Using 17th Century Medication for Modern Diabetes Management: Doctors' Perceptions of Self-medication Practices – a Qualitative Study

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Abstract

Background: Self-medication practices are common among people living with type 2 diabetes. No studies conducted to understand doctors' perception towards self-medication practices.

Aim: To explore doctors' perceptions and understanding of the self-medication practices of people living with type 2 diabetes in southwestern India.

Methods: Semi-structured face-to-face interviews were conducted with doctors experienced in treating patients with type 2 diabetes in Mysuru, India, between July 2019 and January 2020. The interviews explored factors affecting self-medication practices among people living with type 2 diabetes and doctors' perception on western and traditional medications in the treatment of type 2 diabetes. All the interviews were audio-recorded and thematic analysis was performed inductively.

Results: Twenty doctors were interviewed. Doctors reported greater belief in western medications over traditional medications and expressed concern that their patients favoured traditional medications over western. Factors such as social media, accessibility of healthcare facilities and pill burden influenced adherence to western medications. Lack of knowledge about traditional medications and trust in western medications available under government schemes were observed among doctors. Common medication prescription strategies implemented by doctors to overcome challenges of self-medication practices included educating patients on the detrimental effects of self-medication and insisting patients only take western medications when desired blood glucose levels were not observed.

Conclusion: The results suggest that multi-prong approach involving all levels of healthcare is needed to overcome the challenges of self-medication practices. Given the contrasting beliefs between doctors and patients, future studies should explore the impact of integrative medicine on health outcomes diabetes people.

Impact Of Findings On Practice Statements

1. Findings from this study showed the complexity involved in treating type 2 diabetes. Therefore, it is suggested that doctors implement strategies that focus on patient-centred approaches that address individual and systemic barriers.
2. To embrace patient beliefs, doctors should explore ways to implement integrative medicine in the treatment of type 2 diabetes.
3. To increase trust among patients on medications, doctors should act as a bridge between the government and patients for effectively utilizing medications available under government pharmaceutical schemes.

Introduction

Type 2 diabetes is the most common type of metabolic disorder which accounts for 90% of the world diabetes population. India has the second highest number of people living with diabetes in the world [1]. Optimal management of diabetes include continuous pharmacological treatment and lifestyle modifications such as regular physical activities, weight reduction and following diabetes specific diet. However, studies show that adherence to both lifestyle recommendations [2] and pharmacological treatment is difficult and remains sub-optimal due to increases in the pill burden, inadequate financial resources, chronicity of the disease and prolonged treatment regimen [3]. Findings from a recent systematic review found that over half (56%) of people living with type 2 diabetes in India self-medicate by discontinuing western medications and/or consume other medications, and they perceive that their diabetes can be cured through the use of traditional medications [4].

Self-medication is defined as the act of taking medications, herbs or home remedies on one's own initiative, or on the advice of another person, without medical advice [5]. Adopting self-medication practices in chronic disease management is a concern due to detrimental side effects and unnecessary healthcare costs for individuals [6].

A recent systematic review explored perception towards self-medication practices among people living with type 2 diabetes and found barriers such as fear of experiencing adverse effects and high cost of western medications, faith in the safety and effectiveness of traditional medications [4]. However, very little is known about treating doctors' perceptions and experience with managing self-medication practices for people living with type 2 diabetes.

Aim

This study aimed to understand doctors' perception on self-medication practices in people living with type 2 diabetes. Improving our understandings on this is important to assist in formulating patient-centered strategies that address issues related to self-medication practices.

Ethics Approval

Ethics approvals were obtained from the Human Ethics Committees of La Trobe University (HEC19227) and JSS Academy of Higher Education and Research (JSSMC/IEC/1107/10NCT/2019-20).

Method

To explore the perceptions of doctors about factors that influence self-medication practices among people living with type 2 diabetes, we adopted a phenomenological qualitative research design utilising semi-structured interviews [7]. The COREQ guidelines were used to represent the findings of the study [8].

Data collection for this study was conducted between July 2019 and January 2020 in urban Mysuru, (Karnataka state in the south west of India), with a population of approximately three million people [9]. General practitioners who were working in either tertiary care hospitals or private clinics were recruited via flyers, emails and snowball sampling.

Interested participants contacted members of the research team (RKP or SG) who provided detailed information about the study. These participants were then followed up by RKP to obtain informed written consent before determining a mutually suitable date, time and location for the interview. Being local to Mysuru, RKP was aware of local culture and this insider status enhanced trust and rapport building between the interviewer and the participant. During the interview, participants were asked to complete a demographic form (Appendix 1). All interviews were conducted in English and audio recorded. No language assistance was required for the interview purpose because all the participants were fluent in English. The interviews were conducted until theoretical saturation was achieved [10].

The semi-structured interview guide (Appendix 2) included questions exploring the doctor's perceptions of self-medication practices among patients with type 2 diabetes, the doctor-patient relationship and how doctors manage self-medication practices. A pilot interview was conducted with two researchers in the field of diabetes self-management to further refine the questions prior to conducting the first interview. All interviews were transcribed verbatim before being sent to the participants for member checking [11].

The transcripts were first reviewed in their entirety for codes by the individual members of the research team, RKP (a pharmacist by profession with experience in communicating with doctors and patients) and MK (an experienced qualitative researcher). These two researchers independently performed the coding and thematic analysis of the transcripts with the assistance of NVIVO-12 [12]. After completing the initial coding, RKP and MK met together and then with SG (an experienced qualitative researcher) to discuss the codes and identify possible themes. A discussion with the entire team then determined the final themes and sub-themes for the study.

Results

From a total of 28 doctors who expressed interest to participate in the study, 20 doctors were interviewed. The eight doctors who declined to participate because of a lack of availability. The mean duration of interviews was 31.4 ± 10.9 minutes (range 15 to 53 minutes). Half the doctors ($n = 10$) were working in hospital settings, with the others working in a community setting (Table 1). All doctors were general physicians with a patient caseload that comprised largely of people with type 2 diabetes. Three key themes were identified from the data: i) Perceived barriers to use of western medications among patients, ii) Doctors reported little faith in traditional medicines and iii) Strategies implemented by doctors to overcome barriers to self-medications.

Table 1
Participant demographics (n = 20)

Characteristics of participants	Number (%)
Age (years)	
Mean age $\pm$ SD	47 $\pm$ 12.3
30–39	7 (35)
40–49	4 (20)
50–59	5 (25)
$\geq$ 60	4 (20)
Gender	
Male	18 (90)
Female	2 (10)
Workplace setting	
Hospital	10 (50)
Community	10 (50)
Years of experience	
0–9	4 (20)
10–19	5 (25)
20–29	3 (15)
30–39	7 (35)

1. Perceived barriers to use of western medications among patients

a. Patients' poor knowledge about the disease and medications

Some doctors (n = 7) said that their patients had limited knowledge of diabetes management and the related complications that may eventuate from uncontrolled diabetes. Doctors mentioned that many patients perceived that diabetes could be managed without medications.

"There are patients who will be only on diet, exercise...sugars will be under control without medications...It is possible. But only in the initial phase [of diabetes]. Somebody with long standing diabetes, it will not work." (P-07, Male)

Apart from poor knowledge of the disease, doctors believed that patients they were treating also had limited knowledge about western medications. Half of the participants (n = 10) also reported that fear of pain from injections and together with the patient's belief that insulin should only be used as a last option largely contributed to their avoidance of insulin.

"...I tell them in the first visit only that see, if the insulin is necessary then don't think it is some drug with the last choice of treatment. If it is required, you should not refuse. You have to take." (P-15, Male)

b. Types of self-medication practices

Doctors described two most common types of self-medication practices adopted among patients. The first was to continue use prescribed western medications beyond the validity of the prescription.

"...As I said, maximum prescription I will give is for three months. I will tell patient that even if diabetes is stable or have no complaints, still you need to do your sugars at least once in three months and meet. But, lot of patients will not come, they will come once in four months, six months, sometime even after one year, and many patients will continue taking those [previously prescribed] medications"(P-07, Male)

The second was the discontinuation of the prescribed western medications and consumption of traditional medications without formal advice from a registered medical practitioner.

"One patient was on allopathic [western] medications have very good control of HbA1c around 7.5%...saw some TV ads...got tablets [traditional medications] from online and completely stopped the allopathic [western] medication for 3 months... came to me after the HbA1c was nearly 13%." (P-11, Male)

c. Self-diagnosing from the symptoms of friends and family members

Even though patients had poor knowledge about western medication, doctors (n = 5) described how their patients would often suggest the use of antidiabetic medications to family or friends assuming that symptoms experienced by them, were diabetes related. These actions led to reported adverse events as highlighted from this narrative.

"A female elderly patient who was on antidiabetic medication observed her granddaughter eating 4–7 jalebies [Indian Sweet]. The patient thought that she will develop diabetes and gave half of the tablet [Glibenclamide] which she was taking for type 2 diabetes. Granddaughter started developing hypoglycemia..." (P-15, Male)

d. Stigma of diabetes

Apart from poor knowledge about diabetes, many doctors (n = 11) expressed concerns that their patients were fearful of being diagnosed or labelled with diabetes due to the associated stigma. They mentioned that patients were hesitant to take antidiabetic medications in public and may skip medications for fear of being excluded by friends and family members.

"...a lot of patients confide their disease only to their very close one...They don't want to tell other people because they might be looked down upon...so a lot of patients do miss their medication when they go out

for some functions [social events].” (P-09, Male)

Due to this stigma, some doctors (n = 4) said that patients preferred lifestyle modifications and traditional medications over use of western medications.

“Patients feel like they don’t want to be diagnosed with diabetes...when a newly detected diabetes patient comes to us, we will start with medications. But patients say, I will take Ayurveda [traditional medications] and proper diet and walking for few months.” (P-1, Female)

e. Doctors’ lack of trust on medications available under government schemes

As many as 15 doctors felt that their efforts to facilitate use of western medications were also hindered due to the lack of trust over efficacy of medications and availability of fixed-drug combinations available under government subsidy schemes such as the Jan Aushadhi Scheme (JAS).

“Now most of them [patients] are going for Jan Aushadhi medications. But we don't know the quality of Jan Aushadhi medications. Almost 50% of Jan Aushadhi medication patients will not have controlled blood sugar.”(P-16, Male)

As a result of these factors, doctors prefer to prescribe patients with fixed drug combination medications, which are often perceived to be unavailable under JAS.

“There [Jan Aushadhi] you won’t get combined drugs. If you write glimepiride plus metformin fixed-drug combination, they will dispense separately and patients might miss one tablet to take. That is the reason patients will come with complications and we have to start with Insulin. The moment we start insulin patient will never come to me.” (P-01, Female)

f. Poor medication adherence among people with type 2 diabetes living in urban areas

When asked about factors influencing adherence to medication, many expressed that the location of residence played a role in influencing adherence. Half of the doctors (n = 10) said that patients living in rural areas were more likely to adhere to western medications as prescribed by the doctor than patients living in urban areas.

“I feel rural people have more adherence [to western medications] than urban people... The so-called urban educated people think allopathic [western] medications will have side effects.”(P-20, Male)

It was felt that the easier access to internet likely led patients with type 2 diabetes to self-experiment with their condition and western medications.

“Most of the times the elite patients...from urban area try to look for side effects even before starting the [western] medication. If we prescribe medications today, they postpone it and wait till symptoms worsen and then start medications. During that time they would have done all this Google and other things.”(P-18, Male)

g. Accessibility and affordability: barriers to adoption of western medications

Limited access to healthcare was cited by most doctors (n = 17) as the key reason for not continuing with the prescribed western medications. For example, one doctor mentioned lack of timely assistance to administer insulin.

"One elderly patient having ophthalmic problem [blurred visions]... Attenders say patient stays alone. One nurse stays next to patient [neighbour]. But she cannot ask nurse to help every time to administer insulin, because it should be given twice or thrice a day and they have to take food immediately. So, if the nurse is not available then it is a problem. So, I give insulin only if facilities are there." (P-01, Female)

Other barriers included transportation and distance from the healthcare service point, and reliance on other family members. In addition, the cost of taking multiple tablets was noted as a barrier to western medications.

"... So many elderly patients particularly from rural [areas say that] my son did not get tablets so I could not take tablets. So many times it happens. We have told them to take one tablet two times a day but they take half tablet. Because they could not buy the tablet or the tablet was not available." (P-17, Male)

2. Doctors reported little faith in traditional medicines

a. Contrasting beliefs in traditional medications between doctors and patients

While it was suggested that a majority of their patients had great faith in use of traditional medication, doctors expressed contrasting opinions. Many doctors (n = 15) disagreed with patients' beliefs that traditional medication can cure diabetes with no adverse effects.

"Patients wanted to get rid of diabetes without any side effects. There is a myth, allopathic [western] medications have side effects, it doesn't cure. Once you start medications you will be addicted to that. Because of this myth, they wanted to take a shortcut." (P-14, Female)

In addition, doctors (n = 14) felt that friends and family members were often influencing through providing information regarding the use of traditional medications.

"People don't believe the doctor. They believe their friends, neighbours and people they meet in bus stops or railway stations or airports or house maid. They say, my house maid said so we went there [to take traditional medications]." (P-20, Male)

Furthermore, there were also concerns over misleading marketing strategies employed by traditional medication manufacturing companies to sell diabetes-related products influenced the likelihood of patients practicing self-medication.

"There are some business people who sells this herbal products for treating diabetes. They make [health] camps and give patients a cup of herbal drinks and tell them to drink for 20–30 days. Make people to get used to that. I don't know...what it contains." (P-8 Male)

b. Doctors have less knowledge in traditional medicine

While doctors' opinions about traditional medications contrasted with patients, many acknowledged that they had limited knowledge in this area. Doctors (n = 8) suggested patients stop the use of traditional medications as they perceived themselves not to be experts in traditional medicine and were concerned about drug-to-drug interactions between the two systems.

"If anybody is on alternative [traditional] medicines, I will honestly tell them that I am not a qualified person to comment because I have not studied that. What I know is only allopathic [western] medicines. Alternative [traditional] medicines will have a drug to drug interaction [with western medications]...So, I will tell them to stop all these drugs." (P-10, Male)

3. Strategies implemented by doctors to overcome barriers to self-medication

Considering the above-mentioned factors influencing self-medication practices, doctors described strategies they use to manage their patients' self-medication practices.

a. Doctors prescribed medications based on patient's socioeconomic status

Seventeen doctors prescribed medications based on the socioeconomic status of their patient. They prescribed fixed-drug combinations to those they perceived to be from more affluent backgrounds versus government funded medications to people from lower socioeconomic status.

"Fixed-drug combinations are costly. So, I have to look what the patient can afford and what is the best medication, the lesser cost medication which is going to benefit the patient. So, yes, I do ask patients about their social, economic status and decide medications." (P-09, Male)

b. Advice to continue both system of medications until the blood sugar levels are normal

Half the doctors (n = 10) said that they could not deny the patient's choice in medications (traditional or western) and often advised their patients to continue with both systems of medications as long as their blood sugars were within the normal limits.

"I don't deny the right to use alternative [traditional] medicine. I tell patients use medications what I have prescribe and along with alternative [traditional] medication...Idea is to control the sugars, doesn't matter how they control it." (P-14, Female)

c. Doctors insisted patients stop consuming traditional medications

A few doctors (n = 8) had differing opinions and strongly encouraged their patients to cease using traditional medications and only consume western medications to manage diabetes.

"I tell them you just follow [my advice]. I advise them to buy blood glucose monitoring...take the record and show the improvement. If you don't show improvement, you ought to take my group of medicines... mine... allopathic [western] group of medicines. This is my strict advice to them." (P-04, Male)

Another male doctor said

"First of all, stop mixing up these alternate [traditional] systems of medication, it does not work. We do not expect a disease of 2019 to be treated with a medication of 17th Century." (P-02, Male)

d. Doctors tried to provide health education to assist with their disease monitoring and progression

A few doctors (n = 3) made efforts to educate their patients on how they could better manage their disease.

"I will tell them there are three pillars for diabetes. First is medical nutritional therapy, second lifestyle modification and third is drugs. So, the first two steps I will take around 10 to 15 minutes and last is drugs. I tell them there is a possibility that this particular drug reduces your blood sugars. So, stop when you feel dizzy or anything like that. That they will keep in mind. The moment they come to know that their blood sugars is 70 mg/dl. They reduce the dose of tablets and meet me next time."(P-17, Male)

Discussion

The findings from this study highlight the complexity involved in the management of self-medication practices among people living with type 2 diabetes in India. Doctors in this study had to contend with the traditional/western medicine dichotomy and the co-existence of patient practices from both these fields of medicine [13]. This presented them with a challenge as their personal medicine practices are largely based on the western medicine practices that have been largely influenced by the historical, social and political factors under the context of continued colonial legacy of domination and hegemony of western ideals [14].

During the colonial rule in 18th and 19th century, western medicine was considered as superior and encouraged by the British whilst the traditional systems of medicine such as Ayurveda and Unani, received little patronage [15]. Little has changed since colonial rule as India continues to be influenced by western ideologies including in the field of medicine. Data from this study suggests that doctors worked within the confines of a western model of healthcare, had greater confidence in the efficacy of western over traditional medicine and were not willing to integrating other forms of practices by expressing concerns about the potential negative interactions between western and traditional medications [16, 17]. Also, most doctors were reluctant to embrace their patients beliefs on traditional medications as a cure of type 2 diabetes.

Apart from doctors having to grapple with an ethos which was divergent from their own, there was recognition that broader social determinants affected the uptake of western medications. Most doctors interviewed for our study employed principles of distributive justice [13] when prescribing medications and in doing so showed a fair and equitable approach to patient care. When doctors felt their patients were unable to access or afford branded medications, they prescribed drugs available through the subsidized government pharmaceutical scheme, JAS. However, our findings suggest doctors were also skeptical about the efficacy of medications available through this scheme. Doctors often felt that the desired effect was not achieved from JAS medications and some doctors therefore changed their patients to the fixed-drug combinations of branded medications, citing greater trust in the efficacy of such

medications as well as lowering the pill burden. Our data suggest that this practice may encourage people to self-medicate due to lack of affordability.

More recently, western models of medicine have evolved towards a more patient-centered approaches and shared-decision making [18]. However, despite these western influences in the field of medicine, data collected from the doctors in this study suggest such approaches have not become an established part of practice in India. Rather, the focus has been paternalistic with the doctors dictating treatment to their patients with little regard for individual patient beliefs. It is well known that patient-centered approaches improve the overall satisfaction of care, physical and social wellbeing and clinical practice of doctors by building a relationship that minimizes demographic, social and economic differences [19]. This can be achieved by encouraging effective communication between doctors and patients for sharing health information and building a trusting relationship with patients and their family members [20]. For doctors, developing a better understanding of their patients' illness and the effect this has on lifestyle will facilitate open conversations around shared decision making and help to avoid paternalistic styles of communication [20].

Apart from changing communication styles between doctors and patients, there also needs to be an increase in the accessibility of resources to support people living with type 2 diabetes. A further finding from this study was lack of accessibility of healthcare facilities including medications. Doctors' perceptions of this supported the idea that patients were more likely to practice self-medication. In addition, our data shows that doctors perceived some of their patients had limited support from family members in the management of their disease and that increased the risk of self-medication practices particularly among their older patients. Increasing the number of primary health centers as well as implementing strategies that would assist with medication administration e.g. nursing staff assisting with insulin may address part of these challenges [21]. In a bid to address this, the National Health Policy of India initiated "Ayushman Bharat Program" in 2018 to strengthen the policies and infrastructure of primary health centers by increasing the number of services offered, improved access to medications as well as considerations of integrating traditional medicine [22]. However, the impact of this program is yet to be evaluated.

In addition to the need to improve access to services and resources of health, it is also important to look at how key public messages regarding the use of western medications are promoted across a variety of media platforms. Our data suggest that being able to access information from social media and the internet means that people may have been more likely to receive conflicting information about the safety and efficacy of western medications [23]. In addition, doctors in our study reported that friends and family members negatively influenced the use traditional medications without medical advice. Interestingly, doctors in this study perceived that people living in urban areas were less adherent to western medications due to ease of access to and availability of contrary health information. Given this rather than attempting to stop people from sourcing information from the internet, it may be more important to improve the credibility of online health information. This could be possible through the development of trustable health information websites where doctors and consumers can access updated and evidence-

based health information regarding disease management including diabetes medications [24]. Adopting an integrative approach to medical practice using a combination of traditional and western medicine in the management of type 2 diabetes may also assist in guiding the use of traditional medicine and addressing some of the most common mis-information currently available [25, 26].

Strengths And Limitations

Inclusion of doctors working in both hospital and community settings with varying years of clinical experiences gave strength to this study, improving the generalizability of our findings. The rigorous methodology used in this study in accordance with the COREQ guidelines strengthened the study results. Also, inclusion of an insider (RKP) and outsider (MK) to this study enabled the building of trust, rapport between the interviewer and participant and enhanced the trustworthiness of the data analysis process. The lack of perspectives from the doctors in rural areas means that we were unable to explore if perceptions differed from those living in urban areas potentially affecting the generalisability of these data. The inclusion of participants only from one south Indian city and minimal representation from female doctors may also affect the generalisability of the findings. However, fewer female doctors practice western medicine in India [27].

Conclusion

This study provided unique insights from Indian doctors in Mysuru on their understandings of their patients' self-medication practices in managing their type 2 diabetes. Both systemic and individual factors influenced prescription patterns of the doctors including their patients' accessibility to and affordability of healthcare services, trust in government pharmaceutical schemes and contending with conflicting patient beliefs regarding western and traditional medicines. This suggests that considerations for better delivery of healthcare must be made at all levels of the healthcare structure whilst also recognizing complementary forms of medicine and how best to integrate these into patient-centered care delivery.

Declarations

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Conflicts of interest

None of the authors has any conflicts of interest that are directly relevant to the content of this article.

Author Contributions

All the authors contributed to the study conception and design. Material preparation was performed by Dr Rahul Krishna Puvvada and Dr Sabrina Gupta. Data collection was performed by Dr Rahul Krishna Puvvada. Analysis of data was performed by Dr Rahul Krishna Puvvada, Mitch Kay and Dr Sabrina Gupta. The draft of the manuscript was written by Dr Rahul Krishna Puvvada. All the authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

Date availability

The data generated during and/or analysed during the current study are available in the supplementary material.

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