

Causes of non-adherence to diet and exercise in type 2 diabetes mellitus at a centre in north Karnataka, India

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Abstract

Objective: Diabetes mellitus is a major problem worldwide which has increased near to four times in the last three decades. Non adherence to the diet and exercise is a major problem in the control of the condition and its complications.

Method: This was an observational study. The sample size was comprised of total 290 participants. Data was collected as per a set of questions related to non adherence to diet and exercise.

Results: The main causes for non adherence to dietary habits are poor self discipline and Lack of information. The main causes for non adherence to exercise are lack of partner for exercise and lack of information regarding the recommended exercise.

Conclusion: Efforts are needed to counsel the patients with treatment so that they shall adhere to the recommended lifestyle modification for the proper management of the disease and will reduce the complications and the economic burden as well.

Keywords: diet, exercise, diabetes mellitus

1. Introduction

Diabetes mellitus (DM) is a metabolic disorder due to a defect in insulin action, insulin secretion, or both, and its prevalence is rising rapidly all over the world [1, 2].

The International Diabetes Federation (IDF) has given a data with the estimation of 1 in 11 adults aged 20–79 years (415 million adults) had diabetes mellitus all over the world in 2015. There is an estimation that this may further increase to 642 million by the year 2040, and the regions experiencing economic transitions from low-income to middle-income levels will be showing the largest increase [3]. But the real worldwide burden of diabetes mellitus may have under represented specially in the areas which are having fast and rapid epidemiological transitions [4].

Between 2000 to 2006 there was nearly only 5% increase in the prevalence of diabetes. India as per now has 80 million to 90 million individuals with the condition [5] (Fig 1).

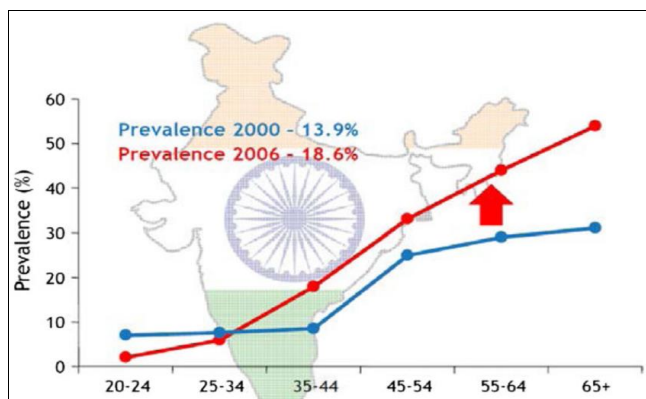


Fig 1

The main factors responsible for this increased rate of diabetes mellitus are multiple, including urbanization of the

areas, unhealthy eating habits, sedentary lifestyles, economic development, and population ageing. More than 90% of the cases are type 2 diabetes mellitus (T2DM) [6, 7].

For the proper glycemic control patients usually follows self management system involving diet management, exercise, drug administration, insulin administration, education regarding the condition and self monitoring of blood glucose levels (SMBG). A good communication and proper collaboration with family members, health care providers and others are very important to achieve these changes and should be encouraged and supported [8].

The main cornerstones of type 2 diabetes mellitus is lifestyle modification and healthy dietary habits [9].

Changes in dietary habits and physical activity changes can cause a 5-7% of weight loss as well as helps in maintaining blood sugar levels in individuals with T2DM [10].

Proper adherence to the lifestyle changes as recommended will lessen the burden of the disease and will help in reducing the further complications, morbidity and mortality associated with type 2 diabetes [11].

There is poor lifestyle adherence to recommendations among the type 2 diabetes mellitus patients which has been found to be associated with the world wide urbanisation mainly in the developing countries like India where the fast food vendors or outlets are serving unhealthy food [12]. In such patients rate of non adherence to exercise and diet advices were estimated to range from 35% – 75% and 35% – 81% respectively in studies conducted in various parts of world [13-19].

Poor adherence to exercise and diet recommendation in type 2 diabetes mellitus patients itself causes frequent hospitalisation and further increasing the cost burden on the patient [20, 21].

Some patients justify their non adherence to the diet recommendations on the basis of lack of information,

negative health beliefs, financial problems, criticism by other people unwillingness in self, lack of support from family, spouse or friends [22, 23, 24].

Since the management of the condition makes a psychological, physical and socio economic burden on the individual as well as the family and the social life, importance should be given to the aspects which can help in the management of the condition and to reduce the burden as said with the lifestyle and diet modifications. This study aims for the assessment of the factors which are responsible for the non adherence to the diet and lifestyle modifications.

Materials and Methods

This is a cross sectional study which was carried out among indoor as well as outdoor diabetes patients in a tertiary care hospital in kalaburagi city. Patients aged >30 yrs with a history of type 2 diabetes mellitus of 1 yr or more was included. Sample size was calculated by using open EPI software considering confidence level of 95%, power of 80%, assuming the prevalence of self care activities in patients to be 50%, an absolute precision of 6%, considering the non response rate to be 10%, the estimated sample size was 290. Out of the recruited patients 187 were males and 103 were females. Confidentiality and anonymity of data were assured by non-inclusion of patient identifiers in the questionnaires. Each consenting patient was requested to fill in the questionnaire with the help of the research team members who were there to give the clarity or resolve confusions wherever necessary. In our study, a respondent was regarded adherent to exercise if she or he reported exercising for a duration of ≥ 30 minutes per session, most days of the week (recommended more than 3 days) [25].

Non-adherence to exercise was considered as a self-reported default for less than 3 days per week, less than 30 minutes a day or no physical activity [26].

It was assumed that the patient had some information regarding the dietary habits including high fibre diet with vegetables, low fat milk and dairy products and less of carbohydrates. Participants regarded as non adherent to dietary habits as self reported adherence of less than three days a week.

Data analysis was done with the help of SPSS.

Results

We found that out of these participants only 83(28.6%) people were adherent to the exercise as recommended or needed for the management of the diseased condition. And actually most of the participants that is 136 (46.9%) and 71(24.5%) respectively were doing no physical activity as such or doing less than 30 minutes a day that is also less than 3 days a week.

Other important thing is to note that only 51 (17.6%) participants were attending a diabetic educator and 239 (82.4%) were not attending any diabetic educator to get the information about the diseased condition. out of 290 individuals 109 have family history of diabetes as well and we noticed that patients with a positive family history are less adherent to recommended exercise i.e only 9.3% and who do not have a family history of diabetes are more adherent 19.3% (Fig. 2).

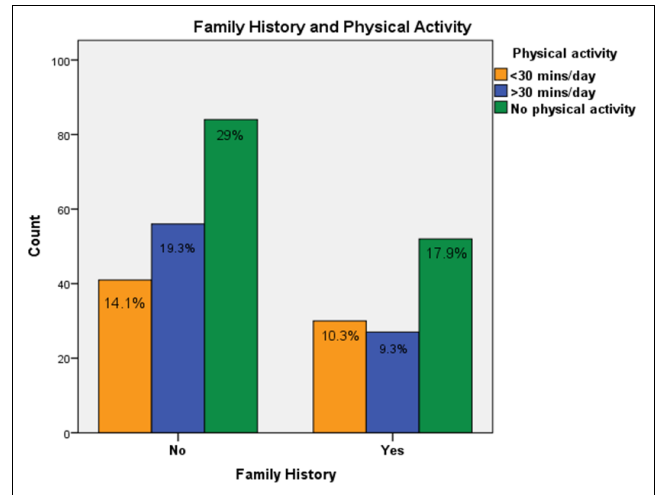


Fig 2

We also distributed the participants with respect to the area in which they are residing as urban and rural. The individuals residing in urban area were 213 (73.4%) and 77 (26.6%) in rural areas. People in urban area are more adherent to the physical activity i.e. 26.9% with respect to the rural population in study i.e only 1.7% (Fig. 3).

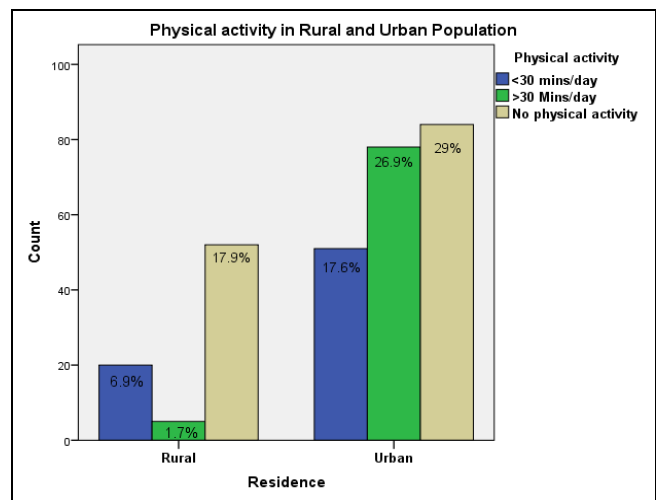


Fig 3

Causes of non adherence to diet

Most of the participants had idea actually about the recommendation to follow regarding the diet, then also they gave many reasons that why they are not able to adhere to dietary habits. The majority of participants that is 197 (67.9%) of them were having poor self discipline, 186(64.1%) have actually good environment at home to encourage them to take good diet regarding the disease, 137(47.2%) participants actually have a lack of information regarding the dietary habits, 36(12.4%) were eating outside regularly like street side food or restaurants, 91(31.4%) have financial problems to get the proper diet. Figure.2 shows the percentage of each category to help in visualise an approximate bunch of participants in each category of cause of non adherence to dietary habits (Fig. 4).

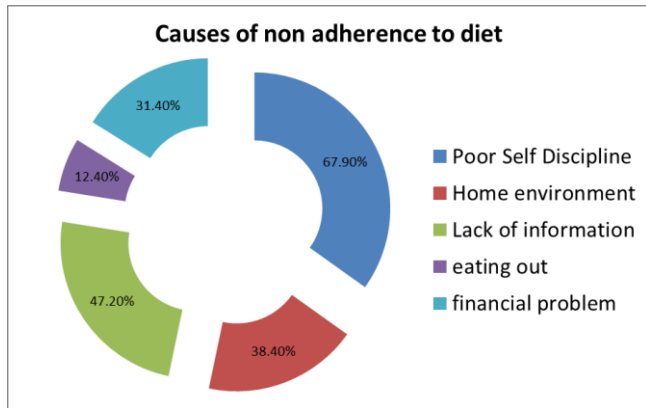


Fig 4

Causes of non adherence to exercise

Participants gave various reasons as per questionnaire which were responsible for the non adherence to exercise even after knowing the fact that how important exercise is with respect to the diseased condition.

152 (52.4%) participants are not doing exercise as recommended because of lack of partner for the exercise, 131 (45.2%) have lack of information about the recommended exercise, 87 (30%) have associated co morbidities like osteoarthritis or Asthma due to which they are not doing regular exercise as recommended, 116 (40%) participants are doing exercise as recommended only after going to a specific location which they think is suitable for them otherwise not, for 98 (33.8%) weather is a barrier for non-adherence to the recommendations, 212(73.1%) are having a good emotional support from either the family members, spouse and friends. This data is also shown in figure 3 as a wagon wheel to clearly look to an understandable view of the current scenario in the study (Fig. 5).

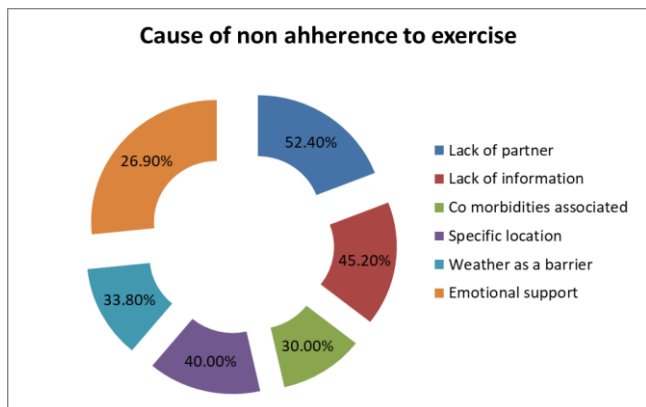


Fig 5

Discussion

Its important to get the root causes about the non adherence to life style modification in the form of dietary habits and exercise at the community level so that it will be easier to counsel the patients and help in the management of the diseased condition effectively. Few studies have already showed that the adherence to the lifestyle modifications are really very important for the proper management including the prevention of the disease [27, 28]. In this study we tried to find out that why people are not adhering to the life style modifications as recommended and we also wanted to know that do they really know about the exercise and diet

recommendations.

Only 17.6% of individuals are attending any diabetic educator. The main reason for this is that they have not got easy access to the diabetic educators or diabetologist. Even if they have due to their poor self effort they are not visiting them. Only 28.6% of people are adhering to the exercise recommendations rest are either not doing any physical activity or even if doing they are not able to do it as recommended (Fig. 6).

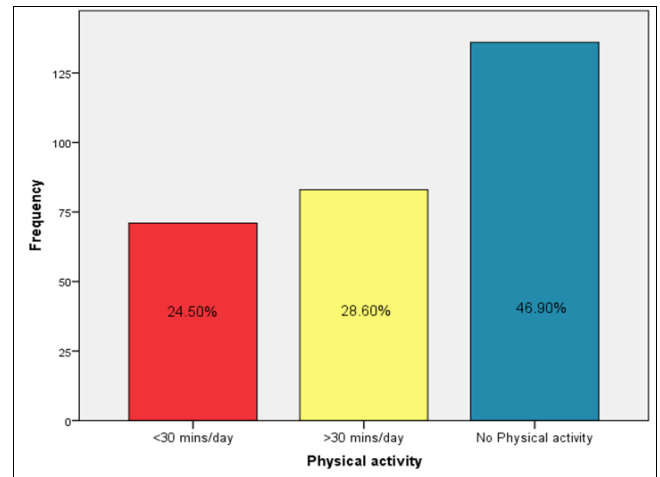


Fig 6

Patients with diabetes may not strictly adhere to lifestyle measures until and unless they are educated about the condition. Individualised lifestyle measures may be achieved through, anticipation of the individual’s future barriers, assessment of the patient’s knowledge and needs and identification of their support structures [29]. In other study done in Africa, the findings are a bit different showing lack of information as a more important factor in non adherent to exercise but same with respect to the dietary barriers with maximum number of people having poor self discipline to follow the dietary habits [30].

Even after the fact that most individuals know that diet and exercise are very much important to achieve and helps in maintaining a good glycaemic control, then also most of the individuals gave various reasons for non adherence to the recommended advices.

The most frequently reasons for not adhering to diet were poor self discipline, lack of information with respect to the dietary recommendations, the environment at home is not that much supportive regarding diet for diabetic patients as it requires a strong support as meals are shared by all the members of the family, and they are not able to follow a diabetic diet due to financial crisis at home.

On the other part of the life style modification that is the exercise recommendation the, frequent reasons given were lack of exercise partner, individuals willing to go to a specific location for exercise or workout, lack of information regarding the exercise recommendation, sometimes due to change in weather situations participants were skipping the daily recommended exercise as advised.

Lack of emotional support support from spouse, family members and friends also contributed to the non adherence to the diet and exercise habits. Some studies found that a good support from the spouse, family members and friends was a good predictor to adherence to exercise and diet recommendations [31, 32, 33].

Conclusion

There was a significant rate of non adherence to exercise and diet recommendations by the individuals having type 2 diabetes mellitus seen at a centre in North Karnataka. The most common reasons for the non adherence to exercise were lack of exercise partner, weather situations, exercising at a specific location, lack of information, hindered by associated co morbidities and lack of emotional support from spouse, friends and family members. The frequent reasons for non adherence to diet recommendations were poor self discipline, lack of information, eating out regularly, financial restrictions environment at home to follow dietary habits.

In this study the rural population is very less because its a study done at a specific centre not in a rural area. This may further present that people residing in rural areas are not very much aware of the disease and its complications so they are not visiting regularly with respect to the urban population. The drawback of the study is that it is done on a mixed population. To see the more closer causes of non adherence to diet and exercise the groups if stratified into totally separable urban and rural areas will be more fruitful. The diabetic patients should always be advised about the diet and exercise recommendations and if we know the proper cause regarding the non adherence we can counsel the patient as per required so that it will further help in improving the diseased condition and prevent the coming up complications or the help managing the already present complication of the disease.

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