

Knowledge on Own Disease and Self-Management in Patients with Type 2 Diabetes in the Swedish Town of Sodertälje

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Abstract

Aim: To investigate the ethnic differences in knowledge on own diabetes disease and self-management in Assyrian/Syrian-born and Swedish-born patients in Swedish town.

Methods: This cross-sectional, questionnaire-based study was conducted at four Primary Health Care Centers in the Swedish town of Sodertälje. A total of 304 persons (167 ethnic Assyrians/Syrians and 137 ethnic Swedes) participated. Unconditional logistic regression was used to analyse the association between low knowledge level, ethnicity and all other explanatory variables.

Results: The total prevalence of low knowledge on own disease was 35.6%, with significant ethnic differences, 53.2% among Assyrian/Syrians vs. 17.8% among Swedish-born. In the final model, regardless of adjustment for explanatory variables, the odds ratio (OR) for low knowledge in Assyrian-Syrian-born patients was more than seven times higher than in Swedish-born patients, OR 7.4 (95% CI 3.83–14.50). For those on dietary treatment only, the adjusted OR for having low knowledge compared to those on pharmacological treatment was 1.9 (95% CI 1.00–3.83), while patients

diagnosed after 60 years of age showed lower odds ratio for poor knowledge, adjusted OR 0.34.

Conclusion: Assyrian/Syrians showed significantly lower knowledge on diabetes, which could affect self-care and metabolic control, with increased risk of complications and lower quality of life.

Keywords: Ethnicity; Knowledge on own disease; Cross-sectional; Diabetes type 2

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Introduction

Immigrants from Middle East countries accounts for about 20% of all foreign-born subjects in Sweden (Statistics Sweden), and is thus the largest group among non-European immigrants in Sweden. This group is also at greater risk of both

coronary heart disease and diabetes [1]. Besides, metabolic control is shown to be worse in this group [2], and immigrants with diabetes are also shown to be at risk for worse quality of life [3] and dysfunctional coping [4].

An important concept in the medical care of subjects with diabetes is empowerment, where knowledge about the disease is a cornerstone [5]. The treatment of diabetes includes several types depending on type of diabetes (1 or 2): insulin, drugs and self-management - dietary. It has been shown that individuals of Middle-East origin have high prevalence of diabetes and risk factors for diabetes attributed by lifestyle factors and Body Mass Index (BMI) [6]. Although the knowledge on diabetes disease is one of the main parts of treatment of diabetes, the issue on that is not widely explored. In one study availability of information was identified by people with diabetes as one therapeutic factor among others [7]. Knowledge on disease motivates and helps subjects with diabetes to manage the disease by themselves and prevent early upcoming of diabetes-related complications. Which in itself lead to understanding of diabetes and how important the self-care is to avoid or delay the complications of the disease. According to the Swedish National Guidelines for Diabetes Care (2010), special attention to culturally adapted education for patients from other cultures (or immigrant patients) is needed [8].

A number of differences between immigrant groups and Swedish-born patients were found in Swedish studies concluding that self-care practice and care-seeking behavior are highly explained by cultural and religious beliefs about health. Muslim women are seeking care to less extent compared to Swedish

women. The cause of diabetes is the wish of Allah or God according to Muslim women while Swedish women have an active self-care behavior and controlled lifestyle [9]. On the other hand were Arab men an active information-seeking behavior compares to Swedes and former Yugoslavians [10]. While the understanding of diabetes and reducing of risk of diabetes is associated partly to cultural factors and to big extent to social exclusion and marginalization as qualitative study among Turkish and Arabic communities in Melbourne concluded [11].

The actual study explores the knowledge on diabetes disease among individuals with type 2 diabetes in the Swedish town of Södertälje. Two ethnic groups (Swedish-born and Assyrian/Syrian-born) are identified and selected for participating in the survey.

Subjects, Materials and Methods

Participants

The study was conducted during 2006-2008. A total of 354 individuals with type 2 diabetes were selected from the registers of patients at the four primary health care centres in the town of Södertälje, a southern suburb of Stockholm. Two ethnic groups, sex- and age-matched, were included: Assyrians/Syrians (n=173) and Swedes (n=181). The countries of origin of the Assyrians/Syrians were all Middle Eastern, i.e. Turkey (33.5%), Iraq (30.6%), Syria (20.2%) and the remaining group originated from Lebanon or other countries. The patients were contacted by telephone and invited to fill in a questionnaire in the presence of the first author or a GP. Interpreters

were used as needed. Medical information and laboratory data from the patient records of all participants were gathered. Verbal informed consent was provided for participation in the study and for the gathering of data from patient records.

Explanatory variables

Age was divided into three groups: 32-59, 60-69 and ≥ 70 years and there were a similar proportion of patients in each of the groups. Self-reported ethnicity was defined as native Swedish and Assyrian/Syrian immigrants with both first and second generation of immigrants. Registration by ethnicity is absent in the official Swedish statistics, while immigrants are identified according to country of birth, parents' country of birth and citizenship. Because of that reason, the identification of potential participants by ethnicity took place in two stages. To begin with, the first author and personnel from the primary health care centers in Sodertalje examined the list of patients with diabetes from each of the four participating primary health care centers. Using participants' surnames and the health care center personnel's personal knowledge of patients, the first author and the health care center personnel identified persons they believed to be ethnic Assyrians/Syrians or Swedes. The first author then developed a sex- and age-matched list of prospective Assyrian/Syrian and Swedish responders. Health care center personnel contacted prospective responders by phone and invited them to fill out the questionnaire at the primary health care center. One of the questions on the questionnaire was about ethnicity. Those two persons who identified themselves as neither Assyrian/Syrian nor Swedish were excluded from the study. Educational level was divided into three groups according to duration of school

education: (1) low (<9 years), (2) intermediate (9-11 years) and (3) high (>11 years).

Type of treatment was classified as pharmacological treatment drugs and insulin separate and together and nutrition/food treatment.

Number of visits at the PHC a years was categorized into three groups: (1) ≤ 4 times, (2) 5 – 8 times and (3) > 8 times.

Age of onset of diabetes included also three groups: (1) 30-49 years, (2) 50-60 and (3) > 60 .

Outcome variable

Knowledge on own disease consists of four information questions: first question was regarding if participants knew own HbA1c value, second question was if the patients get the information on physical activity from Primary health Care Centers providers or others, third question explore getting information on nutrition and finally, fourth question – if participants knew about damages of alcohol consumption or not. Each of them had two response alternatives: “yes” or “no”. Negative reporting from two or less questions was considered to be low level of knowledge on diabetes disease. The reason for this cut-off was based on the median of reporting answers.

Statistical analysis

We estimated the differences between both ethnic groups in the socio-demographic characteristics and outcome variable by Pearson's χ^2 -test and t-test. Stata version 9 [12] was the statistical software program. Unconditional logistic regression was used to analyse the association between low knowledge level, ethnicity and all other explanatory variables. The results are shown as the

Odds Ratios (ORs) and 95% Confidence Intervals (95% CI). All explanatory variables age, sex, ethnicity, educational level, type of treatment, number of visits at the PHC a year and age of onset of diabetes were stepwise introduced in the models. The fit of the models was assessed by the Hosmer-Lemeshow goodness-of-fit test. The final models in logistic regression analyses were considered acceptable if $p > 0.05$, and all models met this demand [13].

Ethical considerations

The study was approved by the regional ethical committee of Karolinska Institutet (reference number 2006/4:8, 2006-09-27).

Results

The questionnaire/interview was completed by 354 participants. Of these people, 86% ($n=304$) responded to the questions about knowledge on own disease. The response rate of total study population was 97% ($n=167$ of 173) among the Assyrians/Syrians and 76% among the Swedes ($n=137$ of 181). There were statistically significant differences between the ethnic groups with regard to a number of explanatory variables (Table 1). In comparison to the Swedes, the Assyrians/Syrians were younger, had lower educational level and were more often married/cohabiting. The total prevalence of low knowledge on own disease in both ethnic groups was 38% (not shown in table). As shown in Table 2, significantly higher number of Assyrians/Syrians - reported low knowledge than the Swedes, a total of 53.3% compared to 19.7%. Furthermore, significant ethnic differences were observed in all explanatory variables sex, age,

educational and marital status and finally, in type of treatment (Tables 3, 4, 5 and 6). Non-significance was noted in Assyrian-Syrian and Swedish-born subjects with middle education.

Table 7 shows the association between ethnicity and low knowledge on own disease in six models: Model 1, adjusted for age and sex, and Model 2, adjusted for age, biological sex and educational status, Model 3, adjusted for the same variables and in addition for marital status and finally, Model 4 with addition of type of treatment, Model 5 introduced number of visits at the PHC a year and finally, Model 6 with taking of all explanatory variables such as age, sex, educational and marital status, type of treatment, number of visits at the PHC a year and age of onset of diabetes into account. With regard to outcome variable there were statistically significant differences between Assyrians/Syrians and Swedes in all Models.

The ORs for low knowledge in those on dietary treatment only was significantly higher ($OR=1.90$ 95% CI 1.02–3.50) than for those with pharmacological treatment. Furthermore, regardless ethnicity, subjects with onset of diabetes later in life when aged more than 60 had significantly lower risk of having low knowledge on diabetes than reference group. The ethnic differences in odds ratios for low knowledge on own disease slightly increased from 4.70 (95% CI 2.80-8.00) in age and sex adjusted model to 7.44 (95% CI 3.00-10.00) in final model, and these differences remained statistically significant.

Discussion

The main finding of this study is that the reported knowledge on own disease was significantly lower

among Assyrian/Syrians, even when adjusting for confounding factors. In addition, the type of treatment was significantly and independently associated with the outcome variable.

Knowledge on own diabetes disease is very important part of treatment of diabetes type 2 and avoiding of diabetes complications. There are differences in knowledge and management of diabetes between native population and migrant groups [9]. Some of these differences are explained by cultural and religious beliefs on health and some of them by education levels of patients. Assyrian-Syrians are groups with strong religious and ethnic identity and thus differ from Swedish-born patients. During interview occasions by authors of the present study stated many of Assyrian-Syrian-born patients that “everyone has diabetes” and “it is Gods wish”. Such perception of disease may lead to powerlessness of individuals and severe cases of complications and needs regular and well-planned education in diabetes disease. Available information and education in self-care are additional important parts of diabetes care at primary health care centers. Several studies showed that for improvement of diabetes cares are subgroup-specific interventions better than a global approach [14]. A patient-centered, group-based self-management programme improved knowledge of diabetes, self-management and treatment satisfaction in 149 participants attended the programme in 14 months compared to control

group (n=157) in randomized English study [15]. To live with diabetes is certainly a challenge and individuals by themselves need to have knowledge on own disease and to have control over it. This may be encouraged by providers and relatives. Diabetes disease have no severe symptoms in real time but can have negative consequences later on. Thus it is not easy to get patients to believe that these issues are of great importance. Patients must ultimately accept [16] or integrate [17] the changes associated with diabetes and its intensive management for better health development. Providers can motivate patients by for example, diabetes groups networks in which participants share their experiences of management. Available information and continuous contact with provides are helpful in the procedure of changes in individual’s lives.

To learn intensive self-management of diabetes request permanent changes in personal preferences, health habits, identities, and lifestyle. It influences perceptions of self as well as relationships with significant others. Self-management in itself implicates a structure which requests detail attention and planning that might be burdensome and troublesome [18, 19]. This structure includes daily attention and management and needs good relationship between provider and patients particularly in the beginning of the diabetes care when diagnosis is confirmed [20].

Table 1. Distribution (%) of background and outcome variables in Assyrian/Syrian-born and Swedish-born subjects with type 2 diabetes, n=354

Sociodemographic Variables	Assyrian/Syrian-born n= 167	Swedish-born n = 137	Test of difference P- value
Total	55.0	45.0	
Gender			
Female	48.0	47.5	0.936
Male	52.0	52.5	
Age (years)			
32-59	46.7	30.6	0.017
60-69	27.5	35.0	
≥ 70	25.8	34.4	
Educational status			
Low < 9 years	75.0	52.5	<0.0001
Intermediate 9-11 years	4.0	24.1	
High > 11 years	21.0	23.4	
Marital status			
Married/cohabiting	79.0	64.2	0.004*
Single	21.0	35.8	
Type of treatment			
Dietary	21.6	19.7	0.692
Pharmacological	78.4	80.3	
Number of visits at PHC(per year)			
≤ 4 times	44.6	59.3	0.009
5 – 8 times	31.1	27.7	
> 8 times	24.3	13.0	
Age of onset of diabetes			
30 – 49	34.9	26.5	0.102
50 – 60	40.1	39.2	
> 60	25.0	34.3	

* Bold-faced numbers are statistically significant and corrected for multiple statistical testing (≤ 0.007).

Table 2. Distribution (%) of outcome variable consisting of four items by ethnicity, n=354

	Assyrians/Syrians n=173	Swedes n=181	P value
Information on:			
Own HbA1c value	97.1	97.2	0.964
Physical activity	30.1	46.4	0.002
Alcohol damage	33.1	71.4	<0.0001
Food	87.9	92.8	0.118
Low knowledge on diabetes	53.2	17.8	<0.0001

* Bold-faced numbers are statistically significant and corrected for multiple statistical testing (≤ 0.01)

Table 3. Distribution (%) of outcome variable consisting of four items by ethnicity and sex, n=354

	Women			Men		
	Assyrian/ Syriann=80	Swedes n=101	P value	Assyrian/Syrian n=83	Swedes n=80	P value
Information on:						
OwnHbA1c value	99.0	96.0	0.210	95.2	98.8	0.186
Physical activity	32.6	48.5	0.026	28.0	43.8	0.032
Alcohol damage	35.0	70.0	<0.0001	32.0	73.4	<0.0001
Food	89.0	93.0	0.310	86.8	93.0	0.230
Low knowledge on diabetes	50.6	16.8	<0.0001	56.0	19.0	<0.0001

* Bold-faced numbers are statistically significant and corrected for multiple statistical testing (≤ 0.01)

Table 4. Prevalence (%) of high knowledge on own disease by the explanatory variables and ethnicity (n=304).

Variable		Ethnicity	
	Assyrian/Syrian-born (n= 167)	Swedish-born (n= 137)	Test of difference
Total	47.0	82.2	<0.0001
Sex			
Women	44.0	81.0	<0.0001
Men	49.4	83.2	<0.0001
Age (years)			
32–59	42.5	88.0	<0.0001
60–69	55.3	83.0	0.002*
≥ 70	45.5	75.9	0.002
Education			
Low	43.3	83.3	<0.0001
Middle	50.0	70.3	0.270
High	58.3	88.7	0.001
Marital status			
Married/cohabiting	47.4	85.4	<0.0001
Single	44.4	78.0	0.001
Type of treatment			
Dietary	36.1	70.4	0.007
Pharmacological	49.6	82.1	<0.0001
Number of visits at the PHC (per year)			
≤4 times	41.5	83.3	<0.0001
5 – 8 times	46.7	81.3	<0.0001
> 8 times	47.2	81.0	0.012
Age of onset of diabetes			
30-49	45.0	87.2	<0.0001
50-60	55.1	87.0	<0.0001
>60	35.7	72.4	<0.0001

Table 5. Knowledge on disease consists of four questions: information on HbA1c level, information on physical activity, info on alcohol consumptions damage and info on food. By ethnicity:

	Assyrian-born	Swedish-born	Test of differences
0	0.58	0.57	<0.001
1	5.26	4.02	
2	47.37	13.22	
3	38.01	49.43	
4	8.77	32.76	

Divided to two groups: ≤ 2 and > 2

Table 6. Knowledge on disease consists of four questions: information on HbA1c level, information on physical activity, info on alcohol consumptions damage and info on food.

	Assyrian/Syrian	Swedish		Assyrian/Syrian	Swedish	
Information	Women N=89 (51.7)	Women N= 101 (55.8)	Pr value	Male N=89 (48.3)	Male N=80 (44.2)	Pr Value
Own HbA1c level	95.2	98.8	0.186	98.9	95.9	0.210
Physical activity	27.7	43.8	0.032	32.6	48.5	0.026
Damage of alcohol	31.7	73.4	<0.0001	34.8	69.7	<0.0001
Food	86.8	92.5	0.230	88.8	93.0	0.103

Table 7. The odds ratios (ORs) with 95% confidence intervals (CI 95%) for low knowledge on own diabetes disease, age and gender adjusted (M 1) and stepwise adjustment for all explanatory variables (M 2 – M 5) in Assyrians/Syrians subjects and Swedish-born as the reference group after adjusting for explanatory variables.

Variable	M 1 (age+sex)	M2(+education)	M3(+treatment)	M4(+visits)	M5(+onset)
	1	1	1	1	1
Swedish-born	4.70	5.15	5.20	6.20	7.44
Assyrian/Syrian-born	2.80-8.00	2.90-9.20	3.00-9.30	3.30-11.54	3.83-14.50
Sex	1	1	1	1	1
Men	1.30	1.25	0.84	0.95	0.93
Women	0.80-2.10	0.80-2.10	0.51-1.50	0.55-1.65	0.53-1.62
Age groups (years)	1	1	1	1	1
32-59	0.72 0.40-1.33	0.80 0.41-1.40	1.40 0.75-2.60	1.30 0.70-2.52	1.60 0.74-3.33
60-69	1.20	1.20	0.90	0.80	1.55
≥ 70	0.65-2.15	0.64-2.22	0.50-1.61	0.40-1.50	0.61-4.00
Educational status		1	1	1	1
Low		1.50	0.70	0.64	0.60
Middle		0.64-3.44	0.30-1.54	0.30-1.60	0.23-1.42
High		0.70 (0.40-1.34)	1.45 0.80-2.80	1.70 0.84-3.40	1.65 0.81-3.35
Type of treatment			1	1	1
Pharmacological			1.90	2.40	1.94
Diet only			1.02-3.51	1.22-4.60	1.00-3.83
Number of visits at the PHC				1	1
≤4 times				1.20 0.63-2.20	1.16 0.61-2.20
5 – 8 times				0.91	0.90
> 8 times				0.44-1.91	0.41-1.90
Age of onset of diabetes					1

30-49					1.20
50-60					0.60-2.40
>60					0.34 0.12-0.93

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