

# Inequalities in Use of Health Services among Jews and Arabs in Israel

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**Objectives.** To compare the levels of utilization of health services in Jews and Arabs taking into account differences in levels of socioeconomic status (SES) in a country with a National Health Insurance Law (NHIL).

**Data Source/Study Setting.** A cross-sectional National Health Interview Survey was carried out in Israel based on a random sample of telephone numbers as part of the EUROHIS project (WHO European Health Interview Survey 2003–2004).

**Study Design.** A random telephone survey included 9,352 interviews. Questions included use of health care services, health status, and socioeconomic variables.

**Principal Findings.** After adjusting for sex, age, income, education, marital status, and self-reported chronic diseases, Arabs more often reported visiting a family physician (odds ratio [OR] = 1.56, 95 percent confidence interval [CI] = 1.35–1.81) and less often reported visiting a specialist (OR = 0.73, 95 percent CI = 0.60–0.89) compared with Jews. In addition, the odds ratio for hospitalization was similar among Arabs and Jews (OR = 1.16, 95 percent CI = 0.97–1.38). SES was associated with utilization of health care services only in the Jewish population.

**Conclusions.** A different pattern of utilization of health care services was observed in Arabs and Jews. This was not explained by differences in socioeconomic levels. More research is needed regarding the distribution of services between Jews and Arabs.

**Key Words.** Utilization of health care services, socioeconomic status, Jews, Arabs

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Low socioeconomic status (SES) has been associated with poorer health in developed countries (Haan, Kaplan, and Syme 1989). Poorer health could be a result of inadequate use of health care services. Factors, such as type of insurance, culture, and behavior are associated with inadequate use of health care services (Mayberry, Mili, and Ofili 2000). Among lower SES groups, it has been reported that there is higher use of the primary physician's services, even after adjusting for health, and that populations with higher SES in developed countries visit a specialist more often (Roos and Mustard 1997; Schoen et al. 2000; van Doorslaer et al. 2000; van Doorslaer, Masseria, and Koolman 2006). More hospitalizations were also reported in lower SES

populations within developed countries (Roos et al. 2005). Droomers and Westert (2004) reported that respondents with lower levels of education, indicating SES, used multiple health care services more often and so did those with higher prevalence of comorbidity. This study indicated that the higher use of health care among lower educated respondents was only partly explained by more illness. It has been suggested that utilization of health care does not always reflect the level of health need (Field and Briggs 2001). All these studies were performed in North America and Europe.

Moreover, utilization of health care services has also been associated with ethnicity—government subsidies reduces the difference but do not eliminate them (Mayberry, Mili, and Ofili 2000; Scott, Marwick, and Crampton 2003; National Center for Health Statistics 2004). This subject has not been reported on in Israel.

The population in Israel consists of two major population groups, Jews and Arabs. In 2003, there were 6,600,000 Jews and Arabs. Arabs comprised 19.2 percent of the population. These two population groups differ in their background, culture, and language. Health indicators in Israel present a picture of poorer health along with lower socioeconomic levels in the Arab population compared with the Jewish population (Israel Center for Disease Control 2005). For example, life expectancy in 2002 was about 3 years less for Arab Israelis compared with Jews (Central Bureau of Statistics 2004).

Ten years ago, a National Health Insurance Law (NHIL) was enacted providing health care services for all Israeli residents. The aim of the law was to provide equal health care services for all, with the expectation that adequate use would decrease the differences in health status between the two population groups in Israel. In a survey studying patterns of health care use in Arabs and Jews, before and after the enactment of the NHIL, Farfel and Yuval (1999) reported that in 1997 almost all Arabs (99.1 percent) and most Jews (88.3 percent) had a regular family physician. This represented an increase since 1995. They also reported that in 1997 42 percent of Jews reported visiting a specialist during the last 3 months compared with 30 percent among Arabs. The change from 1995 was not significant. Elnekave and Gross (2004) exam-

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ined Arab Israeli women during 1998 following the implementation of the NHIL and reported that Arab women more often than Jewish women reported foregoing medical care and visiting a specialist. They suggested better adaptation of the primary health care services to the needs of the Arab community. The aim of this study was to compare the levels of utilization of physician's services and hospitalizations in Jews and Arabs taking into account differences in levels of SES in the two populations.

## METHODS

The Israel National Health Survey is a telephone survey based on the EUROHIS (European Health Interview Survey) project, led by the World Health Organization Regional Office for the European region. This is an international project to develop common instruments for health surveys, for international comparisons of health data (Nosikov and Gudex 2003). The Israeli component of this survey was conducted between April 2003 and October 2004 at the Israel Center for Disease Control.

### *Study Population*

A random sample of telephone numbers was drawn from a computerized list of subscribers to the national telephone company. Most Israeli households (Jews and Arabs) have telephones (94.4 percent) (Central Bureau of Statistics 2001). From these numbers, the fax numbers, disconnected numbers, commercial numbers, and households without a resident 21 years of age or over were deleted, leaving a total of 21,326 eligible households in the sample. There were 4,980 households (23.4 percent) that could not be located, leaving 16,346 households that were contacted. A total number of 9,512 respondents, men and women, completed the questionnaire, yielding a response rate of 58.2 percent. Nonresponses due to refusal included outright refusals (29.4 percent), partially completed interviews (2.2 percent), and repeated postponements (10.2 percent). The current analysis was performed with 9,352 due to 160 missing data on ethnicity. Of them 7,682 (81 percent) were Jews and 1,800 (19 percent) were Arabs.

### *The Questionnaire*

The WHO EUROHIS questionnaire was translated into Hebrew and back into English to ensure correct translation. Description of the development of the EUROHIS questionnaire can be found in Nosikov and Gudex (2003). The

Hebrew questionnaire was then translated into Arabic and Russian and back into Hebrew. Questions relevant to Israel (regarding ethnicity, year of immigration, nationality, religiosity, etc.) were added to the original WHO questionnaire. Trained interviewers in Hebrew, Arabic, or Russian conducted the survey. The interviewers in each language were from the corresponding ethnic background. The questionnaire included issues of health, use of health services, health behaviors, and socioeconomic factors.

## VARIABLE DEFINITIONS

Arabs and Jews were self-defined as those describing themselves as Jews, or Arab Moslems, Druze, and Arab Christians. A small group of non-Arab Christians was combined with the sample of Jews as they were not Arab and were part of the Jewish community.

SES was measured by education and income. Education was assessed by asking "How many years of schooling do you have?" Education was categorized into three categories: those with 11 years or less of schooling, those with 12 years, and those with more than a high school education. Respondents were asked to report their monthly net household income in seven categories, from these categories three categories were formed: under 5,200 shekels, between 5,200 and 8,500 shekels and over 8,500 shekels (about 4.5 shekels to the dollar, the mean net household income in Israel is about US\$ 8,500). Twenty-seven percent of the study population (2,567 respondents) did not answer this question; these respondents were not included in the regression analysis. Marital status was categorized into two groups, married and not married.

Respondents were asked if, during the last 4 weeks ending the day before, they had visited a family physician or specialist and if, during the last 12 months, they had been hospitalized for at least one night. The number of visits was reported also. Respondents were also asked to report having a chronic disease during the last 12 months. A list of diseases was read out and included: diabetes, high blood pressure, high blood lipids, myocardial infarction, stroke, angina pectoris, asthma, bronchitis, arthritis, osteoporosis, and cancer. The respondent was categorized as having a chronic disease when he/she reported at least one of these diseases.

### *Statistical Analysis*

Chi-square tests were used to identify bivariate associations between the two population groups, utilization of health care services and the socioeconomic

variables. Differences between the groups regarding the number of visits to a physician were assessed using means and the Student's *t*-test. To test if the difference in the number of visits between the groups was significant after adjusting for SES variables and health, we used the Poisson regression model as the distribution of the number of visits had a Poisson distribution. Calculations of the predicted proportion of respondents visiting the doctor or hospitalized was performed by direct adjusting for age, chronic diseases, income, education, and marital status using logistic regression analysis with c-table methods (*SAS* version 9.1 Stat 2).

Multiple logistic regression models were used to determine the odds ratio (OR) and 95 percent confidence interval (CI) for the independent association between using a health care service (dichotomous: yes, no) and possible predictor variables. The models were run separately for Jews and Arabs and adjusted for sex, age, income, education, existence of a chronic diseases, and marital status. To assess the odds ratio of the two ethnic groups using the health care services models were run including all the study population and ethnicity as a variable. The level of statistical significance was set at a  $p < .05$ . *SAS* software version 9.1 was used for the analyses.

## RESULTS

The Arab respondents were younger, less educated, and a higher percent of them were married. Jews had higher levels of income. These socioeconomic differences seem to characterize the two populations residing in Israel (Central Bureau of Statistics 2004). The Jews reported higher levels of self-reported diseases (35 percent) compared with the Arabs (26.8 percent).

Arab men visited a family physician significantly more often than Jewish men, 31.1 percent compared with 28.4 percent, respectively, after adjusting for age, income, education, marital status, and presence of chronic diseases (Table 1). There was no difference in the rate at which Arab and Jewish men visited a specialist in the last 4 weeks, after adjustment for the same variables. The rate of hospitalization was higher among Arab men compared with Jewish men (18.3 percent compared with 13.4 percent, respectively). Among women, a similar picture emerged, Arab women visited the family physician significantly more often than Jewish women (Table 1), however, they visited a specialist significantly less often. Arab women were hospitalized more often than Jewish women, however, this difference was not significant. Jewish

Table 1: Predicted Percent of Use of Health Services in Men and Women by Population Groups after Adjusting for Age, Chronic Diseases, Income, Education, and Marital Status

<i>Health Services</i>	<i>Jews</i>		<i>Arabs</i>	
	<i>Men</i>	<i>Women</i>	<i>Men</i>	<i>Women</i>
Visited a family physician in the last 4 weeks	28.4	29.8	31.1*	31.2*
Visit a specialist in the last 4 weeks	15.7	16.1	15.8	15.2*
Hospitalized during the last year	13.4	14.4	18.3*	18.7

\* $p < .05$  compared with Jews.

women utilized health care services more often than Jewish men and among Arabs the differences between sexes were smaller.

The mean number of visits to the family physicians during the past 4 weeks (among those reporting having had at least one visit) was 1.38 among Jewish men and 1.60 among Arab men; the difference was significant in a Student's *t*-test. Jewish women visited the family physician 1.39 times during the past 4 weeks and Arab women visited 1.47 times—this difference was not significant. Poisson regression analysis did not reveal a significant difference between Jews and Arabs after adjusting for age, chronic diseases, income, education, and marital status, in neither men nor women.

Further analysis using multiple logistic regression models was performed comparing respondents not visiting the doctor to those visiting a doctor at least once in the last 4 weeks. The analysis was performed separately for Jews and Arabs and in order to compare the two ethnic groups models including all the study population were run. After adjustment for age, sex, income, education, marital status, and presence of chronic diseases in the logistic regression model, it is apparent that Arabs are more likely to visit the family physician at least once during the last 4 weeks compared with Jews (OR = 1.56, CI = 1.35–1.81) (Table 2). In both population groups those with chronic diseases and the older respondents visited the family physician more often. However, income and education were associated with use of health care only among Jews. The more educated and those with higher incomes visited the family physician less often. Jewish women visited the family physician more often (Table 2). After the adjustment, it is apparent that Arab respondents visited the specialist at least once during the last 4 weeks less often than Jews (OR = 0.73, CI = 0.60–0.89) (Table 3). In both population groups women and those with chronic diseases visited a specialist more often. Among Jews the younger respondents

Table 2: Logistic Regression Models for Visiting a Family Physician among Jews and Arabs

Variables	Jews, N = 5,645			Arabs, N = 1,317			All, N = 6,962		
	OR	95% CI	p	OR	95% CI	p	OR	95% CI	p
Jews (0) versus Arabs (1)	-	-	-	-	-	-	1.56*	1.35-1.81	<.0001
Male (1) versus female (2)	1.20*	1.06-1.37	.004	0.98	0.76-1.25	.84	1.15*	1.03-1.28	.015
No chronic diseases (0) versus presence of chronic diseases (1)	2.20*	1.92-2.53	<.0001	2.94*	2.20-3.92	<.0001	2.33*	2.06-2.64	<.0001
Age (continuous)	1.01*	1.01-1.02	<.0001	1.01*	1.00-1.02	.03	1.01*	1.01-1.02	<.0001
Income**	0.87*	0.80-0.99	.0006	0.83	0.68-1.03	.09	0.86*	0.80-0.93	.0001
Education**	0.91*	0.83-0.99	.03	0.94	0.77-1.14	.50	0.91*	0.84-0.99	.03
Not married (0) versus married (1)	1.03	0.90-1.19	.67	1.09	0.80-1.49	.60	1.04	0.91-1.18	.57

\* $p < .05$ .

\*\*Income and education include three categories—1, low; 3, high as described in the Methods section.

OR, odds ratio; 95% CI, 95% confidence interval.

visited a specialist more often and among Arabs those not married visited a specialist more often (Table 3). Income and education were not significantly associated with visiting a specialist in both ethnic groups. When analyzing the total study population the more educated visited a specialist slightly more often (OR = 1.11, CI = 1.00-1.22). No difference between Jews and Arabs was found, after the adjustment, regarding hospitalization during the last year (Table 4). Women, those with chronic diseases and those not married, were hospitalized more often among both Arabs and Jews, however, younger age and lower income was associated with more hospitalization only in Jews and not in Arabs (Table 4).

## DISCUSSION

In this study, we identified among Arabs a pattern of utilization of health care that is characteristic of lower SES groups even after adjusting for levels of SES (van Doorslaer, Masseria, and Koolman 2006). This pattern includes less use of specialist care, more use of family physician care, and higher rates of

Table 3: Logistic Regression Models for Visiting a Specialist among Jews and Arabs

<i>Variables</i>	<i>Jews, N = 5,651</i>			<i>Arabs, N = 1,317</i>			<i>All, N = 6,968</i>		
	<i>OR</i>	<i>95% CI</i>	<i>p</i>	<i>OR</i>	<i>95% CI</i>	<i>p</i>	<i>OR</i>	<i>95% CI</i>	<i>p</i>
Jews (0) versus Arabs (1)	-	-	-	-	-	-	0.73*	0.60-0.89	.002
Male (1) versus female (2)	1.45*	1.25-1.68	<.0001	1.70*	1.19-2.44	.004	1.48*	1.29-1.70	<.0001
No chronic diseases (0) versus presence of chronic diseases (1)	1.82*	1.54-2.15	<.0001	1.62*	1.07-2.46	.02	1.78*	1.52-2.08	<.0001
Age (continuous)	0.99*	0.99-1.00	.002	0.99	0.98-1.01	.29	.99*	0.99-1.00	.001
Income**	0.97	0.88-1.07	.53	0.94	0.71-1.25	.66	0.96	0.87-1.05	.32
Education**	1.09	0.98-1.22	.11	1.16	0.89-1.52	.26	1.11*	1.00-1.22	.047
Not married (0) versus married (1)	0.87	0.73-1.02	.09	0.40*	0.23-0.70	.001	0.80*	0.68-0.94	.005

\**p* < .05.

\*\*Income and education include three categories—1, low; 3, high as described in the methods section.

OR, odds ratio; 95% CI, 95% confidence interval.

hospitalizations. Other low SES groups and minorities have been shown to have this pattern of utilization of health care (Roos and Mustard 1997; Mayberry, Mili, and Ofili 2000; Schoen et al. 2000; van Doorslaer et al. 2000; Roos et al. 2005). This implies that factors associated with ethnicity beyond SES may be associated with health care utilization. The Arab community may be utilizing family physician services instead of a specialist’s services. In Israel, the family physician does not serve as a gatekeeper and the patient can refer himself to most specialists, only very few specialties need referrals by a primary care provider. Low levels of specialist visits may correspond to the rural way of life as most specialists provide care in metropolitan areas. Most Arabs live in small towns and villages and so it may be difficult for the Arab population to access specialist care compare with the Jewish population, which lives mostly in the large cities. The family physicians may be more available in the near vicinity of their homes. Information on the distribution of doctors and their ethnicity in the two population groups in Israel is not adequate and more research in this area is needed.

The data available on health indicators in Israel suggest more negative health outcomes in Arabs compared with Jews (Israel Center for Disease Control 2005). However, it seems that Arabs perceive their health as better



Table 4: Logistic Regression Models for Being Hospitalized during the Last Year among Jews and Arabs

Variables	Jews, N = 5,651			Arabs, N = 1,316			All, N = 6,967		
	OR	95% CI	p	OR	95% CI	p	OR	95% CI	p
Jews (0) versus Arabs (1)	-	-	-	-	-	-	1.16	0.97-1.38	.11
Male (1) versus female (2)	1.41*	1.20-1.66	<.0001	1.34*	1.00-1.81	.05	1.39*	1.20-1.60	<.0001
No chronic diseases (0) versus presence of chronic diseases (1)	2.13*	1.78-2.57	<.0001	2.17*	1.55-3.04	<.0001	2.14*	1.82-2.52	<.0001
Age (continuous)	0.99*	0.98-0.99	<.0001	1.00	0.99-1.02	.62	0.99*	0.98-0.99	<.0001
Income**	0.69*	0.62-0.76	<.0001	0.92	0.71-1.18	.50	0.73*	0.66-0.80	<.0001
Education**	0.96	0.85-1.08	.50	0.94	0.74-1.18	.60	0.95	0.86-1.05	.32
Not married (0) versus married (1)	0.50*	0.41-0.60	<.0001	0.66*	0.45-0.99	.04	0.54*	0.45-0.64	<.0001

\**p* < .05.

\*\*Income and education include three categories—1, low; 3, high as described in the Methods section.

OR, odds ratio; 95% CI, 95% confidence interval.

compared with Jews and report less chronic diseases (Baron-Epel et al. 2005). The level of self-perceived health does not necessarily predict health care utilization and this may lead to inadequate use of health care services even though the NHIL ensures that all residents have access to health care (Gross, Rosen, and Shirom 2001). The inadequate use of health care services may be due to culture, norms, and behavior, or due to more subtle differences in access and quality in care.

Overuse of specialists' services and less effective use of the family physician among Jews may be another possible explanation of our results. From the data in this study it is not possible to conclude if there is overuse or underuse of the doctors' services in both population groups. Reasons for doctor's visits should be studied in both communities before deciding if this inequality in utilization of services can have a negative effect on health.

Higher levels of SES (income and education) were associated with lower levels of family physician visits compared with low levels of SES, however only in Jews. These measures were not associated with specialist visits in both populations. In addition, higher rates of hospitalization were associated only

with lower levels of income in Jews. These results may actually show the success of the NHIL in providing equal services in Israel, regardless of SES.

Disparities on the provider's side could also exist where the lower SES population or specific populations receives different attention from the provider (Willems et al. 2005). Weissman et al. (1991) found a high risk for delaying care for conditions that eventually lead to hospitalization in low SES populations compared with high SES populations. Such disparities may depend not only on SES but also on ethnicity.

The main limitations of the study are the self-reported data. However, we cannot see a reason for differential recall bias between Arabs and Jews which would affect the conclusions. The study is a cross-sectional survey therefore cannot demonstrate causality. Furthermore, other health care services, equally important for health, were not studied and may affect health of specific populations. These include dietician services, health education, preventive care, early detection, etc. Other data on confounders were also not available such as distribution of the doctors services in the two ethnic groups. In addition, as the response rate of the survey was not high (58.2 percent) the representatives of the sample is not clear. However, there is no reason to believe that responding to the interview is in any way associated with use of health services.

In conclusion, although the NHIL gives equal health services to all the population in Israel, differences in the use of these services persist among population groups. These disparities are beyond the lower SES status of the Arab community in Israel and may be due to different patterns of behavior in the two populations or other factors. More studies to understand the reasons for these disparities and their consequences are needed in order to develop strategies to increase equality in health.

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