

Original Article

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Practices Regarding Lifestyle Modifications Among Diabetic Patients-A Comparative Study

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Abstract

Background: Diabetes is one of the biggest public health problem and epidemic in human history. Diabetes mellitus type 2 is the recent and most prevalent issue in the health problem and its prevalence is increasing rapidly. Lifestyle related risk factors play an important role in the development of type 2 diabetes mellitus. Some of these risk factors like dietary choices, smoking, and alcohol consumption, overweight and sedentary lifestyle are modifiable. **Material and Methods:** A comparative design was used to assess practices regarding lifestyle modifications among 200 diabetic patients out of which 100 subjects had taken from rural and 100 from urban area by using Purposive sampling technique. Data was collected with structured checklist to assess practices regarding lifestyle modifications by using interview method. Analysis was done by using descriptive and inferential statistics. **Results:** More than half (55%) and (63%) of diabetic patients had average practices regarding lifestyle modifications belonged to rural and urban area respectively whereas only 3% and 4% had good practices regarding lifestyle modifications belonged to rural and urban area respectively. Urban diabetic patients had more practices mean score (18.89 ± 6.439) of lifestyle modifications than rural diabetic patients mean score (17.91 ± 5.605). **Conclusion-** Urban diabetic patients had more practices of lifestyle modifications as per their mean difference than rural diabetic patients. Maximum lifestyle modifications occurred in area of diet, treatment, health learning, smoking and alcohol while the deficit areas were found to be physical activity, personal care and stress.

Key words- Diabetes Mellitus type 2, Lifestyle modifications, diabetic patients

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INTRODUCTION

Diabetes is one of the biggest public health problem and epidemic in human history. The predominant form is type 2 diabetes about 85% which can be caused by combination of poor lifestyle choices and genetic factors. ^[1]In today's contexts people rarely have time to exercise or have a healthy lifestyle because of

monotonous work of schedule. The high incidence of diabetes in India is mainly because of sedentary lifestyle, lack of physical activity, obesity, stress and consumption of diets rich in fats, sugar and calories. International Diabetes Federation 2014 revealed that worldwide 387 million people are diabetic and prevalence is 8.3%. ^[2]In India 62 million people are diabetic and it affects more people in rural India (34 million) than

urban India (28 million).^[3]In Ludhiana (Punjab) a cross-sectional, descriptive study was conducted on 100 rural and 100 urban respondents to assess the prevalence of disease in the 30-64 years old and found that the prevalence of DM to be 20% (urban) and 11% (rural), which appeared to be the highest reported in the country.^[4]Diabetes is a disease that is associated with lifestyle of the person. It is very much influenced by the way we live, the habits we inculcate and the way we deal with the various aspects of life. Lifestyle means the way of our living. There are lot of ways that affect the diabetes but some of the important ones include diet, exercise, obesity, stress and our knowledge about the disease and its treatment and prevention. Overweight and obese are the identifiable risk factors. Thus nutrition therapy is the cornerstone of treatment in type 2 diabetes and should be part of the care of the patient throughout the course of the disease. In 2002 the Diabetes Prevention Program Research Group reported that type 2 diabetes can be prevented with appropriate change in lifestyle. Lifestyle intervention including nutrition, exercise, and weight loss can effectively control the metabolic abnormalities associated with this disease.^[5]People even after diagnosed as Diabetics, do not pay attention up on their lifestyle, which can result in more complications like (retinopathy, nephropathy etc.) and severity of disease. So studies suggest educating the patients regarding life style practices is important and essential.

MATERIAL AND METHOD

The study was conducted in the field practice urban area i.e. Jamalpur and rural health centre (Pohir), both are an integral part of the Department of Community Medicine And College of Nursing, DMC&H, Ludhiana. A descriptive (comparative) design was used to assess practices regarding lifestyle modifications among 200 diabetic patients out of which 100 subjects had taken from rural and 100 from urban area. Purposive sampling technique was used to select the sample. Data was collected with structured tool. It consists of three parts: Part-1: Socio-demographic profile, Part-2: Part 2 A: Baseline health information, Part 2 B: Clinical profile, Part-3: Checklist to assess practices regarding lifestyle modifications by using interview method. The written informed consent from diabetic

patients about the confidentiality of the information obtained. Analysis was done by using descriptive and inferential statistics.

RESULTS

A total of 200 subjects with known diabetes mellitus type 2 were interviewed. Out of 200 diabetic patients residing both in rural and urban nearly half 92 (46%) of subjects were from age group 41 to 55 years, 74(37%) were from age group 56 to 70 years, 19(9.5%) were from age group 25 to 40 years and 15(7.5%) were from age group 71 to 85 years. More than half 112 (56%) of subjects were females and 88 (44%) were males. It was observed that nearly half 82(41%) of subjects educated up to higher secondary, 59(29.5%) were educated up to elementary, 41(20.5%) were illiterate whereas few 18(9%) of them were graduated or above. Majority 134 (67%) of subjects were from Sikh religion, 64 (32%) were Hindu. More than half 121(60.5%) of subjects were non-working and 79(39.5%) were working. There were 133(66.5%) of subjects belonged to moderate lifestyle pattern, 48(24%) belonged to sedentary and 19(9.5%) belonged to heavy work. Two third of subjects 128(64%) were vegetarian, 72(36%) were non-vegetarian. Regarding socio-economic status nearly half 97(48.5%) of subjects belonged to upper lower class, 76(38%) belonged to lower middle class, 20(10%) belonged to upper middle class and only 3.5% were from upper lower class (Table 1). Distribution of subjects as per baseline health information in Table 2. Amongst the study subjects nearly half 93(46.5%) of subjects were having age of onset of diabetes in age group 46 to 70 years, 86(43%) at 30 to 45 years and 21(10.5%) were having age of onset of diabetic patients in age group 61 to 75 years. Most of 163(81.5%) of subjects were having DM type 2 from 1 to 10 years followed by 32(16.0%) subjects were having DM type 2 from 11 to 20 years while only 5% were having DM type 2 from 21 to 30 years. Regarding past medical history more than half 120(60%) of subjects were having no past medical history and 80(40%) were having past medical history. Regarding treatment details two third of subjects 124(62%) had taken lifestyle modifications +oral hypoglycaemic agents in rural and urban area followed by 33(16.5%) had taken only OHA, 19(9.5%) were practiced only lifestyle modifications, 16(8.0%) were chosen home

remedies, 08(4.0%) were taken no treatment because of cost of medicine, ignorance, dependent on others for medicine (Table 3). Distribution of subjects as per BMI in Table 4. Table 5 depicts that more than half 55% and 63% had average practices regarding lifestyle modifications belonged to rural and urban area respectively, nearly half 42% and 33% had

below average practices regarding lifestyle modifications belonged to rural and urban area respectively, whereas only 3% and 4% had good practices regarding lifestyle modifications belonged to rural and urban area respectively. Comparison of practices of lifestyle modifications among rural and urban

Table 1: Socio-Demographic profile of study participants (N=200)

Socio-demographic profile	Rural	Urban	Total f (%)
	(n=100)	(n=100)	
	<i>f</i>	<i>f</i>	
Age in (yrs.)[#]			
25-40	12	07	19(9.5)
41-55	38	54	92(46)
56-70	39	35	74(37)
71-85	11	04	15(7.5)
Gender			
Male	48	40	88(44)
Female	52	60	112(56)
Education			
Illiterate	29	12	41(20.5)
Elementary	35	24	59(29.5)
Secondary	30	52	82(41.0)
Graduation or above	06	12	18(9.0)
Religion			
Hindu	05	59	64(32.0)
Sikh	95	41	136(68.0)
Marital status			
Married	83	82	165(82.5)
Widow/widower	17	18	35(17.5)
Occupation			
Working**	40	39	79(39.5)
Non-working	60	61	121(60.5)
Lifestyle pattern			
Sedentary	26	22	48(24.0)
Moderate	63	70	133(66.5)
Heavy work	11	08	19(9.5)
Dietary habits			
Vegetarian	68	60	128(64.0)
Non-vegetarian	32	40	72(36.0)
Socio-economic status			
Upper(I)	03	04	07(3.5)
Upper middle(II)	05	15	20(10.0)
Lower middle(III)	48	28	76(38.0)
Upper lower (IV)	44	53	97(48.5)

[#]: Rural=Mean age (in years) \pm S.D=55.87 \pm 12.11, Urban=Mean age (in years) \pm S.D=54.04 \pm 9.198

** : professional, business, and labourer

Table 2: Baseline Health Information of study participants (N=200)

Variables	Rural	Urban	Total f(%)
	(n=100)	(n=100)	
	<i>f</i>	<i>f</i>	
Present history of DM type 2			
Age of onset(in years)			
30-45	37	49	86(43.0)
46-60	50	43	93(46.5)
61-75	13	08	21(10.5)
Duration of illness (in years)			
1-10	87	76	163(81.5)
11-20	10	22	32(16.0)
21-30	03	02	05(02.5)
Family history			
No	79	53	132(66.0)
Yes	21	47	068(34.0)

#: n₁=Rural, n₂=Urban *: % exceed because of multiple responses**Table 3: Treatment details of DM type 2 participants (N=200)**

Type of treatment [#]	Rural	Urban	Total f(%)
	(n=100)	(n=100)	
	<i>f</i>	<i>f</i>	
No treatment	04	04	08(4.0)
Lifestyle modifications only	14	05	19(9.5)
Lifestyle Modification + Insulin	03	03	06(3.0)
Lifestyle Modification + OHA	57	67	124(62)
Lifestyle Modification + OHA+ Insulin	01	03	04(2.0)
Oral Hypoglycemic agents (OHA) only	20	13	33(16.5)
Home remedies	05	11	16(8.0)
Others**	01	04	05(2.5)

#: % exceed because of multiple responses **: Ayurvedic+ homeopathy

Table 4: Body Mass Index of study participants (N=200)

Biophysical profile	Rural	Urban	Total <i>f</i> (%)
	(n=100)	(n=100)	
	<i>f</i>	<i>f</i>	
BMI*			
Underweight(<18.5)	04	07	11(5.5)
Normal range(18.5-24.99)	47	42	89(44.5)
Preobese/overweight(25.0-29.99)	37	32	69(34.5)
Obese(≥30.0)	12	19	31(15.5)

Rural: Mean (BMI) \pm S.D=25.13 \pm 4.280; Urban: Mean (BMI) \pm S.D=26.25 \pm 5.917

Table 5: Distribution of diabetic patients as per levels of practices regarding lifestyle modifications (N=200)

Practices	Rural (n=100)	Urban (n=100)	Total f(%)	χ^2 statistics
	<i>f</i>	<i>f</i>		
Good	03	04	07(03.5)	$\chi^2=1.765$ df=2 p= 0.414^{NS}
Average	55	63	118(59.0)	
Below average	42	33	75(37.5)	

Minimum practices score= 00

Maximum practices score= 40

NS: Non-significant

Table 6: Comparative mean score regarding lifestyle modifications (N=200)

Variables	Group	N	Mean \pm SD	S.E.	t-test statistics
Practices	Rural	100	17.91 \pm 5.605	0.560	t=-1.148 df= 198 p= 0.252^{NS}
	Urban	100	18.89 \pm 6.439	0.643	

Table 7: Association of mean practices scores regarding lifestyle modifications of rural and urban diabetic patients with selected variables age, gender, education, religion, marital status, occupation,

Variables	Rural		F/t p value	Urban		F/t p value
	n	Mean ± SD		n	Mean ± SD	
Age (in years)						
25-40	12	16.42±5.600	F=1.232	07	12.43±9.090	F=2.669
41-55	38	18.79±4.805	p=0.302 ^{NS}	54	19.39±5.371	p=0.05 [*]
56-70	39	18.15±6.154		35	19.29±6.114	
71-85	11	15.64±5.971		04	20.00±12.83	
Gender						
Male	48	18.69±5.497	t=1.338	40	18.83±6.789	t= 0.082
Female	52	17.19±5.660	df=98	60	18.93±6.254	df=98
			p=0.184 ^{NS}			p=0.935 ^{NS}
Education						
Illiterate	29	15.59±4.939	F=3.378	12	15.42±7.994	F=5.637
Elementary	35	18.03±5.431	p=0.021 [*]	24	16.29±5.752	p=0.001 [*]
Secondary	30	19.27±5.687		52	19.81±5.664	
Graduate	06	21.67±6.154		12	23.58±5.961	
Marital status						
Married	83	18.39±5.774	t=1.949	82	20.02±5.879	t=4.040
Widow/widower	17	15.52±4.032	df=98	18	13.72±6.506	df=98
			p=0.05 [*]			p=0.001 [*]
Religion						
Hindu	05	21.20±17.736	t=1.352	59	20.35±5.588	t=2.825
Sikh	95	17.73±5.613	df=98	41	16.78±7.044	df=98
			p=0.179 ^{NS}			p=0.006 [*]
Occupation						
Working	40	20.50±5.198	t=4.057	39	20.15±5.747	t=1.581
Non-working	60	16.18±5.222	df=98	61	18.08±6.768	df=98
			p=0.001 [*]			p=0.117 ^{NS}
Dietary habits						
Vegetarian	68	18.61±5.667	t=1.863	60	20.41±5.561	t=3.020
Non-vegetarian	32	16.40±5.241	df=98	40	16.60±7.037	df=98
			p=0.065 ^{NS}			p=0.003 [*]

*: Significant; NS: Non-Significant

diabetic patients depicts in Table 6 it was revealed that urban diabetic patients had more practices of lifestyle modifications as per their mean difference than rural diabetic patients.

DISCUSSION

The present study showed that out of 100 diabetic patients, one third (39%) of subjects were from age

Table 7 depicts the mean practices scores of lifestyle modifications of rural and urban diabetic patients with selected variables

group 56 to 70 years in rural area and more than half (54%) in urban area were between age of 41-55 years. More than half (52%) in rural area and

60% in urban area were females and nearly half (48%) in rural and 40% in urban were males.

The present study revealed that more than half (55%, 63%) had average practices regarding lifestyle modifications belonged to rural and urban area respectively, nearly half (42%, 33%) had below average practices regarding lifestyle modifications belonged to rural and urban area respectively, whereas only (3%, 4%) had good practices regarding lifestyle modifications belonged to rural and urban area respectively. Out of 200 subjects (59%, 37.5%, 3.5%) had average, below average and good practices respectively and present study also depicts that urban diabetic patients had more practices regarding lifestyle modifications as per their mean difference (18.89) than rural diabetic patients (17.91). A study conducted by Maina, Ndegwa, Njenga, Muchemi (2011)^[6] on the contrary the study results revealed that 41% and 59% had good and bad practices in relation to diabetes prevention respectively. One more similar study conducted by Ikombele, Botomwito (2011)^[7] revealed that 97.7% of subjects had bad practices, 1.4% had good practices and only 0.9% had very good practices.

The present study revealed that the association of mean practices scores regarding lifestyle modifications among diabetic patients of rural were found to be statistically significant ($p \leq 0.05$) with education, marital status, occupation and RBS whereas in urban area were found to be statistically significant ($p \leq 0.05$) with age, marital status, education, religion, dietary habits and RBS but it were found to be statistically non-significant with age of onset, duration of illness, family history, BMI, FBS and systolic and diastolic blood pressure both in rural and urban area. A similar study conducted by Chaudhary, Masood, Qadri (2010)^[8] a total of 338 diabetic patients were interviewed and revealed that the association of lifestyle modifications were found to be statistically significant with gender ($p=0.002$), education ($p=0.038$) and medication ($p=0.004$) but it founded be non-significant with family history and age. One more study conducted by Ansari (2009)^[9] revealed that there was no significant interaction between age, body mass index or sex and total physical activity.

CONCLUSION

The present study revealed that maximum of diabetic patients had average level of practices regarding lifestyle modifications in rural and urban area. Furthermore, the study also concluded that urban diabetic patients had higher mean practices

scores regarding lifestyle modifications than the rural diabetic patients. The association of mean practices scores regarding lifestyle modifications among diabetic patients of rural were found to be statistically significant with education, marital status, occupation and RBS whereas in urban area were found to be statistically significant with age, marital status, education, religion, dietary habits and RBS.

RECOMMENDATIONS

The present study recommends that the education program should be plan for the entire staff which belongs to government health institution as well as private health institutions regarding practices of lifestyle modifications for prevention of diabetes among diabetic patients. 2. Involvement of multipurpose health worker and ASHA worker should be done to educate the diabetic patients regarding lifestyle modifications in diabetes. 3. This study can also be replicated on a larger sample to validate and generalize the findings.

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