



Does socioeconomic disadvantage explain why immigrants in Sweden refrain from seeking the needed medical treatment?

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Abstract

Background: For the last 20 years, Sweden has changed from a homogeneous to multicultural society with about 20% of immigrants born in other countries. The existing Swedish studies have not shown coherent results on how access to health care services varies by ethnicity. The aim of this paper was to analyze the association between country of birth and refraining from seeking medical treatment and whether socioeconomic disadvantage modifies this association.

Methods: Cross-sectional Swedish National Survey of Public Health 2004. A population-based sample comprising of 14,732 men (1,382 immigrants) and 17,115 women (1,717 immigrants) aged 21 to 84 years. Country of birth was categorised as being born in Sweden, other OECD countries or other countries (non-OECD). The main outcome was the self-reporting of refraining from seeking medical treatment during the past three months. Data was collected within a three-month period during the spring of 2004 and was based on a postal self-administered questionnaire linked to registry data from Statistics Sweden. The non-response rate was 37%.

Main results: In spite of the fact that immigrants reported poorer health status, they were more likely to refrain from seeking medical treatment as compared to Swedish-born residents (odds for immigrants from other OECD countries were ORmen = 2.2, 95% CI 1.8-2.6 and ORwomen = 1.8, 95% CI 1.5-2.1 and for immigrants from other countries (ORmen = 3.1, 95% CI 2.4-3.4 and ORwomen = 2.3, 95% CI 1.8-2.9). Socioeconomic disadvantage (SDI) did not explain why immigrants from other OECD countries had increased odds for refraining from seeking medical treatment. However SDI explained about 20% of the increased odds for refraining from seeking medical treatment among immigrants from other (non-OECD) countries.

Conclusions: Socioeconomic disadvantage does not fully explain why immigrants refrain from seeking medical treatment. Public health strategies towards the goal "care on equal terms" cannot be achieved without addressing wider socioeconomic determinants including interactions between class and ethnicity.

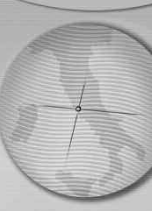
Keywords: immigrants, socioeconomic disadvantage, medical treatment, health care services

Introduction

Access to health care services when needed not only determines health status but also determines survival and longevity after episodes of illnesses. Therefore, equity in access to health care is a fundamental human right which should be strived for in societies. Sweden's public health policy is based on the principle of societal conditions for equity in health and "care on equal terms" [1]. In addition, Sweden has a publicly financed universal health insurance and legislation was passed for more than 20 years ago to provide care for all citizens on equal terms [2] rather than factors such as socioeconomic status (SES), gender or country of birth. Thus equity in access to health care services is a central objective of the Swedish health care

system. Additionally Sweden is a welfare state with a general welfare policy that guarantees financial security and social rights to all citizens [3]. The financial security and social rights are guaranteed also to migrants with residence permission to stay in Sweden. User's fees are paid by all residents aged 20 years and above, however those with financial limitations may in some cases get financial assistance from social welfare.

For the last 20 years, Sweden has changed from a homogeneous to multicultural society with about 20% of immigrants being born in other countries (Statistics Sweden). Swedish studies have shown contradicting results on access to health care services among immigrants as compared to indigenous Swedes [4-7]. Studies in the UK and



Netherlands have shown over-utilisation of primary care services among immigrants and ethnic minorities [8-10], but an underutilisation of outpatient services and care for complicated diagnoses and life threatening health problems [11]. The large variation on indicators of health care utilisation in different studies may explain some of the discrepancies in results. These indicators include; contact with any professional health care service [8, 9], consultation with a physician during the past 3 months [6], access to a regular doctor [7], access to primary health care centre [5] and visits to emergency care unit [12].

To the best of our knowledge we are not aware of any study where ethnic differences in relation to refraining seeking the needed medical treatment have been investigated. Additionally, in spite of a vast literature to support socioeconomic differentials in access to health care services, studies on the association between ethnicity and access to health care services have given little attention to the contribution of socioeconomic disadvantage to these associations.

In the present study we assessed whether the likelihood of refraining from seeking the needed medical treatment varied by country of birth. We have previously demonstrated that individuals who experience socioeconomic disadvantage in Sweden are more likely to refrain from seeking dental treatment [14] and medical treatment [15]. We therefore hypothesised that socioeconomic disadvantage may modify a possible association between country of birth and refraining from seeking the needed medical treatment.

Methods

Study population

Data from the Swedish National Surveys of Public Health 2004 was used for analyses. This survey was carried out by Statistics Sweden in collaboration with a number of health care regions and districts in Sweden and with coordination of the Swedish National Institute of Public Health. The total study population comprised a randomly selected sample from population registers using a personal identifier which is given to every resident (including immigrants with residential permit) in Sweden of 33,328 individuals (15,406 men and 17,922 women) aged 16-84 years. The data analyses in this study were restricted to individuals 21 years or older. This is because users' fees for health care services in Sweden are waived for children and younger people up to 20 years of age. In total we investigated 14,732 men (1,382 immigrants) and 17,115 women (1,717 immigrants).

Collection of data

Data was collected within a three-month period during spring 2004 and was based on a postal self-administered questionnaire linked to registry data from Statistics Sweden. The response rate was 63%. Among those who did not respond; 1.9% of the questionnaires were returned due to wrong address or protected address, 0.7% could not participate due to various reasons, 1.1% declined, 0.6% sent empty (uncompleted) questionnaires, 0.5% of the questionnaires were completed by a wrong person and the rest did not respond at all.

The questionnaires were scanned and a data set was established. Data from the completed questionnaire were further controlled for errors and inconsistencies using a well established method developed by the Statistics Sweden and tested against the official registry data [15]. Partially missing data in the questionnaire was reduced by imputing average numbers based on related answers from other completed questions and by the use of weighting based on calibration method developed by Statistics Sweden. Respondents were informed about data linkage with the registry data. The present study was approved by the Department of Data Inspection, the Research Ethical Committee at the Swedish National Board of Health and Welfare (20031208) and the Ethical Committee at Karolinska Institutet (DNR 2005/1146-31). The committees have conformed to the principles embodied in the Helsinki Declaration.

Main outcome

Refraining from seeking medical treatment was based on the question; "Have you during the past three months considered yourself to be in need of medical treatment but refrained from seeking it?" Alternative answers were "yes" or "no".

Main determinant

Country of birth was categorised as being born in

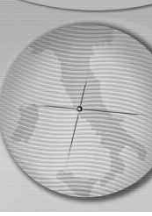
- Sweden,
- other OECD countries (other Nordic countries, Europe or North America), and
- other countries (Asia, Africa, Pacific oceanic countries, or Latin America).

Four individuals did not indicate country of birth and these were excluded from the analyses. Thus analyses in the present paper are based on first generation immigrants in Sweden.

Covariates

Background factors included age, living alone and educational level.

Living alone was based on family



characteristics of being a lone adult in a household with or without children.

Low education was based on the highest reported current educational level being less than high school education (up to 9 years of schooling).

Health status was assessed based on self-reported health and existence of long-term illness as a way of evaluating needed care based on need (health status). *Self-reported health* was dichotomised as poor (if the respondents rated their general health status to be poor or very poor) or good (if the respondents rated their general health status to be very good, good or somewhat good). *Long-term illness* was based on whether the respondent suffered from any long-term illnesses, after effects from accidents or other ailments.

Socioeconomic disadvantage (SDI)

We developed a Socioeconomic Disadvantage Index (SDI) that combined several indicators of economic deprivation in order to broadly describe the individual's underlying socioeconomic conditions [13]. SDI was based on four variables; (i) being on social welfare at the time of the survey, (ii) being currently unemployed, (iii) having a financial crisis (difficulties to pay for ordinary bills such as food or house rent for the past 12 months) or (iv) lacking cash reserves (difficulty to access 14,000 SEK (about 1,800 USD) within a week if needed). All of the four binary indicators were summed up resulting in a range from zero to four points. SDI was categorised as "none" (if the sum was equal to zero), "mild" (if the sum was one) and "severe" (if the sum was between two and four).

Table 1. Distributions of study variables by country of birth among men

	Sweden (n = 13350)	Other OECD countries (n = 996)	Other countries (n = 386)
Refraining from seeking medical treatment	12%* (1553)	22% (216)	32% (123)
Socioeconomic disadvantage			
None	76% (9925)	66% (648)	36% (135)
Mild	15% (2019)	17% (169)	26% (97)
Severe	9% (1225)	17% (161)	39% (145)
Background factors			
Low education	54% (6486)	54% (465)	45% (165)
Living alone	27% (3590)	27% (269)	39% (149)
Health status			
Long-term illness	41% (5347)	46% (446)	36% (136)
Poor self-rated health	6% (765)		11% (108)
15% (54)			
Age (mean and standard deviation)	51.7 (16.8)	53.7 (15.3)	42.4 (12.9)
* % is referred to properly respondents for any specific item			

Statistical methods

Multilevel regression analysis

Analyses were performed using STATA version 9 [16]. We conducted multiple logistic regression analyses to estimate the association between country of birth and refraining from seeking medical treatment. In the first model we adjusted for age. In the second model, we adjusted for background factors and health status. In the third model we further adjusted for socioeconomic disadvantage. Using the odds ratio obtained in first model as reference ($OR_{reference}$) we calculated the percentage of change in the magnitude of the OR from the first model (PCOR) that was explained by including socioeconomic disadvantage in the model with more variables (OR_{more}).

$$PCOR = [(OR_{reference} - OR_{more}) / (OR_{reference} - 1)] \times 100$$

This method of calculating explanatory value of mediating effects of excess risk (odds) has been previously used in other studies [13, 17-18]. We used this percentage as an indicator of the magnitude of a possible mediating effect of socioeconomic disadvantage for the increased for refraining from seeking medical treatment among immigrants. In the logistic regression we used the regression coefficients (standard errors) to obtain OR (95% confidence intervals).

Results

Tables 1 and 2 show the distributions of the study variables by country of birth among men and women. Immigrants, particularly from other (non OECD) countries, were younger, living alone, less likely to have low education and were more likely to report severe socioeconomic disadvantage than Swedish-born residents

Table 2. Distributions of study variables by country of birth among women

	Sweden (n = 13350)	Other OECD countries (n = 1293)	Other countries (n = 424)
Refraining from seeking medical treatment	13% (2009)	23% (285)	34% (139)
Socioeconomic disadvantage			
None	68% (10292)	57% (718)	27% (111)
Mild	19% (2836)	23% (282)	31% (129)
Severe	13% (1991)	20% (256)	42% (171)
Socioeconomic status			
Low education	51% (7179)	50% (577)	43% (167)
Living alone	30% (4502)	34% (431)	36% (150)
Health status			
Long-term illness	42% (6340)	47% (580)	38% (156)
Poor self-rated health	8% (1127)	13% (159)	16% (65)
Age (mean and standard deviation)	51.74 (16.8)	52.8 (15.2)	38.1 (11.9)

($P < 0.01$). In relation to health status, immigrants were more likely to have long-term illness and to report poor health when compared to Swedish-born residents (Tables 1 and 2).

Results from the logistic regression analyses showed increased likelihood for refraining from seeking medical treatment among immigrants compared with those born in Sweden. After adjustment for background factors and health status, the odds ratios for refraining from seeking medical treatment among immigrants born in other OECD countries were ORmen = 2.2, 95% CI 1.8-2.6 and ORwomen = 1.8, 95% CI 1.5-2.1 and ORmen = 3.1, 95% CI 2.4-3.4 and ORwomen = 2.3, 95% CI 1.8-2.9 for those born in other (non-OECD) countries as compared to Swedish-born residents (Table 3).

Further adjustment for socioeconomic disadvantage reduced this association marginally (1%) for immigrants from other OECD countries. However, for immigrants from other (non-OECD) countries, socioeconomic disadvantage attenuated the odds for refraining from seeking medical treatment by 24% among men [$PCOR = (3.1 - 2.6) / 3.1 - 1 * 100$] and 23% among women

[$PCOR = (2.3 - 2.0) / 2.3 - 1 * 100$] (Table 3).

We run sub-group analyses which showed that individuals who reported poor health status (poor self-rated health and long-term illness) were more likely to refrain from seeking medical treatment ($P < 0.0001$) (Table 4). This was true for men and women born in Sweden and outside Sweden. We also stratified on health care users and non-health care users and found similarly statistically significant associations between being immigrant and refraining from seeking medical treatment. This association was however somehow weaker among women who were non-health care users (Table 5).

Discussion

In spite of the fact that immigrants reported poor health status, they were more likely to refrain from seeking medical treatment as compared to Swedish-born residents. This association was independent of background factors, health status and socioeconomic disadvantage. Immigrants were two to three times more likely to refrain from seeking medical care as compared to Swedish-born residents.

Table 3. Odds ratios (95% CI) for refraining from seeking medical treatment in relation to country of birth

	Adjusted for age, health status*, living alone and low educational level	Adjusted for age, health status*, living alone low educational level and socioeconomic disadvantage
MEN		
Country of birth		
Sweden	Reference	Reference
Other European countries	2.2 (1.8-2.6)	2.1 (1.7-2.5)
Other countries	3.1 (2.4-4.0)	2.6 (2.0-3.3)
WOMEN		
Country of birth		
Sweden	Reference	Reference
Other European countries	1.8 (1.5-2.1)	1.7 (1.4-2.0)
Other countries	2.3 (1.8-2.9)	2.0 (1.6-2.6)

*Health status= poor self-rated health and long-term illness

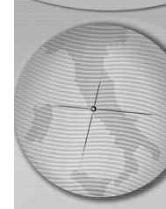


Table 4. Refraining from seeking needed medical treatment in relation to health status

	Sweden (n = 15398)	Other OECD countries (n = 1293)	Other countries (n = 424)
MEN			
Poor self-rated health	32%	41%	55%
Good self-rated health	11%	19%	28%
Long-term illness (yes)	18%	29%	41%
Long-term illness (no)	7%	17%	26%
WOMEN			
Poor self-rated health	32%	41%	54%
Good self-rated health	12%	20%	29%
Long-term illness (yes)	19%	29%	46%
Long-term illness (no)	10%	18%	23%

Table 5. Odds ratios (95% CI) for refraining from seeking medical treatment in relation to among health care users and non health care users*

	Health-care users	Non health-care users
MEN		
<i>Country of birth</i>		
Sweden	<i>Reference</i>	<i>Reference</i>
Other European countries	2.3 (1.8-3.0)	2.1 (1.6-2.7)
Other countries	3.1 (2.2-4.4)	3.3 (2.3-4.6)
WOMEN		
<i>Country of birth</i>		
Sweden	<i>Reference</i>	<i>Reference</i>
Other European countries	2.2 (1.8-2.7)	1.4 (1.1-1.8)
Other countries	3.1 (2.3-4.2)	1.5 (1.0-2.2)

Adjusted for age, health status (*poor self-rated health and long-term illness*) living alone and low educational level

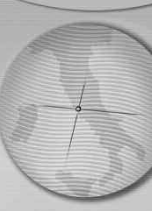
The socioeconomic disadvantage index, a measure of economic hardships and material deprivation explained a substantial proportion of the increased odds for refraining from seeking medical treatment among immigrants from other (non-OECD) countries. However, we did not find any statistical support for the contribution of socioeconomic disadvantage to the increased odds for refraining from seeking medical treatment among immigrants from OECD countries.

Results observed in the present study add to the evidence that there is a lack of access to health care services among ethnic minorities, as demonstrated by previous studies in other European countries [7, 8].

In the present paper, immigrants, particularly from non-OECD countries, were younger, were living alone, were less likely to have low education and were more likely to report severe socioeconomic disadvantage than Swedish-born residents. These factors however, explained only in part why immigrants were more likely to refrain from seeking medical treatment than Swedish-born. Stronks, et al demonstrated that low SES explained a substantial part of the increased use of the general practitioner and prescribed drugs, but could not account for the lower use of more

specialised services [9]. A number of potential barriers to the use of health care services have been demonstrated - including health beliefs and attitudes, cultural factors, social structure variables barriers in health care system and discrimination [13, 19-20]. Adamson, et al has demonstrated that lack of access to health care among individuals of low socioeconomic or minority ethnic groups cannot be attributed to the failure of these individuals to refer to primary or emergency care, but barriers seem to be occurring at the level of health care provision [20]. The authors demonstrated that low SES individuals were 60% and black ethnic minorities were 40% more likely to report immediate care seeking [20]. There are other studies which show similarly overrepresentation of immigrants regarding physician consultation, general practice, use of pharmaceuticals and visits to emergency care unit [5, 6, 8-9, 12, 21]. However, other studies have shown lack of access among ethnic minorities in relation to specialised health care services [9], and access to a regular doctor [7]. A wide variety of indicators for access to health care and variations in categorisation of ethnic groups make it difficult to compare results between different studies.

Some limitations should be considered when interpreting results of the present paper. First, the



cross-sectional design of the study makes it difficult to draw conclusions on causal relationships between country of birth and refraining from seeking medical treatment. Second, the non-response rate was 37% and included a large proportion of men, socially disadvantaged individuals, immigrants and inhabitants in metropolitan areas. In the present study 10% of the study group were immigrants, yet immigrants in Sweden comprise 20% of the population, indicating that we did not reach the other 10%. Collection of data based on postal questionnaire (as we did in this present study), has been associated with a large number of non-responders particularly those with immigrant background or those who are socioeconomically disadvantaged [22]. Thus results presented in the present paper are likely underestimation of the magnitude of true associations between country of birth and refraining from seeking medical treatment.

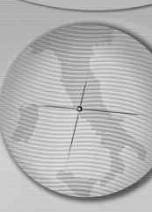
Third, the categorisation of country of birth used in the present study was based on first generation immigrants and did not consider second generation immigrants born in Sweden. Also categorisation was based on being OECD country or not, thus limiting information on classifications based on specific regions of the world. A comparable classification (based on Gross national product) of country of birth of immigrants in Sweden has previously been used [4]. In addition, we did not have information on reasons for migration or length of stay in Sweden which may have implications on language proficiency, beliefs, attitudes and behaviours towards health care seeking. All the questionnaires were in Swedish and thus there was a self-selection of immigrants who were not proficient in Swedish language to decline participating in the survey. Fourth, the outcome measure (refraining from seeking the needed treatment) is general and examines a broader group of people, but this measure may not be equated to the professional definition of needed care. However, we found statistically significant associations of poor self-rated health and long-term illness with refraining from seeking the needed medical treatment ($P < 0.00001$) among both immigrants and Swedish-born residents. Additionally we run sub-group analyses on health care-users and non-users during the past three months and we found similarly increased odds for refraining from seeking medical treatment among immigrants in both groups. In addition reported data on seeking medical treatment may be less reliable due to recall bias, particularly in marginalised groups of individuals. Reijneveld, et al, however have

demonstrated self-reported in comparison with registered utilization of care to be a reasonably valid estimate of differences by SES [23].

The strengths of the present study include a measure of access to health care services based on need and analyses of the contribution of socioeconomic disadvantage to ethnic differences in seeking medical treatment. We developed the socioeconomic disadvantage index that includes economic hardships, position in the labour market and being unable to economically support oneself, which reflects both material standards and a broad perspective on socioeconomic circumstances. We have validated SDI measure and found moderate internal reliability [13]. This index seems to indicate substantial policy implications in relation to inequity in health care services [24] as it reflects a broader understanding of socioeconomic circumstances, particularly among immigrants, than using single measures of SES, which has been criticised in health research [25, 26].

The findings in the present study show that socioeconomic disadvantage accounts for one third of the inequalities in seeking medical treatment for immigrants from other (non-OECD) countries. Socioeconomic disadvantage however did not account for the increased odds in refraining from seeking medical treatment among immigrants from other OECD countries. This is consistent with the fact that we found immigrant men and women from other (non-OECD) countries to be two times more likely to experience socioeconomic disadvantage than immigrants from other OECD countries. Strikingly, immigrant men from other (non-OECD) countries were 6 times more likely to experience socioeconomic disadvantage than Swedish-born men. Similarly, Reijneveld showed that adverse socioeconomic conditions partially explained poor health among first generation immigrants in Netherlands [23]. Results suggest socioeconomic marginalisation of immigrants from poor countries in Sweden may contribute to inequity in seeking the needed medical treatment. The fact that these immigrants were younger but sicker and not seeking medical treatment when needed poses future concerns in relation to population health and economic growth, due to worsened health status and increased dependency on sick absence benefits from the state [27].

Conclusion: Socioeconomic disadvantage does not fully explain why immigrants refrain from seeking the needed medical treatment. Equal access to health care services is a fundamental human right and the public health strategies and the goal "care



on equal terms" cannot be achieved without addressing wider socioeconomic determinants including interactions between class and ethnicity.

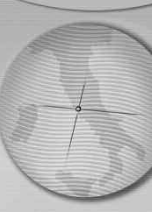
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