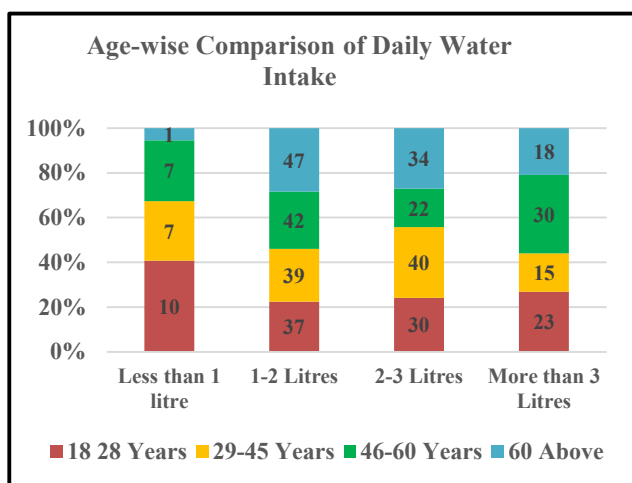


Fig.1

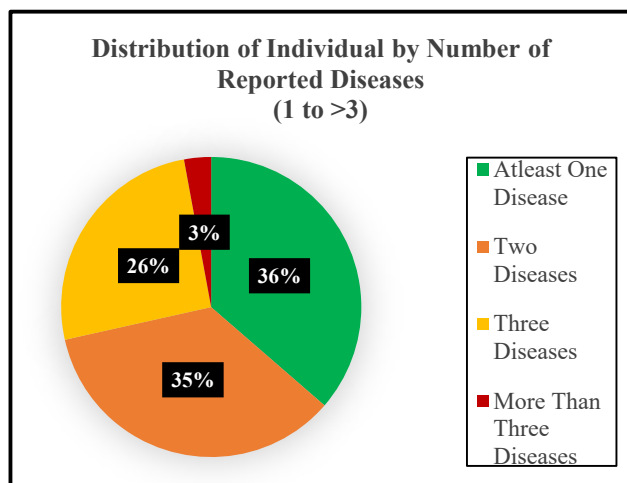


Fig.2



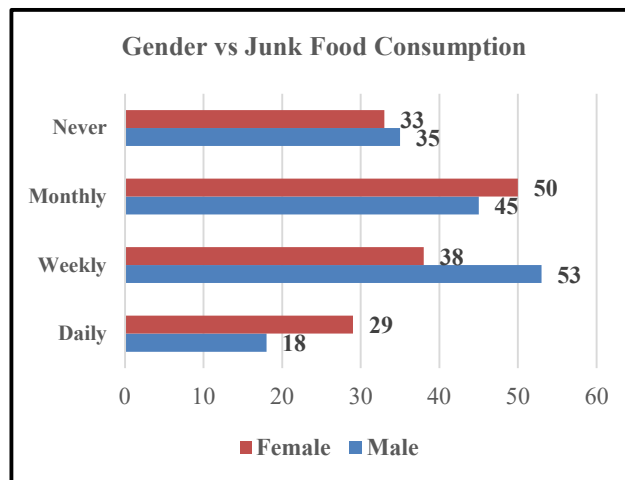


Fig.3

Fig.1 Shows that older adults (60+) maintain the most consistent daily water habits, while younger adults (18-28) are most likely to drink the least amount of water.

Fig.2 Shows that the most individuals 36% have Atleast One Disease, while only very small group 3% has More Than Three Diseases.

Fig.3 Shows that males consume junk food **more weekly**, while **females consume slightly more daily**.

V. STATISTICAL ANALYSIS

To examine relationships between variables and test for statistical significance, several non-parametric and categorical statistical techniques were applied.

Chi-Square Test of Independence:

The Chi-square test of independence was used to examine associations between categorical variables.

1. The relationship between Age group and Sleep hours.

Hypothesis:

H₀: Age group and Sleep hours are independent

H₁: Age group and Sleep hours are dependent

Table 1:

	Less than 5 hours	5-6 hours	7-8 hours	More than 8 hours	Total
18-28 Years	9	24	31	15	79
29-45 Years	11	30	20	14	75
46-60 Years	7	24	25	18	74
60 Above	12	25	24	12	73
Total	39	103	100	59	301

$$\chi^2 = \sum \frac{(O_i - E_i)^2}{E_i}$$

$$\chi^2 = 5.9461$$

$$\chi^2_{(0.05,9)} = 16.9189$$

Here, $\chi^2 < \chi^2_{(0.05,9)}$

We accept H₀ at 5% level of significance with 9 degrees of freedom.



Result: Age group and sleep hours are independent of each other.

2. The relationship between Gender and Caffeine consumption.

Hypothesis:

H₀: Gender and Caffeine consumption are independent

H₁: Gender and Caffeine consumption are dependent

Table 2:

	0 cups	1-2 cups	2-3 cups	More than 3 cups	Total
Male	38	56	37	20	151
Female	30	55	35	30	150
Total	68	111	72	50	301

$$\chi^2 = \sum \frac{(O_i - E_i)^2}{E_i}$$

$$\chi^2 = 3.0002$$

$$\chi^2_{(0.05,3)} = 7.815$$

Here, $\chi^2 < \chi^2_{(0.05,3)}$

We accept H₀ at 5% level of significance with 3 degrees of freedom.

Conclusion: Gender and Coffee consumption are independent.

3. The relationship between Body type and Exercise frequency

Hypothesis:

H₀: There is no significant association between body type and exercise frequency

H₁: There is significant association between body type and exercise frequency

Table 3:

	Daily	1-2 times week	4-5 times in week	Never	Total
Slim	15	16	8	17	56
Average	49	52	33	41	175
Heavy	15	21	15	19	70
Total	79	89	56	77	301

$$\chi^2 = \sum \frac{(O_i - E_i)^2}{E_i}$$

$$\chi^2 = 2.6053$$

$$\chi^2_{(0.05,6)} = 12.5916$$

Here, $\chi^2 < \chi^2_{(0.05,6)}$

We accept H₀ at 5% level of significance with 6 degrees of freedom.

Result: There is no significant association between Body type and Exercise frequency.

4. The relationship between Sleep and Caffeine consumption

Hypothesis:

H₀: Sleep and Caffeine consumption are independent.

H₁: Sleep and Caffeine consumption are dependent.

Table 4:

	Less than 5 hours	5-6 hours	7-8 hours	More than 8 hours	Total
0 cups	8	17	28	15	68
1-2 cups	12	51	37	11	111
2-3 cups	8	23	22	19	72
More than 3 cups	11	12	13	14	50
Total	39	103	100	59	301



$$\chi^2 = \sum \frac{(O_i - E_i)^2}{E_i}$$

$$\chi^2 = 22.85323$$

$$\chi^2_{(0.05,9)} = 16.9189$$

Here, $\chi^2 > \chi^2_{(0.05,9)}$

We accept H_1 at 5% level of significance with 9 degrees of freedom.

Result: We can say that Sleep and Caffeine consumption are dependent.

Mann-Whitney U Test:

The Mann-Whitney U test, a non-parametric test for comparing two independent groups, was used to evaluate differences in exercise habits between male and female respondents. This test was chosen because the exercise variable was measured on an ordinal scale and did not satisfy the assumptions of normal distribution.

Hypothesis:

H_0 : $F(x) = F(y)$; BMI in Male and Female are same.

H_1 : $F(x) \neq F(y)$; BMI in Male and Female are not same.

Table 5:

	Underweight	Healthy	Overweight	Obese	Total
Male	6	71	61	13	151
Female	10	60	53	27	150
Total	16	131	114	40	301

Test Statistic:

$$U_1 = 21791$$

$$U_2 = 23660$$

$$U = \min(U_1, U_2)$$

Since, n_1 and n_2 are large therefore we use large sample Mann-Whitney U test.

Therefore, $Z = 13.8623$

Here, $|Z| < Z$

i.e. $1.96 < 13.8623$

Therefore, we accept H_1 at 5% level of significance.

Result: Gender wise BMI is not same.

VI. CONCLUSION

From the above investigation, older individuals tend to be more regular in their water consumption compared to younger people. While many have at least one health issue, few suffer from multiple diseases. Males are more likely to consume junk food weekly, whereas females often do so daily. Sleep duration is similar across age demographics, indicating that age has minimal impact on sleep patterns. Both genders have comparable caffeine intake from tea or coffee. Exercise habits show minimal variation across different body types, suggesting that body type is not a significant determinant of exercise frequency. However, increased caffeine consumption can influence sleep patterns. Lastly, there is a marked difference in body weight patterns and BMI between males and females.

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