

**A CROSS SECTIONAL STUDY ON THE CASCADE ACTIVITIES OF
CLINICAL PHARMACIST REGARDING DIABETES MELLITUS
AMONG RURAL MASSES NEAR CAPITAL CITY OF AMARAVATHI,
GUNTUR**

**Poornachand Tadiseti^{1*}, Kishore Kumar Y.¹, Gnana Deepak B.¹, Vivekreddy T.¹,
Sharmila Nirojini P.² and Rama Rao Nadendla³**

¹VI/VI Pharm. D Interns, Department of Pharmacy Practice.

²Associate Professor Department of Pharmacy Practice.

³Principal of the College.

Chalapathi Institute of Pharmaceutical Sciences, Lam, Guntur-522034, Andhra Pradesh.

Article Received on
14 August 2017,

Revised on 03 Sept. 2017,
Accepted on 24 Sept. 2017

DOI: 10.20959/wjpr201712-9751

***Corresponding Author**
Dr. Poornachand Tadiseti
VI/VI Pharm. D Interns,
Department of Pharmacy
Practice.

ABSTRACT

Background: Diabetes has become a major health care problem in India with an estimated 66.8 million people suffering from this condition and the level of morbidity and mortality due to diabetes and its potential complications are enormous, and pose significant healthcare burdens on both families and society. **Aim & Objectives:** To monitor Medication adherence, Impact of patient counseling, Quality of life and co morbidities among Diabetic subjects in rural settings. **Methodology:** Cross sectional House hold study from December 2016 to May 2017. **Results and Findings:** The findings among the study population includes the overall diabetic subjects

constitute about 44.38 per cent, diabetic and hypertensive subjects includes 22.19 per cent and Diabetic and Thyroid subjects includes 5.86 per cent. The other important aspects of this study is that the Impact of patient counseling constitutes about 26.55 per cent. The subjects who are adhered to treatment regimen includes about 57.73 per cent and the demographic details of sample shows that the 57.60 per cent are literates and 82.16 per cent of subjects are on mixed diet. The adherence is assessed by Morisky scale and Quality of life is assessed by help of structured questionnaire. **Conclusion:** Based on the study results it is clear that clinical pharmacist together with physician play a major role in improving the glyceimic

control and medication adherence in type 2 DM patients which directly shows impact on health related quality of life.

KEYWORDS: Medication adherence, Co morbidities, Quality of life, Cross sectional study.

INTRODUCTION OF CROSS SECTIONAL STUDIES

Well, In medical research and social science, a cross-sectional study (also known as a cross-sectional analysis, transversal study, prevalence study) is a type of observational study that analyzes data collected from a population, or a representative subset, at a specific point in time.

IMPORTANCE OF THIS TYPE OF CROSS SECTIONAL STUDIES IN RURAL SETTINGS

The conduct of this sort of studies in rural areas shall act as the eye opener for the health care regulatory authorities because any sort of study in the rural settings shall clearly depict the crystal clear picture of the real problems of the nation and shall help to strengthen from the ground level so that the healthy life span of the individuals can be enhanced by spreading the fragrance of blossoming flowers across the global village.

The conduct of this sort of epidemiological research works regarding the common ailments that are the global burden like Diabetes mellitus, Hypertension shall helps to bring a sea change in the attitude of the people towards the health in the current gravity of situation of rapid industrialization and urbanization.

CURRENT STATUS OF DIABETES IN THE INDIAN SCENARIO

There are, however, patterns of diabetes incidence that are related to the geographical distribution of diabetes in India. Rough estimates show that the prevalence of diabetes in rural populations is one-quarter that of urban population for India and other Indian sub-continent countries such as Bangladesh, Nepal, Bhutan, and Sri Lanka.^[3,5] Preliminary results from a large community study conducted by the Indian Council of Medical research (ICMR) revealed that a lower proportion of the population is affected in states of Northern India (Chandigarh 0.12 million, Jharkhand 0.96 million) as compared to Maharashtra (9.2 million) and Tamil Nadu (4.8 million).^[5] The National Urban Survey conducted across the metropolitan cities of India reported similar trend: 11.7 per cent in Kolkata (Eastern India), 6.1 per cent in Kashmir Valley (Northern India),^[6] 11.6 per cent in New Delhi (Northern

India), and 9.3 per cent in West India (Mumbai) compared with (13.5 per cent in Chennai (South India), 16.6 per cent in Hyderabad (south India), and 12.4 per cent Bangalore (South India).^[7] A suggested explanation for this difference is that the north Indians are migrant Asian populations and south Indians are the host populations,^[8] however this possible cause-and-effect has not been corroborated through further research.

Clinical pharmacist care can

- Reduced medication errors and adverse drug reaction .
- Improved markers of metabolism including HbA1c, blood pressure and lipid level.
- Also the inclusion of the cadre of the clinical pharmacist services in the rural settings shall also play a pivotal role in the improvement of Medication adherence or compliance and this can be clearly depicted in the following Figure 1.

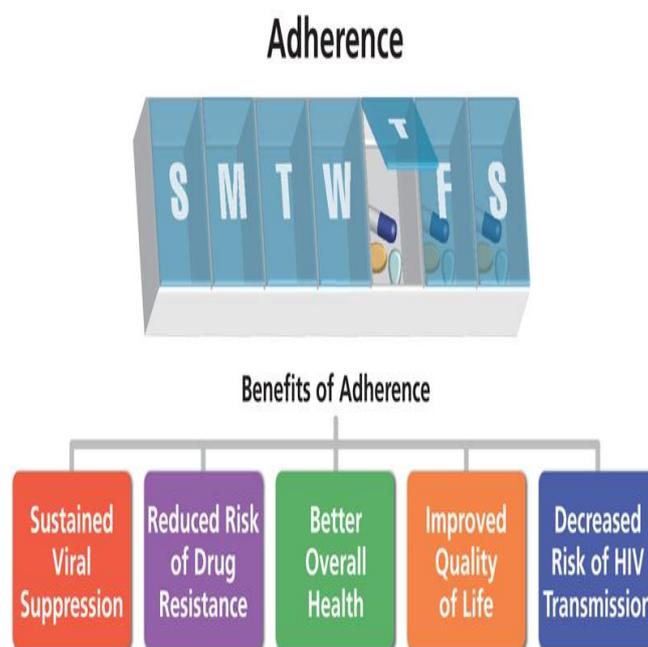


Figure 1: Importance of patient compliance.

MATERIALS AND METHODS

Conducted Cross sectional House hold study from December 2016 to May 2017 and assessed the results by the help of Statistical tests like Paired t test and also by the help tools like Microsoft Excel.

RESULTS AND FINDINGS

Recent epidemiologic studies from India point to a great burden from diabetes. Diabetes control in India is far from ideal with a mean hemoglobin A1c of 9.0%—at least 2.0% higher

than suggested by international bodies. Nearly half of people with diabetes remain undetected, accounting for complications at the time of diagnosis. Screening can differentiate an asymptomatic individual at high risk from one at low risk for diabetes. Eventually by assessing various parameters we got the following percentage of results among the study population,

- Screened 15000 population of 6 villages namingly Tathireddypalem, Lam, Jonnalagadda, Gorantla, kakani, Tadikonda.
- People who met our criteria is 802.
- People who are diabetic is 356/802.
- People who are diabetic + hypertensive is 178/802.
- People who are diabetic + thyroid is 47/802.
- Impact of patient counseling is 213/802.
- People who are adhered to their medications is 463/802.

Table 1: Gender wise distribution of diabetes among the study population.

GENDER WISE DISTRIBUTION	NUMBER
Male	159
Female	197

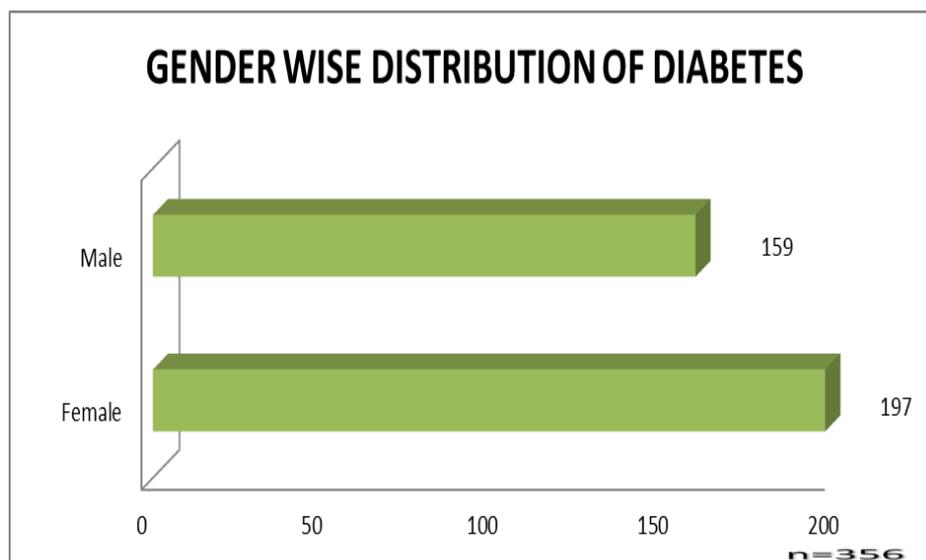


Figure 2: Gender wise distribution of diabetes among the study population and this shows that 44.66 % (n=159) of subjects are male diabetic and 55.33 % (n=197) subjects are female diabetic.

Table 2: Educational status among the study population.

EDUCATIONAL STATUS	NUMBER
Literates	462
Illiterates	340

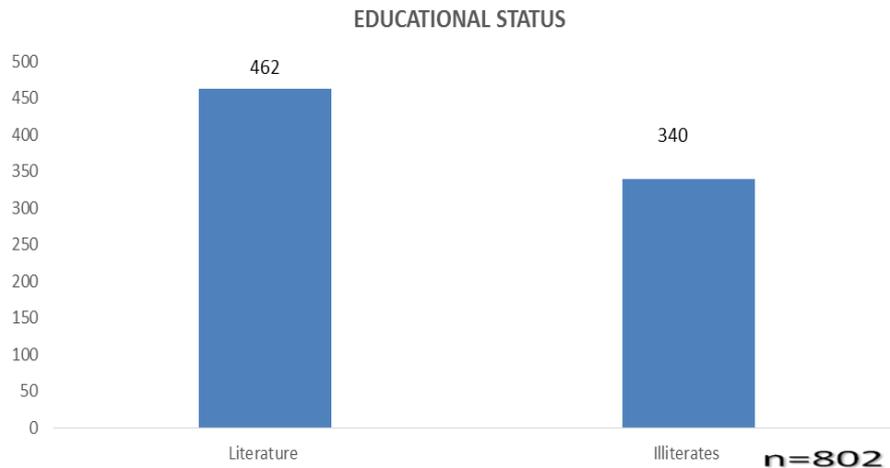


Figure 3: Educational status among the study population and this shows that 57.60 % (n=462) of subjects are literates and 42.39 % (n=340) subjects are illiterates and this educational status of the subjects also plays a pivotal role in medication adherence.

Table 3: Food habits among the study population.

FOOD HABITS	NUMBER
Vegetarian	143
Mixed diet	659

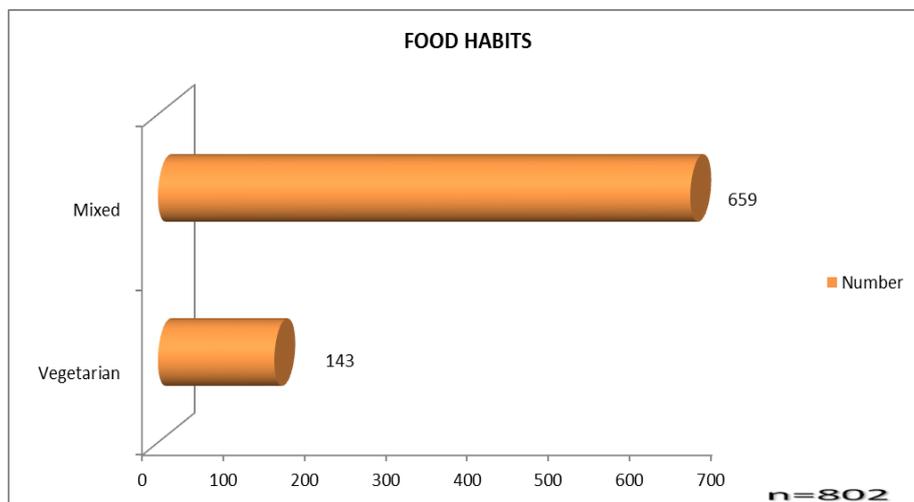


Figure 4: Food habits among the study population and this shows that 17.83 % (n=143) of subjects are on vegetarian diet and 82.16 % (n=659) subjects are on mixed diet. The determination of the food habits also helps in determining the pathophysiology of the diseases.

Table 4: Medication adherence among the study population.

MEDICATION ADHERENCE	NUMBER
Yes	463
No	339

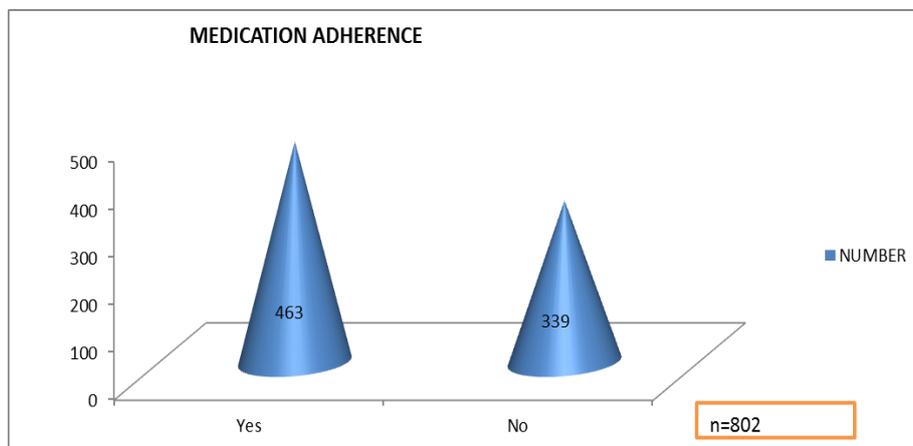


Figure 5: Medication of diabetes among the study population and this shows that 57.73 % (n=463) of subjects are well adhered to treatment regimen and 42.26 % (n=339) subjects are not adhered and the highest percent of adherence helps in the development good prognosis of the disease.

Table 5: Comorbidities of diabetes among the study population.

COMORBIDITIES	NUMBER
Diabetes and hypertension	178
Diabetes and thyroid	47
Diabetes and others	25

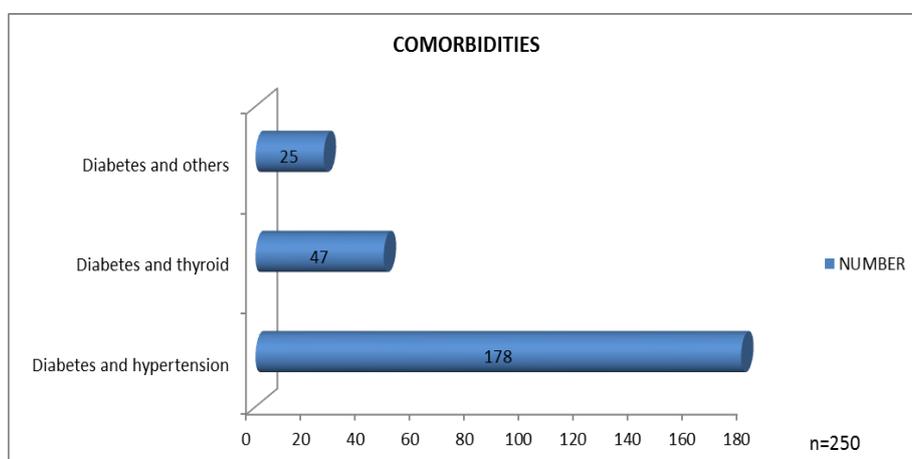


Figure 6: Comorbidities of diabetes among the study population and this shows that diabetic and hypertensive subjects constitute about 71.2 % (n=178), diabetic and thyroid subjects constitute 18.8% (n=47) and others constitute 10 % (n=25). By this results it is clear that endocrine disorders often leads to the various other pathological conditions

Table 6: Impact of patient counseling among the study population.

IMPACT OF PATIENT COUNSELING	NUMBER
Yes	213
No	589

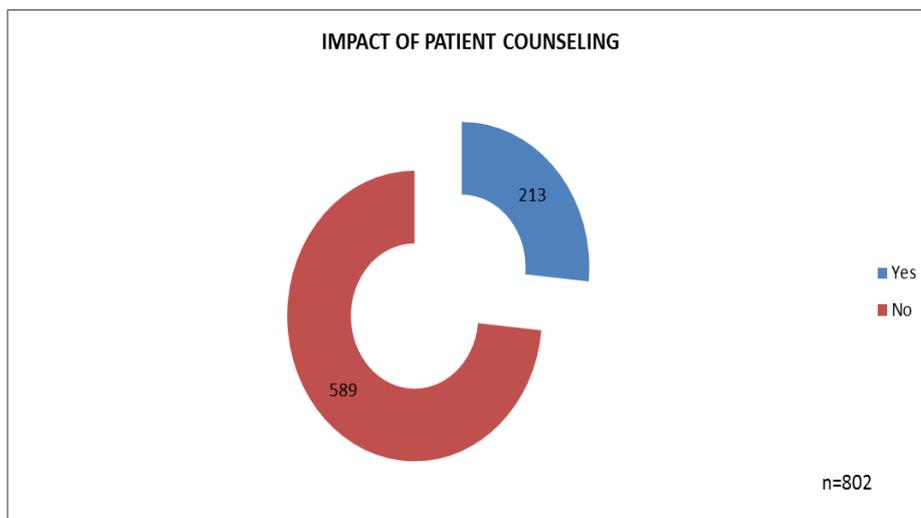


Figure 7: Impact of patient counseling among the study population and this shows that impact of patient counseling is 26.55 % (n=213) and the counter part constitutes about 73.44 % (n=589).This aspect can be uplifted by creating sea change in the attitude of the subjects by various educational programs.

Table 7: Quality of Life among the study population.

S.NO	NAME OF VILLAGE	BEFORE STUDY	AFTER STUDY (1st follow up)	AFTER STUDY (2nd follow up)	P Value=0.0014 (**)
1	Tathireddypalem	29	35	40	
2	Lam	54	83	98	
3	Jonnalagadda	20	37	53	
4	Gorantla	40	60	78	
5	Kakani	40	68	73	
6	Tadikonda	30	72	80	

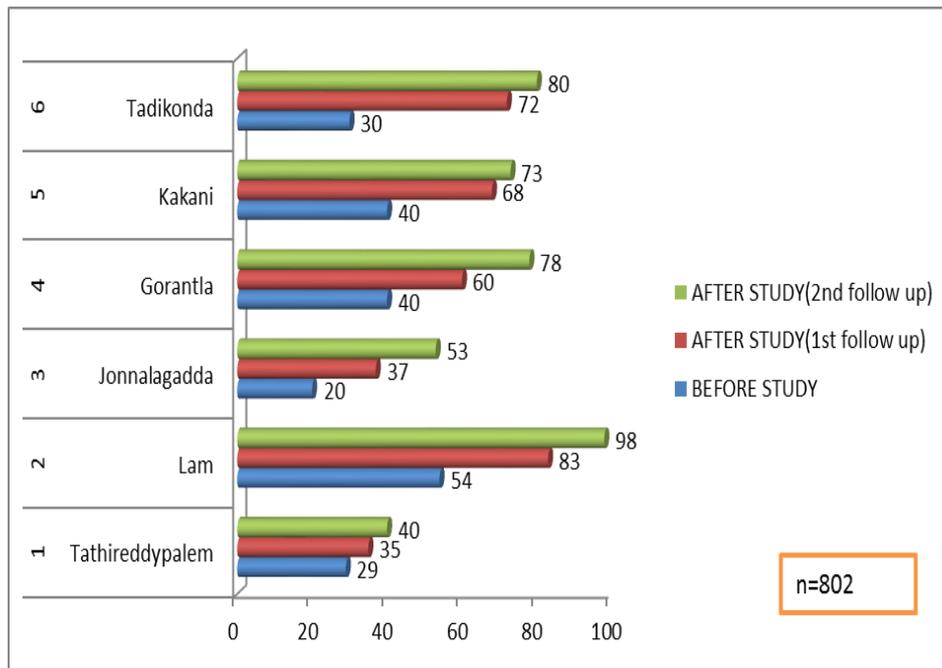


Figure 8: Quality of Life among the study population.

This shows that the QoL of various villages and it shows that it had gradually increased in each village and this parameters are measured by the help of paired t test and got a 'p' value of 0.0014

DISCUSSION

Nearly half of people with diabetes remain undetected, accounting for complications at the time of diagnosis. Screening can differentiate an asymptomatic individual at high risk from one at low risk for diabetes and the various aspects of our cross sectional study are as follows,

- A total of 802 subjects were recruited in to the study population based on the inclusion criteria.
- In present study 159 male subjects (44.66%) and 197 female subjects (55.33%) are having the history of alone Diabetes .
- In this study 62 male subjects (34.83%) falls into the category of diabetes and hypertension. The female population falling into this category are 116 subjects (65.16%)
- In this current study we found that the overall impact of patient counseling among the six villages is 26.55 per cent and this aspect was assessed by the help of patient information leaflets
- In current study site we found that the awareness regarding dietary modifications and were very poor and the information regarding the diet to be followed was provided to patients.

- There are lots of researches focusing on relationship between glycemic control and QOL in people with diabetes. They generally suggest that better glycemic control is associated with better QOL.^[20]
- In present study we also assessed the educational status of the study population and the analysis regarding that includes 462 subjects(57.06%) are literates and 341 subjects (42.51%) falls into the category of Illiterates.
- In our study we found that 659 subjects (82.16%) are on mixed diet and 143 subjects (17.83%) are on vegetarian diet and the determination of this demographic details of food habits shall helps in determining the risk factors involved in various pathological conditions.
- By analysing the data, it is clear that Medication adherence showing a major impact on improved glycemic control and this was possible through the process of patient counselling by the help of patient information leaflets.
- In current study we observed adherence to the medications in major subjects in study population at baseline. Literacy also played an important role in improving adherence in the study subjects. Literates are more self-efficient towards medication adherence than the low literates and literates.

CONCLUSION

- Based on the results we conclude that clinical pharmacist together with physician play a major role in improving the glycemic control and medication adherence in type 2 DM patients which directly shows impact on health related quality of life. Thus, this sort of novel research studies should be performed to have the crystal clarity of the rural areas of our nation where the real problems do exist. In our perspective we think that the follow up of subjects is a bit hectic task and wish to conduct this study in a massive way so to meet the plethora of challenges.

ACKNOWLEDGEMENTS

We thank our institute, faculty members and other members who have contributed for the conduct of this wonderful work.

REFERENCES

1. Patandin S, Bots ML, Abel R, Valkenburg HA. Impaired glucose tolerance and diabetes mellitus in a rural population in south India. *Diabetes Res Clin Pract*, 1994; 24: 47-53.
2. Shah SK, Saikia M, Barman NN, Snehalatha C, Ramachandran A. High prevalence of type 2 diabetes in rural population in northeastern India. *Int J Diabetes Dev Ctries*, 1998; 18: 97-101.
3. Raman Kutty V, Joseph A, Soman CR. High prevalence of type 2 diabetes in an urban settlement in Kerala, India. *Ethn Health*, 1999; 4: 231-239.
4. U.S. Department of Health and Human Services: National diabetes fact sheet, 2002; 12: 403-409.
5. American Diabetes Association: Economic consequences of diabetes mellitus in the U.S. *Diabetes Care*, 1997; 21: 296-309, 199.
6. Mokdad AH, Ford ES, Bowman BA, Nelson DE, Engelgau MM, Vinicor F, and Marks JS: Diabetes trends in the U.S. *Diabetes Care*, 1990-1998; 23:1278-1283.
7. Task Force to Revise the National Standards: National standards for diabetes self-management education programs. *Diabetes Educ*, 1995; 21: 189-193.
8. Bartlett E: Historical glimpses of patient education in the United States. *Patient Educ Counsel*, 1986; 8: 135-149.
9. American Diabetes Association: Standards of medical care for patients with diabetes mellitus. *Diabetes Care*, 2001; 24: 33-43.
10. Harris MI, Eastman RC, Cowie CC, Flegal KM, Eberhardt MS: Racial and ethnic differences in glycemic control of adults with type 2 diabetes. *Diabetes Care*, 1999; 22: 403-408.
11. Brown S: Effects of educational interventions in diabetes care: a meta-analysis of findings. *Nurs Res*, 1988; 37: 223-230.
12. Brown S: Studies of educational interventions and outcomes in diabetic adults: a meta-analysis. *Patient Educ Counsel*, 1990; 16: 189-215.
13. Padgett D, Mumford E, Hynes M, Carter R: Meta-analysis of the effects of educational and psychosocial interventions on management of diabetes mellitus. *J Clin Epidemiol*, 1988; 41: 1007-1030.
14. Funnell M, Anderson R, Arnold M, Barr P, Donnelly M, Johnson P: Empowerment: an idea whose time has come in diabetes education. *Diabetes Educ*, 1991; 17: 37-41.
15. Glasgow R, Anderson R: In diabetes care, moving from compliance to adherence is not enough: something entirely different is needed. *Diabetes Care*, 1999; 22: 2090-2091.

16. Constitution of the World Health Organisation, Handbook of Basic Documents, World Health Organisation, Palais des Nations, Geneva, Switzerland, 1952; 5: 46-58.
17. W. H. Polonsky, B. J. Anderson, P. A. Lohrer, "Assessment of diabetes-related distress," *Diabetes Care*, 1995; 18: 754–760.
18. C. West and J. McDowell, "Diabetes related distress in type 2 diabetes," *British Journal of Community Nursing*, 2002; 7: 606–613.
19. Funnell M, Anderson R, Arnold M, Barr P, Donnelly M, Johnson P: Empowerment: One adult in ten will have diabetes. International Diabetes Federation, 2011;14: 56-66.
20. Selvin E, Steffes MW, Ballantyne CM, Hoogeveen RC, Coresh J, Brancati FL. Racial differences in glycemic markers: a cross-sectional analysis of community-based data. *Ann Intern Med*, 2011; 154(5): 303-9.