Characteristics of relevance for health in Turkish and Middle Eastern adolescent immigrants compared to Finnish immigrants and ethnic Swedish teenagers

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Our objective was to compare sociodemographic conditions and risky/health behaviors affecting Turkish or Middle Eastern versus ethnic Swedes and Finnish immigrant adolescents, respectively.

All eligible adolescents 13-18 years old (3,216 pupils) in a medium-sized town in Sweden completed a validated in-depth questionnaire (Q90), with 165 questions.

One hundred and one adolescents were Turkish or Middle Eastern immigrants, while 73 were immigrants from Finland, a neighboring country to Sweden. Turkish/Middle Eastern immigrants were more likely to attend a theoretical program in school, were rarely bullied, as compared to ethnic Swedes and Finns. Turkish/Middle Eastern girls used alcohol at a lower frequency, and reported less depression and sexual experiences than ethnic Swedish girls and Finns. A higher frequency of Finnish adolescents had been bullied and had vandalized, and Finnish adolescents were also determined to have used tobacco and cannabis and to be heavy drinkers more frequently than boys from Turkey/the Middle East.

We concluded that adolescent immigrants from Turkey and the Middle East seem to be well adapted to Sweden and also have ambitions for a higher education. Differences in risky behaviors were particularly pronounced in comparisons with immigrants from Finland for both boys and girls.

Key words: adolescents, Turkey, Middle East, Finland, Sweden, risk behavior.

Immigrants are exposed to considerable changes in their social and cultural environment, including the fact that they have to learn a new language and conform to new moral values and standards[1]. They must deal with influences from the host culture, including possible discrimination and low socioeconomic status, which exposes immigrant adolescents to considerable stress.

Berry et al.[2] found that immigration to a new country is often accompanied by acculturation, "a process that individuals undergo in response to a changing cultural context". Acculturative stress is dependent on a variety of factors, such as integration, in opposition to rejection and alienation, time since migration, social support networks, and acceptance of the new culture. For children and adolescents, the parents' level of integration in the new culture is of particular importance. Second-generation adolescent immigrants and those who migrated at an early age are thus more likely to integrate in the new country.

Sweden, with a population of 9 million, is considered to welcome "new Swedes". During the 1990s, approximately 15% of adolescents in Sweden were first-generation immigrants or had at least one parent who was born abroad[3]. During the last 20 years, a large part of immigrants, in general refugees, have

originated from Turkey and the Middle East[4]. The proportion of immigrants from Finland has traditionally been high, but has decreased during the last decades.

In Sweden, there are unique possibilities to conduct register studies. Linked through each individual's personal identification number, it is possible to compare such registers as the Swedish Population and Housing Census (sociodemographic variables), National Board of Health and Welfare (hospital admissions and diagnoses), the Birth Registry, and the Cancer Registry. All registers cover almost 100% of events they are meant to record. Register studies have analyzed hospitalization for several conditions among immigrants, e.g. for alcohol-related disorders[5] and attempted suicide[6].

Such studies, however, can only make a rough analysis of the end-points reflecting immigrant-related problems. The present study used an in-depth questionnaire in a cohort of adolescents, covering a wide spectrum of aspects of daily life, and using the adolescent-specific Q90 instrument. The aim was to compare in detail conditions affecting life and behaviors of relevance for health in Turkish/Middle Eastern immigrants with those of ethnic Swedish and Finnish immigrant adolescents

Material and Methods

The study was conducted in a medium-sized town, with a population of 60,000, situated in central Sweden, 200 kilometers west of the capital Stockholm. The eligible population for this study was all pupils in 7th to 9th grades (13 to 15 years of age) of compulsory school and in 1st to 3rd years (16-18 years of age) of high school. Altogether, 10 schools were involved.

The project, of which this study is one part, was conducted from April 2004 to May 2005. All questionnaires were distributed during the autumn 2004. In addition to ethical approval, the local political school authorities, headmasters, and all teachers were informed about the purpose and methods. Written information was given to the parents. All parties accepted the study.

The "Q90" questionnaire, tailored and validated for teenagers, was used. The Q90 has been proven successful in some previous Swedish studies[7-9]. Q90 includes 165 questions and covers sociodemographic characteristics, school program, satisfaction and achievements, self-image, dietary habits, sports activities, psychological and physical conditions, medication, medical care, friends, relations to family and other adults, use of tobacco, alcohol and drugs, criminality status, immigrant status, religion, body development, sexuality, and expectations for the immediate future.

All pupils completed the questionnaire during one lesson. There were no personal details, and thus no possibility to identify specific persons. The adolescents completed the questionnaire anonymously, and left it in a sealed envelope before it was given to one of the authors (LIH). There were multiple-choice questions ranging from two to five alternatives. A question such as "have you had sexual intercourse?" was answered yes-or-no. For other questions, such as "have you shoplifted?", there were five possible answers, ranging from "never" to "more than 10 times".

In total, there were 3,812 pupils registered at the time the study was performed. Because of occupational practice, sports events, leisure, etc., 3,216 pupils (84.4%) were eligible for the study. A small part of non-responders would be expected to be truant from school, but it was not possible to register the exact number. Considerable effort was made to ensure the reliability of the answers. In the classroom, nearly all participants worked seriously and in silence. As would be expected, not all questions were answered by all participants (2.2% to 7.4% missing data). In these cases, however, there were often marks in-between the alternatives, indicating that the individual was unsure how to respond and found no suitable alternative.

When responses to the questionnaires were computerized, a careful check for consistency was made. In the case of inconsequent answers not due to obvious mistakes, the participant was excluded. Such cases could include an extremely early age at first intercourse or an unreasonable amount of alcohol consumption. In other cases, such as boys who answered "have not had menstruation yet", only that variable was excluded. In all, 10 participants did not complete the questionnaire at all and 9 were excluded due to inconsequent or unreasonable answers. A further 11 students could not be identified by gender leaving 3186 (99.1%) students available for analyses.

When both parents were born abroad the adolescent was defined as an immigrant. The participants were initially divided into first- or second-generation immigrants, not born or born in Sweden. For simplicity, first- and second-generation (Middle Eastern or Finnish) immigrants will be joined and only termed as immigrants below. Data was missing regarding country of birth for 25 (0.8%) of the students, and for 235 (7.4%) of the fathers and 231 (7.3%) of the mothers. Altogether, 365 participants had to be excluded as country of origin could not be identified and 71 adolescents were excluded as they originated from countries outside Turkey/ Middle East and Finland. This left a total of 2750 students eligible for analyses. Of these, 73 (2.7%) originated from the neighboring country Finland, while 101 (3.7%) adolescents were immigrants from Turkey/ Middle East, and 2576 students were ethnic Swedes. Among Middle Eastern immigrants, Islam was the dominant religion (n=75, 78.1%). There was a similar distribution of adolescents originating from Turkey, Iraq, Iran and Lebanon.

The JMP statistical program was used for analyses. T-test was used for continuous variables, such as age. For nominal variables, odds ratios (OR), 95% confidence intervals (95% CI) and adjustments for possible confounding variables were estimated by logistic regression. Nominal variables were dichotomized. Fisher's test was used when the number of positive or negative answers for a variable was less than six. The sociodemographic variables that differed most between ethnic Swedes and immigrants were having one's own house and employment status of parents. These were therefore chosen for adjustments in multifactorial analyses, in addition to age when appropriate.

Results

Initially, all variables that were included in the analyses were compared for Turkish/Middle Eastern immigrants of Muslim religion with those of other religions. The differences were very small with the exception of regular alcohol use (11% vs. 31%, respectively, p=0.02). Therefore, the Turkish/Middle Eastern immigrant adolescents are analyzed in the following as a unit.

Thirty-seven (36.6%) of the adolescents from the Middle East were second-generation immigrants, while the corresponding figure for the Finns was 66 (76.7%). Sociodemographic characteristics and nutritional habits for Turkish/Middle Eastern immigrants, ethnic Swedes, and Finns that differed only marginally by gender are given in Table I. More Turkish/Middle Eastern adolescents lived in a family with both a mother and father than the other two groups studied. It was significantly more common for Turkish/ Middle Eastern immigrants to participate in a theoretical program in school but not to have at least one parent with university education, as compared to ethnic Swedes and Finnish adolescents. Living in their own house and having at least one working parent was less common among immigrants from Turkey/ Middle East than for Finns and ethnic Swedes. Segregated schools were a minor problem, as none of the 10 schools had a proportion of immigrants higher than 17%.

Seventy-six percent of all adolescents whose parents had a university education attended a theoretical program, as compared to 48% of those who were less likely to have working parents, to live in their own house and to have breakfast daily. The data in Tables I-IV were therefore adjusted for age, housing conditions and employment status of parents.

Finnish teenagers had sleeping problems at a higher frequency, were not satisfied with their school achievements, had been bullied, and had more frequent experience of vandalizing compared to Turkish/Middle Eastern adolescents (Table II). Involvement in fighting and having bullied someone was more common among Turkish/Middle Eastern adolescents, compared with the other two groups. Eleven and a half percent of ethnic Swedes reported allergies as compared to 15.9% of the Finns (p=0.28), but allergies were very uncommon (2.3%, p=0.002) in Middle Eastern immigrants (not shown in Table).

The Turkish/Middle Eastern girls were less likely to feel depressed (although of borderline significance) and to have experience of alcohol and intimate relations with boys than the ethnic Swedish and Finnish girls (Table III). No Muslim girl admitted to having had sexual intercourse. The Turkish/Middle Eastern girls reported experience of being on a diet more often than the Swedish girls. Ninety-three (20.8%) and 2 (11.8%) of the sexually active ethnic Swedish and Finnish girls, respectively, reporting having had more than five sexual partners (not shown in Table).

Table I. Sociodemographic and Some Nutritional Differences in First- or Second-Generation Turkish or Middle Eastern Adolescent Immigrants Compared to Ethnic Swedes and Finnish Immigrant Adolescents of Both Genders

About myself	Turkish and Middle Eastern Immigrants N=101 (%)	Swedes n=2576 (%)	Odds ratio[1,2]	95% CI[1,2]	Finnish n=73 (%)	Odds ratio[1,2]	95% CI[1,2]
Mean age (years)	15.9	15.7	P=0.29		15.8	p=0.90	
Theoretical program in high school[3]	36 (78.3)	621 (53.2)	5.16	2.31-13.30	15 (41.7)	5.86	2.04-18.51
Live with both parents	72 (72.0)	1620 (64.3)	1.42	0.92-2.25	29 (39.7)	2.12	1.01-4.58
At least one parent has university education	30 (42.9)	629 (37.7)	1.55	0.92-2.63	19 (37.3)	1.72	0.78-3.91
At least one parent is working	62 (63.9)	2339 (95.8)	0.11	0.07-0.19	61 (89.7)	0.25	0.09-0.79
Live in one's own house	43 (43.0)	2099 (82.3)	0.24	0.15-0.37	52 (72.2)	0.40	0.20-0.79
Eat breakfast daily	52 (52.0)	2022 (78.8)	0.38	0.24-0.60	49 (68.1)	0.60	0.30-1.20
Eat fruits or vegetables daily	59 (58.4)	1070 (41.7)	2.33	1.50-3.67	31 (43.1)	1.77	0.90-3.50
Social age more than two years above chronological age	24 (23.8)	321 (12.7)	1.83	1.07-3.02	7 (9.7)	2.41	0.96-6.72

[1]As compared to Turkish or Middle Eastern adolescents.
[2]Adjusted for age, housing conditions and parents' employment status.
[3]Adjusted for housing conditions, parents' employment status and parental education.

Table II. Risk Factors for Well-Being in First- or Second-Generation Adolescent Turkish or Middle Eastern Immigrants Compared to Ethnic Swedes and Finnish Immigrant Adolescents of Both Genders

About myself	Turkish and Middle Eastern Immigrants n=101 (%)	Swedish n=2576 (%)	Odds ratio[1,2]	95% CI[1,2]	Finnish n=73 (%)	Odds ratio[1,2]	95% CI[1,2]
Sleeping problems in the last week	31 (33.0)	729 (30.6)	0.99	0.61-1.58	32 (45.7)	0.54	0.27-1.09
Involved in physical fighting at least three times in the last two years	26 (26.0)	307 (12.0)	2.38	1.39-3.94	10 (13.7)	2.44	1.03-6.18
Perform well in school[3]	36 (36.0)	871 (34.1)	1.14	0.74-1.75	17 (25.8)	1.98	0.84-4.87
I have been bullied	18 (18.0)	471 (18.5)	0.79	0.44-1.35	24 (32.9)	0.46	0.21-0.99
I have bullied others	27 (29.7)	435 (17.5)	1.87	1.11-3.07	17 (24.6)	1.56	0.72-0.99
I have shoplifted at least twice	20 (20.0)	534 (20.9)	0.84	0.48-1.42	20 (30.1)	0.62	0.29-1.35
I have vandalized at least twice	19 (18.8)	470 (18.4)	0.85	0.46-1.48	24 (32.9)	0.50	0.16-0.87
I generally use seat belt	67 (66.3)	2294 (89.3)	0.27	0.17-0.44	62 (84.9)	0.38	0.16-0.87

[1]As compared to Turkish or Middle Eastern adolescents.
[2]Adjusted for housing conditions and parents' employment status.
[3]Adjusted for housing conditions, parents' employment status and parental education.

Table III. Factors of Relevance for Health in First- or Second-Generation Adolescent Turkish or Middle Eastern Immigrants Compared to Ethnic Swedes and Finnish Immigrant Adolescent Girls.

About myself	Turkish and Middle Eastern girls n=50 (%)	Swedish girls n=1180 (%)	Odds ratio[1,2]	95% CI[1,2]	Finnish girls n=34 (%)	Odds ratio[1,3]	95% CI[1,3]
I have felt depressed in the last week	12 (27.3)	424 (39.4)	0.52	0.25-1.03	13 (41.9)	0.53	0.18-1.50
I am always or often on a diet[3]	11 (22.5)	135 (11.6)	2.56	1.09-5.61	3 (8.8)	1.46	0.43-5.33
Smoking (at least twice a week)	5 (10.0)	130 (11.0)	p=0.82		5 (14.7)	0.52	0.11-2.26
Alcohol use at least once a month	6 (12.0)	433 (37.0)	0.25	0.09-0.56	14 (41.2)	0.26	0.08-0.80
I have had a romance	26 (55.3)	987 (84.2)	0.22	0.12-0.43	32 (97.0)	0.04	0.01-0.25
I have had sexual intercourse	4 (8.7)	449 (38.7)	p<0.0001		17 (51.5)	p=0.0001	

[1]As compared to Turkish or Middle Eastern girls.
[2]Adjusted for age, housing conditions and parents' employment status.
[3]Adjusted also for body mass index.

Table IV. Factors of Relevance for Health in First- or Second-Generation Adolescent Turkish or Middle Eastern Immigrant Boys Compared to Ethnic Swedes and Finnish Immigrant Adolescent Boys

About myself	Turkish and Middle Eastern boys n=51 (%)	Swedish boys n=1396 (%)	Odds ratio[1,2]	95% CI[1,2]	Finnish boys n=39 (%)	Odds ratio[1]	95% CI[1]
I practice team sports	40 (78.4)	533 (38.2)	6.87	3.36-15.29	14 (35.9)	10.1	2.89-48.2
I have felt depressed in the last week	16 (34.0)	170 (13.2)	3.42	1.66-6.85	7 (18.0)	3.95	1.17-14.85
Smoking (at least twice a week)	0 (0.0)	78 (5.6)	p=0.02		9 (23.1)	p=0.0001	
Using dip snuff (at least twice a week)	9 (18.0)	227 (16.4)	1.26	0.53-2.72	14 (35.9)	0.55	0.14-2.07
Alcohol use at least once a month	10 (20.0)	513 (37.1)	0.45	0.20-0.92	15 (38.5)	0.27	0.06-1.00
Average number of drinks when drinking	6.99	8.51	p=0.33		11.85	p=0.05	
Cannabis smoking (ever)	2 (4.0)	76 (5.6)	p=0.62		7 (18.0)	p=0.03	
I have had sexual intercourse	20 (40.8)	428 (32.0)	1.20	0.61-2.31	14 (38.9)	1.45	0.41-5.24

[1]As compared to Turkish or Middle Eastern boys.
[2]Adjusted for housing conditions and parents' employment status.
[3]Adjusted for age.

Boys from Turkey/Middle East practiced team sports. They sometimes felt depressed at a higher frequency than Swedish and Finnish boys (Table IV). Less alcohol use among Middle Eastern boys and fewer parents who accepted alcohol use (40.9% vs. 61.6% in Swedish boys, age adjusted OR 0.17, 95% CI 0.06-0.47) reflected the high proportion of Muslim boys. There were no other significant differences between these two groups. None of the boys originating from Turkey/Middle East was a smoker. The Finnish boys reported smoking, heavier drinking habits and ever use of cannabis at higher frequencies compared to Turkish/Middle Eastern boys. No other significant differences were found between the groups.

Discussion

Some of the findings of this study were that despite less favorable sociodemographic conditions, Turkish/Middle Eastern immigrants more often chose theoretical programs in high school and were satisfied with their achievements. They were less likely to use tobacco, alcohol and drugs than ethnic Swedish adolescents. The sociodemographic conditions of Finnish immigrants were more similar to those of ethnic Swedes, as would be expected by their higher proportion of second-generation adolescents, but they nevertheless were more likely to have social problems and risky behaviors. Turkish/Middle Eastern immigrants had more in common in many aspects with the ethnic Swedes.

Some strengths of this study were the design that allowed inclusion of all teenagers attending school in a medium-sized town. As the questionnaire was personally distributed to all classes, there was a very high response rate and an opportunity to include a large number of questions that covered numerous aspects of adolescent life. Despite the inclusion of more than 3000 adolescents, however, the number of individuals in some immigrant subgroups was rather small. Only relatively large differences between these groups reached statistical significance and the 95% confidence intervals were sometimes wide. In this context, we must stress that it was impossible to report all results. One must remember that a large number of the variables did not differ between the compared groups.

When immigrant behaviors are compared to those of ethnic Swedes, social and cultural differences must be considered, as well as those that are caused by migration as such. Socioeconomic conditions must thus be adjusted for. Hjern et al.[10] found a considerable decrease in the apparent increased risk ratio for schizophrenia in immigrants when social conditions were included in the analyses. Family factors were closely associated with problematic behavior among Turkish adolescents and in children[11]. On the other hand, this is true for all families, irrespective of ethnic background. In the present study, employment status of parents and living in one's own house were used for adjustments, as both variables differed significantly between adolescent immigrants from Turkey/Middle East as compared to Finnish and ethnic Swedish adolescents. These variables probably reflect that the former are relative newcomers to Sweden. The levels of university education were similar in all three groups studied.

The low prevalence of allergic disorders among adolescents from Turkey and the Middle East has been reported previously[12]. The etiology is not fully clarified, but is thought to be a combination of a variety of factors, such as diet, heredity, and exposure to furry pets[13]. This study found different food habits, i.e. Turkish/Middle Eastern immigrants more rarely had breakfast, but more often had fruits or vegetables, as compared to Swedish and Finnish adolescents. These findings are probably important for adolescent well-being and health both in the short- and in the long run.

Some variables that could indicate personal problems of importance for mental health were observed at a higher frequency in Turkish/Middle Eastern teenagers. The latter reported a higher rate of experience in physical fighting. Boys reported depression significantly more often, while girls reported depression at a lower frequency, compared to ethnic Swedes and Finns. A correlation between increased exposure to violence before migration and mental problems among refugees were found in a previous study[14]. Initial psychosomatic problems, such as sleeping problems and abdominal pain, had improved considerably six years after settlement[15]. The main determinants in the latter study were stress in the family sphere and exposure to violence before migration.

There were no significant differences in scoring with respect to school achievements or reported delinquent behavior between immigrants from Turkey/Middle East and ethnic Swedes, while the Finns reported less satisfaction with school results, but the difference was non-significant. A Dutch study on Turkish adolescents found they reported even less delinquent behavior than ethnic Dutch adolescents[16]. Teachers, however, reported no more problems among these pupils as compared to the Dutch pupils[17]. It was, however, speculated that Turkish adolescents deliberately reported less antisocial behavior for fear of being caught by authorities[16]. In the present study, Turkish/Middle Eastern adolescents reported having been bullied at a low frequency, but of having bullied others relatively often. It has been shown that among their classmates, bullies enjoy a high social status, while their victims are socially marginalized[18]. Bullying may represent one means of gaining respect.

There were fewer differences in sociodemographic characteristics between Finnish and Swedish adolescents, compared to Turkish/Middle Eastern immigrants. An increased rate of sleeping problems and having been bullied and more frequent experience of vandalizing indicate social problems in the Finnish group. Among boys, tobacco and cannabis use and heavy drinking stand out when compared to Turkish/Middle Eastern boys. These findings in Finnish immigrants, in particular for the boys, seem to form a social pattern. In register studies, Hjern and Allebeck[5] found high relative risks for adult Finnish immigrants to have been hospitalized because of alcohol-related disorders as compared to Swedes. Immigrants from Turkey and the Middle East, on the contrary, had low relative risks. In another study, alcohol-related damage on autopsy was observed to be more common among Finnish-born adult suicide victims[19]. These differences between Finnish immigrants and Turkish/Middle Eastern and ethnic Swedes are possibly caused by cultural factors, but they are important for health-compromising behaviors.

Similarly, tobacco use and illicit drug use seem to be more common in Finnish than in Swedish adolescents[20]. Finnish adults also had the highest suicide rate when different groups of immigrants were compared[6].

This study has shown similarities between Turkish/Middle Eastern immigrant adolescents and ethnic Swedes in many areas of life. Differences in risk behaviors were, if any, more prevalent in the Swedish adolescents. On the other hand, there were a large number of differences between Turkish/Middle Eastern and Finnish immigrants. The differences covered wide areas of life, such as socioeconomic conditions and family, self-image, school, dietary habits, sport activities, bullying, delinquent behavior, self perceived mental health, tobacco, alcohol and drug use, and sexual behavior. It is important to realize that many, maybe most, of these differences are not only caused by immigration as such, but by cultural and social differences among the different ethnic groups. Some possible cultural differences are traditional heavy drinking among Finnish adolescents and differences in sexual behaviors between Muslim boys and girls.

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