WORLD JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH

AN OBSERVATIONAL STUDY TO ASSESS ROLE OF PRAKRITI, DIET AND LIFESTYLE IN ETIOPATHOGENESIS OF MADHUMEHA W.S.R. TO DIABETES MELLITUS

Dr. Pritee Versa Srivastav[*1], Dr. Deena Nath Singh[2], Dr. Vijay Kumar Rai[3] and Dr. Prem Kant Yadav[4]

[1]JR3, Department of Roga, Nidan Evum Vikriti Vigyana.
[2]Assistant Professor Department of Roga, Nidan Evum Vikriti Vigyana.
[3]Reader and H.O.D. Department of Swasthavritta.
[4]Assistant Professor Department of Kriya Sharira.

*Corresponding Author: Dr. Pritee Versa Srivastav

JR3, Department of Roga, Nidan Evum Vikriti Vigyana.

ABSTRACT

Ayurveda, a holistic medical system originating from ancient India, underscores the interconnectedness of health maintenance and disease management. Central to its philosophy are the principles of Ahara (diet), Vihara (lifestyle), and Prakriti (individual constitution), with Ahara being pivotal among the three essential life components (Trayopsthambha: Ahara, Nidra, Bhramcharya). Prakriti informs an individual's health dynamics, particularly in relation to conditions like Madhumeha, classified under Mahagada, which denotes significant health concerns. Madhumeha, characterized by sweet-smelling urine, falls under the broader category of Prameha, associated with excessive urination. Lifestyle choices and dietary practices that conflict with Prakriti contribute to various disorders, including diabetes mellitus, a major global health threat. Ayurveda identifies 20 types of Prameha, with Madhumeha emerging as a clinical manifestation of Vataja Prameha. The pathogenesis involves factors such as improper diet, sedentary lifestyles, and mental stress, leading to dosha imbalances and metabolic disruptions. The prevalence of diabetes poses a substantial public health challenge, with millions affected worldwide. Type 2 diabetes, accounting for the majority of cases, is characterized by insulin resistance and metabolic dysfunction. Ayurvedic management of Madhumeha emphasizes pathya (beneficial practices) and apathya (avoidance practices), advocating for a balanced lifestyle that includes appropriate dietary choices, regular physical activity, and stress management.

KEYWORDS: Ahara, Vihara, Prakriti, Trayopsthambha, Bhramcharya, Mahagada, Madhumeha, pathya, apathya, physical activity, stress management.

INTRODUCTION

Ayurveda, a time-honored medical system rooted in ancient Indian civilization, presents a holistic approach to health that intertwines the maintenance of wellness with the treatment of disease. Central to Ayurvedic philosophy are the principles of Ahara (diet), Vihara (lifestyle), and Prakriti (individual constitution), with Ahara considered the foundational pillar among the essential components of life, and collectively referred to as Trayopsthambha: Ahara, Nidra, and Bhramcharya. At the heart of Ayurvedic understanding is Prakriti, which reflects an individual's unique constitution and plays a crucial role in the dynamics of health and disease. Madhumeha, commonly understood as diabetes, is classified within Ayurvedic literature under Mahagada, signifying its importance as a significant health issue. Characterized by sweet-smelling urine resembling honey, Madhumeha falls under the broader category of Prameha, which includes conditions associated with excessive urination and related symptoms. Lifestyle choices and dietary practices that contradict an individual's Prakriti are recognized as major contributors to various lifestyle disorders, including diabetes mellitus—a condition increasingly regarded as one of the most dangerous silent killers globally. Ayurveda identifies 20 types of Prameha, with Madhumeha specifically categorized as a clinical entity resulting from imbalances in the doshas, primarily Vata and Kapha. The pathogenesis of Madhumeha is multifaceted, involving improper dietary habits, sedentary lifestyles, and mental factors such as stress, which disrupt the balance of doshas and impair metabolic processes. The rising prevalence of diabetes poses a pressing public health challenge, with estimates indicating that approximately 537 million adults aged 20 to 79 were affected by the condition in 2021. This figure is projected to escalate

significantly in the coming years, underscoring the urgent need for effective management strategies. In modern medicine, diabetes mellitus is recognized as a chronic metabolic disorder marked by elevated blood glucose levels due to defects in insulin secretion and action, primarily categorized into Type 1 and Type 2 diabetes. In Ayurvedic practice, managing Madhumeha involves a holistic approach that integrates pathya (beneficial practices) and apathya (avoidance practices). This entails adopting a balanced lifestyle and diet tailored to support metabolic health, emphasizing the consumption of light, easily digestible foods and the avoidance of those that exacerbate dosha imbalances. The significance of establishing a regular daily routine (dinacharya), maintaining adequate sleep, engaging in regular physical activity, and managing stress through practices like yoga and meditation is also highlighted. Furthermore, understanding Prakriti—the unique constitution shaped by the interplay of the three doshas—Vata, Pitta, and Kapha—is vital in tailoring personalized treatment strategies for managing Madhumeha. By recognizing one's Prakriti, individuals can align their dietary and lifestyle choices with their specific metabolic tendencies, ultimately aiding in the prevention and management of diabetes. This article aims to explore these themes by analysing the dietary habits, lifestyle choices, and Prakriti types of patients with Madhumeha. By identifying beneficial and detrimental practices, we seek to illuminate the intricate connections between individual constitution, lifestyle modifications, and dietary choices in the effective management of diabetes within the Ayurvedic framework. Through this exploration, we hope to contribute to a more nuanced understanding of how Ayurvedic principles can enhance health outcomes and well-being in individuals affected by Madhumeha.

AIM AND OBJECTIVE
- To study the concept of aetiopathogenesis of *Madhumeha Roga*.
- To study a comparative analytical description of *Madhumeha Roga* with *Diabetes Mellitus*.
- To study clinical features, etiologies, types, signs, and symptoms in relation to *Diabetes Mellitus*.
- To assess the role of diet, lifestyle, and *prakriti* in the aetiopathogenesis of *Madhumeha Roga*.

Study design
- Conceptual study
- Survey study
- Observation and Result
- Discussion
- Summary & Conclusion

CRITERIA FOR ASSESSMENT
SUBJECTIVE CRITERIA
1) Prabhuta Mutrata (Polyuria).

Description	Scoring
1.50 to 2.00 liters / 24 hrs.	0
>2.00 to 2.50 liters / 24 hrs.	1

1. Conceptual Study
A review was conducted of all available Ayurveda Samhitas along with their commentaries, as well as Vedic and philosophical texts, additional related literature, and modern medical resources such as journals and research papers. Information relevant to the research topic was gathered from various sources, including online platforms. In this conceptual segment, references pertinent to the research focus were collected, compiled, and analysed.

1. Survey Study
MATERIAL AND METHODS
Patient selection
A total of 100 patients were chosen from the outpatient and inpatient departments of Government Ayurvedic PG College in Varanasi. Patients who met the selection criteria were included in the study regardless of their caste or religion.

STUDY DESIGN: This is a cross-sectional study.

DIAGNOSTIC CRITERIA: Diagnosis was made based on clinical features, physical examinations, and laboratory tests. A specialized form was created to document patient history, physical signs, and symptoms as outlined in classical texts. Patients presenting with the classic signs and symptoms of Madhumeha Roga were analyzed and selected accordingly.

INCLUSION CRITERIA
The study focuses on patients previously diagnosed with hyperglycemia, encompassing both obese and non-obese individuals. It includes participants of either sex, aged between 30 and 70 years. Additionally, all patients must have a fasting blood sugar level ranging from 126 mg/dl to 250 mg/dl.

EXCLUSION CRITERIA
The study excludes patients with juvenile diabetes, as well as those younger than 30 years or older than 70 years. It specifically focuses on emergency cases related to diabetes mellitus (DM), particularly individuals with insulin-dependent diabetes mellitus (IDDM) who are currently receiving insulin, typically associated with type 1 Diabetes. Participants must also have excessive fasting blood glucose levels greater than 250 mg/dl. Additionally, individuals experiencing chronic complications, both microvascular and macrovascular, are not included. The study further excludes mentally retarded and psychologically ill individuals.

>2.50 to 3.00 liters / 24 hrs.	2
>3.00 litters / 24 hrs.	3

2) Avila Mutrata (Turbidiy in Urine).

Description	Scoring
Crystal clear fluid.	0
Faintly cloudy or hazy with slight turbidity.	1
Turbidity clearly present and newsprint easily read through test tube.	2
Newsprint not easily read through test tube.	3

3) Frequency of urine.

Description	Scoring
3 – 5 times per day, no or rarely at night	0
6 – 8 times per day, 1 – 2 times per night	1
9 – 11 times per day, 3 – 4 times per night	2
> 11 times per day, > 4 times per night	3

4) Kshudha - Adhika (Increase in Appetite).

Description	Scoring
As usual / routine.	0
Slightly increased (1–2 meals)	1
Moderately increased (3–4 meals)	2
Markedly increased (5–6 meals)	3

5) Pipasa - Adhika (Polydypsia).

Description	Scoring
Feeling of thirst 7 – 9 times/24 hours, either/or Intake of water 5 – 7 times/24 hours with quantity 1.5 – 2.0 liter/24 hours.	0
Feeling of thirst 9 - 11 times/24 hours, either/or Intake of water 7 - 9 times/24 hours with quantity 2.0 - 2.50 liter/24 hours	1
Feeling of thirst 11 – 13 times/24 hours, either/or Intake of water 9 – 11 times/24 hours with quantity 2.50 -3.00 liter/24 hours	2
Feeling of thirst >13 times/24 hours, either/or Intake of water >11 times/24 hours with quantity >3.00 liter/24 hours	3

6) Abhyavaharana Shakti (Excess intake of Food).

Description	Scoring
Person taking food in normal quantity twice in a day	0
Person taking food in excessive quantity twice in a day	1
Person taking food in moderate quantity twice in a day	2
Person taking food in less quantity once in a day	3

7) Pindikodveshtana (Cramps).

Description	Scoring
No cramps	0
Cramps after walking more than 1 km.	1
Cramps after walking ½ km	2
Inability in walking even ½ km	3

8) Kara-Pada Suptata (Numbness in Palm & Foot).

Description	Scoring
No suptata	0
Kara-Pada Suptata incontinuous	1
Kara-Pada Suptata continuous but bearable & not severe	2
Kara-Pada Suptata continuous and severe & unbearable	3

9) Swedadhikya (Excess Perspiration).

Description	Scoring
Sweating after some strenuous or heavy work or in hot & humid Weather	0
Profuse sweating after moderate work and movement	1
Sweating after little extra work than routine and movement	2
Profuse sweating after routine work	3

10) Daurbalya (Weakness).

Description	Scoring
Can do routine exercise/work	0
Can do moderate exercise with hesitancy	1
Can do mild exercise only, with difficulty	2
Cannot do mild exercise too	3

11) Shrama Shwasa (Dyspnoea).

Description	Scoring
Dyspnoea after heavy work and walking	0
Dyspnoea after moderate work and walking	1
Dyspnoea after mild work	2
Dyspnoea even at resting condition	3

12) Shula (Pain).

Description	Scoring
No pain	0
Pain in joint, routine movements normal	1
Pain in joint, slight limitations of movements	2
Pain in joint, limitations of movements with much reduced Activity	3

13) Alasya/Utsahahani (General Debility).

Description	Scoring
No Alasya (doing satisfactory work with proper vigor and in time	0
Doing satisfactory work with late initiation, likes to stand in comparison to walk	1
Doing unsatisfactory work with late initiation, likes to sit in comparison to stand	2
Doing unsatisfactory work with very late initiation, likes to lie down in comparison to sit.	3

14) Klaibya (Libido).

Description	Scoring
Normal	0
Decreased frequency with normal performance	1
Decrease frequency with insufficiency	2
No sexual stimulation at all	3

15) Tandra / Nidradhikya (Excess Sleep).

Description	Scoring
Normal & sound sleep for 6 – 8 hrs. /24 hrs with feeling of lightness and relaxation in the body & mind	0
Sleep > 8 -9 hrs /24 hrs with slight heaviness in the body	1
Sleep > 9-10 hrs /24 hrs with heaviness in the body associated with Jrimbha	2
Sleep >10 hrs /24 hrs with heaviness in the body associated with Jrimbha & Tandra	3

16) Purishabadhdhata (Constipation).

Description	Scoring
Stool passes as per normal schedule	0
Passes stool with strain sometimes takes purgative	1
Passes stool after more than 24 hours frequently takes purgative	2
Passes stool after gap of one day normal purgatives does not work	3

OBJECTIVE CRITERIA

Assessment of diet, lifestyle and Prakriti was done on basis of questionnaire. Diet was assessed on basis of type of food like cereals, pulses, vegetable, fruits, non veg, sweet & Desserts, Savoury & snacks, beverages and amount of food they consume. Lifestyle was assessed on

the basis of daily routine they follow, physical activity, sleep pattern, level of stress they face. Prakriti was assessed by proforma prepared by many Samhita grantha texts. A specific research proforma was developed to evaluate Sharira-Manasa Prakriti. This proforma included Vatika, Paitika, and Kaphaja characteristics, referencing anatomical, physiological, and sociological traits, based on the Brihatrayi texts (Charaka, Sushruta, and Ashtanga Hridaya). The assessment involved analysing data collected from completed questionnaires and physical examinations of patients. All anatomical traits were evaluated through visual and tactile methods. Vata, Pitta, and Kapha Pradhana Prakriti were analyzed according to the characteristics observed in individuals, with the dominant trait indicating the individual's Pradhana Dosha Prakriti. After determining Prakriti, patients were categorized into three groups: Vata Pradhana, Pitta Pradhana, and Kapha Pradhana Prakriti. A similar approach was used to assess Pradhana Manas Prakriti, classifying individuals as Sattva Pradhana, Rajas Pradhana, or Tamas Pradhana.
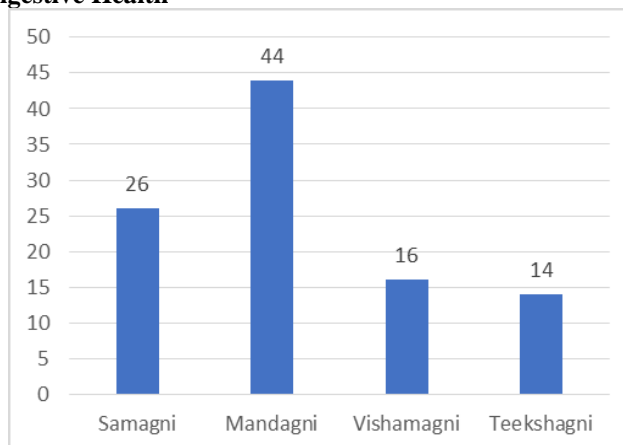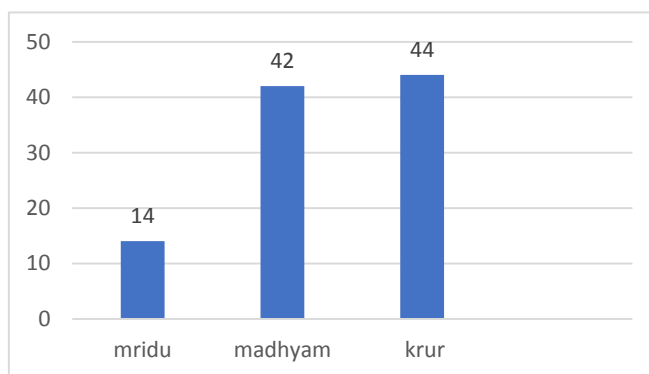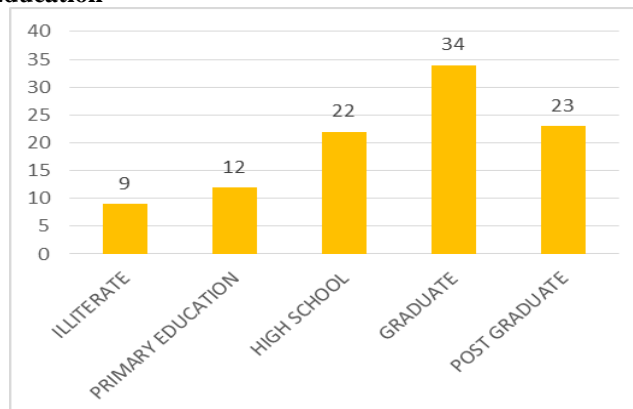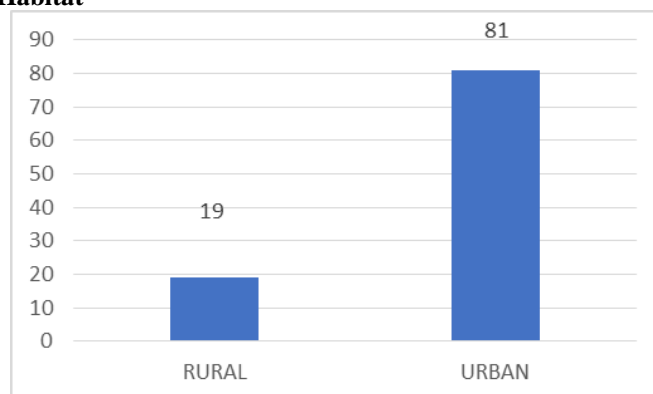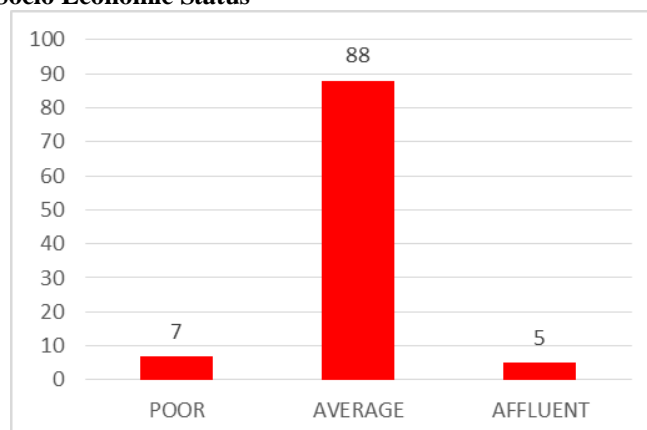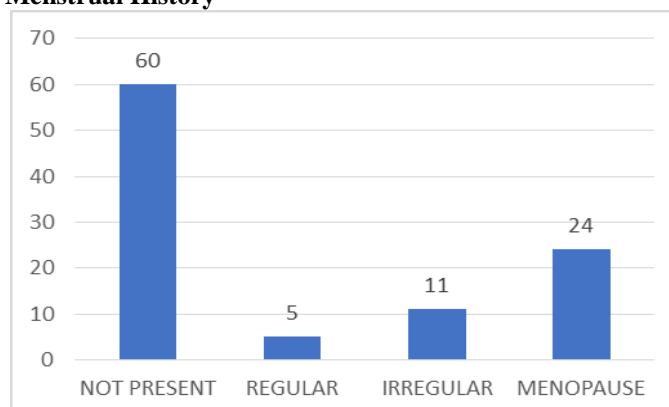
OBSERVATION AND RESULTS
Distribution According to Age
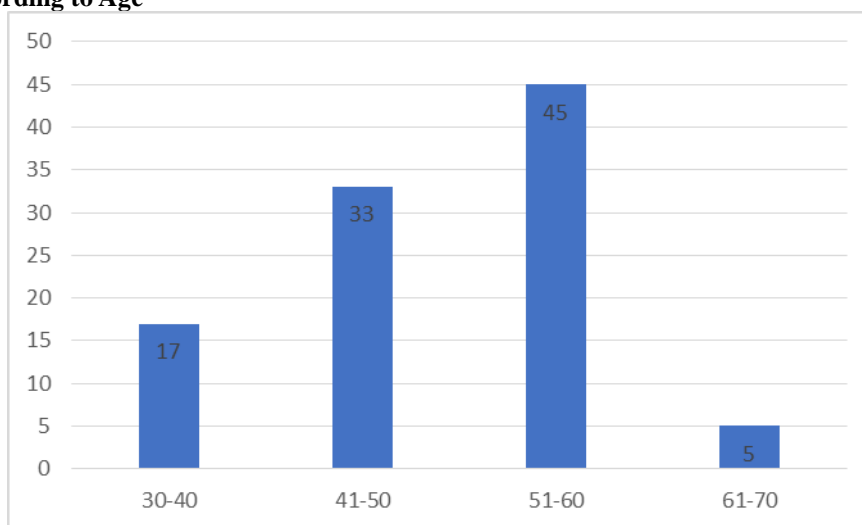
Distribution According to Gender
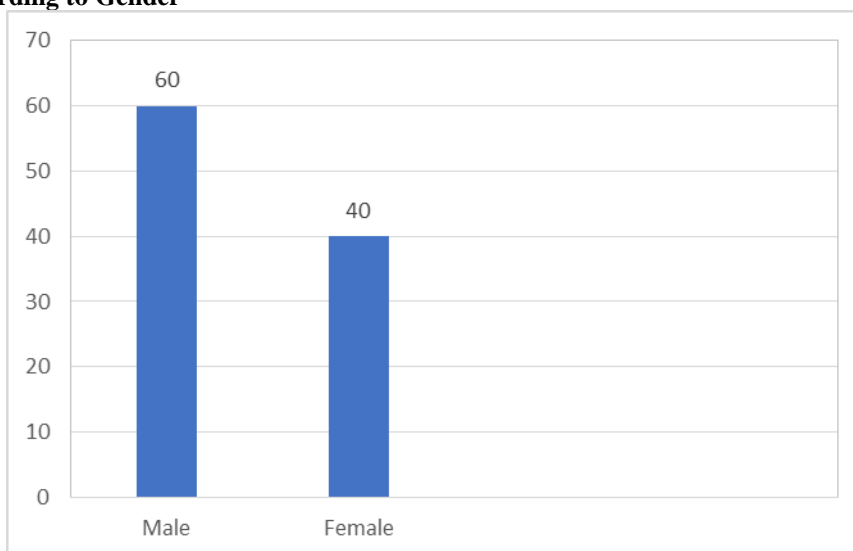
Distribution According to Religion
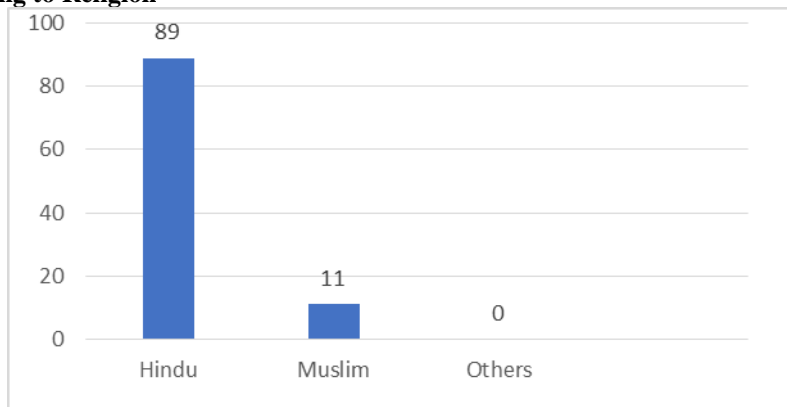
Distribution According to Marital Status
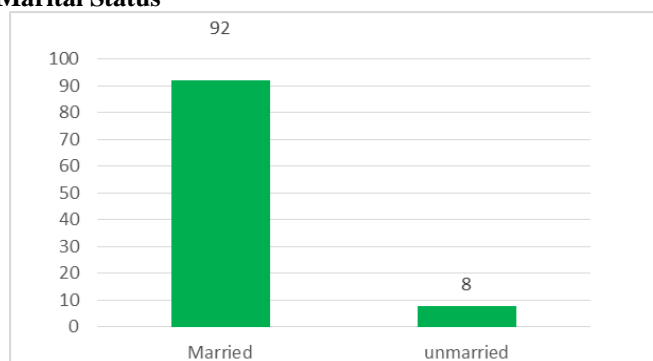
Distribution According to Occupation
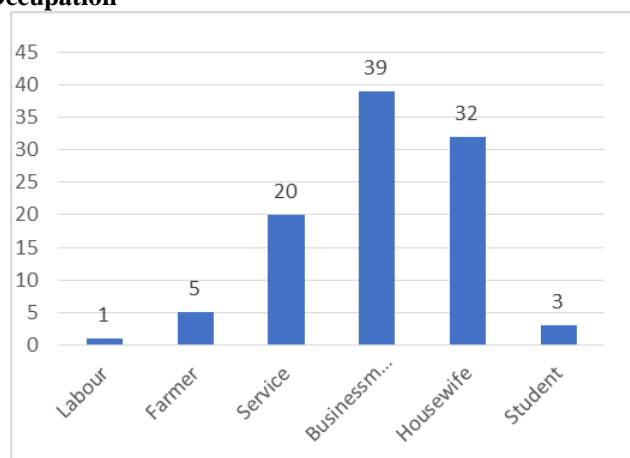
Distribution of Dietary Habits
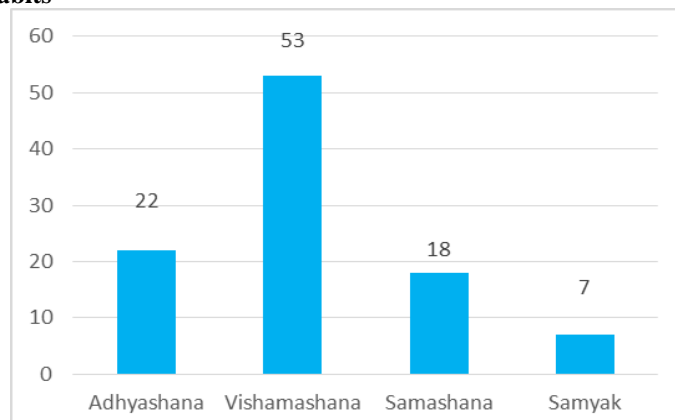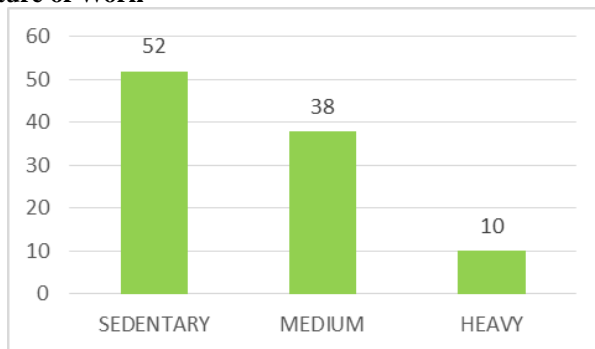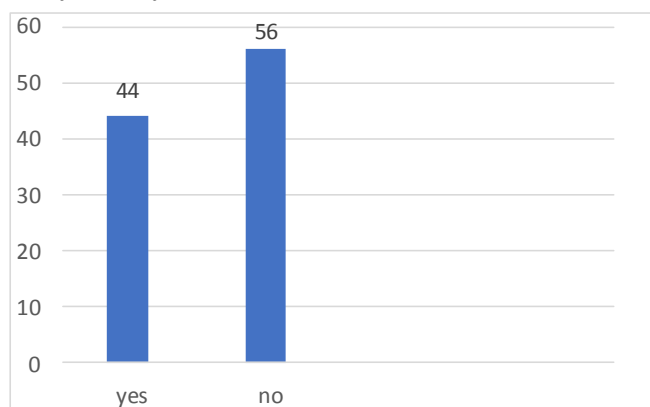
Distribution Of Abhvavaharana Shakti
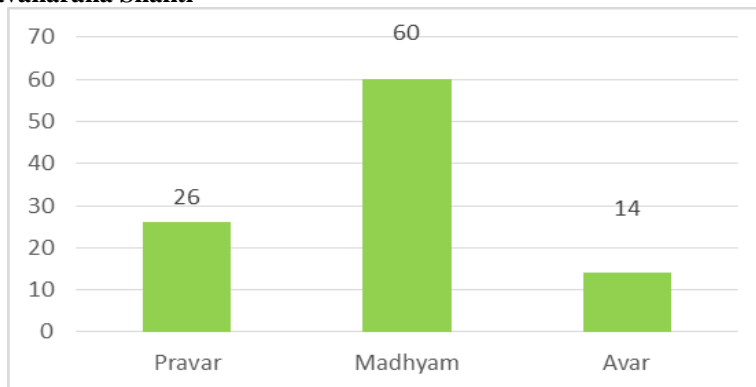
Distribution of Jaran Shakti
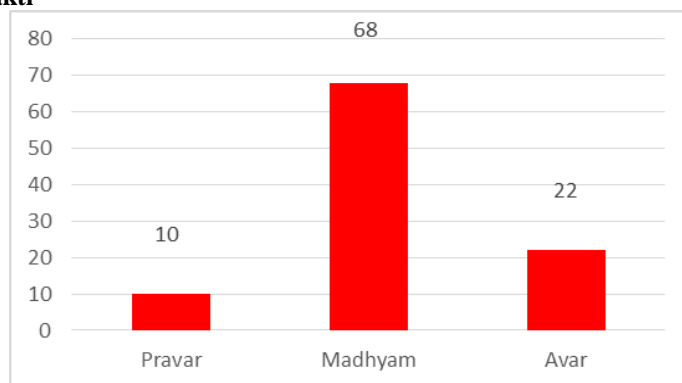
Distribution According to Digestive Health

Distribution According to Koshtha

Distribution According to Education

Distribution According to Habitat

Distribution According to Socio Economic Status

Distribution According to Menstrual History

Distribution of Chronicity of Disease
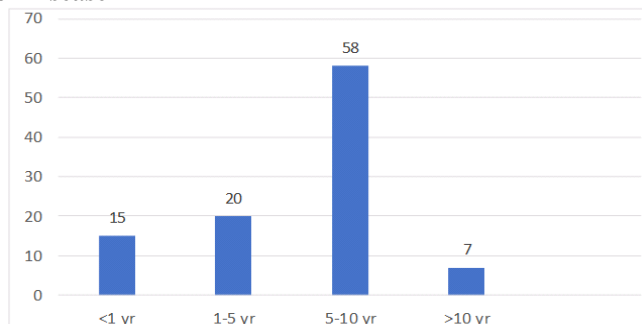
Distribution According to Built
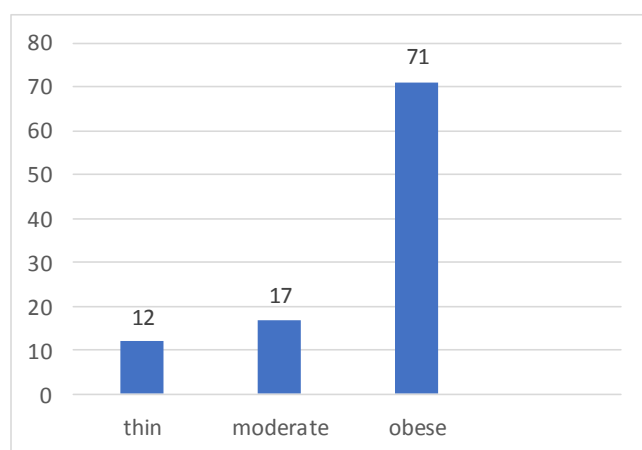
Distribution According to Weight
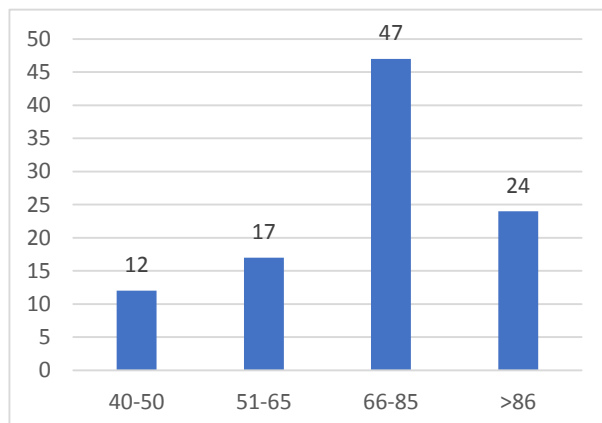
Distribution According to BMI
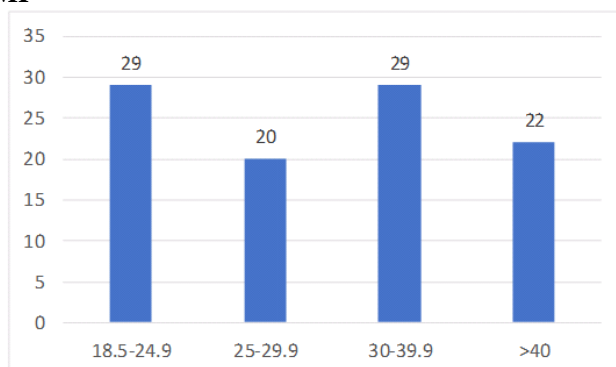
Distribution According to Nature of Work

Distribution According to Family History

Distribution According to Family Members
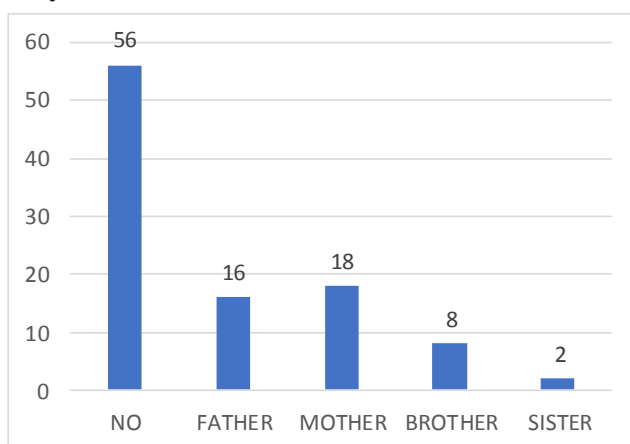
Distribution According to Diet
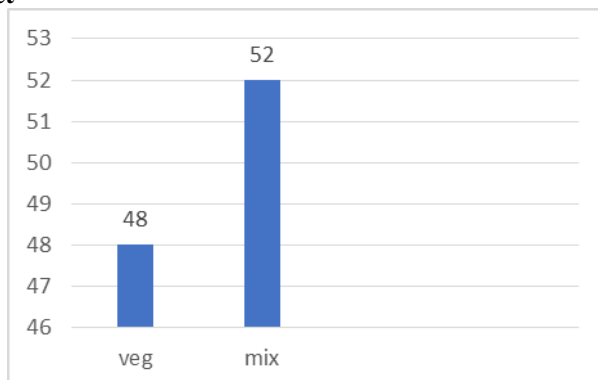
Distribution According to Addiction
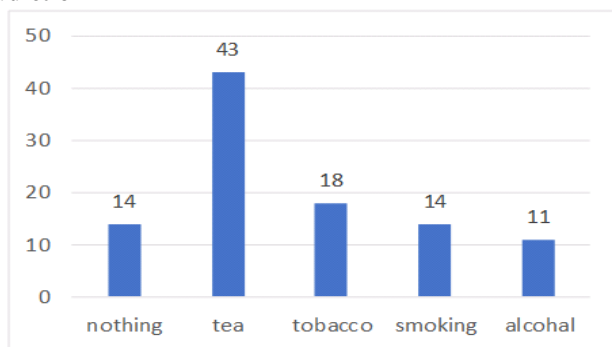
Distribution According to Bowel Habit
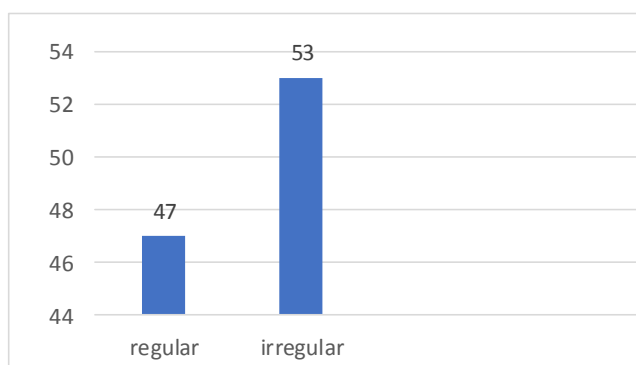
Distribution According to Urine
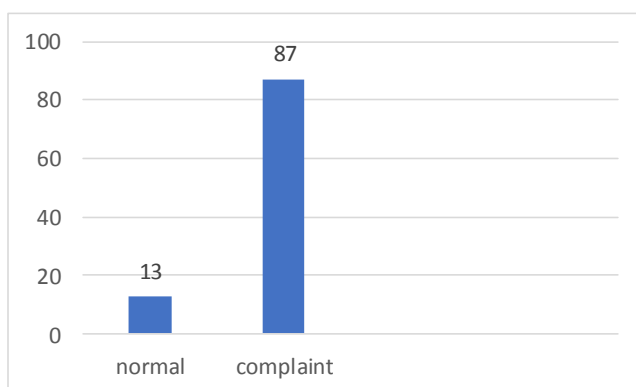
Distribution According to Sleep
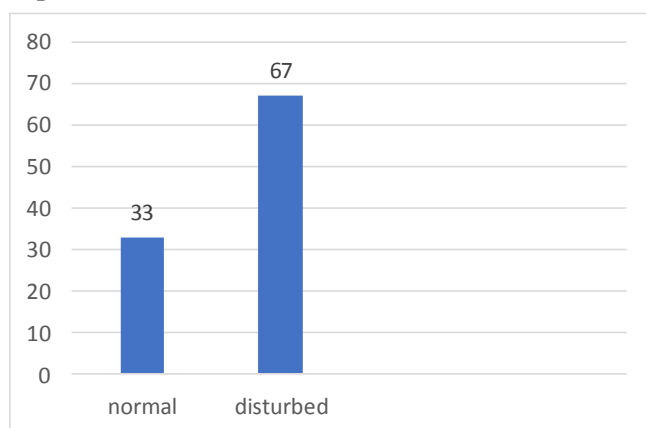
Distribution According to Sharirik Prakirti

Distribution According to Manshik Prakirti
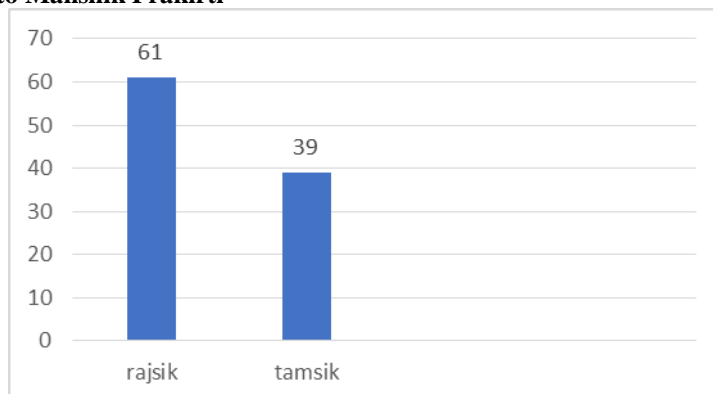
Distribution According to Sara
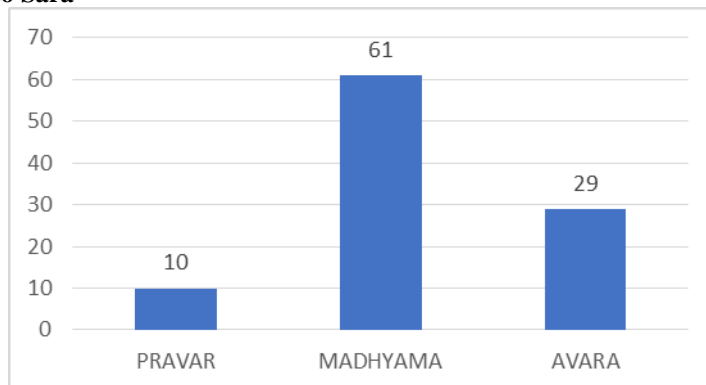
Distribution According to Samhanana
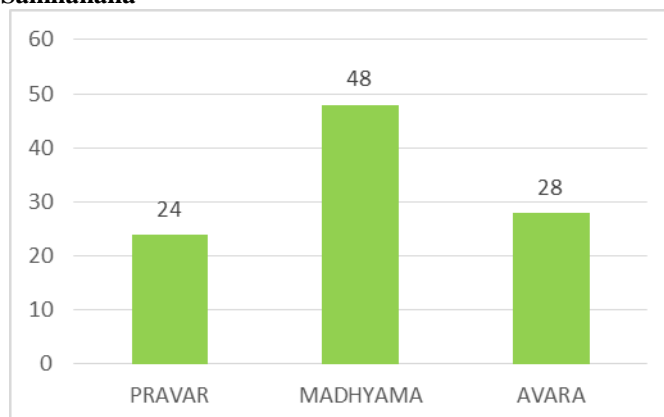
Distribution According to Pramana
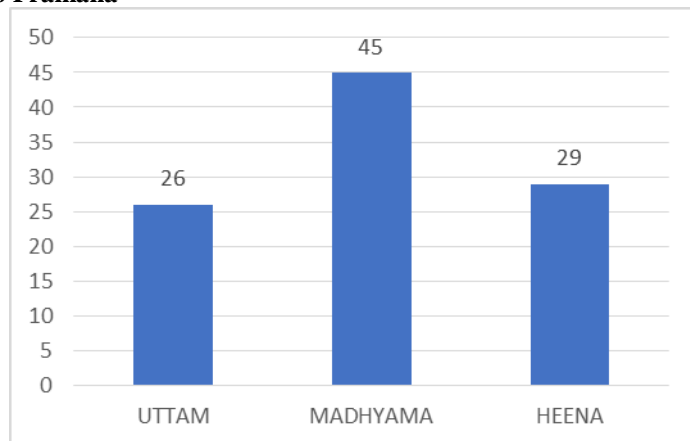
Distribution According to Satva
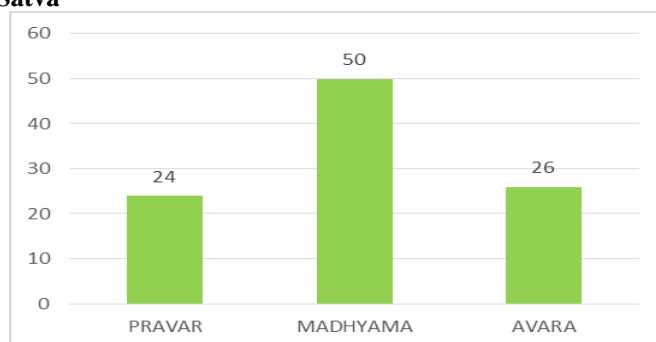
Distribution According to Satmya
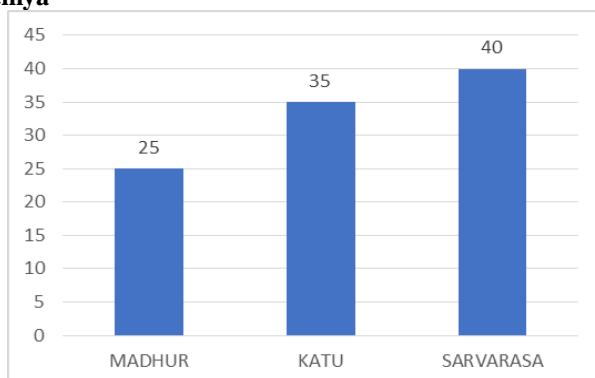
Distribution According to Ahara Shakti
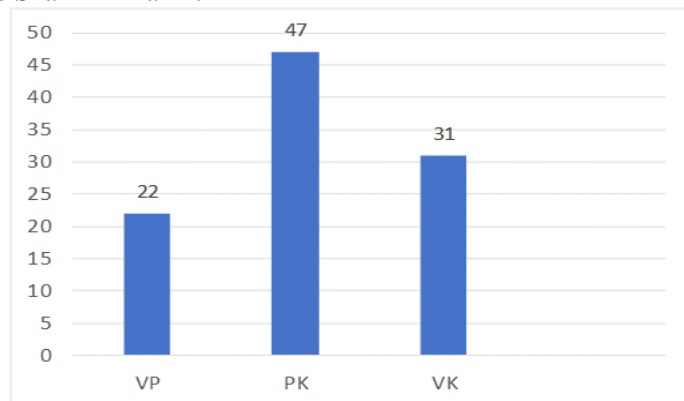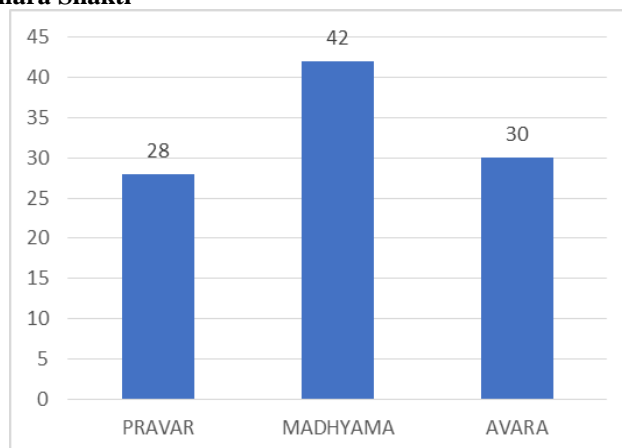
Distribution According to Vyayam Shakti
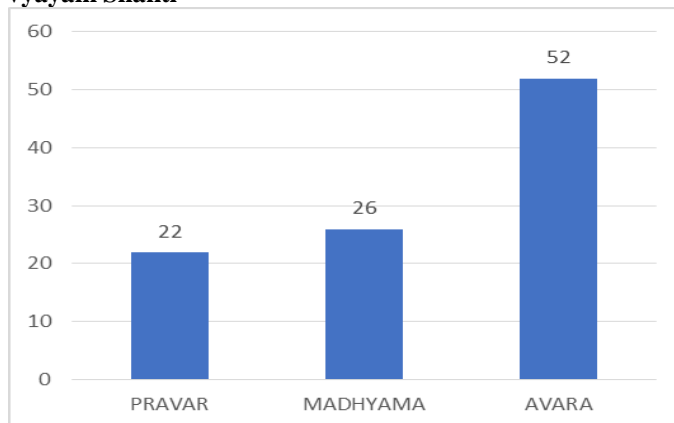
Distribution According to Vaya
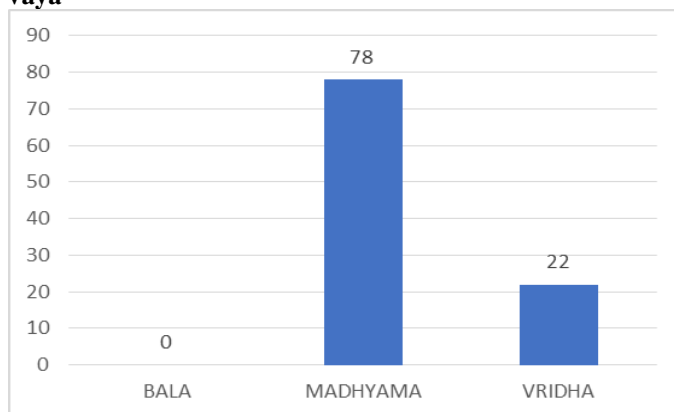
Distribution According to Srotodushti
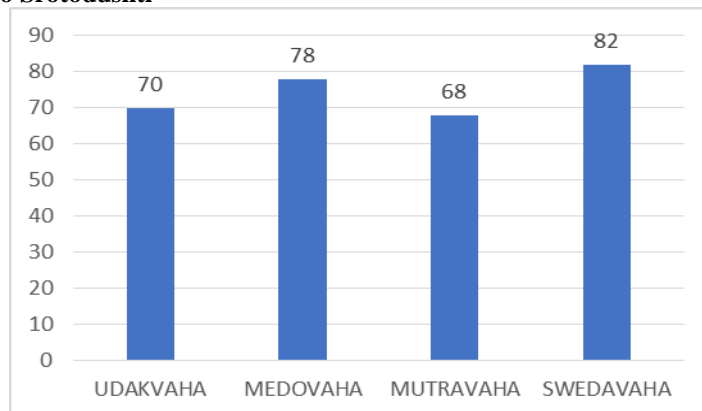
Distribution According to HEART RATE
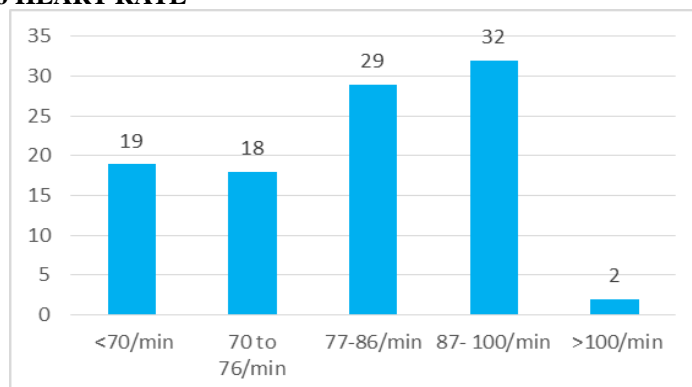
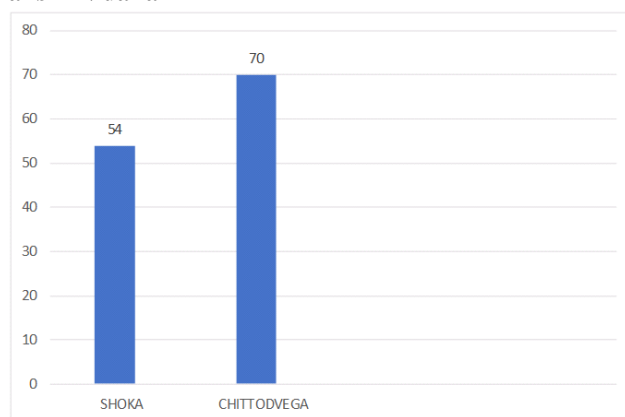**Distribution According to BLOOD PRESSURE**
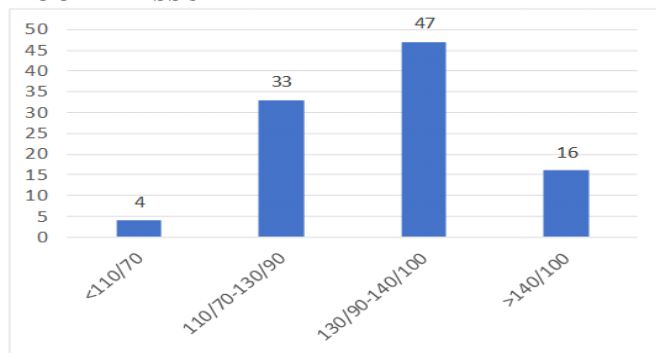
Distribution According to Aharaja Nidana
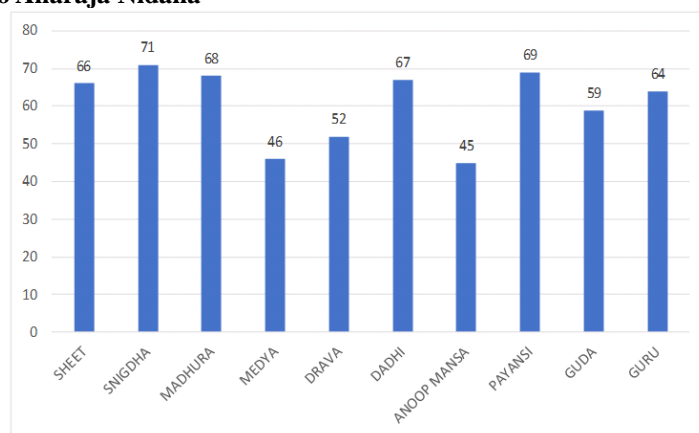
Distribution According to Viharaja Nidana
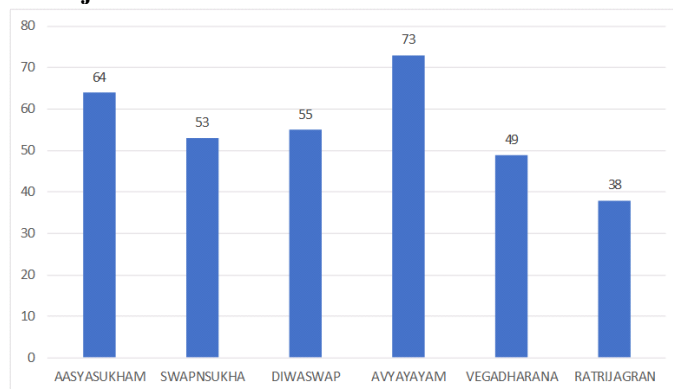
Distribution According to Mansik Nidana

RESULT
Correlation of Diet with total subjective score of Diseases

Spearman Correlation	Total disease score	
	p-value	**p-value**
Cereals	0.386	.000
Pulse	-0.419	.000
Vegetables	-0.358	.000
Non-Veg	0.246	.010
Savoury Snacks	0.299	.003
Chutney	-0.287	.004
Sweet and Deserts	0.368	.000
Beverages	0.235	.019
Fruits	0.318	.001
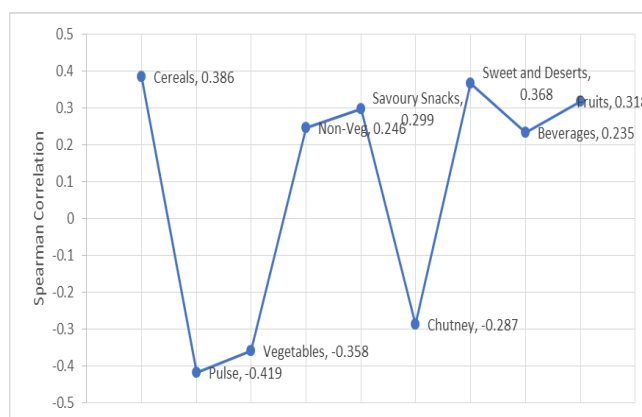
Positive Correlations
1. Cereals: (0.386, p = 0.000): The significant positive correlation indicates that higher cereal intake is associated with increased disease scores. This finding may warrant further investigation into the types of cereals consumed, as processed cereals, often high in sugar and low in fiber, could contribute to adverse health effects.

2. Non -Vegetarian Foods: (0.246, p = 0.010): The moderate correlation suggests that individuals who consume more non-vegetarian items may face higher disease scores. This raises questions about the specific types of non-vegetarian foods consumed, such as processed meats versus lean proteins, and their respective impacts on health.

3. Sweets and Desserts: (0.368, p = 0.000): The strong correlation highlights a significant association between higher sweets intake and increased disease scores. This supports existing literature that links high sugar consumption with various health issues, including obesity and diabetes.

4. Savoury Snacks: (0.299, p = 0.003): The correlation suggests that increased consumption of savoury snacks is also linked to higher disease scores, which may be attributed to their high levels of sodium, unhealthy fats, and calories.

5. Beverages: (0.235, p = 0.019) and **Fruits:** (0.318, p = 0.001): Both show positive correlations, although the relationship with beverages is weaker. This could indicate that certain sugary or alcoholic beverages might contribute to higher disease scores, while the connection with fruits requires further exploration, as fruits are generally considered healthful. This raises the question of whether the correlation reflects the consumption of whole fruits versus processed fruit products.

Negative Correlations
1. Pulses: (-0.419, p = 0.000) and **Vegetables:** (-0.358, p = 0.000): Both food categories show significant negative correlations with disease scores, suggesting that higher intake is associated with better health outcomes. The findings support the nutritional value of pulses and vegetables, which are rich in fiber, vitamins, and minerals, and may have protective effects against chronic diseases.

2. Chutney: (-0.287, p = 0.004): The negative correlation indicates that increased chutney consumption is associated with lower disease scores. This could be due to the presence of healthful ingredients such as herbs and spices, which may offer antioxidant properties.

Correlation of Lifestyle with total subjective score of Diseases

Spearman Correlation	Total disease score	
	P value	**p-value**
Daily Routine	-0.300	.002
Exercise	-0.287	.004
Disturb Sleep	.234	.003
Stress	0.234	.019
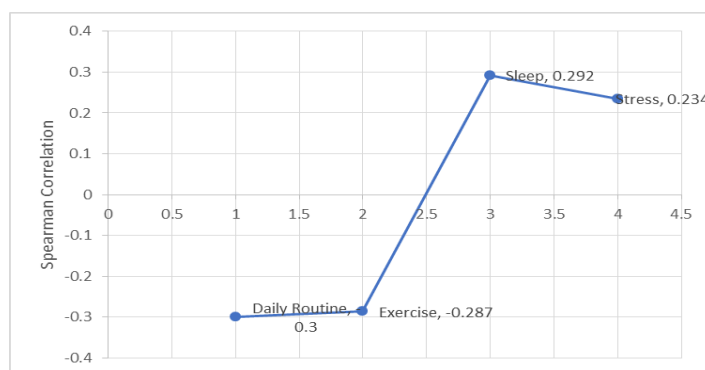
Positive Correlations
1. Disturbed Sleep: (0.234, p = 0.003): The positive correlation indicates that poorer sleep quality is associated with higher disease scores. This finding is particularly concerning, as sleep disturbances can lead to a range of health issues, including weakened immune response and increased susceptibility to chronic conditions. Addressing sleep quality through interventions such as sleep hygiene education and stress management may be essential in reducing disease risk.

2. Stress: (0.234, p = 0.019): Similarly, higher levels of stress correlate positively with increased disease scores. Chronic stress is known to affect physical health adversely, potentially through mechanisms such as increased inflammation and hormonal imbalances. Strategies to manage stress—such as mindfulness practices, relaxation techniques, and social support—could be vital in improving health outcomes.

Negative Correlations
3. Daily Routine: (-0.300, p = 0.002): The significant negative correlation indicates that individuals with better-organized daily routines tend to have lower disease scores. This suggests that structured daily habits,

including regular meal times, work schedules, and leisure activities, may foster healthier behaviours and overall well-being. Encouraging the establishment of consistent routines could serve as an effective strategy for disease prevention.

4. Exercise: (-0.287, p = 0.004): Similarly, higher levels of physical activity are associated with lower disease scores. This correlation aligns with extensive research linking regular exercise to improved physical and mental health. Exercise may reduce the risk of various diseases through mechanisms such as weight management, improved cardiovascular health, and enhanced immune function. Public health initiatives promoting physical activity could play a crucial role in mitigating disease prevalence.

Correlation of Prakriti with total subjective score of Diseases

Spearman Correlation	Total disease score	
	P value	**p-value**
Sharirik	.250	.012
Mansik	.320	.001
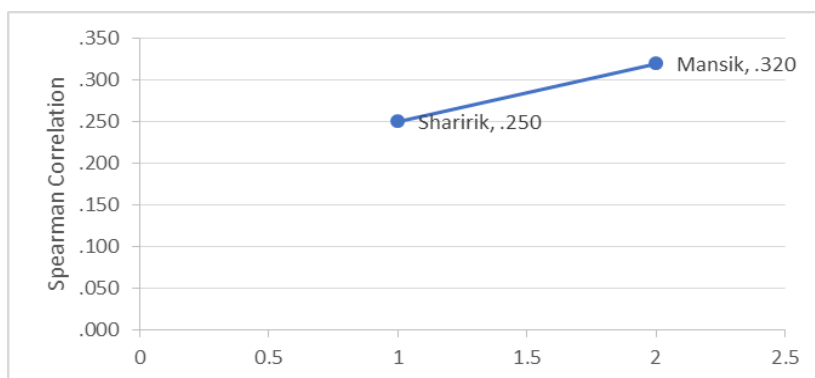
Correlation with Sharirik and Mansik prakriti
The correlation coefficient for Sharirik is 0.250, with a p-value of 0.012. This positive correlation suggests that as physical health or activity improves disease scores tend to decrease, albeit the relationship is moderate. The statistical significance ($p < 0.05$) reinforces the validity of this finding. This correlation aligns with existing literature that highlights the protective effects of physical activity against various diseases. Regular physical activity is known to bolster immune function, improve cardiovascular health, and reduce the risk of chronic conditions, which may help explain the observed relationship. However, the moderate strength of this correlation suggests that while physical health is important, it may not be the sole contributor to disease prevalence.

Association of Diet (Cereals, Sweet and Deserts, Savoury Snacks and Beverages) with total subjective score of Diseases

ANOVA						
Effect of Diet on Subjective score		**Sum of Squares**	**df**	**Mean Square**	**F**	**P**
CEREALS	Between Group	5.055	2	2.527	6.078	.003
	Within Group	40.334	97	.416		
Sweet and Deserts	Between Group	4.323	2	2.161	4.932	.009
	Within Group	42.509	97	.438		
Savoury Snacks	Between Group	3.156	2	1.578	3.716	.028
	Within Group	41.187	97	.425		
Beverages	Between Group	2.731	2	1.365	3.120	0.048
	Within Group	43.042	97	.444		

This ANOVA table assesses the effect of different dietary categories on subjective scores. Here's a detailed breakdown.

The table includes four dietary factors—Cereals, Sweets and Desserts, Savoury Snacks, and Beverages—analyzing the differences in subjective scores among groups based on these diets.

Results by Dietary Factor
1. Cereals
o   **Between Group:** Sum of Squares = 5.055, Mean Square = 2.527, F = 6.078, p = 0.003.
o   This indicates a significant effect of cereal consumption on subjective scores.

2. Sweets and Desserts
o   **Between Group:** Sum of Squares = 4.323, Mean Square = 2.161, F = 4.932, p = 0.009.
o   This suggests a significant impact of sweets and desserts on subjective scores.

3. Savoury Snacks
o   **Between Group:** Sum of Squares = 3.156, Mean Square = 1.578, F = 3.716, p = 0.028.
o   This indicates a significant effect of savory snacks on subjective scores.

4. Beverages
o   **Between Group**: Sum of Squares = 2.731, Mean Square = 1.365, F = 3.120, p = 0.048.
o   This also shows a significant impact of beverage consumption on subjective scores.

Overall, the ANOVA results indicate that all four dietary factors—Cereals, Sweets and Desserts, Savoury Snacks, and Beverages—significantly affect subjective scores. The p-values for each factor are all below the 0.05 threshold, suggesting that variations in these diets are associated with significant differences in subjective scores among the groups.

Association of Lifestyle (Stress, Nature of work and Disturb sleep) with total subjective score of Diseases

Effect of Lifestyle on Subjective score		Sum of Squares	df	Mean Square	F	Sig.
Stress	Between Group	2.956	2	1.344	3.130	0.048
	Within Group	42.354	97	.434		
Nature of work	Between Group	2.785	2	1.311	3.111	0.049
	Within Group	41.187	97	.412		
Disturb Sleep	Between Group	2.423	2	1.421	3.358	.0388
	Within Group	22.241	97	.227		

The table summarizes the effects of various lifestyle factors on a subjective score, including statistics from an analysis of variance (ANOVA).
1. **Factors Analyzed**
•   Stress
•   Nature of Work
•   Disturb Sleep

Results by lifestyle factor
1. Stress
o   Between Groups: SS = 2.956, df = 2, MS = 1.344
o   F = 3.130, Sig. = 0.048

o   This suggests a statistically significant effect of stress on the subjective score at the 0.05 level.

2.   Nature of Work

o   Between Groups: SS = 2.785, df = 2, MS = 1.311

o   F = 3.111, Sig. = 0.049

o   This indicates a significant effect of nature of work on the subjective score, also at the 0.05 level.

3.   Disturb Sleep

o   Between Groups: SS = 2.423, df = 2, MS = 1.421

o   F = 3.358, Sig. = 0.0388

o   This shows a significant effect of disturb sleep on the subjective score, with a slightly more significant p-value than the other factors.

All three lifestyle factors—stress, nature of work, and disturb sleep—show statistically significant effects on the subjective score, indicating that they likely influence individuals' perceptions or experiences as measured by the score.

Association of Prikriti (Body Build and Shoka) with total subjective score of Diseases

ANOVA						
Effect of Sharirik Prakriti on Subjective score		**Sum of Squares**	**df**	**Mean Square**	**F**	**P**
Body_Build	Between Group	6.928	2	3.464	6.464	0.002
	Within Group	51.982	97	.536		
SHOKA	Between Group	2.684	2	1.562	3.561	0.032
	Within Group	23.675	97	.244		

This ANOVA table examines the effect of Sharirik Prakriti (physical constitution) on subjective scores, focusing on two factors: Body Build and Shoka (likely referring to a type of emotional state or stress). Here's a detailed breakdown.

Results by Factor

1.   **Body Build**

o   **Between Group**: Sum of Squares = 6.928, Mean Square = 3.464, F = 6.464, P = 0.002.

o   This indicates a significant effect of body build on subjective scores, as the p-value is well below 0.05.

2.   **Shoka**

o   **Between Group**: Sum of Squares = 2.684, Mean Square = 1.562, F = 3.561, P = 0.032.

o   This also shows a significant impact of Shoka on subjective scores, with a p-value below 0.05.

The ANOVA results reveal that both Body Build and Shoka significantly affect subjective scores. The low p-values for both factors indicate that variations in physical constitution and emotional states are associated with meaningful differences in subjective assessments. Overall, these findings highlight the importance of both physical and emotional aspects of Sharirik Prakriti in influencing subjective well-being.

DISSCUSSION

With 78% of diabetes cases occurring in this age group 40 to 60, it's critical to consider the interplay of various factors contributing to this increase, including vitiated Meda and the rising dominance of Kapha. The susceptibility of middle-aged individuals to diabetes can be attributed to a decline in glucose metabolism, compounded by poor dietary choices and sedentary lifestyles typical in modern society.

The gender distribution reveals a higher prevalence among males (60%), which challenges traditional Ayurvedic beliefs that women are more disease-resistant.

This discrepancy may warrant further exploration into the factors influencing health outcomes across genders.

The predominant Hindu demographic (89%) and high marriage rates (92%). While marriage itself may not be a direct cause of diabetes, the associated lifestyle factors, including dietary habits and social responsibilities, could contribute to increased risk, reflect societal norms that influence health behaviours and stress management. The findings also illustrate the impact of occupation on diabetes prevalence, with 39% of participants engaged in business, suggesting that work-related stress may further exacerbate health issues.

Dietary habits emerge as a significant factor, with over half of participants exhibiting irregular eating patterns (Vishamashana). Such habits can lead to Agnidushti and increased Ama production, further complicating metabolic health. The study's focus on Abhyavarana Shakti and Jarana Shakti reveals A disconnect between food intake and digestive capacity, which is critical for understanding the underlying causes of diabetes.

The majority of participants being overweight or obese underscore the connection between body composition and diabetes risk. In Ayurveda, obesity is linked to vitiation of Kapha and Meda Dhatu, reinforcing the need for a holistic approach to management. Understanding the Prakriti of individuals can guide personalized dietary and lifestyle interventions.

The significant percentage of individuals with a family history of diabetes highlights genetic predisposition as a critical factor. Chronicity data indicates that many patients have been living with diabetes for 5 to 10 years, suggesting a need for early detection and intervention strategies.

The prevalence of poor sleep patterns (67% with Asamyaka Nidra) and irregular bowel habits (53%) reflects broader lifestyle issues that need addressing.

Moreover, the impact of addictions—especially to tea, coffee, and tobacco—further complicates metabolic health and necessitates a comprehensive approach to treatment.

The findings on blood pressure readings are concerning, with 63% of individuals exhibiting levels between 130/90 mmHg and 140/100 mmHg or higher because increase level of insulin may cause retention of Na. This highlights a significant prevalence of hypertension within the population, which is often associated with diabetes and metabolic syndrome.

The study reveals a strong preference for Madhura Rasa, reported by 68% of participants, indicating a dietary inclination toward sweet foods that disrupt Agni. The predominance of Ahara gunas such as Guru, Snigdha, and Sheet further complicates metabolic health. These gunas, particularly when consumed in excess, can contribute to increased Kapha and Meda, setting the stage for the development of Prameha and, ultimately, Madhumeha. The high frequency of foods like Dadhi, which can lead to Shrotoabarodha, emphasizes the need for dietary modifications. Amla and Lavana rasas are also significant contributors to kleda accumulation, which can disturb Agni and promote metabolic imbalances.

The lifestyle factors assessed reveal significant findings, with a high prevalence of Aasyasukha (64%) and Avyayama (73%). Aasyasukha, characterized by sedentary behavior, tends to increase Kapha and can lead to obesity, while the lack of physical activity exacerbates metabolic dysfunction. The irregular sleeping patterns, including Diwaswapan (daytime sleeping) reported by 55% of participants, and Ratrijagarana (night waking) at 38%, are also concerning.

These habits can vitiate both Kapha and Vata, disrupting metabolic processes and increasing the risk of Madhumeha.

Mental health aspects play a crucial role, as indicated by the prevalence of stress-related factors such as Chinta (worry) and Udwega (anxiety). With 70% of participants experiencing Chittodvega (mental agitation) and 54% suffering from Shoka (sadness), these emotional disturbances can impair digestion and metabolic health. Pragyaaparadha, or the misuse of intellect, further complicates the picture, leading to poor dietary choices and exacerbating physical health issues.

The main complaints observed include Prabhoota Mutrata in 86% of patients, Avil Mutrata in 87%, Kara-padatala Daha in 80 %, as type 2 diabetes often remains asymptomatic in the early stages and presents complications after a prolonged duration. Symptoms like Avil Mutrata occur in fewer patients, possibly due to the use of oral hypoglycemic medications or because they have not yet developed all symptoms due to the

relatively lower chronicity of the disease. The chief signs and symptoms observed include Pipasaadhikya and Kshudhadhikya, found in 80% and 85 % of patients, respectively. Other complaints reported are Pindikodweshtana, Swedadhikya, and Alasya/Utsahahani, with frequencies of 54%, 88%, and 96 % respectively. Daurbalya with frequencies 85 % and Shrama Swasa with frequencies 50% were also present in significant percentages, indicating a wide range of symptoms associated with the condition. Additionally, while Klaibya reported in 51% patients, Tandra/Nidradhikya with frequencies 63%, Purishbadhata with frequencies 53% are reported.

In ayurvedic perspective, refined cereals can aggravate kapha dosha, leading to weight gain and impaired digestion due to their low nutrient content and high glycaemic index. This aligns with modern concerns about processed cereals, which can cause rapid blood sugar spikes. Even whole grains, if consumed excessively without balance, can contribute to high carbohydrate intake that complicates diabetes management.

Excessive consumption of non-vegetarian foods, especially red and processed meats, disrupts dosha balance, aggravating pitta and kapha doshas. This can lead to inflammation, digestive issues, and the formation of ama (toxins), which hinder metabolic functions. Modern medicine highlights the risks associated with saturated fats and cholesterol in these foods, increasing the likelihood of insulin resistance.

From an Ayurvedic perspective, sweets are heavy and can increase kapha, leading to sluggishness and further complications in diabetes management. The high sugar content promotes ama formation and unhealthy cravings. Modern views focus on the high glycaemic index of many sweets, which leads to dangerous blood sugar spikes and contributes to empty calorie consumption.

Savory snacks often contain high levels of salt and unhealthy fats, aggravating pitta dosha and contributing to inflammation. Ayurveda warns that these snacks can also promote ama, complicating metabolic regulation. From a modern standpoint, the high sodium and unhealthy fats in processed snacks can increase the risk of hypertension and insulin resistance, making them unsuitable for diabetics.

Sugary and caffeinated beverages disrupt dosha balance, leading to weight gain and digestive disturbances. High sugar content in these drinks exacerbates ama formation, complicating blood sugar management. Modern medicine emphasizes the high glycemic index of many beverages, which can lead to rapid blood glucose spikes, particularly harmful for those with diabetes.

Conversely, vegetables and pulses are praised in both Ayurvedic and modern contexts for their health benefits.

Rich in fiber, they help stabilize blood sugar levels and provide essential nutrients without causing rapid spikes in glucose. Their anti-inflammatory properties are crucial for managing diabetes and promoting overall health.

Chutneys, made from fresh herbs and vegetables, support digestion and metabolic health in Ayurveda. They are low in calories and can enhance meals without adding harmful sugars or fats. Modern medicine supports this, noting that vegetable-based chutneys often have a low glycemic index and can aid in glucose regulation.

From an Ayurvedic viewpoint, quality sleep, or "Nidra," is crucial for maintaining dosha balance and overall health. Poor sleep disrupts vata and pitta doshas, increasing stress and inflammation, which are risk factors for diabetes. Insufficient rest can also impair digestion and lead to the accumulation of ama (toxins), complicating blood sugar management. Modern medicine supports this, linking sleep disturbances to hormonal imbalances, particularly increased cortisol levels that elevate blood sugar and appetite, contributing to insulin resistance.

In Ayurveda, stress is seen as a disruptor of dosha balance, particularly vata and pitta. It leads to the production of ama and poor nutrient absorption, exacerbating cravings for unhealthy foods. Chronic stress is associated with increased inflammation and weakened immunity, raising diabetes risk. Modern medicine identifies stress as a trigger for cortisol and adrenaline release, leading to insulin resistance and unhealthy eating behaviors that can contribute to weight gain—a significant risk factor for type 2 diabetes.

Ayurveda emphasizes "Dinacharya," or a balanced daily routine, as vital for health. Irregular sleep, meal timings, and lack of physical activity disrupt the body's natural rhythms, leading to dosha imbalances and the accumulation of ama, which can result in metabolic dysfunction. From a modern perspective, disorganized routines lead to unhealthy lifestyle choices, such as sedentary behavior and irregular eating patterns, increasing diabetes risk through fluctuations in blood sugar and insulin resistance.

Regular exercise, or "Vyayama," is vital in Ayurveda for maintaining dosha balance and promoting digestion. A sedentary lifestyle can lead to sluggishness, increased kapha dosha, and weight gain, impairing glucose metabolism and raising diabetes risk. Modern medicine recognizes physical inactivity as a major risk factor for type 2 diabetes, as it leads to weight gain and decreased insulin sensitivity, further complicating blood sugar regulation.

In Ayurveda, the concept of "Prakriti" underscores the significance of body types in determining individual health predispositions. Those with a predominance of kapha dosha typically have a heavier build and may face challenges like sluggish digestion and weight gain. Such imbalances can lead to the accumulation of ama (toxins) and heighten the risk of insulin resistance, a precursor to type 2 diabetes. Ayurveda stresses personalized dietary and lifestyle practices to maintain balance, emphasizing that neglect can result in metabolic issues.

From a modern medical perspective, excess body fat, especially visceral fat around the abdomen, is a significant risk factor for diabetes. High levels of visceral fat are linked to insulin resistance and increased inflammation, disrupting glucose metabolism. Studies indicate that individuals with a higher body mass index (BMI) or obesity face a markedly increased risk for developing type 2 diabetes. Additionally, body fat distribution plays a crucial role; those with an apple-shaped body are at higher risk than those with a pear-shaped body. Maintaining a healthy weight through balanced nutrition and regular physical activity is essential for diabetes prevention.

In Ayurveda, Shoka represents a deep emotional disturbance that disrupts dosha balance, particularly affecting vata and pitta. Chronic grief can elevate stress hormones like cortisol, which interfere with metabolic functions and promote insulin resistance. This can lead to the accumulation of ama due to weakened digestion and manifest as cravings for unhealthy foods, resulting in poor dietary choices and weight gain—both significant risk factors for diabetes. Grief can also diminish motivation for physical activity, fostering a sedentary lifestyle that exacerbates health issues.

Modern medicine corroborates these findings, linking prolonged grief and emotional distress to elevated stress levels, which directly impact blood sugar regulation. High cortisol levels associated with chronic grief can lead to increased blood glucose through gluconeogenesis in the liver, contributing to insulin resistance. Moreover, emotional distress often triggers unhealthy coping mechanisms like overeating or bingeing on high-sugar and high-fat foods, compounding the risk of weight gain and diabetes.

CONCLUSION
In this study, we found that the primary reasons for illness in the majority of individuals are the excessive consumption of Apathya compared to Pathya, physical inactivity, an improper lifestyle, and stress. Ayurveda emphasizes the importance of following a balanced diet and lifestyle, as outlined by the Acharyas, to promote health. Our findings highlight the significant role of these principles, particularly in relation to the increasingly common condition of Madhumeha (diabetes).

Additionally, we assessed the concept of Prakriti, which is considered to be fixed at birth. This means that one's inherent nature does not change. However, individuals who adhere to appropriate Pathya and Apathya in their diet and lifestyle according to their Prakriti can lower

their susceptibility to disease, thereby reducing the risk of developing Madhumeha in the future.

The observation and result from the survey study show the positive linear correlation between subjective scores of Madhumeha Roga and cereals, non-veg, sweet and dessert, savoury snacks, breverages, fruits in diet and with disturb sleep, stress in lifestyle. Negative correlation with pulse, vegetable, chutney in diet and with daily routine and exercise in lifestyle with madhumeha Roga & positive correlation with sharirik prakriti and strong positive correlation with mansik prakriti with total subjective score of madhumeha roga.

REFERENCE
1. Charaka Samhita, Vidhyotini Vyakhaya, By Shir Satyanarayana Shastri, Published by Chaukhamba Bharti Academy.
2. Charaka Samhita Uttarardha, Vidhyamanorma V ykhaya, By Vidhyadhara Shukla, Published by Chaukhamba Bharti Academy.
3. Charaka Samhita with the Ayurveda Deepika commentary of Chakrapanidatta, Chaukhambha Surbharati Prakashana, Varanasi.
4. Charaka Samhita text with English translation and critical exposition based on Chakrapanidatta commentary by Dr. Ram Karan Sharma and Vd. Bhagwan Dash.
5. Susruta Samhita of Maharsi Susruta, By Dr. Anant Ram Sharma.
6. Sushruta Samhita with the Nibandha Samgraha Commentary of Sri Dalhanacharya, Chaukhambha Surbharati Prakashan, Varanasi.
7. Ashtanaga Hridaya of Aacharya Vagbhata Virachita, Vidhyotini Vyakhaya, Sampadaka Vd. Yadunandana Upadhayay.
8. Ashtanga Hridaya composed by Vagbhata with the commentaries Sarvangasundari of Arunadatta and Ayurveda Rasayana of Hemadri, Chaukhambha Orientalia, and Varanasi.
9. Bhavprakasha Nighantu of Sri Bhavamisra commentary by Dr. K.C. Chunekar, Chaukhambha Bharati Academy, Varanasi.
10. Madhava Nidana by Madhavakar with Madhu Kosha and Vidyotini Commentary, Edited by S, Shastri and Y. Upadnaya, Chaukhambha Sanskrit Sansthana.
11. Introduction to Kayachikista: C. Dwarkanath, Chuakhambha, Varanasi.
12. PJ Mehta's Practical Clinical Medicine by PJ Mehta.
13. Harrison-Principle of internal medicine, 21th Edition, Edited by Kart. J. Issel bacher, Mc. Grow Hill International Book Company.
14. Pathology Illustrated by A. D. T. Govan, P.S. Macfarlane & R. Callander, Churchill Livingstone.
15. Diet assessment proforma dietary guidelines for indians -a manual (national institute of nutrition Hyderabad, India).
16. Sleep assessment proforma (sleep questionnaire for adults - oxford university hospitals).
17. Stress assessment proforma (Perceived Stress Questionnaire).
18. Physical activity related assement proforma (Global physical activity questionnaire (GPAQ).
19. Exercise assessment proforma The Essential Properties of Yoga Questionnaire (EPYQ).
20. Prakriti assessment proforma BY CCRAS.