Research Paper Medical Science

A Comparative Study to Evaluate the Quality of Life (QOL) of Diabetic Patients on Oral Hypoglycemic Agents and on Insulin Injections.

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KEYWORDS

INTRODUCTION

The World Health Organization (WHO) in its preamble in its constitution defined health as a"State of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (Hood & Leddy, 2003). Although this definition of health does not allow for any variation in degrees of wellness or illness, the concept of health-illness continuum allows for a greater range describing a person's health status.[1]

Today's definition of health and wellness reflects a multidimensional, holistic and subjective view. Individuals' personal definitions and perceptions of health must be taken into account when addressing health promotion and disease prevention. The meaning of health can be viewed in many contexts, such as historical social, personal, scientific, philosophical and spiritual. These meanings will always exist in various contexts of individuals human experience, are sometimes contradictory or often overlap. Cultural ideologies and tradition also influence one's image of health.[2]

In general, quality of life (QOL) is the perceived quality of an individual's daily life, i.e. an assessment of their well-being or lack thereof. This includes all emotional, social, and physical aspects of individual's life. In health care, health related quality of life (HRQOL) is an assessment of how the individuals' well-being may be affected overtime by a disease, disability or disorder.[3]

The concept of health-related quality of life (HRQOL) and its determinants have evolved since 1980s to encompass those aspects of overall quality of life that can be clearly shown to affect health, either physical or mental. On the individual level, this includes physical and mental health perceptions and their correlates including health risks and conditions, functional status, social support and socioeconomic status. On the community level, HRQOL includes resources, conditions, policies and practices that influence a population's health perceptions and functional status.

PROBLEM STATEMENT

A Comparative Study to evaluate the Quality of Life (QOL) of Diabetic Patients on Oral Hypoglycemic Agents and on Insulin Injections.

Objectives

Objectives of the study are to –

1. Assess the QOL of diabetic patients on Oral Hypoglycemic Agents and on Insulin Injections.
2. Compare the QOL of diabetic patients on Oral Hypoglycemic Agents and on Insulin Injections.
3. Find out the association between quality of life and selected demographic variables such as age, gender and educational qualification, and residential area.
4. Find out the association between quality of life and selected clinical variables such as number of years with Diabetes Mellitus, number of years with oral hypoglycemics or insulin injection, presence of hypertension and RBS at the time of admission/OPD visit.

Null Hypotheses

H_{01} There is no statistically significant difference between the QOL of diabetic patients on Oral Hypoglycemic Agents and on Insulin Injections.

H_{02} There is no statistically significant association between the QOL and selected demographic variables such as age, gender and educational qualification.

H_{03} There is no statistically significant association between the QOL and selected clinical variables such as number of years with Diabetes Mellitus, number of years with oral hypoglycemics or insulin injection, presence of hypertension and RBS at the time of admission/OPD visit.

Assumptions

1. Improved/higher quality of life of diabetic patients on oral hypoglycemic agents or on insulin injections will help them to manage diabetes well and prevent complications of diabetes mellitus.
2. QOL will be higher in the diabetic patients whose duration of diabetes is higher.

Methodology

A non-experimental descriptive evaluative approach was adopted to evaluate the quality of life of diabetic patients on oral hypoglycemic agents or on insulin injections.

Setting

The study was conducted in a Government-aided General Hospital at Bardoli, District Surat, Gujarat.

Population Sample and Sampling Technique

The population for the study included the diabetic patients on oral hypoglycemic agents or on insulin injections. The sampling technique undertaken was purposive sampling. The sample consisted of 50 diabetic patients on oral hypoglycemic agents and 50 patients on insulin injections admitted in the hospital wards i.e., Male and Female Medical and Surgical Wards, ICU, Haemodialysis Unit and those attending Medical or Surgical OPDs for regular medical check up.

Research Tools

Section 1 : Demographic Data

It included demographic variables such as age, gender, religion, residential area, marital status, educational status, occupation etc., and clinical variables such as history of diabetes mellitus in the family, duration of diabetes mellitus in the sam-

ple, number of years on oral hypoglycemic agents or insulin injection and type of insulin received by the clients, presence of hypertension as an associated disease, RBS at the time of admission or OPD visit. The tool was pretested and validated.

Section 2 : WHOQOL BREF

World Health Oragnization Quality of Life (WHOQOL) – BREF is a standardized tool. The tool includes 26 questions. It has five domains of QOL they are General, Physical, Psychological, Social and Environmental QOL. Domainwise raw scores was summed-up and converted to transformed scores using the formula-

$$\text{Transformed scores} = \left[\frac{(Raw\ score - 4)}{16}\right] \times 100$$

Statistical Application

Both Descriptive Statistics – Frequency, Percentage, Mean and Standard Deviation, and Inferential Statistics-Chi-square and Independent 't'-test were used to describe the findings of the study.

Method of Data Collection

The data was collected in the month of July and August 2014 following a one-to-one structured interview schedule after getting informed concerned from the clients. The investigator met each patient and explained about the study and an informed consent was taken.

Major Findings

The demographic data is presented in Table-1.

Table-1: Distribution of Patients on Insulin and Oral Hypoglycemics. N=50+50

Sl.No.	Variables	Patients on Oral Hypoglycemics		Patients on Insulin	
		f	%	f	%
1	Age in years				
a	Below 20	-	-	01	02
b	20-30	03	06	-	-
c	30-40	09	18	05	10
d	40-50	22	44	11	22
e	Above 50	16	32	33	66
2	Gender				
a	Male	36	72	33	66
b	Female	14	28	17	34
3	Religion				
a	Hindu	43	86	45	90
b	Muslim	07	14	05	10
c	Christian	-	-	-	-
d	Others	-	-	-	-
4	Residential area				
a	Urban	34	78	38	76
b	Rural	16	32	12	24
5	Marital status				
a	Married	47	94	50	100
b	Unmarried	02	04	-	-
c	Separated/Divorced	-	-	-	-
d	Widow/Widower	01	02	-	-
6	Type of family				
a	Nuclear	06	12	17	34
b	Joint	44	88	33	66
c	Extended	-	-	-	-
7	Educational Status				
a	Illiterate	02	04	07	14
b	Primary Education(1-4 std)	02	04	10	20
c	Middle School Education (5-7 std)	08	16	07	14
d	High School Education(8-10 std)	15	30	18	36
e	PUC/ Higher Secondary	12	24	05	10
f	Graduate and above	11	22	03	06
8	Occupation				
a	Professional (Doctor/Engineer/ Lawyer/Lecturer/Teacher etc.)	-	-	07	14
b	Semi- Professional (Tailor/Carpenter/ Electrician/Plumber etc.)	-	-	10	20
c	Skilled Worker (Mason/Building Construction Worker etc.)	06	12	01	02
d	Unskilled Worker (Coolie)	05	10	02	04
e	Farmer	15	30	07	14
f	Business	15	30	07	14
g	Unemployed	-	-	04	08
h	Housewife	09	18	12	24
9	Monthly Income				
a	Below Rs.5000/-	-	-	09	18
b	Rs.5000/- to 10,000/-	06	12	14	28
c	Rs. 10,000/- to 15,000/-	38	76	13	26
d	Rs. 15,000/- to 20,000/-	06	12	05	10
e	Above 20,000/-	-	-	09	18
10	History of Diabetes Mellitus in the family				
a	Present	13	26	19	38
b	Absent	37	74	31	62
11	Duration of Diabetes Mellitus				
a	Less than 1 year	14	28	09	18
b	1-5 years	23	46	17	34
c	5-10 years	06	12	10	20
d	More than 10 years	07	14	14	28
12	No. of years on Oral Hypoglycemics/Insulin Injection				
a	Less than 1 year	28	56	22	44
b	1-5 years	09	18	13	26
c	5-10 years	07	14	09	18
d	More than 10 years	06	12	06	12
13	Presence of Hypertension as an associated diseases.				
a	Yes.	39	78	19	38
b	No.	11	22	31	62
14	Blood sugar at the time of admission /OP visits (RBS)				
a	70-110mg.	-	-	-	-
b	111-200mg.	38	76	19	38
c	201-300mg.	11	22	18	36
d	301-400mg.	01	02	10	20
e	401-500mg.	-	-	01	02
f	501 and above.	-	-	02	04
15	Type of Insulin/on Oral Hypoglycemics				
a	Oral Hypoglycemics	50	100	-	-
b	NPH	-	-	18	36
c	Regular	-	-	-	-
d	Mixtard	-	-	32	64

The findings of patients on oral hypogylcemic agents revealed that majority of the patients 22(44%) were in the age group of 40-50 years, 36(72%) were males and 14(28%) were females; 43(86%) were Hindu and 07(14%) were Muslims by religion and 34(68%) were from Urban and 16(34%) were from Rural area. With regard to marital status, 47(94%) were married and majority 44(88%) of the clients were from joint families, Educational statuswise, 15(30%) were high school educated, 11(22%) were graduates and only 02(04%) were uneducated, and an equal number of clients 15(30%) each were farmers and businessmen; majority 38(76%) of the clients income was between Rs.10,000-15,000/- per month.

Family history of diabetes was present in 37(74%) of the sample. It was found that the majority 28(56%) were diagnosed to have diabetes for 1-5 years and 06(12%) were diabetic for more than 10 years. Out of 50 samples, 11(22%) had hypertension and majority 38(76%) samples' blood sugar was ranging between 111-200mg/dl.

In insulin injection group 33(66%) were above 50 years, and majority 33(66%) were males. Majority of the clients 45(90%) were Hindus and 05(10%) were Muslims by religion. Most of them 38(76%) were from urban area and all of them 50(100%) were married and majority 33(66%) were from joint families. Educationwise, 18(36%) were high school educated, 03(06%) were graduates and 07(14%) were illiterate. With regard to profession, 10(20%) were semi-professionals and 12(24%) were housewives; majority 14(28%) of peoples' income was between Rs. 5,000 – 10,000/- and 19(38%) of the samples had a family history of diabetes mellitus. Also, 17(34%) of the sample had diabetes for 1-5 years and 14(28%) had diabetes for more than 10 years and 25(50%) were on insulin for 1-5 years duration. Out of 50 samples 09(18%) had hypertension also as an associated disease. An almost equal number of samples, 19(38%) and 18(36%) blood sugar was 111-200 and 201-300mg/dl respectively and majority 32(64%) were on Mixtard and remaining 18(36%) were on NPH injection.

The Domain-wise raw scores and transformed scores of the groups on oral hypoglycemic agents and on insulin injection are presented in Table-2 and Table-3 respectively.

Table-2 : WHOQOL BREF Raw Scores N=50+50

Sl. No.	QOL Domains	Oral Hypoglycemic Group				Insulin Injection Group			
		Min.	Max.	Mean	S.D.	Min.	Max.	Mean	S.D.
1.	General Health	04	10	7.80	1.212	06	10	8.48	1.129
2.	Physical Health	16	33	26.16	3.328	20	35	28.44	2.915
3.	Psychological Health	18	28	22.96	2.618	15	29	22.78	3.266
4.	Social Relationships	06	15	11.00	1.938	07	15	11.64	2.220
5.	Environmental Health	24	38	32.78	3.917	26	40	32.66	3.566
Grand Total Scores		**73**	**120**	**100.70**	**8.947**	**90**	**122**	**104.00**	**6.860**

Table-3 : WHOQOL BREF Transformed Scores N=50+50

Sl. No.	QOL Domains	Oral Hypoglycemic Group				Insulin Injection Group			
		Min.	Max.	Mean	S.D.	Min.	Max.	Mean	S.D.
1.	General Health	12.50	60.00	38.00	12.122	20.00	60.00	44.80	11.292
2.	Physical Health	75.00	181.25	138.50	20.800	100.00	193.75	152.75	18.218
3.	Psychological Health	87.50	150.00	118.50	16.364	68.75	156.25	117.37	20.41
4.	Social Relationships	12.50	68.75	43.75	12.11	18.75	68.75	47.75	13.87
5.	Environmental Health	125.00	212.50	179.87	24.46	137.50	225.00	179.12	22.28
Grand Total Scores		**312.50**	**672.50**	**548.62**	**85.856**	**345.00**	**703.75**	**541.79**	**86.070**

Minimum, Maximum, Mean and S.D. Raw Scores and Transformed Scores

The minimum and maximum raw scores and transformed scores, their mean and standard deviation are shown in Table-2 and Table-3. The minimum raw scores in ***five*** domains for the group on oral hypoglycemic agents are 4, 16, 18, 6, 24, and for the group on insulin injections are 6, 20, 15, 7 and 26 respectively and the maximum raw scores of oral hypoglycemic agents and insulin injection groups are – 10, 33, 28, 15, 38, and 10, 35, 29, 15 and 40 respectively.

Similarly, the minimum transformed scores of the group on oral hypoglycemic and insulin injections groups are 12.50, 75, 87, 59, 12.50 and 125, and 20, 100, 68.75, 18.75 and 137.50 and the maximum score of the groups are 60,181.25, 150, 68.75 and 60, 193.75, 156.25,68.75 and 225 respectively.

The overall domainwise grand total mean scores, S.D., S.E. and 't' test values are presented in Table-4 and figure-5.

Table-4: Comparison between the QOL of Oral Hypoglycemic and Insulin Injection Groups N=50+ 50

QOL Domains	Groups	Mean	S.D.	Std. Error Mean	Independent Samples Test t-value	df	p-value
General Health	Oral Hypo	8.48	1.129	0.160	2.902	98	0.005
	Insulin	7.80	1.212	0.171			
Physical Health	Oral Hypo	28.44	2.915	0.412	3.644	98	0.001
	Insulin	26.16	3.328	0.471			
Psychological Health	Oral Hypo	22.88	3.287	0.465	0.135	98	0.893
	Insulin	22.96	2.618	0.370			
Social Relationships	Oral Hypo	11.64	2.220	0.314	1.536	98	0.128
	Insulin	11.00	1.938	0.274			
Environmental Health	Oral Hypo	32.66	3.566	0.504	0.160	98	0.873
	Insulin	32.78	3.914	0.553			

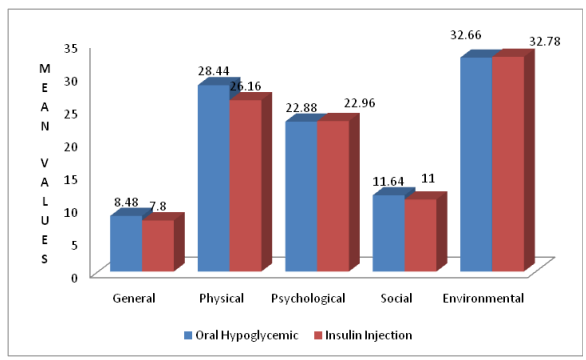

Figure-1 : Domainwise Comparison of Mean Scores of Oral Hypoglycemic and Insulin Injection Groups.

On comparing the transformed mean scores of the group on oral hypoglycemic agents and insulin injections, it is observed that the General, Physical and Social Relationships are higher (8.48, 28.44 and 11.64 respectively) in oral hypoglycemic group than that of insulin group whereas, the mean scores of insulin injection group are higher in Psychological Health and Environmental Health (22.96 and 32.78 respectively) when compared to that of oral hypoglycemic group. The QOL is significant in the domains of general health (p=0.005) and highly significant in the domain of physical health (p=0.001). The QOL in other domains is not statistically significant.

Table-5: Comparison of Total QOL Scores between Oral Hypoglycemics and Insulin Injection Groups.

	Groups	Mean	S.D.	Std. Error Mean	Independent Samples Test t-value	df	P value
Grand Total Scores	Oral Hypo	104.10	6.852	0.969	2.133	98	0.035
	Insulin	100.70	8.947	1.265			

Table-5 Shows the comparison of total domain scores between the groups on oral hypoglycemic agents and on insulin injections. The mean total domain score of the group on oral hypoglycemic agents is 104.10 and that of the group on insulin injection is 100.70 and the 't' value is 2.133, df 98 and 'p' value is 0.035 which indicates that QOL of the group on oral hypogycemics is greater than the QOL of the group on insulin injections and both QOL scores are highly significant.

With regard to association between QOL and selected demographic as well as clinical variables of oral hypoglycemic groups it is observed that QOL and age(χ^2=16.4, df=3, P=0.001) gender (χ^2=9.68, df=1, P=0.002), religion(χ^2=25.9, df=1, P=0.001), marital status (χ^2=82.84, df=2, P=0.001), type of family(χ^2=28.1, df=1, P=0.001), profession (χ^2=33.36, df=3, P=0.001), monthly income (χ^2=13.52, df=2, P=0.001), history of diabetes in the family (χ^2=11.5, df=1, P=0.001), duration of diabetes (χ^2=14.8, df=3, P=0.002), number of years on oral

hypoglycemics (χ^2=26.0, df=3, P=0.001), presence of hypertension (χ^2=15.68, df=1, P=0.001), and RBS at the time of admission/OP visit (χ^2=43.9, df=2, P=0.001). Similarly, the association between QOL and demographic and clinical variables is present between QOL and age (χ^2=48.8, df=3, P=0.001), religion (χ^2=32.0, df=1, P=0.001), residential area (χ^2=13.5, df=1, P=0.001), occupation (χ^2=34.75, df=5, P=0.001) and RBS at the time of admission/OP visit (χ^2=29.0, df=4, P=0.001), and there is no association between QOL and other variables.

Discussion

It is observed in the study that the QOL of diabetic patients' groups on oral hypogylcemics and on insulin injections is statistically significant in few domains only. Therefore, the null hypothesis H_{01} is partially accepted. Similarly, association between QOL and demographic and clinical variables is present only in few areas among oral hypoglycemics and on insulin groups. Therefore, H_{02} and H_{03} are partially accepted.

Delimitation

The study findings are applicable to the present study samples only and cannot be generalized.

Recommendation

A quasi experimental study – one group pretest – post test with intervention on knowledge and management of diabetes mellitus may be conducted to evaluate the change in QOL after undergoing the education program.

Conclusion

The present study assessed the QOL of diabetic patients on oral hypoglycemic agents and on insulin injections. Quality of life measures how normal life they are leading and also how happy they are with themselves. A better QOL improves their well-being and assists them manage their diabetes well so that they can prevent the acute and long-term complications of diabetes mellitus and lead a normal or near normal life like any other person without diabetes mellitus.

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