The pattern of contact with general practice and casualty departments of immigrants and non-immigrants in Copenhagen, Denmark

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ABSTRACT

In the past 30 years Denmark has experienced immigration from non-Western countries, but little is known about immigrants' use of health care. The purpose of this study was to compare and quantify the contact patterns with general practice and casualty departments of immigrants of non-Western origin and non-immigrants in Copenhagen City, Denmark.

Descriptive register-based study including 2,041,454 daytime contacts in general practice, 202,179 out-of-hours services and 112,733 attendances to casualty departments by 423,201 inhabitants living in Copenhagen throughout 1998. The data was analyzed using Poisson regression models.

Immigrants and non-immigrants showed in broad outline the same sex and age-related pattern of contact except for ages above 60 years, where the pattern was more inconclusive. Children of immigrants aged 1-18 years had lower contact rates than non-immigrants during the daytime and in the out-of-hours services/casualty departments. Most immigrant groups aged 19-59 years made greater use of both daytime and out-of-hours services/casualty departments, especially males from Lebanon and the stateless, than non-immigrants, but the level of contact rates varied according to country of origin. The share of telephone consultations in the daytime and the out-of-hours service was much lower for immigrants than for non-immigrants.

Marked differences between immigrants and non-immigrants' use of health care services were related to age and country of origin. More research is needed to explain these findings.

The number of immigrants in Denmark and many other Western countries is growing. In Copenhagen 11% of the population were of foreign origin in 1998 including more than 100 countries of origin. Immigrants` use of the Danish health care system can be shaped by their prior experience with the health care system in their country of origin and by problems of communication with health care professionals in Denmark rooted in language and socio-cultural barriers [1, 2]. This growing heterogeneity among Danish health care users represents a challenge to health care professionals and to the health care system per se. Moreover, some immigrant populations have a different morbidity [3] and a different reaction to disease [4].

In Denmark health care services in general practice and casualty departments are free of charge for all inhabitants, including immigrants. More than 90% of the contacts with general practice take place during the daytime, between 8 a.m. and 4 p.m. on weekdays, and the rest during out-of-hours service, which is reserved for acute cases. Casualty departments at hospitals are open all around the clock for acute conditions, mainly of traumatic origin, but many other cases are also treated here. A small Danish study showed that immigrants have an equivalent or higher use of daytime services than non-immigrants [5]. Other studies have not been unequivocal [6-8] and health care utilisation differed according to country of origin. In previous Scandinavian studies [5, 6, 9], immigrants were reported to have a high use of acute services (out-of-hours service/casualty departments). An English study [10] showed the opposite results.

The purpose of this study was to compare and quantify the pattern of contact with general practice and casualty departments of selected non-Western immigrants and non-immigrants in Copenhagen.

MATERIAL AND METHODS

The material includes all contacts with general practice and casualty departments during 1 January to 31 December 1998 made by 423,201 people with a permanent address in Copenhagen throughout the year. Immigrants were defined as persons with longer than three months' residence permit and foreign citizenship. This study focuses on immigrants with origin in one of nine countries which in Denmark are predominantly representative of two types of immigration: 1) Refugees and their offspring, 2) job-seekers who arrived in the late 1960s and their offspring. The category "immigrants, other" representing persons from a variety of about 90 foreign countries, was excluded (Table 1).

Refugees are given residence permit according to a need for asylum. Their social background will vary according to their country of origin, level of education etc. The residence permit for the groups of job-seekers in the late 1960s was determined by a lack of manpower in Denmark and social deprivation in the country of origin. Many of the job-seekers were farmers with a relatively low education, if any at

Table 1. Number of persons living in Copenhagen from the 1st of January to the 31st of December 1998 according to country of origin.

Category	Country of origin	Men	Women	Number of persons
Non-immigrants	Denmark	191,006	208,063	399,069
Mainly refugees and and their offspring	"Ex-Yugoslavia"[1]	973	894	1867
	Somalia	1019	856	1875
	Palestine[2]	1119	1160	2279
	Iran and Iraq	2074	1514	3588
Mainly job-seeking immigrants arriving late in the 1960's and their offspring	Ex-Yugoslavia[3]	1972	1786	3758
	Turkey	2922	2673	5595
	Pakistan	1556	1718	3274
	Morocco	964	932	1896
Immigrants, others		12,817	11,554	24,371

1) Macedonia, Bosnia, Croatia, Serbia, Slovenia and Montenegro
2) Lebanon and stateless
3) Former republic of Yugoslavia "Early immigrants".

Table 2. Number of persons by age groups and country of origin.

Country of origin	1-18 years	19-59 years	60 + years
Men			
Denmark	29,392	131,647	29,967
Ex-Yugoslavia refugees	254	666	53
Ex-Yugoslavia, early immigrants	578	1210	184
Iran+Iraq	566	1432	76
Morocco	303	618	43
Pakistan	464	1015	77
Palestine	444	632	43
Somalia	433	577	9
Turkey	1048	1741	133
Women			
Denmark	27,909	127,290	52,864
Ex-Yugoslavia refugees	211	619	64
Ex-Yugoslavia, early immigrants	542	1072	172
Iran+Iraq	506	917	91
Morocco	288	607	37
Pakistan	477	1179	62
Palestine	419	695	46
Somalia	350	486	20
Turkey	1020	1572	81

all. The two categories in our study: refugees and job-seekers, included their spouses coming from the country of origin in the residence permit according to the rules of "family reunification", and their children below 40 years. Table 2 presents the included number of persons by age group and country of origin.

A total of 2,041,454 daytime services provided by general practice (60.2% consultations in clinic, 1.9% home visits and 38.0% telephone consultations) and 202,179 out-of-hours services (21.3% consultations in clinic, 30.3% home visits and 48.4% telephone consultations) registered in the Health Insurance Register were linked with information about citizenship and place of birth obtained from the Statistical Office in Copenhagen. The 112,733 attendances at hospital casualty departments were processed in the same way. The results present contacts in the out-of-hours services and casualty departments collectively.

The data were analyzed using the Poisson regression model and contact rates were described by the multiplicative models using the factors age and country of origin. We made separate analysis for each gender according to life phase: childhood and youth (1-18 years), adulthood (19-59 years). Elderly persons (≥60 years) were only described not analysed because of a risk of age confounding. The life phases were divided into shorter age spans and each age group was defined by gender and country of origin. We assumed the number of contacts according to be Poisson distributed and used the logarithm of the number of person years as an offset (weight) variable. The estimated parameters can be interpreted as relative risks for country of origin relative to the non-immigrants.

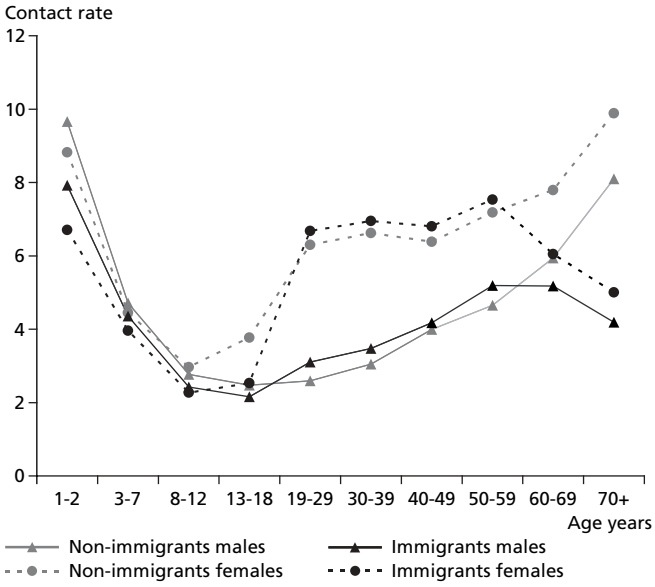

Figure 1. Contact rates for all services in Copenhagen in 1998 for immigrants and non-immigrants by age and gender.

RESULTS

The immigrants showed the same age and sex-related variation in contact rates as non-immigrants except for older people where the curve declined for immigrants and increased for non-immigrants (Figure 1). However, the level of contact rates in the two populations differed with age.

AGE 1-18 YEARS

All immigrant groups showed significantly lower total contact rates than non-immigrants for boys as well as girls (Table 3). The relative risk varied between 0.78 (95% CI 0.73-0.78) (Moroccan boys) and 0.92 (95% CI 0.88-0.96) (Somali boys) relative to non-immigrant boys. In an analysis with interactions between age and country of origin (not shown in the table) small Moroccan children (1-2 years) and teenage girls had contact rates down to 0.52 (95% CI 0.46-0.59) and 0.49 (95% CI 0.43-0.49), respectively, compared with non-immigrants. With a few exceptions, both rates of daytime consultations and contacts with the acute services (out-of-hours service/casualty departments) were significantly lower for immigrants than for non-immigrants.

AGE 19-59 YEARS

As seen in Table 4, most immigrant groups showed higher service consumption, especially persons from Palestine, Pakistan and Iran/Iraq. Palestinian men's contact rates were 50% higher than the rates for non-immigrants. The difference was most pronounced for the acute services, where immigrant groups had considerably higher rates. In a more detailed analysis not shown in the table, the relative risk (RR) for Palestinian men aged 19-29 was 2.27 (95% CI 2.07-2.72) in the acute services. Refugees from former Ex-Yugoslavia were an exception to the described pattern with lower or the same rates as non-immigrant men.

CONSULTATION TYPE

There were considerable differences in the type of consultations used by non-immigrants and immigrants. Telephone consultations accounted for 39% of all contacts for non-immigrants and 14-22%

Table 3. Relative risk (RR) for contacts with the health care system for different immigrant groups. Age group 1-18 years. (standardized for age in smaller age groups 1-2, 3-7 and 13-18).

	All services		Daytime GP		Out-of-hours service/ casualty departments	
Country of origin	RR	95%CI	RR	95%CI	RR	95%CI
Boys						
Denmark	1		1		1	
Ex-Yugoslavia refugees	0.82	0.77-0.88	0.88	0.82-0.95	0.69	0.61-0.79
Ex-Yugoslavia early immigrants	0.85	0.81-0.89	0.79	0.75-0.83	0.98	0.91-1.05
Iran+Iraq	0.91	0.87-0.94	0.94	0.89-0.98	0.84	0.78-0.90
Morocco	0.78	0.73-0.83	0.80	0.74-0.86	0.74	0.66-0.83
Pakistan	0.88	0.84-0.93	0.94	0.89-0.99	0.77	0.70-0.84
Palestine	0.88	0.84-0.92	0.85	0.81-0.90	0.95	0.88-1.02
Somalia	0.92	0.88-0.96	1.01	0.96-1.06	0.75	0.69-0.81
Turkey	0.87	0.84-0.90	0.87	0.83-0.90	0.88	0.83-0.93
Girls						
Denmark	1		1		1	
Ex-Yugoslavia refugees	0.68	0.62-0.73	0.66	0.60-0.73	0.71	0.61-0.82
Ex-Yugoslavia early immigrants	0.81	0.78-0.85	0.78	0.74-0.83	0.89	0.82-0.96
Iran+Iraq	0.81	0.77-0.84	0.81	0.77-0.85	0.81	0.75-0.88
Morocco	0.64	0.60-0.68	0.65	0.61-0.70	0.60	0.53- .68
Pakistan	0.83	0.79-0.87	0.87	0.82-0.91	0.72	0.66-0.80
Palestine	0.70	0.66-0.73	0.69	0.65-0.74	0.71	0.64-0.78
Somalia	0.89	0.85-0.94	0.92	0.87-0.97	0.83	0.76-0.91
Turkey	0.81	0.78-0.83	0.79	0.76-0.82	0.85	0.80-0.91

Table 4. Relative risk (RR) for contacts with the health care system for different immigrant groups. Age group 19-59 years (standardized for age in smaller age groups 19-29, 30-39, 40-49 and 50-59).

	All services		Daytime GP		Out-of-hours service/ casualty departments	
Country of origin	RR	95%CI	RR	95%CI	RR	95%CI
Men						
Denmark	1		1		1	
Ex-Yugoslavia refugees	1.00	0.96-1.05	1.02	0.98-1.07	0.90	0.80-1.00
Ex-Yugoslavia, early immigrants	1.07	1.04-1.10	1.03	1.00-1.07	1.28	1.20-1.38
Iran+Iraq	1.21	1.18-1.24	1.18	1.15-1.22	1.33	1.25-1.41
Morocco	0.99	0.95-1.03	0.94	0.90-0.99	1.22	1.11-1.35
Pakistan	1.19	1.15-1.23	1.16	1.12-1.20	1.35	1.25-1.45
Palestine	1.50	1.45-1.56	1.43	1.38-1.49	1.86	1.72-2.01
Somalia	1.07	1.02-1.12	1.03	0.98-1.09	1.25	1.13-1.38
Turkey	1.07	1.05-1.10	1.03	1.00-1.06	1.30	1.22-1.38
Women						
Denmark	1		1		1	
Ex-Yugoslavia refugees	0.73	0.71-0.76	0.72	0.69-0.75	0.86	0.78-0.95
Ex-Yugoslavia, early immigrants	0.93	0.91-0.96	0.88	0.86-0.91	1.34	1.26-1.42
Iran+Iraq	1.14	1.11-1.17	1.12	1.09-1.15	1.25	1.17-1.33
Morocco	1.03	0.99-1.06	1.02	0.98-1.05	1.10	1.01-1.20
Pakistan	1.17	1.14-1.19	1.14	1.12-1.17	1.36	1.28-1.44
Palestine	1.15	1.12-1.18	1.14	1.11-1.17	1.25	1.16-1.35
Somalia	1.10	1.06-1.14	1.06	1.03-1.10	1.35	1.24-1.47
Turkey	1.09	1.07-1.11	1.05	1.03-1.07	1.45	1.38-1.52

($p<0.001$, for homogeneity) for immigrants during the daytime and for 50% of all contacts by non-immigrants and 23-36% ($p<0.001$, homogeneity) for immigrants during out-of-hours. The lowest rates were observed for Somalis.

DISCUSSION

Health care research involving immigrants faces methodological problems because immigrant status is a complex epidemiological variable consisting of social, cultural and health factors [11-13] on which knowledge is scarce. The special social, cultural and morbidity patterns associated with immigrant status may be perceived as confounders. Attempts to control for these confounders to estimate the effect of a postulated core concept of "ethnicity" has been carried out with little success for different reasons. Ethnicity is a subjective defined concept (experience based) and relevant variables are not available as for instance language qualifications, level of education in the home country etc. [14]. Concerning health factors for immigrants the evidence-based knowledge in Denmark is scarce. Our aim has therefore not been to perform an analysis taking account possible confounders, but to describe the actual use of the health care system by different immigrant subpopulations defined by their country of origin as a basis for further analytical studies. Over the years a special public interest concerning conditions for refugees and early job-seekers from the 1960's from non-Western countries has been seen. In this study we therefore focus on these two types of immigrants. It is meaningful in a Danish context because the immigration from the included countries is known to be dominated by either refugees or job-seekers. Persons in these two categories often get married with a person from their country of origin. We also classify the "family reunificated" persons as refugees and job-seekers as they are influenced by the same structural/social and traditions/cultural factors as their spouses.

Contacts as registered in the Health Insurance Register are shown to give reliable data useful for research purposes [15]. The large number of observations implies good statistical strength as seen by the narrow 95%-confidence intervals.

Immigrants and non-immigrants showed the same age and gender-related variations in health care utilization, as also observed previously [16]. Nonetheless, distinct differences between immigrants and non-immigrants were observed. Children in immigrant families had lower contact rates with general practice in daytime and out-of-hours than non-immigrant children. A Danish study reported a lower morbidity in children of immigrants than in non-immigrants [17] including children of "refugee" origin as well ass "job-seeker" origin, which may explain this discrepancy, but socio-cultural barriers could also be involved and should be considered in future studies. Male refugees often suffer from post-traumatic stress conditions leading to various psychiatric and somatic symptoms, which are especially seen among men from the Middle East [18]. The high rate of contact with general practice for both men and women from Palestine and the especially high contact rate to the acute services for men from Palestine may point to special need for care for refugees as well as their relatives. The markedly decrease in contact rates for older immigrants is probably due to simple age-confounding. Use of the health care system increases steeply with age, and the last age group in this study may be too wide to accurately reflect differences in age distribution between immigrants and non-immigrants, particularly in the light of other observations of high self-reported morbidity among older immigrants [19, 20]. This observation may be rooted in alienation with the system and language problems. It is known from daily practice, though, that some older immigrants visit their countries of origin for long periods, which could also play a part. More analytical research is needed to answer these questions.

The relatively lower rate of telephone consultations among immigrants probably reflects language difficulties and socio-cultural barriers. Immigrants are not used to this form of consultation, which is comparatively frequently used in the Danish setting, and negative attitudes have been reported [2]. In many instances a translator is needed [1] when immigrants require health care services, in which case a meeting in the general practitioner's surgery is required. The adult immigrants have a high contact rate with the out-of-hours service and casualty departments, but extant literature provides little explanation for this. The accessibility of the acute services without prior arranged consultation can attract immigrants not fully informed and aware about the use of acute health care services in Denmark. The out-of-hours service and casualty departments do not provide optimal conditions for handling non-acute cases and communication problems. As many contacts as possible should therefore be treated during the daytime in general practice where previous knowledge of the patient and translators are available.

It is an open question to which extent the present results may apply to other countries. The Danish health care system offers free and unreferred primary health care services (including the casualty departments) and therefore may not easily be compared with health care systems with fee-for-service and other referral systems to the acute services. As mentioned above, the immigrants' background, morbidity and social status in Denmark are important factors and should be taken into account in addition to individual and interac-

tive factors when interpreting the results [11]. If equity is a goal in health care, we should seek more knowledge of the special needs of immigrants to evaluate whether their actual use of the services is adequate. The results of our descriptive study especially indicate possible problems for refugee men and the use of acute services by adult immigrants.

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