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ORIGINAL ARTICLE

The health status of first- and second-generation Turkish immigrants in Germany

Annelene Wengler

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Abstract
Objectives Since previous research on immigrants' health status is rare, this study focuses on Turkish immigrants currently living in Germany and evaluates their subjective health status using relatively new data from the Generations and Gender Survey (2005/2006).
Methods The cross-sectional study includes around 10,000 German natives and 4,000 Turkish immigrants. Logistic regression models are estimated to compare the health of first- and second-generation Turkish immigrants with that of German natives. Additionally, separate models for all three groups are estimated to detect variations in the factors influencing the health status.
Results Whereas the descriptive results indicate a worse health status, Turkish immigrants are as healthy as the native German population when different variables related to socio-economic status and coping resources are taken into account. Furthermore, Turkish immigrants in East Germany are healthier than their East German counterparts. The factors influencing the health status do not vary for the observed groups.
Conclusions Socio-economic status and coping resources are key determinants of the (subjective) health status of Turkish immigrants. They must be strengthened to improve immigrants' level of health.

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A. Wengler (✉)
Research Training Group SOCLIFE, University of Cologne, Richard-Strauss-Str. 2, 50931 Cologne, Germany
e-mail: wengler@wiso.uni-koeln.de

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Introduction

Whereas the findings on immigrants' mortality are more distinct, and some researchers could show that they die at more advanced ages (Abraido-Lanza et al. 1999; Uitenbroek and Verhoeff 2002; Razum et al. 2000), very little is known about the health status of immigrants in general. It is assumed, and has been proven to some extent, that especially healthy and young people migrate from one country to another (McDonald and Kennedy 2004). Furthermore, migration is postponed or discarded in cases of (severe) illness. Due to this selection process, termed the *healthy migrant effect*, immigrants should have an especially good health status compared with the native population in the home and host country, especially shortly after migration. Additionally, the health status of immigrants may improve even more in the host country, assuming they can benefit from better access and more effective medical care (Reinhardt et al. 2002). Certain diseases (like Tuberculosis) may, for example, be more easily and widely curable in the host country than in the home country. Similarly, degenerative diseases may manifest later in life because they are often related to a certain lifestyle (smoking, unhealthy diet, lack of exercise) in the host country and take time to become debilitating (see Razum and Twardella 2002; Razum and Zeeb 2004).

Besides the healthy migrant effect and the possible indications of a health advantage, a worsening subjective health status of immigrants compared with the native population is also discussed in the existing literature (for a

literature review, see Nielsen and Krasnik 2010). With prolonged residence, the health advantage of the host country may be lost, since the health status of immigrants possibly converges to the level of the native population (McDonald and Kennedy 2004). Sander (2008), for example, finds an increasing body-mass-index (caused by weight gain and physical inactiveness) for immigrants with duration of residence. Beyond adaptation to the native population, the health status of immigrants could actually worsen due to a lower socio-economic status, fewer coping resources (e.g. social networks like family and friends), barriers to accessing medical care, or migration stress. For a short overview of the different factors that play a role in determining the health status of immigrants, see Schenk (2007).

In the existing literature on Germany, no strong evidence could be found for either of the theoretical considerations. However, some results indicate the presence of a healthy migrant effect. Ronellenfitsch and Razum (2004), for example, observed the health status of immigrants from Eastern Europe: while their socio-economic status improved over time, their satisfaction with health status simultaneously declined steeply. Using data from the German Socioeconomic Panel Study, Lechner and Mielck (1998) also found deteriorating health with increased time of residence for immigrants.

The first step taken here is to observe whether differences actually exist between German natives and Turkish immigrants with regard to the level of health. This seems to be a simple question, but, as indicated, it has not been clearly answered in previous research. To put it differently: we want to evaluate whether there is an independent effect of migrant status on health. The second step is to examine whether the determinants influencing the health status vary for Germans and Turkish immigrants. First- and second-generation Turkish immigrants are analyzed separately throughout the paper. First generation Turkish immigrants are observed in more detail, since only this group experienced the process of migration itself. Here especially, the time spent in Germany (permanent residence) will be a focal point since it may influence the health status of the Turkish immigrants (see Acevedo-Garcia et al. 2010).

Putting aside some minor shortcomings of subjective health status as the dependent variable (see Huisman and Deeg 2010), there are clearly some advantages of using it. Primarily its strength lies in its simplicity: it is easily understood, and in its reliability (Lundberg and Manderbacka 1996). The subjective health status is also a good predictor of mortality (Idler and Benyamini 1997; Helmert 2003) and it is closely related to the objective health status (Jylhä 2009). Beyond this, there is also empirical evidence indicating that the subjective health status is comparable across different ethnic groups (Chandola and Jenkinson 2000).

In reference to a model by Elkeles and Mielck (1997) the following three relevant dimensions of health inequality can be identified: socio-economic status, health burdens, and coping resources. Additionally, age, gender, and region (East/West Germany) are included in the analysis as control variables. Region is included to elaborate whether migrant status has a different effect on health in East and West Germany. Migration to East Germany has been occurring mainly after the reunification of Germany; opposed to this it has been occurring in West Germany since the 1960s. Turkish immigrants may therefore, have a better health status compared with the German natives in East Germany, which would hint towards a healthy migrant effect.

Elkeles and Mielck (1997) differentiate between health burdens and coping resources, but those variables seem to fall into the same category. This means that if a certain coping resource is missing, it becomes a health burden, and vice versa. Five coping resources are considered, which seem to be relevant for the individual health status: satisfaction with the house/flat (Davis and Fine-Davis 1981; Fuller-Thomson et al. 2000), attendance of religious services (George et al. 2002; Ellison and Levin 1998; Williams and Sternthal 2007), social support (Berkman 1984), perceived control over life (Geyer 1997), and trust (Giordano and Lindstrom 2010). The ability to speak German (Ding and Hargraves 2009) and the residence time (Werner 2001) are observed only for immigrants.

Methods

Data set

For these analyses, data from the German Generations and Gender Survey (GGS) are used. Though the GGS is constructed as a panel survey, up to now only the data of the first wave is available. This survey was carried out by the German Federal Institute for Population Research. In 2005, approximately 10,000 German residents, aged 16–79 years, were interviewed face-to-face (computer assisted). In 2006, an additional sample of about 4,000 Turkish nationals who were permanently living in Germany was surveyed. Both samples were randomly drawn in multiple stages from official registers (foreigners' registration office for the Turkish immigrants), and the obtained cases were compared with official statistics with regard to the age and sex structure of the sample, as well as the regional distribution of the cases. Divergences from the official statistics were rather small (for more information on the sample structure,

see Ruckdeschel et al. 2006; Ette et al. 2007). For Turkish immigrants a translated questionnaire was available if needed.

Both data sets (2005 and 2006) are combined, and the analyses are carried out only for respondents who were born in either Germany or Turkey. Individuals with a first generation Turkish migrant background in this respect are defined as those who were born in Turkey. Second-generation immigrants are those whose parents (at least one) were born in Turkey but who themselves were born in Germany. If the respondent and his/her parents were born in Germany they are defined as German natives. In the data set, 8,615 Germans, 2,736 first-generation Turkish immigrants, and 612 second generation Turkish immigrants remain for further analyses. Turkish immigrants are observed separately for the first and second generations, since both groups differ in various aspects. Only the first generation experienced the process of migration and consequently living in two different societies.

Dependent and independent variables

The dependent variable is the *subjective health status*, which is originally measured on a five-point scale. Respondents declared whether their health status was very bad, bad, moderate, good, or very good. For our analyses, we recode these answers into a dichotomous variable [1-(very) good; 0-moderate/(very) bad]. Good instead of poor health is measured to analyze what is beneficial for the individual health status. In general the scaling and the cut-off points of the independent variables have been chosen in accordance with the literature in the field.

The educational attainment is classified as ended school without a degree, low, medium, and high. These broad categories were chosen to include a sufficient number of cases of Turkish immigrants and German natives in each category. Additionally, the unemployment status [yes/no] and the kind of employment contract the respondent has [unlimited yes/no] are indicators of socio-economic status (Grobe and Schwartz 2003; Karasek 1979; Theorell 2000; Bauer et al. 2009).

The coping resources are represented by five different variables. Satisfaction with the house/flat [0-not satisfied at all, 10-very satisfied] is used as a proxy variable for the respondents housing conditions. With regular attendance of religious services [0-never/seldom, 3-frequently] we measure an indirect effect of religiosity on health. As a third variable, social support is measured by asking respondents whether they have enough people around they can count on when they are having problems [yes/no]. The perceived control over life [1-not at all, 4-very strong] is measured by combining the respondents' statements about finances, work, residence, health, and family; the mean of all five variables is used. Finally, for measuring trust, respondents were asked whether one can trust others [0-cautious towards other people, 1-one can trust most people]. The ability to speak German based on self assessment [1-not at all; 5-very well], is included in the multivariate analysis for first- and second-generation Turkish immigrants. Residence time [in years] is included for first-generation immigrants only [survey year − immigration year].

Statistical analyses

As a first step, some descriptive analyses are performed to get a glimpse of the health status of Turkish immigrants and German natives. Here we test for statistically significant differences between German natives and Turkish immigrants. Later, logistic regression models are carried out. Two steps are taken here.

First, a regression model for all respondents is estimated, including two variables that identify the migration background (first and second generation), in order to evaluate whether differences in the health status between Germans and Turkish immigrants can be found. A stepwise procedure is used to make it clear which variables have an especially strong influence on health status. Socio-demographic factors are inserted into the model; then proceeding variables indicating socio-economic status, and coping resources are added. In the last model, an interaction effect of region and migration background is included since it is likely that the health status varies for Turkish immigrants in East and West Germany.

Second, separate models for all three groups (Germans, first generation Turkish immigrants, and second generation immigrants) are calculated to observe whether the factors determining the health status vary across the groups. For first- and second-generation Turkish immigrants, a variable indicating the ability to speak German is added to the model. Additionally, for the first generation, the time of residence is included to evaluate whether hints for a healthy migrant effect can be found. The logistic regression models are estimated using SPSS (17.0). We report odds ratio (OR) as well as 95% confidence intervals (CI) and consider p values of 0.05 or below as significant.

Results

Descriptive results

Whether observing the distribution of respondents across the original five-point scale or the generated dichotomous variable, the subjective health status barely varies for the first generation of Turkish immigrants and German natives. 75% of the German natives and Turkish immigrants report

Table 1 The subjective health status and relevant characteristics of Germans and persons with Turkish migrant background (mean values for metric variables or percentage points for dichotomous variables)

	Germans	Turkish immigrants	
		First generation	Second generation
Subjective health status			
(Very) good [R: moderate/(very) bad]	74.7%	74.9%	92.2%***
By region			
East Germany	67.6%	88.0%	100.0%
West Germany	76.6%	74.4%	92.0%
Characteristics of respondents			
Socio-demographics			
Age (in years)	46.78	40.57***	28.60***
Female[a] (R: male)	53.1%	47.3%***	47.9%*
Living in West Germany[a] (R: East Germany)	79.1%	96.1%***	98.4%***
Socio-economic status			
Ended school without a degree[a]	1.2%	24.4%***	4.2%***
Low/other educational level[a]	37.2%	52.4%***	46.4%***
Medium educational level[a]	34.7%	13.4%***	28.3%***
High educational level[a]	26.9%	8.9%***	20.8%***
Unemployed[a] (R: employed, not on the labour market)	8.0%	15.3%***	13.1%***
Unlimited work contract[a] (R: limited/no work contract)	38.2%	30.9%***	36.3%
Coping resources			
Satisfaction with the flat/house (0 not satisfied at all, 10 very satisfied)	8.10	7.05***	6.96***
Religious attendance (0 never/seldom, 3 frequently)	0.73	1.35***	0.92***
Social support[a]	91.9%	88.1%***	92.0%
Control over life (1 not at all, 4 very strong)	2.82	2.67***	2.74**
Trust towards other people			
One can trust most people[a]	34.8%	27.1%***	24.3%***
Cautious towards other people[a]	62.3%	70.9%***	71.2%**
No answer/do not know[a]	2.8%	2.0%**	4.4%
Ability to speak German (1 not at all, 5 very good)		3.45	4.57
Time of residence (in years)		21.63	
n	8,615	2,736	612

Source: Generations and Gender Survey 2005/2006, own calculations

R reference category

Significantly different from native Germans, significance level: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ two-tailed *t* test

[a] Dichotomous variable (0 no, 1 yes)

a good or very good health status (see Table 1). However, the Germans in the data set are, on average, 6 years older than the Turkish population and it has to be kept in mind that individual health status worsens with age. Their rather young age (29 years on average) may also be the reason why the second-generation immigrants indicate an extraordinarily good health status (92%). To take those age differences into account, Fig. 1 represents the subjective health status of each group by age. Up to age 45, first-generation immigrants and native Germans seem to have approximately the same level of health. Beyond that age, first-generation Turkish immigrants are significantly less healthy than Germans. Second-generation Turkish immigrants seem to be at least as healthy as German natives.

When observing the characteristics of the respondents (Table 1) in more detail, statistically significant differences between Turkish immigrants and German natives can be found. Only 38% of the Germans have either low or no formal education, compared with 77% of first-generation and 51% of second-generation Turkish immigrants. The unemployment level is also higher for Turkish immigrants (15% first generation, 13% second generation) than for Germans (8%). Furthermore, Turkish immigrants seem to be less satisfied with their flat/house; they also feel that

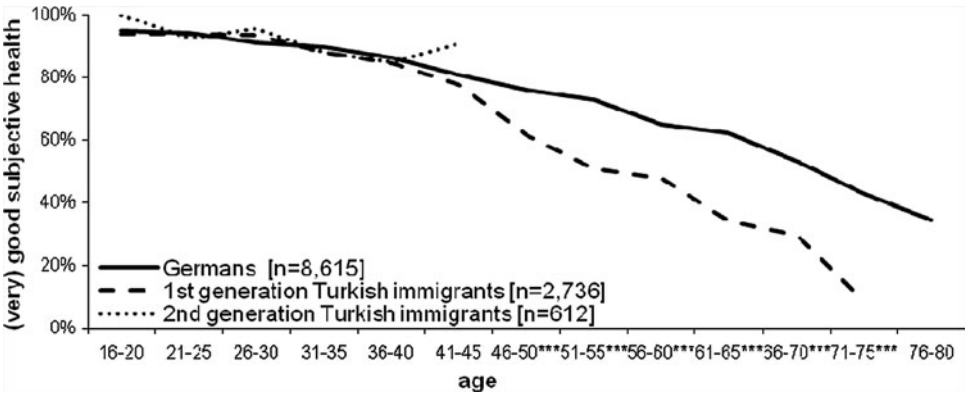

Fig. 1 Subjective health status for first-, second-generation Turkish immigrants and Germans, by age group; first generation Turkish immigrants significantly different from native Germans, significance level: $*p < 0.05$, $**p < 0.01$ $***p < 0.001$ two-tailed t test (groups with less than five cases have been excluded). Source: Generations and Gender Survey 2005/2006, own calculations

they have less control of their lives and are less trusting of other people than are German natives. Given that these risk factors influence the health status of German natives and Turkish immigrants alike, this higher prevalence of potential risk factors in Turkish immigrants suggests a lower tendency for them to rate their health status as (very) good. In the following multivariate models, we analyze whether this is the case and whether the chosen variables play a role in determining the health status of Turkish immigrants and Germans to the same extent.

It should also be noted that only 4% of first-generation Turkish immigrants and 2% of second-generation immigrants surveyed in the GGS live in East Germany (see Table 1). This underscores the fact that immigration has been occurring for different durations and is due to other causes in both parts of Germany. First-generation Turkish immigrants in East Germany have been permanent residents of Germany for an average of 11 years, and 22 years in West Germany (results not shown). The descriptive results point to a need for further evaluation if the health status of Turkish immigrants varies between East and West Germany. On a descriptive level, the following results can be found (see Table 1): 88% of first-generation Turkish immigrants who are currently living in East Germany report a (very) good health status. Comparatively, only 68% of East German natives say so. In West Germany, differences between Turkish immigrants and German natives are rather small: 77% of the Germans and 74% of first-generation Turkish immigrants state that their health status is (very) good. Because the number of second-generation Turkish immigrants is rather small, especially in East Germany, they are not investigated in more detail.

Multivariate results

Taking only socio-demographics into account (Model 1), first-generation Turkish immigrants seem to report worse health than the native German population. In fact, the odds of having a good health status are 0.555 times smaller for them as for German natives. By adding variables that are related to socio-economic status and coping resources, the significance of the effect vanishes. At this point we can conclude that there are no significant differences in health between German natives and first-generation Turkish immigrants when different determinants of health inequalities are controlled for. In other words, there is no independent effect of migrant status on health.

More insight into the health status of Turkish immigrants can be gained when variations between East and West Germany are considered in the analysis. When the interaction term (migrant background, first generation*region) in the final model, is added, a positive effect of first-generation Turkish migrant background on subjective health status evolves. Because the interaction term and both main effects are significant, first-generation Turkish immigrants in East Germany are significantly healthier than East German natives. As the descriptive results have already indicated, we also find that Turkish immigrants in West Germany vary only marginally from West German natives. When separate models for East and West Germany are estimated (results available from the author upon request), the effect of first-generation migrant health status is positive throughout the models in East Germany. Hence, Turkish immigrants are especially healthy in East Germany—regardless of the group of variables that is controlled for. For West Germany the same pattern is detected as it is for the general population (East and West Germany combined). In general, we conclude that there is no significant difference in health status between first-generation Turkish immigrants in West Germany and West German natives. First-generation Turkish immigrants in East Germany are, however, significantly healthier than East German natives. For the second generation, inserting an interaction term of region and migrant status is futile, since all respondents in East Germany indicate either a good or very good health status (see Table 1).

In Table 3, three separate models for first- and second-generation Turkish immigrants and German natives are displayed. Comparing the individual models for German natives and immigrants in Table 3 and keeping in mind the

Table 2 Logistic regression model to explain the subjective health status, constructed stepwise

	Model 1		Model 2		Model 3		Model 4	
Nagelkerke R^2:	0.224		0.260		0.298		0.298	
$n = 11{,}963$	OR	CI	OR	CI	OR	CI	OR	CI
Socio-demographics								
Turkish migrant background first generation[a]	0.555***	0.495–0.622	0.925	0.810–1.057	0.974	0.847–1.120	2.113*	1.123–3.999
Second generation[a]	0.959	0.700–1.312	1.326	0.964–1.825	1.461*	1.057–2.020	1.456*	1.053–2.012
Age	0.938***	0.935–0.941	0.945***	0.942–0.948	0.940***	0.936–0.943	0.940***	0.936–0.943
Female[b]	0.880**	0.803–0.965	0.932	0.847–1.025	0.930	0.844–1.025	0.936	0.849–1.032
Living in West Germany[c]	1.489***	1.319–1.681	1.504***	1.326–1.707	1.402***	1.228–1.600	1.461***	1.276–1.674
Socio-economic status								
Ended school without a degree[d]			0.616***	0.513–0.741	0.649***	0.538–0.783	0.649***	0.537–0.783
Medium educational level[d]			1.702***	1.510–1.919	1.577***	1.396–1.782	1.583***	1.401–1.789
High educational level[d]			2.323***	2.024–2.666	1.981***	1.720–2.282	1.980***	1.719–2.282
Unemployed[e]			0.642***	0.549–0.750	0.745***	0.635–0.873	0.751***	0.640–0.881
Unlimited work contract[f]			1.406***	1.256–1.573	1.306***	1.165–1.464	1.313***	1.171–1.472
Coping resources								
Satisfaction with the flat/house					1.092***	1.069–1.115	1.092***	1.069–1.115
Religious attendance					1.086***	1.034–1.140	1.087***	1.035–1.141
Social support[g]					1.502***	1.293–1.744	1.503***	1.294–1.745
Control over life					1.506***	1.414–1.604	1.503***	1.411–1.601
Trust towards other people								
One can trust most people[h]					1.376***	1.235–1.534	1.376***	1.235–1.533
No answer/do not know					0.897	0.667–1.205	0.898	0.668–1.207
Interaction effect region*migration background, first generation							0.447*	0.236–0.847

Dependent variable: subjective health status [1 (very) good, 0 moderate/(very) bad]

Source: Generations and Gender Survey 2005/2006, own calculations

CI 95% confidence interval, *OR* odds ratio

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Reference categories: [a]German natives, [b]males, [c]living in East Germany, [d]low educational level, [e]employed/not on the labour market, [f]limited/no work contract, [g]no support, [h]cautious towards other people

Table 3 Logistic regression model to explain the subjective health status, separately for Germans and first-, second-generation Turkish immigrants

	Model 1, Germans		Model 2, Turkish immigrants first generation		Model 3, Turkish immigrants second generation	
Nagelkerke R^2:	0.288		0.358		0.179	
	OR	CI	OR	CI	OR	CI
Socio-demographics						
Age	0.945***	0.941–0.949	0.927***	0.916–0.939	0.935**	0.896–0.975
Female[a]	1.024	0.916–1.145	0.698**	0.554–0.880	0.737	0.362–1.501
Living in West Germany[b]	1.458***	1.271–1.673	1.060	0.545–2.061	0.000	0.000
Socio-economic status						
Ended school without a degree[c]	0.509**	0.321–0.807	0.888	0.698–1.129	0.760	0.234–2.470
Medium educational level[c]	1.629***	1.426–1.860	1.411	0.991–2.010	1.336	0.613–2.910
High educational level[c]	1.972***	1.696–2.293	1.940**	1.185–3.174	1.892	0.612–5.851
Unemployed[d]	0.746**	0.607–0.917	0.791	0.590–1.060	0.852	0.346–2.097
Unlimited work contract[e]	1.310***	1.147–1.496	1.391*	1.073–1.804	1.159	0.537–2.501
Coping resources						
Satisfaction with the flat/house	1.101***	1.072–1.131	1.068***	1.029–1.109	1.112	0.999–1.239
Religious attendance	1.089**	1.024–1.159	1.136**	1.040–1.240	0.811	0.609–1.080
Social support[f]	1.470***	1.228–1.760	1.665***	1.239–2.236	2.571*	1.104–5.985
Control over life	1.474***	1.370–1.585	1.528***	1.332–1.753	1.541	0.991–2.395
Trust towards people[g]						
One can trust most people	1.464***	1.294–1.657	1.030	0.811–1.308	2.883*	1.043–7.967
No answer/do not know	0.944	0.677–1.317	0.766	0.371–1.583	1.719	0.315–9.375
Ability to speak German			1.344***	1.188–1.521	1.135	0.728–1.770
Time of permanent residence in Germany			0.972***	0.958–0.986		
n	8,615		2,736		612	

Dependent variable: subjective health status [1-(very) good, 0-moderate/(very) bad]

Source: Generations and Gender Survey 2005/2006, own calculations

CI 95% confidence interval, *OR* odds ratio

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Reference categories: [a]males, [b]living in East Germany, [c]low educational level, [d]employed/not on the labor market, [e]limited/no work contract, [f]no support, [g]cautious towards other people

results from Table 2 leads to the conclusion that the factors determining the health status of the respondents seem to be quite similar for Turkish immigrants and German natives. Nevertheless, some disparities can be found: gender seems to be only relevant for the health status of first-generation Turkish immigrants. Turkish women have a significantly worse health status than their male counterparts. Furthermore, the effect of unemployment diminishes when the groups are observed separately; this factor is only significant for German natives (Table 3, Model 1) and has a negative effect on health. The inexistence of a significant effect of region for first-generation Turkish immigrants may simply be caused by the low number of cases in East Germany. As the interaction effect in Table 2 indicates, Turkish immigrants in East Germany are extraordinarily healthy, whereas German natives in East Germany are especially unhealthy. This is in line with findings by Schöllgen et al. (2010) who used data from the German Ageing Survey. German natives and Turkish immigrants in West Germany have approximately the same level of health when all relevant variables are controlled for.

Concerning the variables that are specifically linked to the migration process, two strongly significant associations can be found. Being able to speak German has a positive effect on health: on a five-point scale [1-not at all, 5-very good] the odds of a good health status are 1.344 times larger when the language proficiency improves by just one category. Also, the effect of residence time on health is significant, even while simultaneously controlling for age. With each additional year of residence in Germany, the odds of having a good health status are 0.972 times smaller. Overall, we conclude that the various observed factors

influence the health status of Turkish immigrants and German natives to the same extent.

Discussion

Because the main focus of the GGS is on family relations and not on health, some potentially relevant information may be missing in the data set. Data regarding health-related behavior like smoking, alcohol consumption, or physical activity, and the access to medical care were not obtained. Some results on the differences in health-related behaviour between immigrants and German natives can be found in Razum et al. (2008). They find, for example, that immigrant men tend to smoke more while immigrant women smoke less than their German counterparts. Although differences in access to medical care for natives and immigrants exist (Fassaert et al. 2009; Razum et al. 2004), care is assured for everyone in Germany, at least on a legal basis.

The high number of Turkish immigrants surveyed in the GGS and the available information on subjective health status, socio-economic status, health burdens, and coping resources make the GGS one of the best data sets available to answer the research questions dealt with here. Another advantage of the GGS is that it allows for separate analysis of first- and second-generation Turkish immigrants. Since information on the second-generation of immigrants is widely lacking, the results at hand can be classified as first step to learn more about their health status.

Similar to the findings in the literature (Nielsen and Krasnik 2010), the descriptive results of our study are rather inconclusive and tend to indicate a worse health status of Turkish immigrants compared with German natives. Observing the subjective health status, first-generation Turkish immigrants and Germans who are up to the age of 45 seem to have the same level of health, but beyond that age group, first-generation Turkish immigrants are less healthy (see Fig. 1). Evaluating the health-related determinants, there also is a higher prevalence of potential risk factors in the group of Turkish immigrants (see Table 1).

The multivariate results are more explicit. When different factors that influence health status are controlled for, Turkish immigrants are at least as healthy as their German counterparts. Socio-economic status plays an especially important role here, because the previously negative effect of migrant status becomes insignificant when it is included in the analysis. When considering the individual coping resources, the effect of migrant status on health is reduced even further. At least for West Germany, hence, one important finding of this study is that there is no effect of migrant status on health itself. This means that the differences between Turkish immigrants and German natives on a rather superficial descriptive level are simply a matter of differences in socio-economic status and the allocation of resources.

Another result of the current study is that in general the determinants of the subjective health status do not vary for Turkish immigrants and German natives. A vast number of variables influence the health status for immigrants and Germans in the same way. One exception is the association between gender and health. Whereas gender differences cannot be found for German natives, first-generation Turkish immigrant women are significantly less healthy than their male counterparts (Table 3). This may be caused by differential health effects of socio-economic status, social support, discrimination, and use of medical services (Llácer et al. 2007). This association between gender and health deserves further attention in additional research.

Because the GGS is a cross-sectional study we cannot observe health status variations over time. Nevertheless, the residence time was included in the analysis for first-generation immigrants to evaluate as to what extent individuals with different residence/immigration times vary. A negative effect of residence time on health and the good health status of Turkish immigrants in East Germany are results which indicate a healthy migrant effect, in line with previous findings (Ronellenfitsch and Razum 2004). It seems as though Turkish immigrants living in Germany for shorter periods of time, as they have in East Germany, are particularly healthy, whereas Turkish immigrants who have resided in Germany (especially in West Germany) for a longer period of time are more similar to the German native population. This is an interesting finding that should be evaluated in more detail with data that include more immigrant cases in East Germany and allow for observing variations in health status over time (longitudinal data). These kinds of data are currently not available.

Also, as this study shows, Turkish immigrants who are currently living in Germany are still relatively young. Since a moderate/bad health status becomes more prevalent later in life, future research will be able to focus more on this aspect and determine whether older Turkish immigrants are especially unhealthy after living in Germany for a longer period of time, and if the effect is stable over time. At this point, we cannot conclude with certainty whether the detected associations are merely a question of different immigrant cohorts being observed or if the health status actually deteriorates. In this sense, the study at hand can be seen as a first step to learn about the health status of Turkish immigrants in Germany. Additional research is necessary to confirm and expand the results found here.

Conflict of interest The author declares that she has no competing interests.

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