LEVEL OF KNOWLEDGE AND ATTITUDES ON CHRONIC COMPLICATIONS OF DIABETES MELLITUS 2, HOSPITAL NATIONAL PNP LUIS N. SAENZ, 2016

NIVEL DE CONOCIMIENTOS Y APTITUDES SOBRE COMPLICACIONES CRÓNICAS DE LA DIABETES MELLITUS 2, HOSPITAL NACIONAL PNP. LUIS N. SAENZ, 2016

Aldo Calderón-Rivera[1]

ORIGINAL PAPER

ABSTRACT

Objective: To determine the relationship between knowledge and aptitude in diabetic patients regarding the chronic complications of diabetic mellitus 2 in the endocrinology service of National Hospital PNP Luis N. Saenz. **Methods:** Quantitative, descriptive, transverse and correlational study. 110 diabetic patients were surveyed with a questionnaire to assess the knowledge (10 items with a multiple choice response) and another one for the skills (modified Lickert type). The knowledge was classified as high, medium and low level and the skills as favorable, unfavorable and indifferent according to the Estanones Scale. The normality of the scores with the Kolmogorov-Smirnov test and associations with chi-square, $p < 0.05$ and Pearson's correlation test were determined. **Results:** The mean age was 49.85 ± 6.97 years, 74.5% female, 75.5% with disease time between 1-5 years, 67.3% with good adherence to pharmacological treatment. The level of knowledge was: high 28.2%, medium 49.1% and low 22.7%; And the skills were: favorable 23.6%, unfavorable 58.2% and indifferent 18.2%. There is no relation between knowledge and skills ($p = 0.247$). Only statistical association was found between knowledge and pharmacological treatment ($p < 0.05$). **Conclusion:** Diabetic patients have an average level of knowledge about their chronic complications and their abilities were predominantly unfavorable. It is necessary to carry out educational strategies to improve the knowledge and skills of diabetics.

Key words: Chronic complications; Diabetic mellitus 2; Knowledge; Aptitude; Correlation. (source: MeSH NLM)

RESUMEN

Objetivo: Determinar la relación entre conocimientos y aptitudes en pacientes diabéticos sobre las complicaciones crónicas de la diabetes mellitus 2 en el servicio de endocrinología del Hospital Nacional PNP Luis N. Suárez el 2016. **Métodos:** Estudio cuantitativo, descriptivo, transversal y correlacional. Se encuestaron a 110 pacientes diabéticos con un cuestionario para valorar los conocimientos (10 ítems con respuesta de selección múltiple) y otro para las aptitudes (tipo Lickert modificado). Los conocimientos se clasificaron como nivel alto, medio y bajo y las aptitudes como favorables, desfavorables e indiferentes según la Escala de Estanones. Se determinó la normalidad de las puntuaciones con la Prueba de Kolmogorov-Smirnov y las asociaciones con chi cuadrado, $p < 0.05$ y prueba de correlación de Pearson. **Resultados:** La edad media fue 49.85 ± 6.97 años, 74.5% sexo femenino, 75.5% con tiempo de enfermedad entre 1-5 años, 67.3% con buena adherencia al tratamiento farmacológico. El nivel de conocimientos fue: alto 28.2%, medio 49.1% y bajo 22.7%; y las aptitudes fueron: favorables 23.6%, desfavorables 58.2% e indiferentes 18.2%. No existe relación entre conocimientos y aptitudes ($p=0.247$). Sólo se encontró asociación estadística entre conocimiento y tratamiento farmacológico ($p<0.05$). **Conclusión:** Los pacientes diabéticos tienen un nivel de conocimiento medio sobre sus complicaciones crónicas y sus aptitudes fueron predominantemente desfavorables. Es necesario realizar estrategias educativas para mejorar los conocimiento y las aptitudes de los diabéticos.

Palabras clave: Complicaciones crónicas; Diabetes mellitus 2; Conocimientos; Aptitudes; Correlación. (fuente: DeCS BIREME)

[1] Hospital Nacional PNP "Luis N. Suárez", Lima-Perú.

Journal home page: http://revistas.urp.edu.pe/index.php/RFMH

ORIGINAL PAPER

INTRODUCTION

In recent years, diabetes mellitus 2 (DM2) has become a scourge for humanity because of the high morbidity and mortality associated with this disease. Despite technological and therapeutic advances, the metabolic aspects involved have not yet been controlled[1,2] to improve the quality of life and prolonging the survival of the patient.

DM2 is a metabolic disease of progressive appearance due to the resistance of the insulin action on its cellular receptors or to the decrease of its pancreatic secretion, which causes hyperglycemia. That will be deposited at the microvascular level and will be responsible for the chronic changes that they will suffer later if the natural history of the disease has not been controlled[3,4].

MINSA data are not updated or complete. According to reports from the Office of Statistics and Information from the Ministry of Health in Peru, DM2 affects almost 2 million people and was the 15th cause of death in Peru[5]. In the study PERUDIAB 2012 carried out in 10 million 25 years old Peruvian adults, Sclén6 found a prevalence of 7% of DM2 and 23% of fasting hyperglycemia considered as prediabetes.

According to Peru Demographic and Family Health Survey (ENDES) 2013[7] carried out in approximately 7 000 people over 18 years nationally, there is a prevalence of overweight of 33.8% and obesity of 18.3%. Alarming figures, as is known, the DM2 is a consequence of secondary metabolic disorders whose main risk factor is bad eating habits. To this factor can also be added others such as the family history of diabetes, high blood pressure, hypertriglyceridemia, older adults, and women with gestational diabetes[2,6,8].

METHODS

An observational, analytical descriptive, cross-sectional, and correlational study was conducted. The study sample was made up of 110 diabetic patients who met the criteria for inclusion and exclusion from the study.

The analysis of the data was carried out in the statistical program SPSS version 22, through a descriptive statistical analysis (percentage distribution of the socio-epidemiological characteristics of the studied diabetic patients and measures of central tendency and standard deviation for age and time of disease). Microsoft Excel was used for the elaboration of the graphs.

To categorize the level of knowledge, we obtained an overall grade of 0 to 10 points. Then the Stanon Scale was made as follows:

- Stanon Scale = Median+-0.75 (standard deviation)
- Higher category (high knowledge level): 4.6+ 0.75(1.6) = 5.8 : >5.8
- Intermediate category (medium level of knowledge): 3.4 - 5.8
- Lower category (low attitude level): 4.6 -0.75(1.6) = 3.4 : <3.4

In the attitudes, each answer was scored according to the range of points: 10-50 points.

The patients were classified according to the score obtained following the Stanon scale:

- Higher category (Favourable): 38.7 + 0.75 (4.0) = 41.7 : > 41.7
- Intermediate category (Unfavourable): 35.7 - 41.7
- Lower category (Indifferent): 38.7 - 0.75 (4.0) = 35.7: < 35.7

In this way, each subject of study was classified in one of the three categories in both groups, to finally present them in a table with percentage distribution.

The normality of knowledge and attitude level scores was determined by the Kolmogorov-Smirnov test.

The Pearson correlation test was obtained to establish the relationship between knowledge level and skill level on chronic complications of DM2.

The research was carried out according to the principles of bioethics, keeping the data confidential, and maintaining anonymity. The principles of the Declaration of Helsinki were respected and the research ethics committee of the Department of Medicine of the Ricardo Palma University approved the project.

RESULTS

A survey was made of 110 diabetic patients who were treated at the Endocrinology Service of the Luis N. Sáenz National Police Hospital in 2016. The mean age was 49.85±6.97 years, 42.7% were aged 50-59 years, 74.5% were female, 56.4% had higher education, 75.5% had had diabetes mellitus 2 for 1-5 years, insulin drug treatment + oral hypoglycemics 44.5% and 67.3% had good adherence to drug treatment. (Table 1)

Table 1. General characteristics of the diabetic patients surveyed in the endocrinology service of the Hospital of the National Police of Peru "Luis N. Saenz, 2016".

CHARACTERISTIC	N°	%
Age groups (years)		
35-39	6	5.5
40-49	44	40.0
50-59	47	42.7
60-69	13	11.8
Sex		
Male	28	25.5
Female	82	74.5
Level of instruction		
Primary	11	10.0
High school	37	33.6
Higher	62	56.4
DM2 disease time		
1-5 years	83	75.5
6-10 years	21	19.1
11-15 years	4	3.6
16-20 years	2	1.8
Drug treatment for DM2		
Insulin and oral hypoglycemic agents	49	44.5
Oral hypoglycemic agents	34	30.9
Insulin	27	24.5
Adherence to drug treatment for DM2		
Good	74	67.3
Bad	36	32.7
Total	82	100.0

ORIGINAL PAPER

Table 2. Kolmogorov-Smirnov test to assess the normal distribution of scores achieved in the level of knowledge and attitudes of diabetic patients.

|		KNOWLEDGE	ATTITUDES
N°		110	110
Parameter	Medium	4.62	38.67
Normal[a,b]	Standard deviation	1.585	4.021
	Total	0.134	0.160
More extreme differences	Positive	0.134	0.059
	Negative	-0.113	-0.160
Kolmogorov-Smirnov Z test		1.400	1.675
Sig. asymptot. (bilateral)		0.040	0.007

a. Contrast distribution is Normal.

b. They have been calculated from the data.

The scores obtained after scoring the answers of diabetic patients in the questionnaires for the level of knowledge and skills presented a normal distribution in the Kolmogorov-Smirnov test. (Table 2)

It was found that 49.1% had a medium level of knowledge about complications of DM2, 28.2% high level and 22.7% low level. (Figure 1)
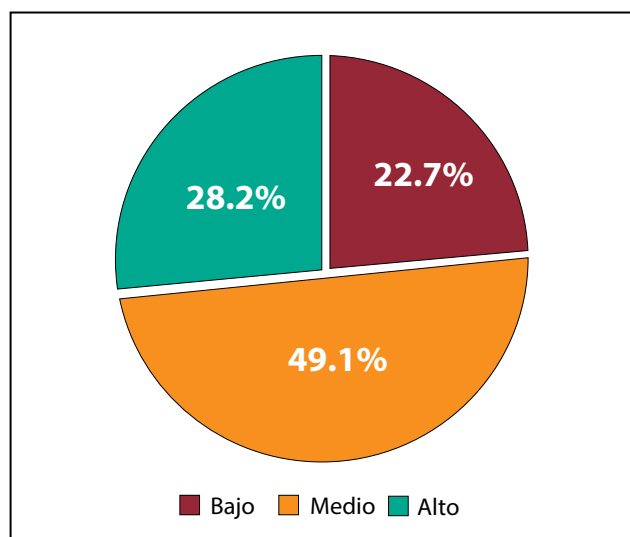
Graphic 1. Level of knowledge of diabetic patients about chronic complications of diabetes mellitus 2. Service of Endocrinology of the Hospital of the National Police of Peru Luis N. Saenz, 2016.
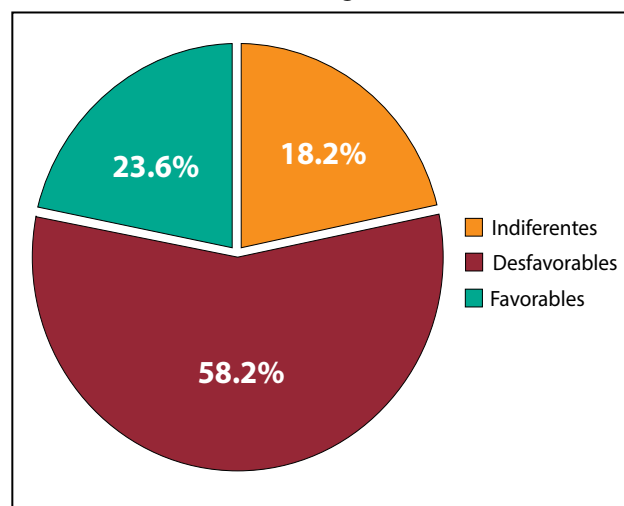
Graphic 2. Abilities of diabetic patients about chronic complications of diabetes mellitus 2. Endocrinology Service of the Hospital of the National Police of Peru Luis N. Sáenz, 2016.

It was found that 58.2% of the diabetics surveyed had unfavorable aptitudes, 23.6% favorable aptitudes and 18.2% indifferent aptitudes (Figure 2).

Table 3. Attitudes and level of knowledge about chronic complications of DM2 in diabetic patients Service of Endocrinology of the Hospital of the National Police of Peru Luis N. Saenz, 2016.

	ATTITUDES						
LEVEL OF KNOWLEDGE	INDIFFERENT		UNFAVORABLE		FAVORABLE		P
	N°	%	N°	%	N°	%	
Low	8	40.0	14	21.9	3	11.5	0.247
Medium	7	35.0	32	50.0	15	57.7	
High	5	25.0	18	28.1	8	30.8	
Total	25	100.0	54	100.0	31	100.0	

Diabetics patients with a medium-low level of knowledge (50% and 21.9%) have unfavorable attitudes, but among those with favorable attitudes, few had a low level of knowledge (11.5%). There is no statistical association between attitudes and knowledge level (p>0.05) (Table No. 3).
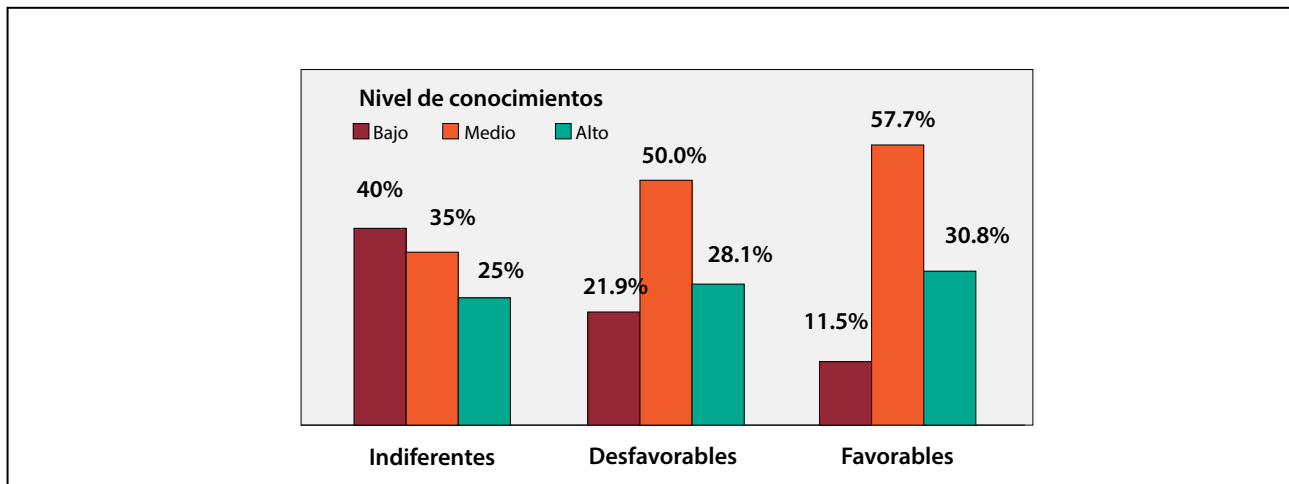
Graphic 3. Attitudes and level of knowledge of diabetic patients Endocrinology Service of the Hospital of the National Police of Peru Luis N. Saenz, 2016.

The low level of knowledge predominates in diabetic patients with indifferent and unfavorable attitudes (Figure 3).

Table 4. Association between level of knowledge of chronic complications of DM2 and the characteristics of diabetic patients. Endocrinology Service of the Hospital of the National Police of Peru "Luis N. Sáenz, 2016".

| | LEVEL OF KNOWLEDGE | | | | | | P |
| | LOW | | MEDIUM | | HIGH | | |
	N°	%	N°	%	N°	%	
Age groups							
35-39 years	1	4.0	4	7.4	1	3.2	
40-49 years	7	28.0	21	38.9	16	51.6	0.314
50-59 years	11	44.0	24	44.4	12	38.7	
60-69 years	6	24.0	5	9.3	2	6.5	
Sex							
Male	5	20.0	11	20.4	12	38.7	0.135
Female	20	80.0	43	79.6	19	61.3	
Education level							
Elementary	4	16.0	6	11.1	1	3.2	0.577
Secondary	7	28.0	18	33.3	12	38.7	
Higher education	14	56.0	30	55.6	18	58.1	
Time of illness							
1-5 years	15	60.0	46	85.2	22	71.0	0.066
6-10 years	7	28.0	7	13.0	7	22.6	
11-15 years	1	4.0	1	1.9	2	6.5	
16-20 years	2	8.0	0	0.0	0	0.0	
Pharmacological treatment							
Insulin and oral hypoglycemics	11	44.0	17	31.5	7	22.6	0.024
Oral hypoglycemics	7	28.0	20	37.0	3	9.7	
Insulin	7	28.0	17	31.5	21	67.7	
Adherence to pharmacological treatment of DM2							
Good	17	68.0	33	61.1	24	77.4	0.303
Poor	8	32.0	21	38.9	7	22.6	
Total	25	100.0	54	100.0	31	100.0	

ORIGINAL PAPER

By stratifying the level of knowledge according to the characteristics of the diabetic patients, it was found that those with a low level of knowledge were 50-59 years old (44%), female (80%), with higher-level education (56%), a time of illness of 1-5 years (60%), they received insulin + oral hypoglycemics as drug treatment (44%), and poor drug adherence (35%). Diabetics patients with the highest level of knowledge were 40-49 years old (51.6%), female (61.3%), with secondary education (58.1%), 1-5 years of DM2 disease (71%), insulin treatment (67.7%), and poor drug adherence (22.6%). A statistically significant association was found only with pharmacological treatment of DM2 (p<0.05).(Table4)

Table 5. Association between unfavorable attitudes level regarding chronic complications of DM2 and characteristics of diabetic patients. Endocrinology Service of the Peruvian National Police Hospital "Luis N. Sáenz, 2016".

| | LEVEL OF KNOWLEDGE | | | | | | P |
| | LOW | | MEDIUM | | HIGH | | |
	N°	%	N°	%	N°	%	
Age group							
35-39 years	0	0.0	5	7.8	1	3.8	0.072
40-49 years	7	35.0	28	43.8	9	34.6	
50-59 years	7	35.0	25	39.1	15	57.7	
60-69 years	6	30.0	6	9.4	1	3.8	
Sex							
Male	2	10.0	19	29.7	7	26.9	0.207
Female	18	90.0	45	70.3	19	73.1	
Education level							
Elementary	4	20.0	6	9.4	1	3.8	0.280
Secondary	5	25.0	20	31.3	12	46.2	
Higher education	11	55.0	38	59.4	13	50.0	
Time of illness							
1-5 years	12	60.0	52	81.3	19	73.1	0.055
6-10 years	4	20.0	11	17.2	6	23.1	
11-15 years	3	15.0	0	0.0	1	3.8	
16-20 years	1	5.0	1	1.6	0	0.0	
Pharmacological treatment for DM2							
Oral hypoglycemics	11	55.0	29	45.3	9	34.6	0.727
Hipoglicemiantes orales	5	25.0	19	29.7	10	38.5	
Insulin	4	20.0	16	25.0	7	26.9	
Adherence to pharmacological treatment of DM2							
Good	13	65.0	43	67.2	18	69.2	0.955
Poor	7	35.0	21	32.8	8	30.8	
Total	20	100.0	64	100.0	26	100.0	

By stratifying the attitude level according to the characteristics of the diabetic patients, it was found that those with unfavorable attitudes were 40-49 years old (43.8%), female (70.3%), with higher education (59.4%), a time of illness of 1-5 years (81.3%), they received pharmacological treatment insulin + oral hypoglycemics (45.3%) and poor pharmacological adherence (32.8%). Diabetics with a favorable attitude were 50-59 years old (43.8%), female (73.1%), with higher education (50%), a time

of disease of 1-5 years (73.1%), and as the pharmacological treatment they received oral hypoglycemics (38.5%) and poor pharmacological adherence (30.8%). No statistically significant association was found between attitude level and any characteristic of diabetic patients. (Table 5)

DISCUSSION

EIn the study, 110 patients were surveyed. The average age was 49.85±6.97 years, with a predominance of 50-59 years (42.7%) similar to the study by Morales[12] in Nicaragua, Aguilar, and Espinoza[16] in Bolivia (67% and 80% were >51 years old, respectively). However, the average ages were higher than that of the patients in the Loayza Hospital evaluated by Yance (average age 44.5+-16.6 years) and lower than the Mendizabal series[18] in the Carrión del Callao National Hospital (average age 55.6 years) and the Untiveros study[21] in the Dos de Mayo National Hospital (64.56 ± 11.61 years). The female sex predominated (74.5%) as in Morales12 (84%), Aguilar y Espinoza[16] (71%), Yance[14] (71%), Mendizabal[18] (70.8%) and Untiveros21 (56.4%) study. Likewise, it was found that the diabetics in the series were mostly highly educated (56.4%) similar to the Yance study (53%) but contrary to the Mendizabal[18] study in which the lower educated predominated.

Regarding the time of DM2 disease, 75.5% of our diabetic patient surveyed was 1-5 years old, although the series of Yance[14] and Morales[12] showed a predominance of this same length of time, but with lower percentages (54% and 56% respectively). The literature confirms that there is an epidemiological increase in DM2 and the age of appearance of the disease is in increasingly younger and economically active populations[24,26,32].

The most used drug treatment was the combination of insulin + oral hypoglycemics (44.5%). Although in other national studies the use of oral hypoglycemics was predominant as reported by Untiveros[21] (68.1% oral hypoglycemics vs. 11.7% insulin).

67.3% of the patients studied had good adherence to drug treatment and 32.7% had poor adherence. These characteristics are similar to Molina study[19] who found good adherence of 68.9% in patients of the Hospital Nacional Dos de Mayo. This data is within the range described by the medical literature. In other words, between 20 and 40% of diabetic patients have poor adherence to drug treatment, in which insulin therapy is used more.

Approximately half of the respondents knew about chronic complications of DM2 at a medium or regular level. Only 28.2% had a high level of knowledge. These results are similar to Yance study[14] in diabetics from Loayza Hospital, where the average level of knowledge was 64% and presented a lower percentage of the bad level than our study (14% vs. 22.7% respectively). This is contrary to what we expected to find since these patients are within a diabetes program. They have not only medical consultation but also health promotion and prevention activities. In other words, a greater number of diabetics should have a high level of knowledge. Although the study does not aim to identify the factors that are involved, it can be intuited that there is shared responsibility between medical personnel and the patient-family[28].

The research allows us to appreciate some differences between diabetics with a high and low level of knowledge of the chronic complications of DM2. Thus, when looking at age, those over 50 tend to have a low level, while those under 50 have a higher level of knowledge. In terms of gender, women predominate as a percentage of men at all levels of knowledge, but it can be seen that men have more percentage in the high level of knowledge than women. A significant statistical association was demonstrated between the level of knowledge and pharmacological treatment. Thus, those with a high level of knowledge were mostly patients using insulin while the low level corresponded to a higher proportion of patients with the combination of insulin + oral hypoglycemics (p<0.05). It is evident that the higher the level of knowledge, the greater the proportion of patients with good adherence to drug treatment, although this did not have statistical significance for the study (p>0.05). No major difference is observed in the level of knowledge with the degree of education and time of illness of the diabetic patient.

The research showed a higher proportion of diabetic patients with unfavorable attitudes (58.2%) than favorable attitudes (23.6%). A finding similar to that reported by Yance14 who in his study found unfavorable attitudes in 53% and favorable attitudes in 37%. These data are contrary to expectations if we take into account the study byTello[13] which found a higher percentage of favorable attitudes in healthy workers (57%), those who do not receive more information about the diabetic disease, but who have a better attitude toward self-care. Therefore, intervention strategies should not only include knowledge, but also the adoption of attitudinal changes that allow the achievement of metabolic objectives and the practice of promotional preventive measures to prevent or slow the progression of chronic complications of DM2[25-28-32].

ORIGINAL PAPER

CONCLUSION

The research found that diabetic patients have not yet reached the objectives of the Diabetes Program of the Endocrinology Service of the Luis N. Saenz National Police Hospital, regarding the acquisition of knowledge and achievement of changes in the attitude toward self-care as a strategy to prevent chronic complications of diabetes mellitus 2. They have mostly an unfavorable level of knowledge and attitudes for chronic complications of diabetes mellitus 2.

The research did not find a relationship between the level of knowledge and level of attitudes in the diabetic patients surveyed but there is evidence of a statistically significant association between level of knowledge and drug treatment of diabetes mellitus 2.

RECOMENDATIONS

The authorities of the Ministry of Health and the Hospital of the National Police of Peru Luis N. Saenz should redesign the educational strategies of the Diabetes Program to increase the level of knowledge about chronic complications of DM2, as well as to modify behaviors and bad habits in diabetic patients to allow them to integrate into their health care.

Despite the fact that low adherence to drug treatment is similar to that described in the literature. It is recommended to carry out prospective studies, of cause-effect design to identify the causes for which it has not been possible to improve the intellectual and attitudinal capacities of the patients or studies of an educational intervention that allow raising the knowledge of the diabetics about their disease. These studies will value the impact of the actions taken, so the changes will be able to be made to introduce improvements in quality in professional attention.

Correspondence: Aldo Juvenal Calderon Rivera
Address: Psje San Francisco 135-Los Laureles Chorrillos
Telephone number: +51991887134
E-mail: ajcalderonrivera@gmail.com

BIBLIOGRAPHIC REFERENCES

1.Barceló A. La diabetes en las Américas. (en línea) Boletín Epidemiológico. 2001 ene 2008];22(2). (citado 11 de mayo de 2016) Disponible en: http://www.ops-omsorg/spanish/sha/be_v22n2-diabetes.htm

2. Organización Mundial de la Salud. 10 datos sobre la carga mundial de morbilidad.(en línea) OMS; 2008. (citado 6 de mayo de 2016). Disponible en: http://www.who.int/features/factfiles/global_burden/es/index.html

3. Ministerio de Salud del Perú (MINSA). Tomemos control de la diabetes ¡Ya!. (en línea) Lima, versión electrónica, 2010. (citado 10 de abril de 2016). Disponible en: http://www.minsa.gob.pe/portada/Especiales/2010/diabetes/queesladiabetes.asp

4. Gayoso D. S, Guerola O. MV, Pinto S. CA, Rivera M. AM. Incidencia de complicaciones tardias en pacientes con diabetes mellitus. (en línea) Universidad Católica de Santa María, Arequipa. (citado 22 de abril de 2016). Disponible en: http://www.ucsm.edu.pe/ciemucsm/pages/t-dbc.htm

5. Muro-L. EMDS, Jiménez-V.MM. Aptitud clínica para atender complicaciones tardías de la diabetes. (en línea) Rev Med Inst Mex Seguro Soc 2009; 47 (2): 141-146. (citado 28 de abril de 2016). Disponible en: http://edumed.imss.

gob.mx/edumed/rev_med/pdf/gra_art/A254.pdf

6. Seclén S, Rosas M, Arias A, Huayta E. Prevalence of type 2 diabetes in peru: First-wave prevalence report from PERUDiab, a population-based threewave longitudinal study. in press. 2015.

7. Instituto Nacional de Estadística e Informática. Resultados de la

Encuesta Demográfica y de Salud Familiar (ENDES 2013). Lima: Instituto Nacional de Estadística e Informática (INEI), Mayo 2014.

8. Hinojosa M. C, Gonzáles E. Prevalencia de los factores de riesgo y de otras enfermedades en el paciente diabético hospitalizado. Endocrinol Nutr 2002; 49(5): 136-9.

9. Sandeep V, Hayward R. Treatment of hypertension in type 2 diabetes mellitus: Blood Pressure Goals, Choice of Agents, and Setting Priorities in Diabetes Care. Ann Intern Med 2003; 2138: 593-602.

10. Organización Mundial de la Salud. Estadísticas Sanitarias Mundiales 2012. Clasificación. NLM: WA 900.1 OMS; 2011. (citado el 15 abril 2016). Disponible en: http://www.who.int/gho/publications/world_health_statistics/ES_WHS2012_Full.pdf

11. Organización Panamericana de la Salud (OPS). Enfermedades no transmisibles en las Américas – Indicadores básicos 2011. (en línea). 2011. (citado 5 de mayo de 2016). Disponible en: www.paho.org

12. Morales V. J. Conocimientos, actitudes y prácticas de los pacientes diabéticos, Programa dispensarizados en los 6 centro de salud del SILAIS Estelí- Nicaragua, Mayo a Junio del 2007. Universidad Nacional Autonoma De Nicaragua Centro de investigaciones y estudios de la salud Maestria en salud pública 2005 – 2007. (en línea) Tesis para optar al título de Master en Salud Pública. OCOTAL,

NUEVA SEGOVIA 2007. . (citado 8 de mayo de 2016). Disponible en: http://cedoc.cies.edu.ni/digitaliza/t381/doc-contenido.pdf

13. Tello V. M. Conocimientos, actitudes y prácticas de las medidas

preventivas de la diabetes mellitus tipo 2 en los trabajadores mayores de 35 años de los centros de aplicación: productos unión y editorial imprenta Unión De La Universidad Peruana Unión - Lima, 2011. (en línea) Dirección General de Investigación I Congreso Nacional De Investigación – Universidad Peruana Unión. . (citado 10 de mayo de 2016). Disponible en: http://papiros.upeu.edu.pe/bitstream/handle/ 123456789/109/CSS16Articulo.pdf?sequence=1

14. Yance S.LH. Nivel de conocimientos y aptitudes sobre complicaciones de la diabetes mellitus 2 en el Servicio de Endocrinología del Hospital Nacional Arzobispo Loayza, Agosto-Setiembre 2013. Tesis de grado, Universidad Nacional Federico Villareal. 2014: 11-37

15. Steed L, Cooke D, Newman S. A systematic review of psychosocial outcomes following education, self-management and psychosocail interventions in diabetes mellitus. Patient Educ Counseling 2003;51(1):5-15.

16. Aguilar E. J, Espinoza D. E. Evaluación del conocimiento y práctica dietetica en pacientes diabéticos tipo 2. Gac Med Bol. (en línea). 2006; 29 (1):17-20 (citado 11 de mayo de 2016). Disponible en: http://www.scielo.org.bo/scielo.php?   script=sci_arttext&pid=S1012-29662006000100004&lng=es&nrm=iso

17. Sabag R. E. Complicaciones crónicas de la diabetes mellitus. Prevalencia en una unidad de

medicina familiar. (en línea) Rev Med Inst Mex Seguro Soc 2006; 44 (5): 415-421. (citado 3 de mayo de 2016). Disponible en: http://www.medigraphic com/pdfs/imss/im-2006/im065e.pdf

18. Mendizábal T, Navarro N, Ramírez A, Cervera M, Estrada E, Ruiz I. Características sociodemográficas y clínicas de pacientes con diabetes tipo 2 y microangiopatías. (en línea) An Fac med. 2010; 71(1) :7-12. . (citado 10 de mayo de 2016). Disponible en: http://www.scielo.org.pe/pdf/afm/v71n1/a02v71n1.pdf

19. Molina G.YR. Adherencia al tratamiento y su relación con la calidad de vida de los pacientes con diabetes mellitus tipo 2 que asisten al Programa de Diabetes del Hospital Nacional "Dos de Mayo" : enero-febrero 2008. (en línea) Tesis para optar el título profesional de Licenciada en Enfermería. Universidad Nacional Mayor de San Marcos, Lima, Perú (2008). (citado 11 de mayo de 2016). Disponible en: http://www.cybertesis.edu.pe/sisbib/2008/molina_gy/html/index-frames.html

20. Hidalgo C. EV. Medidas de autocuidado que realizan los pacientes diabéticos. Factores socioculturales que favorecen o limitan su cumplimiento en los pacientes que asisten al Programa de Diabetes del Hospital Nacional Dos de Mayo, octubre-diciembre 2005. (en línea) Tesis Para optar el Título profesional de licenciada en enfermería. Universidad Nacional Mayor de San Marcos, Lima, Perú (2005). (citado 5 de mayo de 2016). Disponible en: http://www.cybertesis.edu.pe/ sisbib/2005/hidalgo_ce/html/index-frames.html

21. Untiveros M. CF, Núñez Ch. O, Tapia Z. LM, Tapia Z. GG.

Complicaciones tardías en diabetes mellitus tipo 2 en el Hospital II Essalud - Cañete. (en línea) Rev Med Hered 2004:15(2): 12-7. (citado 5 de

mayo de 2016). Disponible en: http://www.scielo.org.pe/pdf/rmh/v15n2/v15n2ao1.pdf

22. Molero T. GR. Complicaciones tardias en pacientes con diabetes mellitus del hospital I EsSalud Quillabamba – 2003. (en línea) SITUA - Revista Semestral de la Facultad de Medicina Humana – UNSAAC. (citado 5 de mayo de 2016). Disponible en: http://sisbib.unmsm.edu.pe/bvrevistas/situa/2003_n22/EnPDF /complic_tardias.pdf

23. American Diabetes Association. Third party reimbursement for diabetes care, self management education, and supplies. Diabetes Care. 24 (Suppl. 1): S120-S121.. 2001

24. Elaboración de la Encuesta de Salud Integral - Atención primaria de salud y participación comunitaria. (citado 3 de mayo de 2016). Disponible en: http://es.scribd.com/doc/23579911/Encuesta-de-salud-integral-en-atencion-primaria

25. Monja Y, JC. Características epidemiológicas clínicas y metabólicas de la nefropatía en pacientes diabéticos tipo 2, hospitalizados en el Servicio de Medicina Interna Nº 3 del HNGAI (2004). (en línea) Universidad Nacional Mayor de San Marcos, Lima, Perú. (citado 10 de mayo de 2016). Disponible en: http://www.cybertesis.edu.pe/sisbib/2004/monja_yj/html/index-frames.html

26. Choi BC, Corber SJ, McQueen DV, Bonita R, Zevallos JC, Douglas KA, et al. Enhancing national capacity in chronic disease surveillance in

the Americas. Pan Am J Public Health. 2005;17(2):130-41.

27. Scanlon PH. Why do patients still require surgery for the late complications of proliferative diabetic retinopathy? Eye. 2010;24(3):435-41.

28. The Diabetes Control and Complications Trial Research Group. The effect of intensive treatment of diabetes on the development and progression of long-term complications in insulin-dependent diabetes mellitus. N Engl J Med. 1993; 329:977-86.

29. Qi l, Rimm E, Liu S, Rifai N, Hu FB. Dietary glycemic index, glycemic load, cereal fiber, and plasma adiponectin concentration in diabetic men. Diabetes Care. 2005;28:1022-8.

30. Bantle JP, Wylie-Rosett J, Albright AL, Apovian CM, Clark NG, Franz MJ, et al. Nutrition recommendations and inter ventions for diabetes: a position statement of the American Diabetes Association. Diabetes Care. 2007;30(Suppl 1):S48-65.

31. Litwak L, Calella P, Chetkoff A, Cutuli H, Katz S, Lúquez C. Estado metabólico y características de la subpoblación de pacientes argentinos que participaron del estudio A1chieve. Rev Soc Arg de Diabetes 2012; 46: 49-56.

32. Fracchini M. Cambio de conductas en tratamientos de larga duración. Relación médico-paciente. Medicina (B Aires) 2004; 64: 550-4.

33. García R, Suárez R. Resultados de un seguimiento educativo a personas con diabetes mellitus tipo 2 y sobrepeso u obesidad. (en línea) Rev Cubana Endocrinol. 2003; 14(3): [aprox. 9 p.]. (citado 10 de mayo de 2016) Disponible en: http://bvs.sld.cu/revistas/end/vol14_3_03/end04303.htm

ORIGINAL PAPER

Indexed in:

latindex

http://www.latindex.org/latindex/ficha?folio=14280