DIABETES CARE IN INDIA: PHYSICIANS PERCEPTIONS, ATTITUDES AND PRACTICES

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INTRODUCTION :

Diabetes is a major health care problem in India with an estimated 30 million persons with diabetes, mostly living in urban areas. Over 98% have Type 2 diabetes. There are no reliable figures on how many are diagnosed and how many are treated. Based on sales of anti-diabetic pharmaceuticals, we estimate that a meagre 10-12% receives modern pharmacological treatment [1].

Being a chronic disease, diabetes requires support service infrastructure and a team approach to care. Whereas, generally the level of clinical care in most big cities in India is good, lack of a support system, non-availability of trained paramedical personnel and no health care insurance for chronic diseases such as diabetes continue to be problematic. Availability of diabetologists is scarce and largely private general practitioners and internists provide primary care even in urban areas. The quality of care varies considerably from place to place and practice to practice, depending upon the physician's interest, expertise and available infrastructure. Given the massive load of acute illnesses such as infections, fever and infestations, even private medical practitioners, not funded by the state, tend to concentrate less on chronic diseases like diabetes, which are unrewarding as the time, effort and commitment needed is far too much, both for the provider and patient. There are practically no nurse-educators, no podiatrists and few dietitians: which means that the treating doctor takes the entire burden of responsibility of caring for these patients. The patient's inability or unwillingness to pay for these additional support services also hinders their development. Lack of medical reimbursement and poor state funding for health, is often a barrier to quality care; because the patient is unable to afford certain tests or therapy.

PROVIDER BEHAVIOUR INFLUENCES PATIENT BEHAVIOUR AND ATTITUDES

An important but generally un-researched dimension, is health care provider behavior. Physicians are trained to provide acute care, where effort and success is easily measurable and is linked with a sense of achievement and power. Need for patient involvement and participation in therapeutic decision making is limited.

In chronic diseases this "mind set" doesn't work. There are no heroic efforts, no dramatic results (no cure), moreover, the patient may be asymptomatic, unaware or unwilling to comprehend the consequences of a long term, poorly managed disease. The position of power assumed by the physicians and the minimal need of patient involvement prevailing under acute conditions, does not work under these circumstances and requires a different physician behavior-that of a counsellor, a friend or family elder. This role transition is difficult in the setting of overburdened services and limited time. In good faith, physicians make decisions for the patients. Many have misplaced concerns about their patient's fears, apprehensions and capability for self-care. These impressions are coloured by the "acute care" mind set and physicians' own feelings and that are at the best subjective and empirical. The inability or unwillingness to discuss various treatment options and the patient's inability (due to inadequate information) to initiate such discussions, deprives him/her of the opportunity to actively participate in their own management.

To be able to · understand the intricacies behind the current diabetes practice in our country, it is important, to understand the patients as well as their physician's perceptions, attitudes and practices. We have earlier reported on the former aspect [1]. In this study, we report from a survey on 393 physicians providing diabetes care in urban India, on their practices and their perceptions.

OBJECTIVE, RESEARCH DESIGN AND METHODS:

The objective of the study was

- To understand current practices, attitudes and perceptions amongst different diabetes care providers, about diabetes and its management;
- To evaluate differences, if any, in these parameters, amongst different types of care providers;

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To evaluate impact of physician attitude on patients, evaluate differences or perception gaps, if any, between diabetes care receivers and diabetes care providers and identify lacunae and areas requiring attention that would help improve care.

The study was carried out amongst General Practitioners (GP's), Consulting Physicians (CP's) and Diabetologists (Diab) in urban India. It was a qualitative survey, using a structured questionnaire. 393 physicians, in eight metro and mini metro cities (Bombay, Delhi, Calcutta, Chennai, Ahmedabad, Lucknow, Patna and Cochin), known to treat persons with diabetes, were randomly selected and interviewed. The interviews were conducted by experienced researchers, appropriately trained for the job, at the doctors' clinics / hospitals, at a time convenient to them. The questionnaire consisted of both option lists as well as open-ended questions, depending on the information being elicited. In certain instances, physicians were presented with scenarios and asked to respond to them.

The information was recorded on structured forms, codified for computer analysis. Validity of collected data was reconfirmed by random counter checks and repeat interviews.

RESULTS AND DISCUSSIONS:

Doctor Profile: Of the 393 physicians interviewed, 76 were Diabetologists, 151 Consulting Physicians (CP's) and 166 General Practitioners (GP's). This is a representative sample of diabetes care providers in urban India. The mean duration of practice was 17.7 years ± 9.9 years. GP's (19.1 ± 8.8) and CP's (17.6± 10.8) had a longer duration of practice as compared to Diabetologists 14.9± 10.1), reflecting the fact that diabetes became a subspeciality only recently. More diabetologists and CP's were attached to hospitals, while only a small number of GP's were attached to any hospital. On an average 83% of Diabetologists, were attached to any hospital in addition to their private practice, compared to 66% CP's and only 34% GP's. Of the 220 doctors attached to hospitals, 76% had one hospital attachment whereas the rest had more. 50% had attachments to hospitals with more than 150 beds, 26% to nursing homes (11-25 beds) and the remaining to hospitals of an intermediate size. The number of patients treated (both ongoing and new in hospital and in clinical practice) per day is shown in Table 1.

Table 1: Type of practice and number of patients seen per day.

	Diab	CPs	GPs
Hospital Attachments	83%	66%	34%
Only Private Practice	17%	34%	66%
Patients / day			
Clinic	5	2	1
Hospital	13	3	3
Total	18	5	4

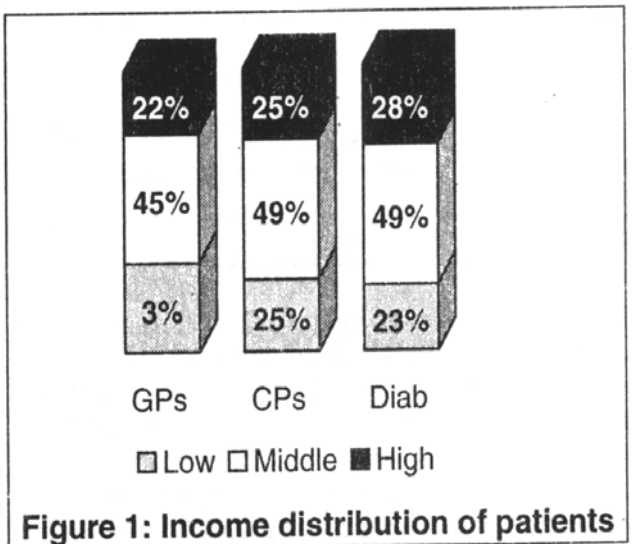


Figure 1: Income distribution of patients

On an average, diabetologists treated 313 patients per month in the hospital, whereas CP's and GP's treated 87 and 71 patients per month respectively. In the clinic, diabetologists averaged 140 patients per month compared to 36 for CP's and 26 for GP's. This works out to an average of about 18 (ongoing or new) patients per day for diabetolotgists; five for CP's and four for GP's, on the basis of 25 working days per month. These are means figures and the spread is wide with less than one patient per day seen by 50% of the CP's and 62% GP's. This fact must be borne in mind, as this group of doctors may have skewed some of the findings. Nonetheless, inclusion of this group is important because of their large number.

There are minor differences in the socio-economic pattern of patients treated by the different categories of doctors. On an average, half the patients are from the middle income group and the other half, equally divided between upper and lower income groups.

(Fig.1). As the study involved doctors mainly in private practice such a distribution is expected.

Treatment :

Doctors were asked what treatment they commonly used for persons with Type 2 diabetes and what proportion received the different treatments. Table 2 provides the treatment distribution across geographical zones.

Table 2 : Proportion of patients receiving different therapies

Treatment (n)	All 393	North 102	East 92	West 104	South 95
Diet/Exercise	18%	24%	17%	18%	13%
Tablets	53%	47%	60%	54%	51%
Combination	16%	17%	12%	14%	26%
Insulin	13%	12%	11%	13%	10%

In general, non pharmacological treatment was used twice as often in North India as compared to South India, where the treatment approach was relatively more aggressive. Whether this is due to greater awareness of diabetes amongst physicians and patients in South India or represents a more casual approach to the disease in the North, is a matter of conjecture. Even lower figures (4.3%) for non-pharmacologically treated patients are noted in another independent study in urban and semi-urban Bangalore district [4]. Overall only 18% patients are on diet and exercise. This number is relatively high for patients treated by GP's (22%) as compared to CP's or Diabetologists (15%). About 53% patients receive oral drugs (no difference between doctor groups). 13% are on insulin alone; Diabetologists and CPs had more patients on insulin alone (16.5% and 15.4%) as compared GPs (10%). About 16% are on combination of oral drugs and insulin (no major difference between the three groups). The Bangalore study [4] reports, 9% use insulin alone and 22% use insulin in combination with oral drugs. These figures generally correlate well with the survey amongst patients as reported in the DIPPAP 1 study. These trends indicate that either GP's tend to see patients earlier on in the natural history of Type 2 disease or take a less aggressive approach to treatment. Perhaps both are true.

Table 3 : Situation where oral hypoglycemic agents used

Situation n	All 352	Diab 56	CPs 143	GPs 133
Uncomplicated NIDDM	33%	42%	33%	27%
Primary stage disease	21%	21%	24%	18%
Maturity onset diabetes Of the young	11%	3%	8%	18%
No responses to diet/ Exercise	15%	16%	15%	16%
Blood sugar £ 300 mg%	13%	8%	9%	20%
Obese patient	7%	8%	7%	7%
Reluctance to insulin use	5%	5%	5%	4%
No response to diet + Insulin	3%	3%	4%	3%
Cannot afford insulin	3%	1%	3%	3%

Indications for Oral Hypoglycaemic Agents in Type 2 Patients: To understand the basis of various therapeutic options exercised by different doctors, they were asked to state criteria used to initiate OHA treatment. Table 3 gives instances when OHAs are used in patients with Type 2 diabetes. Uncomplicated NIDDM (33%) was a natural reason for preferring OHAs, followed by primary stage disease (21%) and non-response to diet and exercise (15%), Blood sugar level below 300 mg%, patient reluctance to insulin (5%), economic factors (non-affordability 3%), were the other reasons given.

Insulin Use in Type 2 Diabetes : 90% doctors use insulin to treat patients with Type 2 diabetes when required (100% Diabs. 95% CPs and 80% GPs).

Respondents were asked indications for insulin therapy, factors considered for shifting patients to insulin and instances when they had actually shifted Type 2 patients to insulin. Indications for insulin in Type 2 diabetes as expressed by doctors are shown in fig 2.

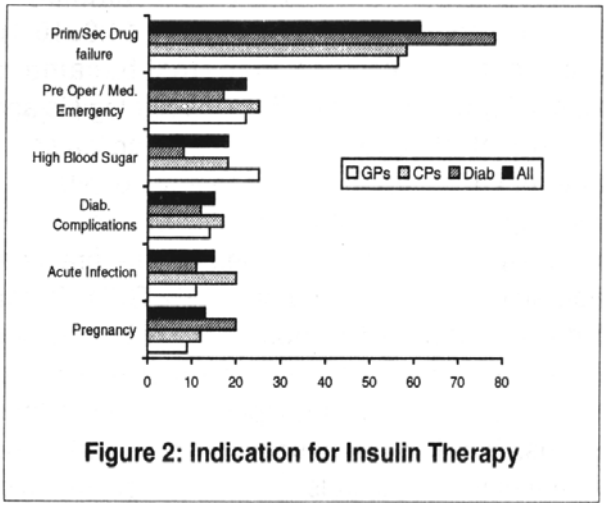


Figure 2: Indication for Insulin Therapy

Primary or secondary drug failure (61%), preoperative period or medical emergency (22%), uncontrolled diabetes with high blood sugar (18%) were the commonest indications for insulin therapy. Diabetic complications (15%), actuate infections (15%), and pregnancy were the other indications mentioned. Relatively fewer CP's and GP's mentioned primary or secondary drug failure. The practice of shifting patients from OHA to insulin and vice-versa was common; (Diabetologists : 99%, CP's :97%, GP's: 91%). Factors considered for re-evaluating treatment were blood sugar level, symptoms and patients' condition (Fig 3).

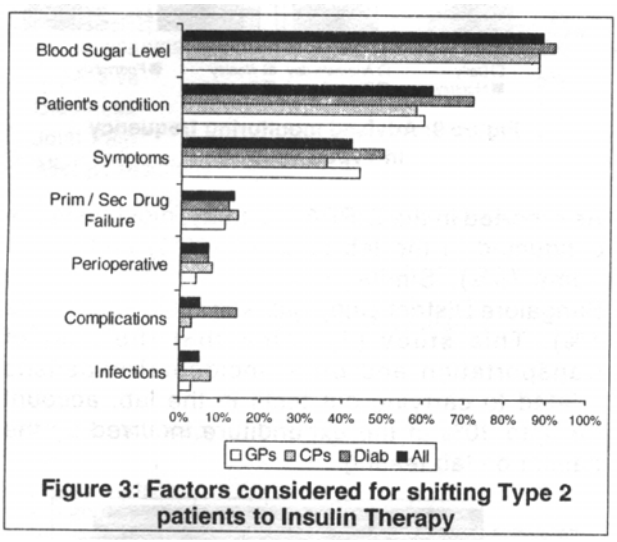
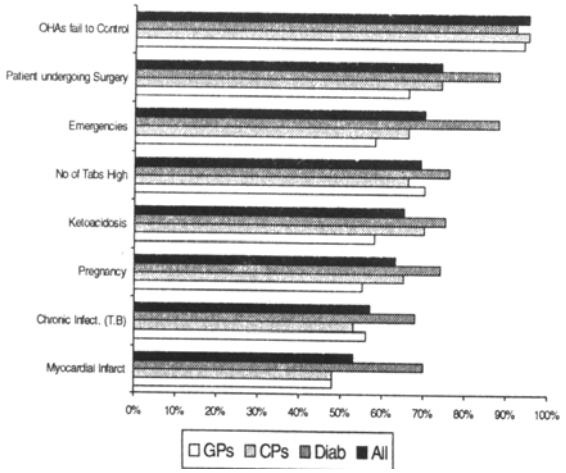


Figure 3: Factors considered for shifting Type 2 patients to Insulin Therapy

Blood sugar level was the prime indicator. In actual practice, patients were shifted from OHAs' to insulin when OHAs' failed to control blood sugar; patients has to undergo surgery, during emergencies, and in patients taking large number of OHA tablets etc. (Fig 4).

Figure4: Instances when patients were actually shifted to Insulin



Respondents were asked to indicate the blood sugar level that suggested poor control and failure of OHA therapy. Table 4 gives the mean level of fasting and post-prandial blood sugar, considered suggestive of poor control and an indication of OHA failure, as reported by different categories of doctors. Only 78% of the respondents gave a value for blood glucose. There seems to be non-consensus on what blood glucose value constitutes OHA failure. There was wide distribution of the indicated target value as shown by the high SD. While the mean level appears similar amongst the three categories of doctors, further analysis indicates that most diabetologists re-evaluated therapy at lower fasting and post-prandial level as compared to GPs who were willing to wait longer.

Table 4: Blood sugar level indicating OHA failure

	All n=305	Diab n=67	CPs n=128	GPs n=110
FBS Mg/dl	197 (±72.4)	205 (±74.9)	193 (±74.8)	198 (±68.1)
PPBS Mg/dl	219 (±90.5)	224 (±82.4)	209 (±81.9)	228 (±103.5)

Figure 5 : FBS Level Indicating Need to Re-evaluate Therapy

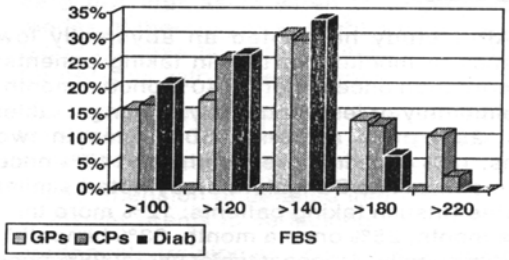


Figure 6 : PPBS level indicating need to re-evaluate therapy

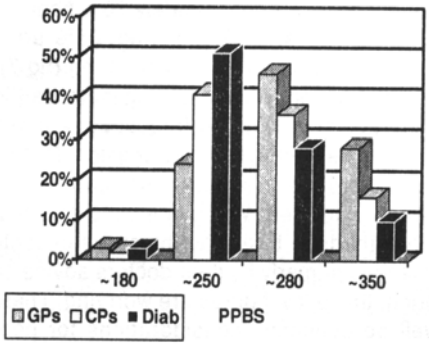


Figure7: Monitoring Advice

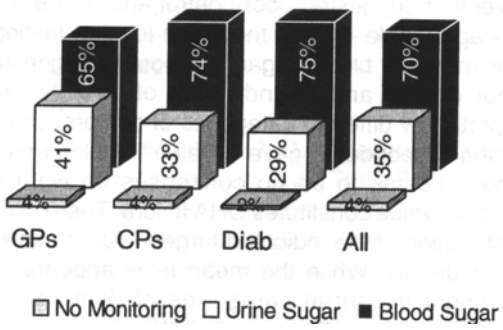
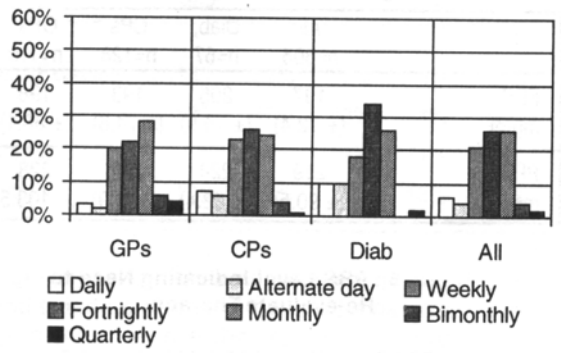


Figure 8: Advised monitoring frequency in Type1 diabetes



DIPPAP-1 study had noted an abysmally low frequency of monitoring. Insulin taking patients: 22% more than once a month, 40% once a month, 38% bimonthly or less frequently. Amongst tablet users: 20% once a month, 30% once in two months, 18% once in three months and 17% once in six months. The Bangalore study noted similar low rates (Insulin taking patients: 12% more than once a month, 25% once a month, 63% bimonthly or less frequently. Amongst tablet users: 28% once a month or more frequently, 24% once in two months, 45% once in three months). Is low monitoring related to the patient not following the doctor's advice? It does not appear so. Approximately 70% patients are advised blood sugar monitoring, 35% urine sugar (some both) and 4% no monitoring (fig 7). The advised frequency of monitoring matches (fig 8 & 9) the actual monitoring frequency reported by patients in the DIPPAP-1 and Bangalore District study and therefore it appears that patients do follow what is advised. When one considers that almost two thirds to three fourths of the patients are influenced primary by their doctors advice on monitoring, these low figures are worrying. There may well be economic consideration for poor monitoring, but as poor monitoring affects quality of long term care, such a strategy overall maybe counterproductive. An important parameter to assess long term control, glycosylated haemoglobin, is sparingly used and was mentioned by only diabetologists and few physicians.

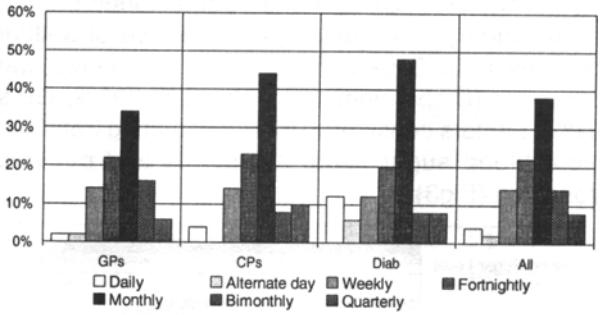


Figure 9: Advised monitoring frequency in Type 2 Diabetes

As reported in the DIAPPAP-1 study, most tests are conducted in the lab or clinic (95%) and not at home (5%). Similar results were seen in the Bangalore District study (lab and clinic 99%, home 1%). This study [4] noted that the cost of transportation and other incidental expenses related to carrying out tests in the lab, account for upto 30% of the expenditure incurred by the patient on lab testing.

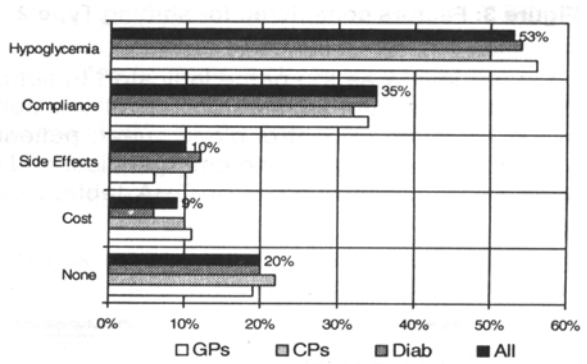


Figure 10: Problems with insulin therapy : Physician's perception

Fig. 10 shows the physician's perception of the problems faced by patients when related with insulin. Table 5 shows the problem with insulin therapy as expressed by 24B current users of insulin (DIPPAP-1). While 53% of physicians rated hypoglycaemia as the greatest worry, only 10% of current insulin users expressed that as a problem in the DIAPP-1 study and only 14% reported it as a complication in the Bangalore District Study [4]. Compliance with injection was the next common problem according to physicians, but only 1% patients mentioned self-injection as a problem. On the other hand, perceptions on side effects and cost were similar amongst patients and physicians. Whereas 76% of current insulin users reported no problems with insulin, only 20% doctors felt that their patients had no problems with insulin. Physicians were asked why patients refuse insulin therapy. Responses are shown in table 6.

Table 5: Problem faced Current insulin users	%
No Problem	76%
Hypoglycaemia	10%
Expensive	8%
Giddiness	2%
Joint Pain	1%
Allergic reactions	6%
Non availability	1%

Table 6: Physicians belief – reasons for patient's Resistance to insulin	%
Reluctance	70%
Cost	19%
Long term therapy	17%
Pain	3%
Side Effects	2%
None	17%

Seventy percent of physicians mentioned general reluctance as the greatest barrier to insulin therapy. This was followed by the concern for cost and long term treatment. On the other hand, almost two-thirds current insulin users have to worries. Of those who have worries, the common worries are injection site trauma, side effects, habituation and pain. (Table 7).

Table 7: Patients' worries in current insulin users	%
None	66%
Injection site trauma	8%
Habituation	6%
Pain	4%
Cost	4%
Side Effects (Including Hypos 4%)	8%

The results of this study amongst the patients, raises many questions. Are the doctors perceptions of patient worries in line with the worries and problems that the patients actually face? There appears to be a gap in the perceptions that patients have and their physician's perception. This makes one wonder-do physician's underestimated their patient's ability to learn and cope with insulin therapy when faced with it? Or is it, that there are other barriers to effective and methodical approach to diabetes management?

The general lack of confidence on part of the treating physician as to how much self care a treating physician as to how much self care a person with diabetes can manage in the present setting may be a reflection of the paucity of facilities to train persons with diabetes in self care techniques, inadequate insurance coverage, resources at home and an over-reliance on hospital and clinic setting.

The other possible barriers as revealed from this study are:

- No proper understanding of the relevance of monitoring and its implication in treatment decision making or treatment modification. This is clear from the low frequency, mode and site of checking and application of results to modify treatment and understand the need for further intervention in case of a co-morbid complication.

- Absence or lack of familiarity to widely acceptable simple protocols to guide the health care provider as to when to employ specific modes of therapy; as brought out by no uniform blood glucose level to institute insulin therapy for persons with Type 2 diabetes.

- Misapprehensions fear and worry about potential side effects in general and hypoglycemia in particular.

- Comprehension of detailed information relating to insulin seems to be lacking.

- Inadequate training and occasional contact with diabetic patients amongst the non-specialist doctors maybe another important barrier. As noted earlier, providing diabetes care requires a different approach and mind set.

- The complexity of treatment and the very many options available, make physicians reluctant to attempt something different from what was

initiated earlier despite the progressive nature of the illness.

As a result, unwittingly doctors transfer some of their anxieties, worries and misinformation about diabetes therapy onto the patients and influence their attitudes to the disease. The issue of provider behavior on patients' treatment acceptance, compliance and to influence their perceptions and behavior has not been studied systematically. Two recent studies have alluded to this important issue. Hunt et al [2] in their study on NIDDM patients' fears and hopes about insulin therapy recommend, that "health care providers examine their patients' perceptions, actively elicit and respond to patient needs to avoid unwitting promotion of negative attitudes towards diabetes management". In another study, Tercyak et al [3] reported that while recruiting adolescents for intensive therapy, there was a significant difference in success rate between two recruiters (acceptance rat 40% versus 73%), although there was no difference in the profile of patients approached and information provided to them, suggesting that recruiter behavior, knowledge and communication skills in one set influenced acceptance.

Importantly, most non-specialists mention that they are seeing increasingly more diabetes and ascribe this to its increasing prevalence. They now use insulin to treat Type 2 diabetes more often than about five years ago, as they have become aware of the long-term complications and the importance of metabolic control in its prevention, as well as the limitations of oral drugs. There is an increasing trend to use insulin for short periods during an emergency. Like patients, even non-specialist doctors feel an overwhelming need and willingness to participate in education programmes on diabetes. Some of them even expressed the need for programmes to help them understand patient need and techniques for counseling. This study raises fundamental issues and points to the need for creating and adapting minimum guidelines on diabetes care-which must then be uniformly followed. Thus it appears that there is a growing awareness amongst health care delivery in India. To us, this is more important than the lacunae that exist, because awareness will lead to solution!

The DIPPAP study, by no stretch of imagination can be considered to provide the complete picture. The importance of the study lies in the fact that it is the first attempt to understand the story of diabetes care. More studies, with perhaps a more elaborate design will have to be conducted from time to time to understand the changing needs and trends.

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