

# Prevention and Control of Noncommunicable Diseases

## Role of Family Physicians in Improving Compliance to Lifestyle Modification

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**The National Standards for Diabetes Self-Management Education states that diabetes education results in more informed choices and encouraging changes in behavior that in turn improves clinical outcomes.**

### Abstract

Noncommunicable diseases (NCDs) like diabetes and cardiovascular disease have already overtaken communicable diseases in terms of mortality and morbidity in India. NCDs thus pose a serious economic threat to developing countries and can have a marked impact on the quality-of-life of affected individuals. In the management of NCDs like diabetes or hypertension, lifestyle (i.e.: nondrug) measures are of paramount importance for therapy to be successful. These nondrug measures include decreasing physical inactivity, eating a healthy diet, stress management, avoidance of tobacco products, moderation in alcohol intake and most importantly increased awareness about the condition.

In India, as in most parts of the world, patients usually tend to consult their Family Physician (FP) first. Although most FPs are aware of the benefits of nondrug measures, they seldom spent time on assessing patient's physical activity, diet and stress levels or even educating the patient about the same.

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This paper reviews and discusses different means by which the FPs can improve patient compliance to nondrug measures in the prevention and control of NCDs.

### Introduction

A recent World Health Organization (WHO) document states that 388 million people globally, will die from noncommunicable diseases (NCDs) diseases like diabetes and heart disease in the next decade.<sup>1</sup> It is also estimated that approximately 246 million people, or 5.9%, in the age group 29-79 have diabetes worldwide in 2007 of which 80% would be living in developing countries.<sup>2</sup> Today, India is already home to over 40 million people with diabetes and this number is expected to increase to 70 million by 2025 and therefore India is referred to as the "diabetic capital" of the world.<sup>3</sup>

The World Health Report also states that elevated blood pressure alone would contribute to 50% of cardiovascular diseases (CVD) worldwide.<sup>1</sup> The prevalence of obesity, which is one of the main contributors to insulin resistance, and metabolic syndrome, is also predicted to increase by 89% in men and 82% in women between 2002 and 2010.<sup>4</sup> From the above statistics it is clear that NCDs pose a serious economic threat and that they can have a marked impact on the quality-of-life of affected individuals.

In India, as in most parts of the world, patients usually tend to consult their FPs first. The reason behind this could be the comfort levels they share with a FP who

has been taking care of them as a family over two or more generations. Hence, the role of FP takes center stage in the prevention, management and control of NCDs.

In the management of NCDs like diabetes or hypertension, lifestyle (i.e.: nondrug) measures are of paramount importance for therapy to be successful. These nondrug measures include regular physical activity (exercise), healthy diet, stress management, avoidance of tobacco products, moderation in alcohol intake and most importantly increased awareness about the condition. It would be fair to state that unless compliance to the nondrug measures is ensured, management of diseases like diabetes and hypertension would be extremely difficult. A study which surveyed FPs working in UK revealed that though most of them were aware of the benefits of nondrug measures, they seldom spent time on assessing patient's physical activity, diet and stress levels or even educating the patient about the same.<sup>5</sup> The findings suggest that while there is awareness among FPs regarding the importance of nondrug/lifestyle measures in the treatment of diabetes and hypertension, there are issues related to lack of time on part of FPs to educate patients. This has led to the inclusion of nutritionists, dietitians, exercise and yoga therapists, psychologists and counselors in the healthcare team to treat diabetes and hypertension.<sup>5</sup>

This paper will discuss some of the methods by which the FPs can improve compliance to nondrug measures in treating NCDs like diabetes and hypertension.

### Increasing physical activity

One of the strongest drivers of the diabetes epidemic is a marked increase in sedentary lifestyle, especially in urban areas. However, awareness still remains low. In a study conducted in Chennai, it was seen that only 12% of people living in Chennai were aware that physical inactivity increased the risk for developing diabetes.<sup>6</sup> Therefore, along with following a healthy meal pattern, promotion of physical activity in the community is a key step towards controlling the twin epidemic of diabetes and obesity.

The physical activity component of weight loss programmes is designed to increase overall calorie expenditure. FPs can inform patients about the need to incorporate lifestyle changes into one's daily routine e.g. using the stairs instead of lifts or parking

further from one's destination, in addition to setting aside a time each day for leisure time exercise. Group therapies may also help for initiating such programs, particularly in very obese individuals who would be motivated through peer pressure. The group therapy approach may be helpful to identify barriers to exercise and teaching strategies to reduce barriers such as lack of time, fatigue or even bad weather and can help improve compliance.<sup>5</sup> There is thus a need to counsel patients individually to determine reasons for poor compliance.

Recent studies also show a clear link between health and the 'built environment' such as roads, buildings, parks and other structures that physically define a community. Pleasant surroundings reduce stress and encourage outdoor activities such as walking, cycling and jogging, which could help people stay fit and happy.<sup>6</sup> FPs can then influence with the government or town planners to improve the existing facilities for increasing physical activity of the general public.

Increasing physical activity through community empowerment is perhaps one of the cornerstones in the primary prevention of NCDs. This is well illustrated by a 2005 population-based study done in Chennai, The Chennai Urban Population Study (CUPS) showed that the prevalence of diabetes was higher among people who engaged in light-grade physical activity (17.0%), compared to those with either moderate (9.7%) or heavy-grade physical activities (5.6%). The residents of Asiad colony a middle-income neighborhood, in Chennai were motivated by the research team to increase their physical activity. In response to this the colony residents constructed a unique public park with their own funds, which is maintained through a modest annual contribution. The park, with bushes, trees, fountains and a play area for children, was completed in 2002.<sup>3,6</sup> The project was widely reported in the local media, sparking wide public interest. Several more parks were developed in Chennai as a result, entirely through the efforts of community members. This is a successful case study of the importance of community empowerment and has been showcased as a model for developing countries in the WHO publication *Preventing chronic disease - a vital investment*.<sup>7</sup> Subsequent studies showed that the construction of the park in the colony resulted in almost 300% increase in the number of people who exercised in this colony.<sup>6</sup>

Such success stories can only be replicated if the local FPs take the initiative in driving home the message about necessity for increasing physical activity. With their active involvement in such programs, the general public can be motivated to make physical activity part of their daily routine.

Exercise training is also an important therapeutic modality for improving glycemic control and thereby preventing complications among persons with diabetes. It may also help to prevent or delay the onset of NCDs such as obesity, hypertension and cardiovascular diseases. The benefits of physical fitness lead to reduced cardiovascular risk by lowering serum lipids, reducing blood pressure and increasing insulin sensitivity.<sup>8</sup>

Besides this, exercise has important effects on mental health as it releases the endorphins or “Happy Hormones” as they are commonly called, thus having antidepressant effects and reducing anxiety levels. Hence, individuals who exercise regularly report improved sense of well-being and self esteem.

Despite the growing evidence of the benefits for exercise, there is still a lack of participation among patients. The reasons can be many. Starting on an exercise program itself, takes some time and once a person has begun, then adherence to exercise regimes is even more challenging. Sometimes patients lack the knowledge and awareness about the benefits of exercise, lack of motivation and a lack of clear recommendations from clinicians. This is where FPs can play a crucial role. Specific instructions should be given to patients rather than giving general advice. For e.g.: rather than just saying, “You need to exercise” an FP should be saying, “You would benefit very much by a brisk walk for 30 minutes everyday”. Such instruction clearly outlines the type and amount of time to be spent on the exercise. FPs also need to constantly motivate their patients to stick to an exercise routine. The FPs while stressing on the benefits of daily exercise can also emphasize on the above-mentioned emotional benefits of exercise. They can also serve as a role model by going for a walk themselves everyday and by promoting walks on special occasions such as “World Diabetes Day”, “World Heart Day” or “World Health Day”.

### Promoting healthier diets

Medical Nutrition Therapy (MNT) as diet therapy is

now known, follows the basic principle of balancing one’s intake with their energy expenditure. MNT and exercise go hand in hand in management of NCDs like diabetes and hypertension. Consuming a diet rich in vegetables especially greens and whole fruits, whole grains and pulses, low fat milk, cutting down on saturated fat and trans fats, limiting one’s salt intake to a single teaspoon (5 g) and limiting cholesterol intake to <200 mg/day do help in the management of most NCDs.<sup>9</sup>

MNT is important in preventing and managing existing diabetes and/or hypertension, and preventing or slowing the rate of development of other related complications. MNT also helps patients control their diabetes better. It is recommended that a registered dietitian or nutritionist, knowledgeable and skilled in MNT, be the team member who plays the leading role in providing nutrition care. However, it is important that all team members, including physicians and nurses, are knowledgeable about MNT and support its implementation.<sup>9</sup>

Clinical trials and outcome studies on MNT have reported decreases in HbA<sub>1c</sub> of 1% in type 1 diabetes and 1-2% in type 2 diabetes, depending on the duration of diabetes.<sup>10,11</sup> Meta-analysis of studies in nondiabetic, free living subjects and expert committees report that MNT reduces LDL cholesterol by 15-25 mg/dl.<sup>12,13</sup> After initiation of MNT, improvements were apparent in 3-6 months. Meta-analysis and expert committees also support a role for lifestyle modification in treating hypertension.<sup>14,15</sup> Look AHEAD (Action for Health in Diabetes) is a large National Institutes of Health-sponsored clinical trial designed to determine if long-term weight loss will improve glycemic control and prevent cardiovascular events.<sup>16</sup> When completed, this study should provide insights into the effects of long-term weight loss on important clinical outcomes.

The FP while giving general guidelines on diet needs to ensure that the patients receive all the essential information about the disease and its management. Support staff like the nutritionists/dietitians and diabetes educators can shoulder this responsibility. One-to-one counseling is essential to enhance patient compliance to diet and exercise. Instead of the FP handing out ready made “one size fits all” diets, a nutritionist can provide individualized, ‘tailor made’ diets taking into account the patients likes/dislikes

and daily routine. Making long-term changes to eating and activity behaviors is extremely difficult for most patients. The FP can encourage, monitor and support the patient during this process.

The combination of diet, exercise and behavioral modification is the most effective approach to weight control. Behavioral approaches that teach patients to rearrange their daily schedules and thus support healthy eating habits and exercise routines are important for long-term maintenance of behavioral changes.

### Motivating patients in changing behavior

In 1982, Prochaska proposed the transtheoretical model of behavior change. The basis of this model is that not all individuals are prepared to take action to change their behavior at any given time and hence focuses on stages of behavior change. These stages are considered in six monthly time periods as researchers have found that this is the optimum period that most subjects are prepared to change.<sup>17</sup>

The stages of change are as follows:

- Precontemplation stage (no intention to change)
- Contemplation (actively thinking of changing a behavior, considering pros and cons)
- Preparation (currently exercising but not regularly)
- Action (currently exercising but have only just started)
- Maintenance (change has taken place)

It is important to realize that the progression from one stage to another is not always linear and that subject frequently relapses to the precontemplation stage or from one stage to another.

The transtheoretical model described above helps both prediction and explanation of different people's behavior towards health related activities. The health education authority in UK has suggested that the stages of change may be most useful for healthcare professionals to use because it is now possible to identify at which stage of change the patient is on the model's spectrum.<sup>18</sup> This in turn would allow the FP to adopt different strategies for that particular stage in order to encourage adoption and maintenance of nondrug measures. Behavioral models provide a sound theoretical basis for all intervention programs planned to enhance compliance and form an important

aspect of behavioral counseling for family and other significant people in the patient's life.<sup>19</sup>

### Understanding compliance behavior

Compliance or adherence forms a central concept in most psychological research aimed at improving patients' health. It refers to the extent to which a person's behavior, in terms of following advice on medication, diet, regular exercise or executing lifestyle changes coincides with the medical or health advice actually given by the clinician or any other health advisor. It is important to look at multiple aspects of compliance, as it is not a unitary construct. For example, one individual could be compliant with drugs or stress management but not necessarily with diet and exercise. Therefore, it is important to examine compliance across several behaviors. In order to ensure compliance to nondrug measures, FPs first need to be sensitized to the existing problems of patients, understand their barriers to non-compliance and then help them overcome them (Table 1).<sup>19</sup>

A recent paper, Our Healthier Nation (UK), identifies professional advice on healthier living as a key component of its national contract on health.<sup>20</sup> According to this study, FPs are ideally placed for this work. However, previous research has reported a gap between the patient's expectations of the lifestyle advice and their receipt of the same. Studies have tried to assess the FPs attitudes towards health promotion and lifestyle counseling through surveys. Despite an increasing workload, FPs remain positive about health promotion and lifestyle counseling. It was seen that FPs felt most effective in changing the patient's drugs rather than changing lifestyle habits, as they are more trained in the former. Hence more training and support concerning lifestyle intervention is required by FPs in order for them to contribute more effectively in modifying patients' lifestyle.<sup>20</sup> Another paper that studied the attitudes to cardiovascular health promotion among FPs and practice nurses reported that health promotion involves more than the provision of simple information and advice and the FPs and nurses lack confidence in lifestyle counselling.<sup>21</sup>

### Stress management

Most 20th century illnesses have been shown to have a strong relation to psychosocial factors such as stress, anxiety or depression. It has been estimated that 75%

Table 1.

## How can FPs improve patient compliance to nondrug measures?

Category	What the FP can do?
Physical activity	<ul style="list-style-type: none"> <li>• Organize and facilitate structured programs</li> <li>• Help patients set realistic goals</li> <li>• Initiate walks on occasions like world health day/world diabetes or heart day</li> <li>• Reinforce importance of exercise at every visit</li> <li>• Outline and specify exercise prescription clearly to the patient</li> </ul>
Medical Nutrition Therapy (MNT)	<ul style="list-style-type: none"> <li>• A trained Nutritionist/dietitian should be the one giving MNT</li> <li>• MNT should be tailor made for the patient</li> <li>• Reinforce the importance of meal timings and following a healthy diet plan at every visit</li> </ul>
Stress management	<ul style="list-style-type: none"> <li>• Help patients identify and assess their stress</li> <li>• Suggest simple ways to cope</li> <li>• Refer to specialists/counselors when required</li> </ul>
Overall	<ul style="list-style-type: none"> <li>• Help patients identify barriers to noncompliance</li> <li>• Regularly counsel and motivate patients to comply to non-drug measures</li> </ul>

of all medical complaints are stress related.<sup>22</sup> Thus one way to reduce the healthcare costs is to prevent stress by helping people to adopt health-promoting behaviors.

Stress management programs should aim to help the patient achieve maximum well-being and enjoy a richer and more rewarding tension-free lifestyle.<sup>22</sup> There is conflicting evidence regarding the utility of stress management training in the treatment of diabetes. In one study, stress management training was associated with a small (0.5%) but significant reduction in HbA<sub>1c</sub>.<sup>23</sup> However, compliance to the treatment regimen decreased over time. Other studies that have shown a therapeutic effect of stress management have used time-intensive individual therapy.<sup>23</sup> This requires the help of a professional psychologist or counselor but the FP can help patients in identifying and assessing their stress and can then suggest ways of coping with them. Coping strategies are many and these include exercise, dietary changes, yoga and meditation, relaxation techniques or stress management courses, counseling and where indicated, medications.

### Conclusions

Patient Education needs to be an integral component

in the treatment of NCDs and it is crucial to involve FPs in this. The National Standards for Diabetes Self-Management Education states that diabetes education results in more informed choices and encouraging changes in behavior that in turn improves clinical outcomes.<sup>24</sup> Patients need to be made aware of their condition; simple basic information about the disease, causes, treatment, management or how to avoid complications, all can be included as part of an education program where a trained educator imparts this information in the form of an interactive lecture. Books, tapes or CDs, pamphlets or posters can also be effectively used to supplement these lectures or in one to one counseling. The FP needs to regularly counsel and motivate their patients about diet, exercise, stress management and other lifestyle measures just like they would about medicines. This can be done with the help of nutritionist/dietitians, diabetic educators, counselors, behavioral specialists, podiatrists, fitness experts and yoga therapists. If the FP is backed with a motivated team he/she will be able to give comprehensive care to the patient and in that process enhance patient compliance to nondrug measures especially diet and exercise. This could go a long way in the prevention and control of NCDs in India.

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