ABSTRACT:
Despite our profound understanding of the underlying molecular processes, cellular events, and interventional techniques to combat its development and consequences, diabetes is becoming an epidemic. People are turning to Ayurveda in the hopes of discovering a complete cure for this disease. Ayurveda has a long history of treating diabetes patients and offers benefits over the modern biomedical approach. Neither of these approaches, however, appears to be capable of completely resolving the diabetic problem. An integrated method that employs both systems appears to be preferable to using only one of these. Adopting an integrated strategy, on the other hand, necessitates a thorough understanding of diabetes pathophysiology according to both systems. Diabetes is frequently linked to madhumeha, an Ayurvedic condition. This association, we believe, is incorrect and is based on an incomplete understanding of diabetes pathophysiology. According to this article, diabetes mellitus should be associated with sthauyla, kaphaja prameha, pittaja prameha, or vataja prameha (including madhumeha) depending on the pathophysiology and clinical symptoms of a specific patient. It affects millions of people worldwide and has become a significant public health concern. While the physical complications of Prameha are well-documented, its impact on mental health is often overlooked. This article aims to explore the connection between Prameha and mental health, shedding light on the consequences it can have on individuals’ psychological well-being.

KEYWORDS: Anxiety, Diabetes, Depression, Prameha, Madhumeha

INTRODUCTION:
Diabetes mellitus has recently gained national attention as the world’s leading silent killer. According to WHO, India will have the fastest growing number of diabetics. It is a rapidly developing metabolic condition with numerous aetiologies that is defined by persistent hyperglycaemia with disruptions in carbohydrate, lipid, and protein metabolism as a result of the body’s inability to produce enough insulin and/or use it properly. Between 1995 and 2025, the number of diabetic patients in India is expected to increase by 195%. The problem with diabetes is that it is difficult to detect in its early stages. However, following an Ayurvedic preventative plan from the start will help you avoid or control this condition if you already have it.\textsuperscript{1-4} It is a medical condition characterized by an accumulation of glucose in a person’s urine and blood. This is referred to as hyperglycaemia. Diabetes is derived from two words: diabetes (Greek for “siphon through”) and mellitus (Latin for “sweetened with honey”). Diabetes mellitus is a metabolic disease caused by pancreatic dysfunction, which produces the hormone insulin. Despite profound understanding of underlying molecular mechanisms and cellular events, as well as phenomenal advances in medical technology and medication discovery, biomedicine remains unable to treat diabetes. Diabetes is increasing the economic burden, morbidity, and mortality. Ayurveda, an ancient Indian school of medicine that emerged during the Vedic period, seeks to protect and maintain a healthy person’s health while also curing the sick in a holistic manner\textsuperscript{5-6}. Ayurvedic medicine is well-known for its ability to treat complex multifactorial diseases. However, neither Biomedicine nor Ayurveda is capable of completely curing diabetes. Both medical systems have advantages and disadvantages, and an integrated strategy appears to be a better way to address the diabetic problem. To be effective, we must first understand diabetes in terms of Ayurvedic concepts and diseases with similar genesis and presentation. Diabetes is not a new disease. It is a medical condition that has been around since antiquity. In the works of Indian physicians, there is a group of clinical disorders defined by polyuria that are referred to as prameha.\textsuperscript{7} In their classic treatises Charaka Samhita, Sushruta Samhita, and Astanga Hridaya, Charaka, Sushruta, and Vagbhata successively characterized the condition prameha as a series of complicated urinary problems. Diabetes mellitus and prameha have a similar origin and clinical symptoms. Diabetes mellitus, on the other hand, is now linked to madhumeha, the final stage of prameha. Madhumeha has become so popular that it is frequently used as a synonym for diabetes mellitus. This association, we believe, is incorrect and is based on an incomplete understanding of diabetes pathophysiology. It is critical to recognize that madhumeha and diabetes mellitus are not the same thing. Diabetes and madhumeha or prameha should be correlated based on a thorough examination of their etiology in both systems.

Diabetes in Ayurveda: Diabetes is a metabolic illness that is not always associated with a single Ayurvedic ailment. However, based on origin, pathophysiology, and clinical manifestations, it can be linked to
a variety of diseases. The following conditions must be closely examined in order to identify connections and manage diabetes and its consequences.

1. Sthaulya’s Prameha
2. Madhumeha
3. Prameha

Sthaulya is classified as one of the eight condemnable states (ashta-nindaniya) of the human body, but prameha is classified as one of the eight main illnesses (mahagada) by Indian physicians, demonstrating the disease’s severity and complexity. Prameha is recognized as sahaja (due to genetic causes) and apathyanimittaja (due to faulty diet and regimens). Both sthaulya and apathyanimittaja prameha share similar etiology and caused by excessive nourishment (santarpanajanya) and accumulation of excess fat in the body (medopradoshaja). Genetics (bija-swabhava) and psychological factors [e.g., gratified life (harshanityama) and lack of mental stress (achintana)] also play important role in causation of both sthaulya and prameha. Sthaulya in itself is a causative factor (nidanarthakararoga) of prameha. Sthaulya manifests as udara-parshwa-vriddhi and makes a person vulnerable to prameha. Despite this proclivity, not every obese person develops prameha. Other components required for prameha evolution include bahvah abaddha meda (excess, aberrant, and unbound meda dhatu), bahu dravah shleshma (liquid quality of kapha), and sharir-shaithilya (looseness of body). The preceding discussion shows that multiple factors are involved in the pathogenesis of this condition.10 The first is kapha, which increases in quantity and also liquefies (bahu dravah shleshma), followed by shaithilya or shithilikarana (looseness) of the body, laying the groundwork for the initiation of pathological processes, i.e., the body’s vulnerability to disease. Then, kapha interacts with excess (bahu) and unbound/unutilized (abaddha) meda, mamsa, and kleda, resulting in a wide range of illness manifestations. Many sthaulya and prameha prodromal symptoms (poorvaroopa) are common, including meda dhatuvriddhi, excessive thirst, hunger, terrible body odor, and so on.

Samprapti ghatakas
- Dosha (humur) – vata, pitta, kapha
- Dushya – meda, mamsa, kleda, rakta, vasa, majja, lasik a, rasa and ojas
- Srotas (channel) – mootravaha
- Srotodusti – atipravrutti
- Agni – dhatvagni
- Udhbhavasthana – kostha
- Vyaktasthana – mootravaha srotas (urinary tract)
Clinical features
According to Ayurveda
Malina danta - Tartar in teeth
Deha chikkanata - Excess glossy/oily skin
Trishna - Excessive thirst
Madhuryamasya - Feeling sweetness in mouth
Prabhuta mutrata - Excessive urination
Avila mutrata - Turbid urination
Madhu samana varna - Urine having colour of honey
Sweda - Excess perspiration

According to Modern science
i. Polyuria (Excessive Urine)
ii. Polyphagia (Excessive Hunger)
iii. Polydipsia (Excessive Thirst)
iv. Exhaustion/Tiredness
v. Body ache
vi. Giddiness
vii. Polyneuritis (Numbness/ Tingling)
viii. Visual disturbance

Prognosis: Charaka describes the prognosis in three categories
1. Sadhya - Curable: Patients who were detected early in the illness's outset, who are sthoola (obese), and whose condition originated in apathyaja.
2. Yapya - Palliable: Pittaja prameha and some kinds of kaphaja prameha can be controlled with therapy (palliative management).
3. Asadhya - Incurable: Vataja depicts an incurable kind of prameha and hereditary diabetes, as well as a krisha (lean) patient suffering from Sahaja variety.

Prameha and its impact on mental health:
Research suggests a strong correlation between Prameha and mental health issues. The chronic nature of Prameha, combined with the need for lifestyle modifications, can lead to various psychological challenges. The following are some ways in which Prameha can impact mental health:

1. Emotional Distress: Living with Prameha can cause emotional distress, as individuals may experience feelings of frustration, anxiety, and sadness. The constant management of blood sugar levels, adherence to dietary restrictions, and potential complications can contribute to psychological strain.

2. Depression: Prameha has been linked to an increased risk of depression. The burden of managing a chronic illness, coupled with the potential impact on one's quality of life, can lead to feelings of hopelessness, low self-esteem, and persistent sadness.

3. Anxiety: Anxiety disorders are prevalent among individuals with Prameha. The fear of hypoglycemic episodes, long-term complications, and the need to monitor blood sugar levels regularly can contribute to heightened anxiety levels.

4. Stress: The management of Prameha can be demanding, requiring constant monitoring, medication adherence, and lifestyle adjustments. The stress associated with these aspects can have detrimental effects on mental health, leading to symptoms such as irritability, difficulty concentrating, and sleep disturbances.

5. Cognitive Impairment: Some studies have suggested a potential link between Prameha and cognitive decline. High blood sugar levels can affect brain function, leading to difficulties with memory, attention, and decision-making.
Prevention and Management Strategies of Prameha and Mental Health:
Recognizing the impact of Prameha on mental health is crucial for effective prevention and management. Healthcare professionals should consider the following strategies:

1. **Integrated Care:**
Collaboration between healthcare providers specializing in endocrinology and mental health is essential. Integrated care models can ensure comprehensive support for individuals with Prameha, addressing both their physical and psychological needs.

2. **Patient Education:**
Providing individuals with Prameha with accurate and accessible information about their condition, including potential mental health implications, can empower them to take an active role in their own care. Education on stress management techniques and coping strategies can also be beneficial.

3. **Psychological Support:**
Mental health professionals can play a vital role in supporting individuals with Prameha. Therapy, such as cognitive-behavioral therapy (CBT), can help individuals manage emotional distress, develop healthy coping mechanisms, and improve overall well-being.

**Ayurveda treatment:**
According to Ayurveda the line of treatment of Prameha is strictly on individual’s constitution. It is based on an entire change in the lifestyle of the person, along with medication and diet, the patient is also advised to lead a healthy lifestyle and live an active life. Even mental aspects of the disease are stressed.

**In Sthulya (Obese)** - The treatment must be mainly based on proper utilization of excess fat i.e.; he should be given: a). Shodhana (purification process), b) Apatarpana - reduction in body weight by way of diet control or drugs, Vyayama (exercise) etc. Fasting, Diet control, cleansing therapies (vamana, virechana, Basti), Physical exercise should be done. In all classics, ahara dravyas are described in detail and they cover all the food groups such as Cereals, pulses, vegetables, fruits, etc. But according to Ayurveda one should start with light diet (laghu bhaksha, laghu ahara) and then gradually increase the quantity of food. It is a rule that one should keep complete attention on the condition of Agni i.e. digestion. Diabetes being a disease of deranged metabolism, special attention should be kept on the condition of digestion and metabolism.

**Exercise and Yoga:** However, Ayurveda recommends starting with a light diet (laghu bhaksha, laghu ahara) and gradually increasing the amount of food. It is a rule to pay close attention to the status of Agni, or digestion. Because diabetes is a metabolic disorder, additional care should be paid to digestion and metabolism.\(^{15-17}\)
- Vyayarma (exercises)
- Niyuddha (fighting)
- Kreeda (games)

For the stress due to Madhumeha individual therapy like Stawawajay chikitsa, Pranayama and appropriate diet need for the control mental stress as well as blood sugar in the body.

**Drugs:** \(^{15-18}\)

**Single formulations:**
1. Guduchi swarasa (Tinospora cardifolia)10ml twice a day with honey
2. Amalaki Curna (Phyllanthus emblica) – 6 gm twice a day with honey
3. Karavelakka Phala Churna (Momordica charantia) – 3 gm twice a day with water

**Compound preparations:**
1. Chandraprabha Vati, 500 mg twice a day with water/milk.
2. Vasant kusumakara Ras, 125 mg twice a day with Honey.
3. Meghanada Rasa (Purified parada, gandhaka, oxides of kanta loha, teekshna loha and swarnamakshika, shilajatu, manashila, triphala and haridra. Prepared with bhringaraja juice), 125 mg twice a day with Ajadugdha/Godugdha
4. Mauktika kamadughaha, 125 mg twice a day with Ajadugdha/Godugdha
5. Praval bhasma, 100 mg twice a day 125 mg twice a day

**Medicated Ghee:**
1. Dhanvantara ghrita 5 to 10 gm/day
2. Dadimadya ghrita 5 to 10 gm/day

**Kwatha (decoction):**
1. Darvi, Surahwa, Triphala, Musta
2. Triphala, darvi, Vishala, Musta.

**DISCUSSION:**
Diabetes is of two types: Type I (madhu meha) or insulin dependent (IDMM) diabetes and Type II (or non-insulin dependent) diabetes. Type 1 diabetes mellitus affects approximately 10% of all diabetics. This type of diabetes is considered incurable but treatable by both conventional and Ayurvedic medicine. The pathogenesis of Type I diabetes is thought to be the result of lymphatic penetration, which results in the loss or disintegration of insulin-secreting beta cells found in the islets of Langerhans. After a sufficient loss of these beta cells in the pancreas, blood glucose homeostasis is lost, and hyperglycemia results. The negative feedback loop inside the liver that monitors glucose levels detects excessive amounts of sugar and enlists the help of the urinary and endocrine systems. These systems help the liver by attempting to remove harmful amounts of sugar from the bloodstream. As a result, the person pees more frequently and sweats more. Diabetes is commonly diagnosed in patients with this catabolic condition, which necessitates the use of insulin to normalize glucose, reduce hyperglycemia, and control protein and fat digestion.

Diabetes is frequently associated with other auto-immune disorders such as vitiligo, hypothyroidism, Graves’ disease, hashimoto thyroiditis, and Addison's disease. Type I diabetes, according to both Western medicine and Ayurveda, must be treated with insulin injections, dietary changes, and the implementation of an exercise regimen. Individuals with Type I diabetes must receive scheduled injections to help moderate their glucose levels, according to Western medicine. Each insulin injection is determined by a sliding scale. This scale considers a person's age, diet, activity level, and insulin sensitivity. Western medicine's unfortunate belief in a 'one size fits all' dietary guideline ignores both food quality and a person's size and dosha (mind-body type). This is where Ayurvedic treatment differs from Western medicine. According to Ayurvedic medicine, this type of diabetes is also incurable. According to Ayurveda, the disease is caused by a vata-vitiating lifestyle. This indicates that the individual's system has
been depleted as a result of insufficient sleep, excessive worry, and stress, with a possible genetic (karmic) connection. In Ayurveda we can find the described of early symptoms of the disease. They are accumulation of dirt on the teeth (mouth, eyes, nose, and ears), a feeling of burning sensation in the palms and soles, stickiness of the skin all over the body, thirst and a sweet taste in the mouth etc., and moothra madhuryam (sweetness of urine). Blood sugar can affect mental health by causing rapid mood changes and other mental symptoms such as fatigue, trouble thinking clearly, and anxiety. Diabetes can cause a condition called diabetes distress, which shares some traits of stress, depression, and anxiety. Emotions can also affect blood sugar. When we’re stressed, our bodies produce hormones such as cortisol that can raise blood glucose even if we haven’t eaten. High anxiety can also result in the release of sympathetic hormones that can elevate both cortisol and glucose levels. Untreated mental health issues can make diabetes worse. Up to 45% of the cases of mental disorder and severe psychological distress go undetected among patients being treated for diabetes. One of the biggest challenges to treatment of mental health conditions for people with diabetes is low rates of detection. An extended period of stress brought on by receiving a diabetes diagnosis could potentially raise blood sugar levels. Additionally, stress can make it more challenging to stick to your diabetes maintenance schedule. Consider your stress level each time you log your blood sugar levels and see if a pattern develops. If a pattern emerges, you can learn to recognize the symptoms of stress and take steps to reduce your blood sugar and avoid stress.

CONCLUSION:
Diabetes Mellitus is a medical condition in which the body is unable to regulate its blood glucose levels, resulting in hyperglycemia. This malfunction is frequently caused by a faulty mechanism within the pancreas, resulting in the inability of the pancreas to produce adequate amounts of the hormone insulin. The difficulty with this disorder is the inability to diagnose and treat it at an early stage, when medical management can prolong or even obviate the numerous complications that accompany it. Ayurvedic treatment, on the other hand, provides effective prevention, management, and even remission from certain forms of this disorder. Diabetes mellitus, according to Ayurveda, is not a disease that can be cured solely through medication or dietary changes. Though it is a yapya (not completely curable / difficult to cure) condition, the treatment technique will not only cure the person but will also protect the person from living a long (deergha jeevanam), healthy (sukhayu), and useful life. Prameha not only affects physical health but also has a significant impact on mental health. The emotional distress, depression, anxiety, stress, and cognitive impairment associated with Prameha can have far-reaching consequences on individuals’ overall well-being. Recognizing the interconnectedness of physical and mental health is crucial in providing comprehensive care and support to individuals with Prameha. By addressing these psychological aspects, healthcare professionals
can enhance the overall quality of life for those affected by this chronic condition.

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Source of Support: None declared
Conflict of interest: Nil