Comparison of Health Care Services Utilization and Metabolic Control between Ethiopian and Non-Ethiopian Patients with Diabetes Mellitus

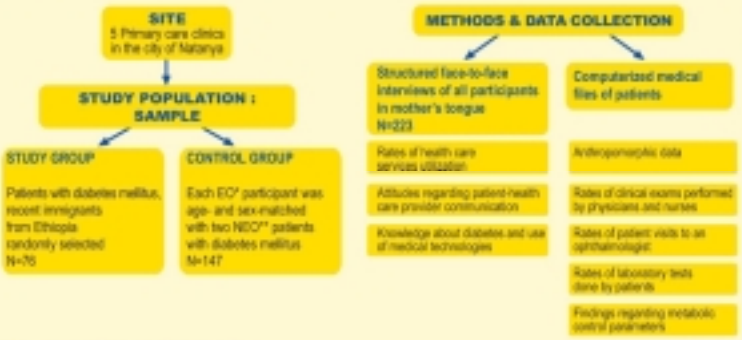
Yael Toledano[1], Shmuel Giveon[2], Ernesto Kahan[3], Sefiafe Aychieh[4], Nurit Guttman[5], Arie Jaffe[1]

[1] Endocrinology & Diabetes Unit, Hillel Yaffe Medical Center, Hadera, Israel
[2] Coordinator of Medical Education, Clalit Health Services, Netanya, Israel
[3] Department of Family Medicine, Sackler School of Medicine, Tel-Aviv University, Tel-Aviv, Israel
[4] Integration Enhancement Center, Municipality of Netanya, Israel
[5] Department of Communication, Tel-Aviv University, Tel-Aviv, Israel

BACKGROUND and AIMS

The prevalence of diabetes mellitus increased dramatically among immigrants from Ethiopia during the 14 years since the major wave of their arrival to Israel. However, the expenditure of medical care for this population was found to be significantly lower than for Israeli patients from other countries of origin. This may indicate under-utilization of health care services by the Ethiopian immigrant population, despite the rise in both diagnosed and undiagnosed chronic illnesses likely to occur during the acculturation period of new immigrants from non-Western cultures. This study focused on the medical care provided to immigrants from Ethiopia who developed diabetes mellitus, a disease which was virtually non-existent in this population in their country of origin. Our main objective was to compare the quality of medical treatment and the degree of metabolic control between EO (Ethiopian origin) and NEO (non-Ethiopian origin) patients in primary care community clinics.

STUDY DESIGN



FINDINGS

General characteristics of the sample population

Variable	EO*	NEO**	Total	P
n	76 (34%)	147 (66%)	223 (100%)	
Sex (men / women)	29 / 47	79 / 69	107 / 116	0.25
Age (years) †	46.2 ± 16.5	62.7 ± 11.5	62.8 ± 13.3	0.26
Duration of diabetes mellitus (years) †	5.6 ± 4.3	10.2 ± 8.5	8.6 ± 7.8	<0.001

† mean ± SD.

PERSONAL INTERVIEWS-DISTRIBUTION OF RESPONSES

Communication with health care providers: comparison between EO and NEO patients with diabetes

Questions & reply options	EO*	NEO**	p
Do you feel that you understand what the physician explains?			
Everything / Most	48 %	92%	<0.001
Partly	21 %	3.5 %	
Nothing	13 %	1.4 %	
Only if someone translates	18 %	2.8 %	
Did the nurse discuss diabetes with you?			
Often	26.6 %	46.8%	<0.001
Occasionally	44.1 %	9.3%	
Rarely	29.4 %	44.1 %	
Were the explanations of the pharmacist comprehensible?			
Most of them	18.1%	79.2%	<0.001
Part of them	68.1%	14.4%	
None	13.8%	6.4%	
Have you met with a dietician?			
Several times	38%	56%	<0.01
Once	18%	24%	
Never	32%	20%	
I don't know / don't remember	14%	0%	
Do you think that the dietician is acquainted with your traditional food?			
Very well	27%	58%	<0.01
Partly	56%	8%	
No	19%	26%	
I don't know / don't remember	4%	10%	
To which extent you understood what the dietician had explained you?			
Most	45%	98%	<0.001
Partly	27.5%	2%	
No	27.5%	0%	

Cardiovascular risk factors

Has someone (or you yourself) measured your blood pressure in the past six months?	EO*	NEO**	p
Yes	66.2 %	91.7 %	<0.001
No	18.9 %	5.5 %	
Don't remember / don't know	14.9 %	2.8 %	
Do you know your blood lipid level?			
Yes	22.4 %	46.3 %	<0.01
No	50.0 %	46.9 %	
Don't remember / don't know	27.6 %	4.8 %	

Target organ damage

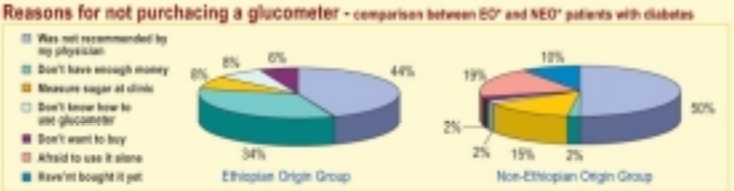
Has a physician or a nurse examined your feet in the past six months?	EO*	NEO**	p
Yes	27.4 %	51.0 %	<0.001
No	63.0 %	48.3 %	
Don't remember	9.6 %	0.7 %	
Did you undergo an eye examination for your diabetes in the past twelve months?			
Yes	54.9 %	72.2 %	<0.001
No	25.4 %	25.0 %	
Don't remember	19.7 %	2.8 %	

* EO, Israeli patients from Ethiopian origin. ** NEO, Israeli patients from other countries of origin (Non-Ethiopian origin).

Technologies for self monitoring of glucose

Have you purchased a glucometer?	EO*	NEO*	p
Yes	17%	65 %	<0.001

Reasons for not purchacing a glucometer - comparison between EO* and NEO* patients with diabetes



COMPUTERIZED MEDICAL FILES

Physical examination parameters - ratio between EO and NEO patients with diabetes

Parameter*	Ratio of rates in Ethiopian origin to non-Ethiopian origin groups	p
Blood pressure measurement	0.67	0.003
Weight	0.68	0.100
Height	0.72	0.190
Body mass index	0.72	0.220
Feet examination	0.8	0.300
Fundus examination	0.85	0.200

* Recorded number of visits to the nurses in the past 12 months (mean ± SD): EO group- 6.1±12, NEO group- 5.7±8

Rates of performing laboratory & ancillary tests-ratio between EO and NEO patients with diabetes

Laboratory / Ancillary test*	Ratio of rates in Ethiopian origin to non-Ethiopian origin groups	p
HgbA1c	0.89	0.020
Serum creatinine	0.62	0.002
Lipid profile	0.80	<0.001
Urine microalbumin / creatinine ratio	0.88	0.200
Electrocardiogram	0.84	0.017

* Recorded number of visits to the physicians in the past 12 months (mean ± SD): EO group-12.5±7, NEO group-12±8.9

Results of HgbA1c in EO and NEO patients with diabetes

	EO*	NEO**	P
HgbA1c (%)†	9.6 ± 2	8.1 ± 1	0.02

† mean ± SD.

EO, Israeli patients from Ethiopian origin. NEO, Israeli patients from other countries of origin (Non-Ethiopian origin).

MAJOR FINDINGS

Significant differences between EO and NEO patients with diabetes mellitus were found in several parameters of both follow-up and metabolic control.

Conception of communication with medical staff

- Ethiopian immigrant patients tended to rate lower their ability to comprehend the explanations of their doctors, dieticians and pharmacists.
- The need for assistance with translation when examined by the physician was higher among EO patients with diabetes.
- Ethiopian immigrant patients tended to rate lower the frequency of discussing diabetes with the nurse and the frequency of meeting with a dietician.

Use of medical technology

- Ethiopian immigrant patients rarely used glucometers. The main reasons they gave for this were lack of recommendation to purchase these devices and limited financial means.

Clinical exams and medical tests

- Ethiopian immigrant patients tended to report fewer referrals to dieticians and eye doctors. Less Ethiopian immigrant patients reported having blood pressure measurements and feet examinations.
- The rate of the recorded blood pressure measurements was lower in the EO group than in the control group despite the same number of recorded visits to the nurses.
- HgbA1c, serum creatinine, lipid profile and electrocardiogram were performed significantly less often among EO patients in comparison to NEO participants despite the same recorded number of visits to the physicians.
- Mean HgbA1c value was significantly higher in the EO group than in the control group.

CONCLUSIONS

The Israeli National Health Insurance Law entitles all patients to equitable health services. Yet, even when logistical and monetary access to medical care appears to be available equally to all patients, EO patients tend to utilize them to a lesser extent or less effectively because of language barriers and cultural differences.

In order to ensure equity in the use of healthcare services, there is a need for a closer scrutiny of the more subtle barriers for follow-up diabetes care, including the assumptions of health care providers regarding the capacities of the immigrant populations. The capacities of both health care providers and EO patients need to be enhanced to advance mutual understanding and trust and communication regarding follow-up care.

This study was supported by a grant from the Israel National Institute for Health Policy and Health Services Research (NIHP)