

Original Research Article

A qualitative study on non-adherence to oral hypoglycemic agents in type 2 diabetics

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ABSTRACT

Background: Non-adherence to oral hypoglycaemic agents is both a global and ubiquitous problem during treatment of type 2 diabetes mellitus. This leads to unwanted persistence and aggregation of hyperglycemia as well as many of the complications of diabetes mellitus and even to early death. However, there have been quite a few studies on this issue but different studies have shown different reasons of non-adherence because of this confusion and also because no studies have been done in Bihar and North Bengal, the present authors decided to go for a qualitative study on this issue.

Methods: This study was conducted in the medicine OPD of two medical colleges one in Bihar and another in north Bengal. The study method was one of the qualitative descriptive nature in which open interviews are conducted on non-compliant diabetic patients. Audio recording was taken in each case after taking written permission from the patients as well as from the institutional ethical committee. A transcript in English was made manually of each audio recording and then transcript analysis was done using categories and codes.

Results: The results showed existence for four broad categories, viz, adverse effect, economic issues, availability and alternative treatment. Each category was divided into several codes like - adverse effects into weakness, hypoglycemia, organ damage, vertigo and fear; economic issues into high cost, low income, lifelong high expenditure and family crisis; availability into total non-availability, local non-availability, travel expenses and problems to buy from distance and brand non-availability; lastly alternative treatment included Ayurveda, Homeopathy and jori-but. The last two categories, viz, non-availability and alternative therapy are very much unique in our study.

Conclusions: It can be concluded that non-adherence is very much a problem in our places as it is in other places, nationally and globally. But it is slightly different here. We must find out solutions for this problem and start interventions immediately.

Keywords: Oral hypoglycaemic agents, Qualitative study, Type 2 diabetes

INTRODUCTION

In our today medicine practice, every day we are confronted with the various problems of type 2 diabetics. Usually they are treated with one or more oral hypoglycemic agents (OHA), but often we come across the problem of their nonadherence to the oral

hypoglycemic agents. Sometimes they just don't buy it; often they miss it or skip it; and, frequently they just don't take it. Naturally, because of this behaviour the hyperglycemic states worsen and they move upto greater complications, graver handicaps and deadlier morbidities. Therefore, these behaviour of theirs cannot be overlooked by simply marking them as trifles; and you look more

deeply into these issues, delve deeply to learn the true reasons, and find out means as to how to overcome them and bring all these deviated patients in a streamline.

Muhammad C et al, did an elaborate study in north eastern Nigeria on this issue. They found that financial distress, lack of family support and poor attitude of health care personnel were the main causes behind this malady. They, therefore suggested that these three principal aspects are to be improved in order to get better compliance from non-adherent patients.

Diabetes mellitus is a disorder in which either there is a lack of insulin production or a deficiency of insulin action, leading to metabolic disorders of carbohydrates, proteins and fats and is characterized by high glucose levels in the blood (hyperglycemia), microangiopathy, macroangiopathy and neuropathy. It is divided into two types and these are: type 1 and type 2 diabetes mellitus. This classification is based on the etiology, onset and disease patterns.²

The prevalence of diabetes is different in different places. In 2000, WHO reported that, at least 171 million people worldwide suffer from diabetes, that is 2.8% of the world population were suffering from the disease. It was also estimated that in that bulletin, that by 2030, this number would become double.³ It was again prophesied that by 2025, India would become the diabetes capital of the world by having the highest number of diabetics among all countries.

The knowledge of diabetic patients about the disease bears a complex pattern. In 2013, Al-Maskari et al in a study on knowledge, attitude and practices of diabetic patients in the United Arab Emirates, observed that 31% of patients had poor knowledge of diabetes.⁴ However, their knowledge scores did not correlate significantly with their HbA1c values. This gives a doubt that knowledge on diabetes is not an important factor for non-compliance of diabetic patients.

In 2005, WHO stated that barriers to noncompliance include right attitude and proper belief of individuals which explains the good health behaviour of such individuals.⁵ It was further observed that the perceived benefits of such health behaviour are also greatly influenced by culture, religion and level of education among other factors. Ataur et al in their study opined that among factors found to be significantly associated with noncompliance on bivariate analysis were: female gender, illiteracy, urban population and so on.⁶ Again, Nahala et al argued that there is no significant relationship between various aspects of compliance and

the demographic characteristics like age, gender and others.⁷

Under these contradictory and confusing state affairs we have here ventured to do a qualitative study on this issue covering a large part of Bihar and north Bengal.

METHODS

The study was conducted in the Medicine OPD of two Medical Colleges, one situated at northern part of West Bengal and another at Bihar. The study was one of qualitative descriptive type involving in depth interviews (IDI) of 28 diabetes mellitus patients who were treated with oral antidiabetic medicines and at present not taking the same.

All the interviews with the diabetic patients were conducted after taking consent by the first and second author trained and guided by the third and fourth author who were trained in Qualitative methods in health research. Before beginning of the study, they had taken permission from the patients for audio recording of the interview. The interviews were first translated and typed into English. The transcript analysis was performed manually by the third and fourth author. Descriptive 'codes' of the text information were done. Then 'categories' were formed by merging similar codes together. The consolidated criteria for reporting qualitative research guidelines were followed. All the questions used during the interview were open ended. Before beginning of the study formal approval was taken from the Institutional Ethical Committee (IEC) of the institutes. Finally, the script was written by the third and fourth author and reviewed by the other authors.

RESULTS

Out of 28 diabetes mellitus patients participated in the study, 15 were males and 13 were females. Their ages varied from 32 to 69 years. Total four (4) males and two (2) females were in the below forty (40) years of age group, three (3) males and five (5) females were in the age group of 41 to 50 years, five (5) males and four females were age group of 51 to 60 years and three (3) males and two (2) females were in the age group of 61 to 69 years. They were from different places of West Bengal and Bihar. The occupation of male patients was diverse. Their occupation were rickshaw puller, physical laborer, social worker, teacher and retired employee. Most of the female diabetics were housewives, one of them was music teacher, one was shop keeper, and one was public health worker by occupation.

Table 1: Transcript analysis of diabetes patients about non-adherence to oral anti-diabetic drugs.

Categories	Codes	Comments
Adverse effects	Weakness	After taking antidiabetic medicines, I feel very weak, loss of energy.
	Hypoglycemia	I have an attack of hypoglycemia, I was admitted to hospital for hypoglycemia.
	Organ damage	Long term medicines will damage my heart, and also damage my kidneys, the medicines for diabetes may do harm and destroy my liver.
	Vertigo	After taking antidiabetic medicines, I have an attack of vertigo, there is reeling of my head.
	Fear	I am afraid of continuing life-long medicines for diabetes.
Economic issues	Cost	Due to high cost of antidiabetic medicines I am unable to continue anti-diabetic medicine.
	Low income	My income is less so I am unable to buy medicines to control diabetes.
	Regular intake	Continuous intake and regular purchase of medicine is not possible for me.
	Acute crisis	Acute family crisis... buying antidiabetic medicine is difficult.
Availability	Not available	Antidiabetic medicines not available everywhere.
	Remote places	Residing at remote places - problem regarding availability of the antidiabetic medicines.
	Travelling	During travelling in remote places... medicines not available.
	Same brand	Problem about getting same brand of medicine.
Alternative treatment	Homeopathy	Taking homeopathic medicines after getting well with antidiabetic medicines.
	Ayurvedic	Treating with ayurvedic medicines.
	Jori-buti	Treating with crude herbs like jori-buti for controlling blood sugar.

DISCUSSION

It has been observed in the present study that reasons behind the non-adherence of issues against oral hypoglycemic agents can be divided into four major categories, each of which during transcript analysis can further be subdivided into several codes. The categories found in the study through transcript analysis of the audio recordings taken directly from the non-compliant patients are: adverse effects, economic issues, availability and alternative therapies.

The adverse effects that we have come across are weakness, hypoglycemic episodes, organ damage, vertigo and fear. One major causes of fear are the feeling that they will need to continue medicines throughout their life. The economic issues include high cost of medicines and low income. Another added code is this expense on medicine would have to be continued lifelong. There is still another apprehension that in case the family falls into sudden crisis how would they maintain the cost? Regarding availability of medicines, the issues are simple non-availability, available only in town markets, where the patients inhabit in remote villages; cost and tribulations to buy from townships; sometimes the particular brand is not available. Alternative treatment is one cause of noncompliance unique in our study only; patients go for Ayurveda, Homeopathy and 'jori-buti' that is local traditional and tribal cure methods.

In the study done by C Mohammed in Nigeria the principal causes of non-adherence were found to be drug expensiveness, lack of family support, poor educational

level including knowledge of diabetes and lack of proper attitude about treatment regimen. Other factors were found to be insignificant.¹

One study from Spain revealed that among the causes of non-adherence of diabetic patients to oral hypoglycemic agents, the principal cause is complexity of dosing regimens.⁸ The chronic progressive nature of type 2 diabetes means that once started, patients will not only take medication for life but the complexity of medication regimen keeps on increasing over time. Starting from one tablet, multiple medications for diabetes and associated complications and comorbidities often involve as many as 15 to 20 tablets per day and there is no doubt that the complexity of treatments has a profound influence on adherence. In short adherence declines as the number of drugs increases.

The same study says that the other common causes of non-adherence are safety, tolerance, perceptions about the medicines, economic considerations and patient provider poor interactions.

One study from USA has demonstrated that a cost sharing increase of \$10 was associated with a 5.4% decrease in adherence to oral hypoglycemic agents.⁹ The decreased adherence was associated with an increase in diabetes related complications and resultant costs. Conversely, a reduction in cost from \$15.3 to \$10.1 for diabetes medications was associated with increased adherence from 75.3% to 82.6%.

In an Indian study from Kolkata, it was observed that the compliance rate to oral hypoglycemic agents was 57.7%.¹⁰ A univariate analysis showed that it decreased significantly with increasing age and that it was significantly lower among males, illiterate, those with a poor per capita monthly income and those who had a longer duration of diabetes. It varied significantly with the type of drugs, being lowest a single oral drug (43.4%). No knowledge on the complications of diabetes was also significantly associated with lower compliance. The binary logistic regression analysis performed by the authors in this study helped to identify these as significant contribution factors to noncompliance. Other common reasons behind noncompliance were forgetfulness (44.7%) and financial constraints (32.7%).

CONCLUSION

In conclusion, it can be said that in the present study the participants did themselves reveal quite a few significant contributing factors towards noncompliance of patients to oral hypoglycemic agents, at least in the regions studied, that is, the major parts of Bihar and North Bengal in eastern India. The common causes of non-compliance among others are high cost of drugs, confusing doses regimens, forgetfulness, too many tablets in a day, side effects and intolerance and of course, the lack of knowledge about the importance of treatment.

These factors and the revelation of these and associated factors beget an immediate and well directed useful interventions to combat the present precarious situations. A detailed analysis of how these problems can and should be overcome ought to be made and proper remedial measures have to be taken.

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REFERENCES

1. Muhammad C, Jibril UN, Dauda S. Non-compliant with treatment regimens among clients with diabetes mellitus in University of Maiduguri Teach Hospital,

- North Eastern Nigeria. JRN. (ISSN: 2315-568). 2016;5(1):11-20.
2. Famakinwa TT. Diabetes Mellitus in Textbook of medico-surgical Nursing (2nd Edition) Agbar: Bayosoye Printing Services; Nigeria; 2002.
3. Christopher JLM, Evans DB, Acharya A, Baltussen RMPM. Development of WHO guidelines on generalized cost-effectiveness analysis. Health Econ. 2000;9:235-51.
4. Al Maskari, El Sadig M, Al Kaabi JMi, Afandi B, Nagel Kerke N, Yeatts KB. Knowledge attitude and practices of diabetic patients in the United Arab Emirates. PLoS One. 2013;8(1):e52857.
5. Roglic G, Verghese C, Thamarangi T. Diabetes in South-East Asia: burden, gaps, challenges and ways forward. WHO. Special issues on Diabetes. 2016;5(1):1-4.
6. Aatur RK, Zaki NA, Mohammad AA, Montaser AB, Ibrahim A, Shabbir AK. Factors contributing to non-compliance among diabetics attending Primary Health centres in the Al Hasa district of Saudi Arabia. J Family Comm Med. 2012;19(1):26-32.
7. Nahala KRI, Saeid GA, Sunny AS, Ebtisam MF, Fatihey E, Physicians' therapeutic practice and compliance of diabetic clients attending rural primary health care units in Alexandria, Egypt. EGY J Fam Comm Med. 2010;17(3):201-7.
8. Garcia-Perez LE, Alvarez M, Dilla T, Gil Guillen V, Orozco-Beltran D. Adherence to therapies with type 2 diabetes. Diabetes Ther. 2013;4:175-94.
9. Gibson TB, Song X, Alemayahu B, Wang SS, Wadell JL, Bouchard JR, et al. Cost sharing, adherence and health outcomes in patients with diabetes. Am J Manag Care. 2012;16:589-600.
10. Mukherjee S, Sharmasarkar B, Das KK, Bhattacharyya A. Deb. Compliance to antidiabetic drugs: Observations from the diabetic clinic of a medical college in Kolkata. Ind J Clin Diagnostic Res. 2013;7(4):661-5.

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