

## ASCERTAIN THE CONSUMPTION OF DADHINI AND GUDAVAIKRUT PRODUCTS AMONG PATIENTS OF MADHUMEHA (DIABETES MELLITUS TYPE 2) – AN OBSERVATIONAL SURVEY STUDY

<sup>1</sup>Dr. Virendra Shah, <sup>2\*</sup>Dr. Smita Dhurde

<sup>1</sup>PhD Scholar, Professor, Dept. of Samhita and Siddhant, CSMSS Ayurved Mahavidyalaya, Kanchanwadi, Chhatrapati Sambhajnagar (Aurangabad), Maharashtra, India.

<sup>2\*</sup>Ph.D. Guide, Professor & HOD, Dept. of Samhita and Siddhant, CSMSS Ayurved Mahavidyalaya, Kanchanwadi, Chhatrapati Sambhajnagar (Aurangabad), Maharashtra, India.

Article Received on 05 Nov. 2025,  
Article Revised on 25 Nov. 2025,  
Article Published on 01 Dec. 2025,

<https://doi.org/10.5281/zenodo.17800482>

### \*Corresponding Author

**Dr. Smita Dhurde**

Ph.D. Guide, Professor & HOD, Dept.  
of Samhita and Siddhant, CSMSS  
Ayurved Mahavidyalaya,  
Kanchanwadi, Chhatrapati  
Sambhajnagar (Aurangabad),  
Maharashtra, India.



**How to cite this Article:** <sup>1</sup>Dr. Virendra Shah, <sup>2\*</sup>Dr. Smita Dhurde (2025). Ascertain The Consumption of Dadhini and Gudavaikrut Products Among Patients of Madhumeha (Diabetes Mellitus Type 2) – An Observational Survey Study. World Journal of Pharmaceutical Research, 14(23), 1752–1759.

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### ABSTRACT

*Ayurveda Samhitas* have described some fundamental theories to understand its philosophy as well as entire science. *Madhumeha* (Diabetes Mellitus) its definition, etiology, symptomatology, pathogenesis, prodromal symptoms, complications, principles of management and various concepts of Medical and *Panchakarma* treatment are described in detailed. Genetic predisposition of the disease is described in *Charaka Samhita* (1200 AD.). Apart from hereditary factors, certain *Ahara* (diet) and *Vihara* (life style) are considered as causative factors of *Madhumeha* (diabetes mellitus). Diabetes affects an estimated 537 million adults worldwide between the age of 20 to 79 (10.5% of all adults in this age range). By 2030, 643 million people will have diabetes globally, increasing to 783 million by 2045. *Dadhini* and *Gudavaikrut* are the *Ahariya Dravya* (dietary items) explained in the *Ayurvedic* texts as etiological factor for manifestation of *Madhumeha* (diabetes mellitus type-II). This study aims to ascertain the consumption

of *Dadhini* and *Gudavaikrutam* (Milk and Jaggery products) among the *Madhumeha* patients. In this study 300 patients of *Madhumeha* i.e. Diabetes Mellitus type 2 underwent the

screening for consumption of these products. It was observed that the DM type 2 patients are aware for cessation of sugar or sweet products but they are not aware about the consumption of milk and jaggery products that are the causative or triggering factor for *Madhumeha* / *Prameha* as per *Ayurveda*.

**KEYWORDS:** *Ayurveda Nidana* for *Prameha*, Etiological factors for Diabetes, Milk products, Jaggery products.

## INTRODUCTION

In order to comprehend *Ayurvedic* philosophy and science as a whole, the *Samhitas* have described certain basic theories. Theory of *Tridosha* is important in understanding about health and about disease.<sup>[1]</sup> *Vata*, *Pitta* and *Kapha* are the three body *doshas* that are explained by the *Tridosha* theory. When they are in balance, they are a part of a healthy body; when that balance is upset, they are a part of illness.<sup>[2]</sup> *Acharya Charak* has described numerous traits of *Doshas* and how they affect a person's physiology and physical makeup of the body, known as *Prakriti* which is based on the dominance of *Doshas*.<sup>[3]</sup>

The illness nearly every ancient *Ayurvedic* text that is currently accessible describes *Madhumeha*. A thorough description is given of *Madhumeha*, including its diagnosis, etiology, symptomatology, pathogenesis, prodromal symptoms, complications, management principles, and several medical and *Panchkarma* treatment concepts. The *Charak Samhita* (1200 AD) describes the genetic propensity of this disease. Apart from hereditary certain *Ahara* (diet) and *Vihara* (life style) are considered as causative factors of *Madhumeha* (*Madhumeha* (Type 2 Diabetes Mellitus)).<sup>[4]</sup>

Dr. Henry Dogler, chief, Mount Sinai Hospital, New York in his book 'HOW TO LIVE WITH DIABETES' writes that, "Perhaps a century from now physician will look back to us. Shake their heads with benign tolerance and say – What the physicians of the mid-twentieth century called diabetes was really a whole range of ailments, each with different set of causes but with one symptom in common – abnormally high blood glucose since they couldn't distinguish between the causes of the different ailments, they couldn't neither prevent nor cure them. Instead, they treated the common symptoms using various means to keep the blood sugar and urine sugar under control."<sup>[5]</sup>

*Madhumeha* (Type- 2 Diabetes Mellitus) is becoming more common in India, which is a serious issue as because of its unknown etiology and irreversible effects.<sup>[6]</sup> This is an issue for *Ayurvedist* as well as contemporary medical professionals.

The *Ahara* (diet) and *Vihara* (lifestyle) of today are significant risk factors for the development of this illness. According to *Prakriti* (psychosomatic constitution of a person), Ayurveda promotes addressing risk factors, *Ahara* (diet), *Vihara* (lifestyle), and disease prevention.

### Definition of *Madhumeha*

Therefore, the definition is the clinical entity in which the patient voids the urine in accordance with *Madhu* (Honey), as the *Meha* term here primarily refers to the excretions of pee, i.e. of *Kashaya*, and *Madhura* rasa, *Ruksha* guna, and resembles like honey. *Madhumeha* is the illness or condition where the entire body becomes sweet.<sup>[7]</sup>

Sushruta has narrated the term *Kshaudrameha* in place of *Madhumeha*. *Kshaudra* is nothing but the synonym of *Madhu* (Honey) thus, it is undoubtedly resembling with *Madhumeha*. Further Sushruta has asserted that when *Prameha* is uncompensated all the types of *Pramehas* gets converted in *Madhumeha*.<sup>[8]</sup>

## MATERIAL AND METHODS

### *Apathyanimitaja* (Acquired)

*Acharya Charaka* has listed etiological factors according to predominance of *Dosha* in *Nidan Sthana* and *Chikitsa Sthana*, as follows.<sup>[9]</sup>

आस्यासुखं स्वप्नसुखं दधीनि ग्राम्यौदकानूपरसाः पयांसि ।

नवान्नपानं गुडवैकृतं च प्रमेहहेतु कफकृच्च सर्वम् ॥

(च. चि. ६ / ४)

The causes of *Prameha* include idle sitting, sleeping too much, consuming too much curd, milk and its products, meat soup from domestic, aquatic, and marshy animals, new cereals and beverages, jaggery products, and many other *Kapha*- Vitiating practices.<sup>[10]</sup>

- i) Every etiological factor possessing attributes like *Snigdha*, *Shita*, *Guru*, *Pichhila*, *Madhura* and *Shlakshna*.

- ii) Excessive burden over digestion is the primary cause of each and every etiological factor and as a result of its *Upachaya* of *Aparipakva Dhatus* (accumulation of undigested body tissues) take place.
- iii) All the etiological factors lead to formation of excessive excreta (*Malas*) i.e. Urine (*Mutra*) and Sweat (*Sweda*).
- iv) All the etiological factors responsible for deposition of excess and unwanted matter in the body i.e. excess of vitiated *Meda*(fat), *Kleda*(body fluid), *Lasika* (lymph) etc.
- v) All the behavioral etiological factors responsible for more energy conservation and its less expenditure, leads to lethargy and obesity.

### Inclusion criteria

300 diagnosed patients of *Madhumeha* (Diabetes Mellitus Type- 2) irrespective of gender were screened in this research study.

### Assessment criteria

#### 1. Milk and Milk Products

Table no. 1.

Sr. No.	Characteristics	Gradation
1	No plain milk or tea without milk	0
2	Only once milk in a tea, sometimes Curd/Ghee/Buttermilk	+
3	Milk in tea twice daily + one glass of plain milk daily Sometimes Curd and Ghee	++
4	Milk in a tea > 2 times daily + one glass milk, daily Curd or Ghee 2-3 times daily, Sweets of milk products occasionally	+++
5	Milk in tea > 5 times daily, Plain milk/Buttermilk daily > 1 glass, Daily sweets made from <i>khoa</i> (condensed milk solids) up to more than one time.	++++

#### 2. Sugar and Jaggery Products

Table no. 2.

Sr. No.	Characteristics	Gradation
1	No free sugar tea and coffee without sugar	0
2	Sugar in tea, coffee once daily, sweets, fruits daily once.	+
3	Sugar with tea/ coffee, milk with sugar twice daily, fruits 1 – 2 / day, sweets 1-2 times	++
4	Sugar with tea/ coffee up to 4 times, Fruits 3-4 times, Sweets repeatedly	+++
5	Sugar with tea / coffee/milk/ aerated drinks/ alcohol routinely daily, Sweets > 4 times daily, Rice as main course diet, Fruits > 4 times	++++

**OBSERVATIONS****Table no. 3: Age wise distribution.**

Age Group (years)	No. of patients	Percentage
35 to 46	75	25.00%
47 to 58	137	45.67%
59 to 70	83	27.67%
<b>Total</b>	<b>300</b>	<b>100 %</b>

The above table reveals that – majority of the patients i.e. 137 (45.67 %) were reported in age group 47 to 58 years, 83 (27.67 %) patients were found in the age group of 59 to 70 years and 75 (25 %) patients were reported in the age group of 35 to 46 years.

**Table no. 4: Gender wise distribution.**

Gender	No. of patients	Percentage
Female	118	39.33%
Male	182	60.67%
<b>Total</b>	<b>300</b>	<b>100 %</b>

The above table shows that – Maximum 182 (60.67 %) patients were Male and 118 (39.33 %) patients were Female.

**Table no. 5: BSL – Fasting (in mg/dl) wise distribution.**

BSL – Fasting (in mg/dl)	No. of patients	Percentage
< 126	42	14.00%
≥ 126	258	86.00%
<b>Total</b>	<b>300</b>	<b>100 %</b>

The current study reveals that – majority of the patients i.e. 258 (86 %) were having BSL – Fasting greater than or equal to 126 mg / dl and 42 (14 %) patients were having BSL – Fasting less than 126 mg / dl.

**Table no. 6: BSL – Post Prandial (in mg / dl) wise distribution.**

BSL – Post Prandial (in mg/dl)	No. of patients	Percentage
< 200	62	20.67%
≥ 200	238	79.33%
<b>Total</b>	<b>300</b>	<b>100 %</b>

The above table conclude that – majority of the patients i.e. 238 (79.33 %) were having BSL – Post Prandial greater than or equal to 200 mg / dl and 62 (20.67 %) patients were having BSL – Post Prandial less than 200 mg / dl.

**Table no. 7: HbA1c wise distribution.**

BSL – Post Prandial (in mg/dl)	No. of patients	Percentage
< 5.6	0	0.00%
5.6 to 6.4	2	0.67%
≥ 200	298	99.33%
<b>Total</b>	<b>300</b>	<b>100 %</b>

The above table shows that – majority of the patients i.e. 298 (99.33 %) were having HbA1c greater than or equal to 6.5 and 2 (0.67 %) patients were having HbA1c in between 5.5 to 6.4.

**Table no. 8: Sugar & Jaggery products wise distribution.**

Sugar & Jaggery products	No. of patients	Percentage
No	6	2.00%
Yes +	128	42.67%
Yes ++	116	38.67%
Yes +++	47	15.67%
Yes ++++	3	1.00%
<b>Total</b>	<b>300</b>	<b>100 %</b>

The present study indicates that – Sugar and Jaggery products was Yes + in 128 (38.67 %) patients, it was Yes ++ in 116 (38.67 %) patients, it was Yes +++ in 47 (15.67 %) patients, it was absent in 6 (2 %) patients and it was Yes ++++ in 3 (1 %) patients.

**Table no. 9: Milk & Milk products wise distribution.**

Milk & Milk products	No. of patients	Percentage
No	3	1.00%
Yes +	31	10.33%
Yes ++	155	51.67%
Yes +++	68	22.67%
Yes ++++	43	14.33%
<b>Total</b>	<b>300</b>	<b>100 %</b>

The current study shows that – Milk & milk products was Yes ++ in 155 (51.67 %) patients, it was Yes +++ in 68 (22.67 %) patients, it was Yes ++++ in 43 (14.33 %) patients, it was Yes + in 31 (10.33 %) patients and it was not present in 3 (1 %) patients.

## DISCUSSION

The definition of *Madhumeha Roga*, as described in *Ayurveda* is similar to that described by ancient western physicians. Ancient *Ayurvedists* were aware that urine contains sugar, but the *Samhitas* do not explicitly declare this. Instead, they describe the sweetness of urine and note that a swarm of flies and ants attack diabetics' pee.

The literal meaning of the term *Madhumeha* is the disease in which excessive sweet urine is excreted. The same meaning of the term diabetes is given in ancient western books of medicine. Diabetes means a passer through and mellitus means honey.

Diabetes has reached epidemic proportions and threatens to pose a growing worldwide public health care burden. The number of cases of diabetes is estimated to increase from 171 million worldwide in 2002 to 366 million in 2030. India saw the largest absolute rise in the number of diabetics.

Cessation of sweet / sugar by patients of diagnosed with Diabetes Mellitus Type 2 is seen but the diet of diabetes mellitus patients includes Milk and Milk products which is termed as a causative factor for the *Prameha* / *Madhumeha* as per *Ayurveda*.

## RESULT

- Milk & Milk Products and *Madhumeha* (Type- 2 Diabetes Mellitus) are associated or interdependent.
- Sugar & Jaggery Products and *Madhumeha* (Type 2 Diabetes Mellitus) are associated or interdependent.

**Conflict of Interest** – None

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