Barriers to Changing Dietary Behavior


Abstract
Dietary change requires giving up long established patterns of eating behavior and acquiring new habits. ‘Non-compliance’ to diet advice may be a result of inability to provide diet self-management training and getting the right messages across to change eating behavior. Using a pre-tested questionnaire based interview, we carried out a study amongst 350 adults (> 20 years) with type 2 diabetes from two metro cities in South India, who had previously received diet advice with the objective to understand perceptions, attitudes and practices, as well as study factors that enhance or reduce compliance to diet advice. Ninety six patients (28%) followed diet for the full duration of diabetes (Group 1), 131 (38%) followed diet for a partial duration varying between more than a quarter to three quarters of the total diabetes duration (Group 2) and 115 (34%) did not follow diet advice (Group 3) – followed for a duration less than a quarter of their diabetes duration.

Study results show that many factors both patient and health care provider related influence outcomes of dietary advice. Factors that have a positive impact on compliance are – older age, shorter duration, nuclear family, good family support, less busy work life, higher health consciousness, advice given by dietician, more frequent visits to dietician, advice that includes elements to promote overall health not merely control of blood sugar, diet counseling that is easy to understand and use and includes healthy food options, cooking methods, practical guidance to deal with lifestyle issues. We conclude that patient barriers related to life circumstance are mostly non-modifiable, most modifiable barriers are related to behavioural aspect and the inability of the health care provider to provide individualized diet advice and self management training. Efforts must be made to improve counseling skills. ©

INTRODUCTION
To effectively manage their condition, persons with diabetes have to learn and practice new, complex, uncommon behaviors like blood sugar monitoring, taking medications (self injecting), keeping track of meal times, diet and exercise, besides dealing with their routine work, social and family life. This calls for adjustment to previously established life style. Adherence to a regimented and monitored way of living for long periods is difficult and requires resolve, encouragement and continuous reinforcement.

If patients are unable to follow instructions, the health professionals typically blame them as being ‘non compliant’, or ‘non co-operative’ while patients feel that health professionals do not approach the problem in a ‘realistic and practical manner’ leading to mistrust and mutual lack of respect. Instead of blaming patients, non-compliance should be viewed as a feedback, which tells us that our current approach is not working and it is time to try another approach. A very common area of ‘non-compliance’ is diet advice; the reason may well be our inability to provide diet self-management training and getting the right messages across. Achieving dietary change requires giving up long established patterns of eating habits and behavior and acquiring new tastes and habits. To be effective diet self-management training must be individualized to suit the individuals’ lifestyle, likes and dislikes and must be reinforced to be able to achieve agreed goals. This requires team work in which the person with diabetes must be a part. Of late there is a lot of interest in understanding the factors that influence change behavior in chronic diseases like diabetes. We carried out a study to understand these factors in relation to dietary behavior in the Indian setting.

Objective
Using a pre-tested questionnaire based interview, we carried out a study amongst adults with type 2 diabetes
from two metro cities in South India. The objective of the study was to understand perceptions, attitudes and practices, as well as the factors that enhance or reduce compliance to diet advice.

**Materials And Methods**

350 adults (> 20 years) with type 2 diabetes of at least six months duration who had previously received diet advice and attending outpatient services of four large diabetes clinics in two metro cities in South India were taken for the study. The study design was an initial listing followed by a qualitative survey using a structured questionnaire. To avoid selection bias, consecutive patients attending the outpatient clinics at the selected centers, fulfilling the listing criteria were interviewed. Questions assessed patients' willingness, and ability to follow the advised diet plan and the reasons behind it, their perception of the importance of the advised diet in overall management of their health and their diabetes; questions also assessed quality of advice, what was told, what was easy and difficult to change. Information on age, sex, education, income, diabetes duration, type of treatment, presence or absence of complications, family and socio-economic environment were collected to assess its impact on compliance to diet advice.

The interviews were conducted by one of the authors (Kavita Kapur) or by dieticians and educators neither involved in the given patient’s current care nor in the initial diet advice, in the person’s native language or in the language the subject was most comfortable with. At least 5 patients were interviewed separately by 2 different interviewers and questionnaires filled in duplicate and examined to check for validity.

Data from the questionnaires were transferred manually to the computer and analyzed.

**Statistical analysis**

Patients were divided into three arbitrary groups based on their self reported duration of adherence to advised diet.

- Group 1 FDFD – followed diet for the full duration of diabetes since first diagnosed – (n = 96) (28%)
- Group 2 FDPD – followed diet for a partial duration varying between more than a quarter to three quarters of the total diabetes duration – 131 (38%)
- Group 3 DNFD – followed diet for a duration less than a quarter of their diabetes duration 115 (34%)

Incomplete data from 8 patients was rejected from analysis. Continuous data were analyzed for differences among the 3 groups using One-Way ANOVA followed by a Bonferroni multiple comparisons test (pair wise comparisons). If the differences were significant, the changes in above measures between two groups (1 vs 2, 2 Vs 3, 1 Vs 3) were compared using independent samples t-test. All categorical data were analyzed for differences among the 3 groups using Chi-square test. Where ever the Chi-Square test failed due to expected cell frequencies less than 5, the log-likelihood ratio test was used. All differences were considered significant at a p-value of < 0.05. Statistical analysis was done using Epi Info™, Version 3.3.2.

**Results**

Table 1 gives the patient characteristics in the three groups. There were no major difference in the characteristics of the whole population and each individual group; however, there were some differences between the three subgroups.

The barriers to compliance to dietary advice in the study can be classified into two main classes - Patient related and health care professional and health care delivery system
related.

Patient Related (Table 2)

- Lifestyle – young, males, perhaps have a busy lifestyle, this group of patients found it difficult to follow regimented inflexible printed diet charts. On the other hand elderly less active people were more prepared to accept regimented plans.

- Health consciousness and understanding the role of food in health and fitness plays an important role in compliance. (Fig. 1 Why is diet control important to you).

- Family support – Support for changing eating behavior is more likely to happen in a nuclear family compared to a large family. When food is not cooked separately for the person with diabetes and the whole family eats the same food, compliance is likely to be better. Often physicians and dieticians fail to promote diabetes diet as a healthy eating plan for the whole family and to highlight its role in preventing diabetes, obesity and cardiovascular diseases in other members of the family, especially children who are at risk because of diabetes in the family. Compliance is less likely when food is cooked separately for a person with diabetes, especially if the person is an elderly dependent. Also when not cooked separately patients may find it difficult to follow the advised printed diet chart. Counseling and education that provides practical tips to select wisely from the available food and to restrict certain foods may help improve adherence.

- Duration of diabetes and complications - Long duration and appearance of complications tend to break the patients resolve and requires reinforcement and encouragement.

HCP Related (Table 3)

- Role of good professional advice cannot but be overemphasized, the most important discriminator between those who followed diet advice and those who did not, were related to who gave advice.

- Reinforcement and encouragement are important discriminators. (Fig. 2 – How often have you visited the dietician)

- Quality of advice in the form of providing useful practical information, which is understandable and empowering to make decisions and healthy choices. (Fig. 3 – Were you told about; Fig. 4: Problem understanding advice)

- Linking diet advice to overall health promotion not merely to blood glucose control was also an important discriminator.

Group 1

Patients in group 1 were older than those who did not follow advice, and had diabetes for shorter duration. They

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<th>Table 2: Patient characteristics differentiating features</th>
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<td><strong>Group</strong></td>
</tr>
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<td>Socioeconomic status</td>
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<tr>
<td>Sex</td>
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<td>Age</td>
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<td>Diabetes duration</td>
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<td>Complications</td>
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<th>Table 3: Health professional characteristics differentiating features</th>
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<td><strong>Group</strong></td>
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<td>Advice given by dietician</td>
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<td>Visit dietician</td>
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<td>Advice includes overall health promotion not merely blood sugar control</td>
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<td>Advice includes healthy options, cooking methods, practical tips to deal with day to day lifestyle issues</td>
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<td>Reinforcement of advice</td>
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had fewer late complications, were more aware that proper
diet was important for being fit and healthy, and belonged to
nuclear family. They had good family support, but probably
had a less busy work life. They were more likely to have
received advice from a dietician and visited dieticians more
often. The advice received focused on elements to promote
overall health not merely on control of blood sugar. They
were more likely to have been given other forms of advice,
apart from printed diet charts. They were also more likely
to have received advice on healthy food options, cooking
methods, practical guidance to deal with lifestyle issues.
The advice was reinforced during repeat visits. As a group
they came across as having received adequate information
and more practical advice. They felt empowered, and were
thus more likely to impose self restriction and control; and
make and sustain behavior change. They perceived that
they had reached their desired goals and felt satisfied with
treatment outcome.

Group 2

Patients in group 2 FDPD (Followed for partial duration)
had diabetes for longer duration, had more complications,
more likely to be on insulin often in combination with
OAD. The family support seemed less (more likely to have
separately cooked food which was not shared by others in
the family – indicating isolation at meal time), or they were
elderly dependent. They had visited the dietician less often,
fewer amongst them considered that proper diet played a
role in being fit and healthy, their focus on diet was mainly
in relation to blood sugar control, and other elements to
promote health were neglected despite higher prevalence
of complications. They were also less likely to understand
their diet, sought more information on diet, felt the advice
was impractical, and fewer amongst them had received
advice on healthy food options, cooking methods, practical
guidance to deal with lifestyle issues. Most likely many
in this group had probably started taking dietary advice
seriously lately because of associated complications and
added insulin therapy, others in the group may have given
up after initially following it for a few years.

Group 3

Patients in Group 3 DNFD (Did not follow diet) were
more likely to be male, younger in age, perhaps indicative
of a busy work life. They were less likely to have received
advice from a dietician, and had visited dieticians less
often. They were less likely to perceive the link between
diet and being healthy or fit and were more likely to link it
to controlling blood sugar, their health care professionals
(HCPs) were less likely to have indicated the positive link
between advised diet and being healthy and fit. They had
often received printed diet charts, and were less likely to
have been given advice on healthy food options, cooking
methods, practical guidance to deal with lifestyle issues.
Because of fewer visits, diet advice was less likely to have
been reinforced or modified to suit needs. These patients
were more likely to have problem understanding their diet,
sought more information, felt the advice was impractical,
too rigid and did not suit their life style. (Fig. 5 - Problem
implementing advice) They did not feel empowered, and
were thus less likely to impose self restrictions or make
behavior change. They were at the same time aware and
more likely to perceive that desired goals had not been
reached. (Fig. 6 – Did you achieve desired goals)

Discussion

Although poor glycemic control has often been
attributed to patients’ noncompliance with prescribed
diets or medications1 or to limited access to care,2 few
studies have focused on the effect of provider decision
making on diabetes management and on the reasons why
providers may fail to intensify therapy in poorly controlled
patients.3

A survey in Kerala4 showed that majority of the patients
did not have enough knowledge about the local diets and
they attribute it to shortage of dietary advisors at the clinics.
There was also lack of proper knowledge of diet therapy
amongst the physicians. The physician fails to understand
the life style of his patients and the need for tailor made diet
prescription instead of the common diet sheet. Though one
to one discussion with the patients is the best; only 1/3 rd
find time for it. The maximum time spent with one patient
is only ten minutes. In majority of diabetic clinics dietary
advice is given only on the first visit and later only if blood
sugar is out of control. The other problem is the language
used by physician and dieticians. Many patients were unable to grasp the concept of measuring caloric contents. In this survey it was found that majority of patients believe that once the drug or insulin is started, there is little use of dietary restriction.

In a study done in Pondicherry, the knowledge, attitude and self care regarding diabetes was assessed, most of the patients appreciated the need for dietary care or medication, but only 50 per cent regulated their diet. None of the patients had any formal education regarding diabetes. Planning a realistic diet and exercise program was favored as a solution for the lack of motivation and will power. It was rated as most effective, easiest to apply, and most likely to be used. Setting goals one week at a time was judged the best way to respond to poor or slow results (68 percent).

Susan Borra reported that consumers are motivated by two potentially conflicting needs - clear information that propels them to take action and for the power to make their own choices. Comparison with a study by Terri Travis on patient perception of factors that affect adherence to diet found many similarities. The most common similarity found from the results was that patients who visited the dietician more often and had more follow-ups were better able to adhere to the diet than those who visited the dieticians less often and did not have follow-up sessions. In our study we were also able to see that those who visited the dieticians were better able to adhere to the diet than those who had merely been advised by the physicians. Another similarity between the two studies was the importance of information and knowledge on diet in affecting a change in the dietary behaviour of the patient. In the Travis study, it was seen that ‘knowledge of what foods to buy’ had a positive effect on adhering to the dietary regimen; while in the multi-centre study in South India, inadequate information on diet was seen as a barrier to changing dietary behaviour.

The present study clearly shows that many factors determine outcomes of dietary advice, both patient and health care provider related. While patient related factors may be difficult to change, understanding the patient’s situation and needs is important to provide simple, understandable and empowering advice. In our study, patients that followed diet advice were more likely to have received advice from a dietician and had visited a dietician more often. The advice focused on elements to promote overall health not merely control of blood sugar. They were more likely to have been given other forms of advice, apart from printed diet charts. They were also more likely to have received advice on healthy food options, cooking methods, practical guidance to deal with lifestyle issues. The advice was reinforced during repeat visits. As a group they came across as having received adequate information and more practical advice. They felt empowered, and were thus more likely to impose self restriction and control; and make and sustain behavior change.

A study reported from Finland showed patients’ readiness for dietary change at the beginning of counseling. It was noticed that the stages of change varied in different dietary areas and within certain dietary habits. These stages of change may involve overall dietary behavior or some minor aspects of their diets. Understanding patient-specific stages of change help counselors use the most appropriate strategies.

The trans-theoretical, or stages-of-change, model has been used to describe stages in people’s readiness to alter current behavior. The stages-of-change model characterizes increasing willingness to make substantial lifestyle modifications, ranging from pre-contemplation and contemplation to preparation, action, and maintenance stages, and is more fully described elsewhere.

In a study conducted to study readiness to change in patients and their clinical success. It was seen that patients who stated that they were ready to begin to change their diabetes-related behavior now (action stage) or within 1 month (preparation stage) reduced their baseline hemoglobin A₁c levels more quickly and to a greater degree than patients who were willing to change their diabetes management in 6 months (contemplation stage) or who did not want to change their diabetes management (pre-contemplation stage).

According to Marion Franz, Medical Nutrition therapy does not fail—traditional dietary advice, handing patients...
preprinted “diet sheets,” treatment protocols, and even the pancreas can fail.11

While prescribing diet and handing out diet charts is simple, it should not be construed that this will make a material change in behavior or compliance. In the DAWN study,12 data from India indicates that patient self admitted compliance to diet advice is only 20%. If we have to make a material difference, our approach should change from transactional to that of a team based on mutual respect and trust. The advice must be simple, comprehensible, enabling and empowering. We must target elements that the person is most willing to change and build on successes to bring about more and lasting behavior changes. When behaviors and beliefs have to be changed we must remember that there is a complex interaction between current beliefs and situation, change preparedness and information and action required to achieve a new state of behavior. The care provider must understand this and mould their advice to ensure maximum impact.

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