



Survey For Concomitant Use of Herbal Medicine and Anti-Diabetic Therapy Among Diabetic Patients

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Abstract: Diabetes mellitus (DM) poses a significant global health challenge in the 21st century, often leading to the development of complications in affected individuals. Complementary alternative medicine (CAM), including herbal medicine (HM), is frequently utilized by diabetes patients alongside allopathic treatments. This study aimed to investigate the prevalence of concomitant use of conventional and herbal medicines among patients in Navi Mumbai, Maharashtra. A questionnaire-based survey was conducted both online and offline, targeting patients aged 15 years and above. The findings from 129 participants revealed that approximately 53% of the respondents engaged in the combined consumption of HM and allopathic medicines, often influenced by information obtained from family, friends, and social media. Alarming, around 13% of participants did not perceive the importance of informing their healthcare providers about their herbal medicine use alongside conventional treatments. These findings emphasize the need for increased awareness and communication regarding concomitant use of herbal and allopathic medicines to ensure patient safety and optimize healthcare outcomes in diabetes management.

Index Terms - Diabetes Mellitus (DM), Herbal medicine (HM), Herb-Drug interaction, Complementary alternative medicine (CAM).

I. INTRODUCTION

Diabetes mellitus (DM) is one of the largest global health challenges of the 21st century [1]. Diabetes is a critical, chronic condition that arises when the pancreas fails to make enough insulin (a hormone that regulates blood sugar, or glucose), or when the body is unable to use the insulin that is produced. Diabetes is a major public health issue and one of the four priority non-communicable diseases (NCDs). Diabetes has been progressively increasing in both the number of cases and the prevalence during the last few decades.

Diabetes afflicted an estimated 422 million adults worldwide in 2014, up from 108 million in 1980. Since 1980, the global prevalence of diabetes (age-standardized) has nearly doubled, rising from 4.7% to 8.5% in the adult population [2].

According to literature studies, patients with diabetes are more prone to use alternative medicine, either alone or in conjunction with conventional medication, to manage this chronic medical condition. The reasons for this are primarily dissatisfaction and side effects with conventional treatments. Traditional herbal remedies are created from plant substances that do not go through any industrial sophisticated processes and are utilized by people for a variety of treatments. Due to global prevalence, patronage of HM use has increased even in developed nations, and it is in high demand and has acquired considerable academic, industrial, and economic attention. Despite this, patients all around the world are hesitant to discuss or disclose their use of HM alongside conventional therapy to their healthcare experts. Despite being the most commonly utilized alternatives, empirical proof for their usefulness and potential negative effects is still inadequate. Furthermore, it was shown that healthcare workers frequently have little formal education and insufficient expertise of the use in herbal medications[3].

The main objective of this review was to describe the prevalence and characteristics of HM use in DM, to explore communication about HM use between patients, and to evaluate factor associated and possible risk of interaction through the aforementioned survey and available literature.

II. METHOD

- **Description of Study and Study Design:**

A study design was developed, which included the use of a structured questionnaire. The investigation was carried out on the general population using offline and online questionnaires that asked simple questions. The primary objective of this study was to determine the Percentage of diabetic patients who administer allopathic & HM together in their treatment.

- **Source and Study population:**

The general population was involved in the survey focusing mainly on the participants with a diabetic condition.

- **Development of survey and Data Collection:**

For the survey on the concomitant use of Herbal medicines in patients having DM, the questionnaire was adopted from the previous literature. The patient questionnaire was divided into three sections the first section addressed the patient's sociolect-demographic characteristics (name, age, gender), and the second section investigated the knowledge, attitudes, and beliefs regarding HM use, most reported prescription medicines, and concomitant use of herbal medicines, frequency of use, experienced adverse effects, potential interaction, and another disease condition, etc. and the third section was based on communication about herbal use shared by patients with the physician. Participants were asked to mention the herbal medicines which they were utilized for treatment.

- **Data analysis:**

Descriptive analysis was performed for the whole population.

III. RESULTS

The survey was conducted on general population which gave following quantitative finding.

- **Demographic characteristics of respondents:**

From the structured survey, 219 responses were received with roughly similar participation of male (53%) participants and female (47%) participants. All the respondents were reported as residents of Navi Mumbai & Mumbai region.

Characteristics	Frequency	Percentage
1. GENDER		
Male	102	53%
Female	117	47%
Total	219	100%
2. GENDER (Suffering from DM)		
Male	60	46%
Female	69	54%
Total	129	100%
3. AGE (Suffering from DM)		
15-30 Year	13	10%
31-45 Year	47	36%
46-60 Year	57	45%
≥60 Year	12	9%
Total	129	100%

- **Clinical Condition of respondents:**

Observations of responses obtained from the clinical condition of the population indicated the existence of DM in around 58.4%, in these diabetic patients around 27% reported having a family history of DM. It was surprising to see around 41% of these patients were suffering from DM for more than 5 years. The diabetic female percentage was slightly higher which was 54% over the male patients in this overall 58.4% of diabetic patients 36% were in the age group of 31-45 years and 45% were in the 46-60 years.

Characteristics	Frequency	Percentage
1. Suffering from DM		
Yes	129	58.4%
No	90	41.6%
2. Duration of use		
1-3 years	26	20
3-5 years	25	19
5-10 years	52	41
≥10 years	26	20
Total	129	100%

- Treatment prescription for DM:**

Investigation of the antidiabetic therapy of these patients indicated that 90% of these patients rely prominently on allopathic medicine. Around 18% were solely on ayurvedic medicine and 2% reported using homeopathic medicine.

Frequency of use	Frequency	Percentage
Daily	32	47%
Weekly	30	45%
Monthly	6	8%
Total	68	100%

- Concomitant use of Allopathic and Herbal Medicine:**

The use of HM along with allopathic medicine was seen prominently in middle-aged and older patients. When these patients on concomitant usage were asked almost 100% were found to have explored the effectiveness of HM, 31% of these patients were informed about the HM by their physician, 21% received the information from friends and family members and around 18% received from diabetic consultant/dietician. Around 12% were influenced by advertisements on television.

53% of all respondents reported the use of HM showing similarity in consumption by female (49%) and male (51%). when they were asked, it was found that 87% of patients have informed their doctor about this simultaneous consumption. Remaining 13% were found to believe that there is no need for such information to be given to the doctor. This was related to the following observation around 53% believed that HM is better as it has no side effects.

Recommendation	Frequency	Percentage
Physician	22	31%
Diabetes consultant/ Dietitian	12	18%
Friends and family	14	21%
Television	8	12%
Others	12	18%
Total	68	100%

Informed the use of HM to their Medical Advisor	Percentage
Yes	87%
No	13%

- Commonly used herbal medicines:**

From the survey overview *Syzygium cumini* (Jamun), *Momordica charantia* (Bitter gourd), *Ocimum tenuiflorum* (Tulsi), *Azadirachta indica* (Neem), *Trigonella foenum-graecum* (Fenugreek seeds), *Abelmoschus esculentus* (Okra) were the most commonly used herbs found in patients with DM and other herbal preparations such as Diaboherb plus drops, Diaba-Track, Diabetal, Gymnex were also used by the diabetic patients.

- **Belief about the HM:**

53% of the believe HM is better if it has no side effects. This perception comes from people thinking that herbs are of natural origin and 15% said it is very important to use them along with conventional medicines to increase the efficiency of the treatment and 32% of the respondents claimed, it is not so important to indicate their dissatisfaction with the concomitant use of HM with conventional medicine. 20% of patients had experienced side effects from the use of HM. Among this weight gain, hyperacidity, ulcers, and headaches were the most commonly reported side effects.

IV. DISCUSSION

DM is a global health problem associated with increased glucose levels in the body which is usually treated with allopathic drugs. Most of the patients however are found to be indulging in alternative systems of medicine for better control of their clinical condition, herbal medicinal compounds being the most popular among them. This survey was conducted to understand the current extent of concomitant use of HM with allopathic drugs by diabetic patients. Study of the data collected from 129 Patients revealed that 53% of patients were consuming both these therapies simultaneously. Although there was no significant difference seen in this use by a specific gender, age was found to be the important parameter. Rather than young people, patients in the age group of 31 to 60 years were more likely to use HM. Further investigation into the source of these HM revealed that most individuals (31%) obtained them from their healthcare professional. about 12% were influenced by advertisements on television. It was interesting fact that the percentage of people who felt it important to discuss this concomitant therapy with their healthcare professionals is found to be increasing from 31% in the year 2006 to 87% today [4,5]. 13% of patients not disclosing their therapy believed in the fact that as HM came from medicinal plants, they will never have any harmful side effects. This indicated that awareness of HDI that results from the simultaneous use of drugs & HM should be increased. Solutions such as educational programs, availability of reputable references such as pharmacopoeia, books, and educating patients via social media or medical staff would help narrow the communication and knowledge gap between patient and physician. Also, healthcare providers are required to be knowledgeable about commonly used HM products and practices to better advise their patients and the public on their risks and benefits [9]. Our study revealed that Bitter Gourd/Karela (*Momordica charantia*), Jamun (*Syzygium cumini*), Fenugreek Seed/Methi (*Trigonella foenum-graecum*), Tulsi (*Ocimum tenuiflorum*), Neem (*Azadirachta indica*), Ocra (*Abelmoschus esculentus*) were some of the most frequently consumed HM. Our study revealed that (20%) of HM users reported they experienced side effects like acidic reaction and sometimes if not taken care can result in more severe outcomes. in similar experimental studies on *Trigonella foenum-graecum* [1,6,7], *Nigella sativa* [1,8], and *Moringa stenopetala* identified different toxic effects. This might be due to a synergistic effect of the concomitant use of these herbs with conventional anti-diabetic medicines, users believe that herbs are naturally originated which is safe for the body but they need to understand that they also contain other constituents which may lead to undesired effect hence adequate knowledge should be given by respective healthcare professional [1]. *Momordica charantia*, *Abelmoschus esculentus*, *Syzygium cumini*, *Trigonella foenum-graecum*, *Ocimum temulfiorum* and *Azadirachta indica* were the most frequently used HMs as claimed by the participants in this study [10]. Different HMs might be used in different areas with different levels as a result of a difference in the accessibility of the herb and information dissemination among patients with diabetes. Scientific experimental studies on *Moringa stenopetala* leaves [1,11], *Allium sativum* [1,12], *Trigonella foenum-groecum* [1,13], and *Nigella sativa*[1,14] had showed a significant decrease in blood glucose level.

V. CONCLUSION

The findings of the study signify that managing blood glucose levels with concomitant therapies is a common practice in diabetes treatment. The belief, effectiveness, ease of access, and lower cost of HM have encouraged patients to administer it along with allopathic treatment. Physicians, friends, and family were the ones to recommend the use of HM. Some of the patients did not discuss their concomitant use with their healthcare providers thus indicating a communication gap in a doctor-patient relationship that can impact patient's health. Therefore, physicians must communicate with the patient and provide a thorough knowledge of HM and the general perception of the effectiveness and safety of herbs that prevent the potential risk of self-medication with herbs.

VI. DECLARATIONS

- **ACKNOWLEDGEMENTS**

Declared none.

- **CONFLICT OF INTEREST**

The authors declare no conflict of interest, financial or otherwise.

VII. REFERENCES

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