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RISK FACTORS

Behavioural risk factors in two generations of non-Western migrants: do trends converge towards the host population?

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Abstract. Migrant mortality does not conform to a single pattern of convergence towards prevalence rates in the host population. To understand better how migrant mortality develops, it is necessary to further investigate how the underlying behavioural determinants change following migration. We studied whether the prevalence of behavioural risk factors over two generations of Turkish and Moroccan migrants converge towards the prevalence rates in the Dutch population. From a random sample from the population register of Amsterdam, 291 Moroccan and 505 Turkish migrants, aged 15–30, participated in a structured interview that included questions on smoking, alcohol consumption, physical inactivity and weight/height. Data from the Dutch population were available from Statistics Netherlands. By calculating age-adjusted Odds Ratio's, prevalence rates among both generations were compared with prevalence rates in the host population for men and women separately. We found indications of convergence across generations towards the prevalence rates in the host population for smoking in Turkish men, for overweight in Turkish and Moroccan women and for physical inactivity in Turkish women. Alcohol consumption, however, remained low in all subgroups and did not converge towards the higher rates in the host population. In addition, we found a reversed trend among Turkish women regarding smoking: the second generation smoked significantly more, while the first generation did not differ from ethnic Dutch. In general, behavioural risk factors in two generations of non-Western migrants in the Netherlands seem to converge towards the prevalence rates in the Dutch population. However, some subgroups and risk factors showed a different pattern.

Key words: Behavioural risk factors, Convergence, Generation, Non-Western migrants, Western-Europe

Introduction

Migration influences the health of migrants [1]. Studies that examined whether migrant mortality and morbidity converge towards the rates in the host population have shown that results do not conform to a single pattern of convergence. Instead, patterns are rather diverse and complex [1–6]. The effect of migration on a particular health outcome depends on the ethnic background of migrants, where they migrate to, and what health outcome is measured [1].

To understand better how morbidity and mortality develops among migrants, it is necessary to investigate further how the underlying determinants, such as behavioural risk factors, develop following migration. Non-Western migrants living in Western countries partly adopt the so-called Western lifestyle which is characterized amongst others by a high prevalence of cigarette smoking, alcohol intake, physical inactivity and overweight [7–9]. In turn, these are important determinants of cardiovascular diseases, diabetes and certain types of cancer [10, 11]. Several studies that focused on changes in behavioural risk factors have either compared first generation (foreign born) and second generation (native born) migrants or have compared groups on the basis of their years of residence in the host country [12–14]. Changes in behavioural risk factors over generations are commonly understood in terms of differences in acculturation and perceived ethnic identity between first and second generation migrants [15–17]. First generation migrants are expected to adopt Western behavioural practices less readily than second generation migrants because of their stronger identification with their ancestral groups and less acculturated position [16, 18].

However, although these studies assume that the second generation is more similar to the Western majority population, they did not study this issue explicitly. Differentiation of migrant groups at this level may provide useful insight as to how behavioural risk factors across generations may develop in

the future. This kind of information is necessary to decide whether ethnic specific public health prevention programs are needed in later generations.

Furthermore, most of the studies that assessed generation differences in behavioural risk factors were carried out among migrant populations in the US, while in Western-Europe, very few studies have focused on differentiation within ethnic groups according to generational status. Instead, most European studies have only assessed ethnic differences in behavioural risk factors by comparing first generation migrants with the host population [6, 19–23].

The aim of this study was to explore whether the prevalence rates of behavioural risk factors tend to converge towards the rates in the host population, within the time-span of two generations within two of the largest non-Western migrant populations in Western-European countries, the Turks and Moroccans [24, 25]. The first generation in our study population consists mostly of persons who came for the purpose of family reunion with their family members (mostly fathers) who came as labour migrants during 1960–1980 or they came for the purpose of family formation. The second generation is mostly the offspring of the first generation labour migrants [26, 27].

In this study we compared the prevalence rates of behavioural risk factors among these two generations with the prevalence found in the comparable age and sex groups in the ethnic Dutch population.

Methods

Data were analysed from the LASER-study (Lifestyle in Amsterdam: Study among Ethnic gRoups) on behavioural risk factors among Turks and Moroccans living in Amsterdam, The Netherlands. In the LASER-study a random sample was drawn from the Amsterdam population registry that included people aged between 10 and 30 years, born in Turkey or Morocco or with at least one parent born in Turkey or Morocco. From this sample we only used the data of participants aged between 15 and 30, as the prevalence of the risk factors was very different among the group aged 10–14.

Face-to-face interviews were held from April 2003 until December 2004, by trained interviewers of the same ethnic background and sex. The total Turkish sample consisted of 1,556 migrants. Approximately 13% of the sample could not be traced because of incorrect address information. Of the 1,354 respondents that could be traced, 768 participated in the study (57%). Most cases of 'non-response' were refusals to participate (32%) or they could not be reached after three attempts (12%). The Moroccan sample consisted of 995 migrants of whom 12% had incorrect address information. Of the 872 persons that could be traced, 476 participated in the study (55%). Within the non-response group, 26% refused to participate and approximately 19% could not be reached after three attempts. For the current study this resulted in 505 Turkish and 291 Moroccan participants aged 15–30.

The study population is representative for the Turkish and Moroccan population aged 15–30 living in Amsterdam, according to sex, generational status (country of birth) and city district. Except for the Moroccan male population, among whom the age category 20–30 is under-represented and participants from one city district were slightly over-represented.

A structured questionnaire was used that included questions about health-related behaviour. The questionnaire was forward and back-translated by professional translators. The results of these translations were discussed with the translators and researcher to make sure that the meaning of the questions did not change.

Generational status

Participants born in Turkey or Morocco were classified as first generation migrants. Second generation migrants were the participants who were born in the Netherlands and had at least one parent born in Turkey or Morocco.

Behavioural risk factors

Smoking

Participants were classified as smokers or never smokers based on their response to the question: ''Which of the following (smoking related) statements is applicable to you?''. Regarding the young age of the participants, we used a broad definition of being a smoker, including triers and experimenters who smoked monthly or only tried once in a while [28, 29]. Two examples of the nine statements are: 'I try smoking once in a while' and 'I have never smoked, not even one puff'.

Alcohol consumption

Alcohol consumption was measured by asking the participant whether he/she drank one of the mentioned alcoholic beverages once in a while. If they mentioned one or more of the listed beverages they were categorized as 'drinkers'. People who indicated that they never drank alcohol or that they had quit drinking alcohol were classified as abstainers.

Physical inactivity

We used the validated *Short Questionnaire to Assess Health Enhancing Physical Activity* (SQUASH) to determine whether participants met the guidelines for physical activity [30]. The questionnaire included questions about transportation to work or school, occupational activity, household activities, participation in sport and other leisure time activities. Total

minutes of activity were calculated by multiplying frequency (days/week) by duration (min/day). Activity scores for separate questions were calculated by multiplying total minutes of activity by the intensity score. All activities were coded according to the Compendium of Physical Activities of Ainsworth [31]. The intensity score was expressed in MET's (i.e. metabolic equivalent or number of times resting metabolic rate). For people aged younger than 18 years, the cut-off point for moderate activity was 5 MET or higher and 4 MET or higher for people aged 18 and older. Cut-off points were derived from the Dutch physical activity guidelines [32]. Participants were classified as *not* sufficiently active when they did *not* meet the recommendation of least 30 min (60 min for people under 18) of moderate activity for five or more days in a week.

Overweight

Participants were weighted and measured during the home visit. To assess the prevalence of overweight we calculated the *Body Mass Index* (BMI) with adjusted cut-off points for people under 18 [33]. Due to logistic problems not all participants could be weighted during the interview. In these cases weight and height were based on self-report. However, additional analyses indicated there was no difference in average BMI and prevalence of overweight between the group who was weighted and measured by the interviewer and the groups who had reported their own weight and height.

Data from the ethnic Dutch population

Data from the ethnic Dutch population, aged 15–30, were available from a national survey from Netherlands Statistics, which was held in the same period (2003–2004) as the LASER-study [34]. Participants were randomly selected from the population registers. In this survey, data was collected on behavioural risk factors among the general Dutch population. For the purpose of our study, we only included the participants with an ethnic Dutch origin, which were representative for the national ethnic Dutch population. Definitions of the outcome measures were similar to the definitions used in the LASER-study. Except for smoking behaviour, the Dutch survey used a different question ('do you ever smoke?') than the LASER-study in which the prevalence of smoking behaviour was based on a self-perception item based on the theory of the smoking uptake continuum by Flay and colleagues, which is considered to be an appropriate measure among relatively young age groups [28, 29].

For overweight, the Dutch survey used self-reported data on weight and height, which might have led to an underestimation of the actual prevalence of overweight [35, 36]. Consequences of these differences for the results of this study will be discussed in the discussion section.

Analysis

Prevalence rates were calculated for all groups by ethnicity and sex and weighted for age. To assess whether the prevalence rates of behavioural risk factors in first and second generation migrants differed from the prevalence rates in the ethnic Dutch population, we calculated Odds Ratio's (OR) with 95% Confidence Intervals (CI) for the risk factors in each subgroup (by ethnicity and sex) separately with the ethnic Dutch as the reference group.

Results

Table 1 shows the characteristics of the Turkish and Moroccan participants by generational status, for men and women separately. One-third to half of participants in all groups were born in Turkey or Morocco which means they were classified as first generation migrants. Second generation participants were more represented among the younger age groups, with a mean age varying from 18.8 to 20.2 years. Among first generation migrants, most participants were 25–30 years of age with a mean age varying from 21.0 to 25.0 years.

Among the first generation, more participants were married (or cohabiting) than among the second generation migrants. More than half of the participants in each subgroup (except for Turkish women) had a middle to high educational level, meaning they had followed intermediate vocational training or higher. Among the first generation migrants, at least one-third in each subgroup had migrated before the age of 6 and approximately half of the participants had lived for longer than 12 years in the Netherlands.

Prevalence rates of behavioural risk factors

Table 2 shows the age-weighted prevalence rates of behavioural risk factors among first as well as second generation migrants and among the ethnic Dutch comparison groups. In most subgroups, second generation migrants had prevalence rates that were more similar to the prevalence rates among the ethnic Dutch compared to first generation migrants. This was particularly found for smoking and overweight. Among Turkish men, 45.6% of the second generation were smokers, which was more similar to the prevalence found in Dutch men (36.2%) than the higher prevalence found in first generation Turkish men (54.9%). Similar declining trends were found for overweight in women: 38.9% of the first generation Turkish and Moroccan women were overweight, this percentage was much lower in the second generation, respectively, 25.9 and 26.5%, which came closer to the prevalence in ethnic Dutch women (19%). Also the level of physical inactivity in second generation

Table 1. Characteristics of the study population

	Turks				Moroccans			
	Men n = 244		Women n = 261		Men n = 115		Women n = 176	
	First generation n = 93 n (%)	Second generation n = 151 n (%)	First generation n = 129 n (%)	Second generation n = 132 n (%)	First generation n = 38 n (%)	Second generation n = 77 n (%)	First generation n = 73 n (%)	Second generation n = 103 n (%)
Age								
15–19	33 (35.5)	83 (55.0)	30 (23.3)	80 (60.6)	19 (50.0)	54 (70.1)	18 (24.7)	66 (64.1)
20–24	20 (21.5)	43 (28.5)	21 (16.3)	32 (24.2)	10 (26.3)	17 (22.1)	15 (20.5)	24 (23.3)
25–30	40 (43.0)	25 (16.6)	78 (60.5)	20 (15.2)	9 (23.7)	6 (7.8)	40 (54.8)	13 (12.6)
Mean age	23.0 (5.3)	20.2 (4.0)	25.0 (5.0)	19.5 (3.9)	21.0 (4.6)	18.8 (3.5)	24.3 (4.8)	19.3 (3.8)
Marital status								
Married or cohabiting	42 (45.2)	30 (19.9)	78 (60.5)	28 (21.2)	6 (15.8)	7 (9.1)	34 (46.6)	22 (22.4)
Not married or cohabiting	51 (54.8)	121 (80.1)	51 (39.5)	104 (78.8)	32 (84.2)	70 (90.9)	39 (53.4)	81 (78.6)
Education								
Low	36 (40.4)	54 (37.0)	72 (57.1)	50 (39.7)	12 (34.3)	25 (33.8)	29 (43.3)	36 (36.0)
Middle to high	53 (59.6)	92 (63.0)	54 (42.9)	76 (60.3)	23 (65.7)	49 (66.2)	38 (56.7)	64 (64.0)
Age at migration								
> 6th year	63 (68.5)	–	91 (71.7)	–	20 (57.1)	–	42 (58.3)	–
< 6th year	29 (31.5)	–	36 (28.3)	–	15 (42.9)	–	30 (41.7)	–
Years of residence								
< 12 years	43 (46.2)	–	59 (45.7)	–	20 (55.6)	–	29 (39.7)	–
> 12 years	50 (53.8)	–	70 (54.3)	–	16 (44.4)	–	44 (60.3)	–

Table 2. Prevalence of behavioural risk factors among first and second generation Turkish and Moroccan men and women, compared with the prevalence in ethnic Dutch men and women

	Turkish women n = 261		Moroccan women n = 176		Dutch women[a] n = 1,276–1,666
	First generation % (95%CI)	Second generation % (95%CI)	First generation % (95%CI)	Second generation % (95%CI)	% (95%CI)
Smoking	35.1 (26.9–43.3)	44.4 (35.9–52.9)	2.2 (−1.2–5.6)	3.2 (−0.2–6.6)	32.8 (30.6–35.1)
Alcohol intake	18.7 (11.8–25.6)	21.9 (14.7–29.1)	5.9 (0.5–11.3)	3.4 (−0.1–6.5)	86.3 (84.5–88.1)
Insufficiently physically active[b]	66.8 (58.7–74.9)	58.0 (49.6–66.4)	74.2 (64.2–84.2)	76.2 (68.0–84.4)	53.0 (50.3–55.7)
Overweight	38.9 (29.3–48.5)	25.9 (16.8–35.1)	38.9 (26.2–51.6)	26.5 (16.9–36.1)	19.0 (17.1–20.9)
	Turkish men n = 244		Moroccan men n = 115		Dutch men[a] n = 1,199–1,677
	First generation % (95%CI)	Second generation % (95%CI)	First generation % (95%CI)	Second generation % (95%CI)	% (95%CI)
Smoking	54.9 (44.4–65.4)	45.6 (37.1–54.1)	22.0 (8.7–35.4)	34.8 (24.0–45.7)	36.2 (33.9–38.5)
Alcohol intake	35.0 (25.0–45.0)	38.9 (30.9–46.9)	19.6 (7.0–32.2)	23.4 (13.9–32.9)	92.6 (91.2–94.0)
Insufficiently physically active[b]	56.4 (46.3–66.5)	56.4 (48.5–64.3)	57.1 (41.4–72.8)	54.6 (43.5–65.7)	51.2 (48.4–54.0)
Overweight	34.7 (24.9–44.5)	43.2 (34.9–51.5)	9.6 (0.02–19.2)	22.5 (12.5–32.5)	21.8 (19.8–23.8)

All percentages were weighted for age.

[a] Data for the ethnic Dutch population were available from Statistics Netherlands: POLS-survey 2003/2004.

[b] Not meeting the guidelines of at least 30 min of moderate physical activity during 5 or more days in a week.

Turkish women (58%) seemed to approach the level among ethnic Dutch women (53%).

Different results were found for smoking among Turkish women: second generation women smoked much more (44.4%) than first generation women (35.1%), who did not differ from ethnic Dutch (32.8%). In addition, the difference in overweight between Turkish and ethnic Dutch men, was greater for second generation (43.2%) than for first generation men (34.7%).

Odds ratio's of behavioural risk factors in first and second generation

In Figure 1 the Odds Ratio's (OR's) are presented of the two behavioural risk factors, in first and second generation migrants that showed the most clear trends of convergence towards prevalence rates among ethnic Dutch. These figures mostly confirm the indications of convergence that were derived from Table 2. This applies to smoking behaviour in Turkish men with an OR of 2.15 (CI: 1.41–3.27) among first generation and 1.48 (CI: 1.05–2.07) in second generation men. This trend was less clear among Moroccan men (first generation OR: 0.50, CI: 0.23–1.08 and second generation with OR: 0.79, CI: 0.49–1.25). Regarding overweight, we found a converging trend in Turkish women (OR: 2.71, CI: 1.98–3.72 in first generation and OR: 1.49, CI: 1.06–2.10 in second generation). A similar trend was found among Moroccan women (OR: 2.71, CI: 1.80–4.08) in first generation and OR: 1.54, CI: 1.05–2.25 in second generation).

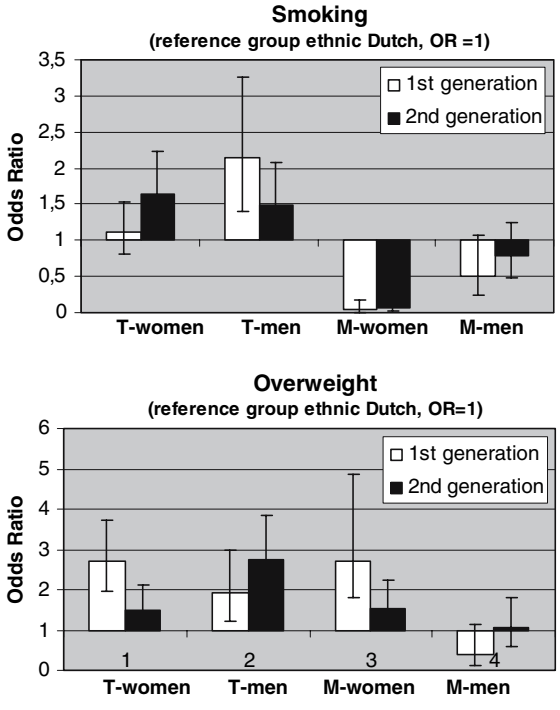

Figure 1. Odds ratio's with 95% confidence intervals for behavioural risk factors among Turkish and Moroccan men and women of first and second generation compared to the reference group, ethnic Dutch men and women.

In contrast to the aforementioned indications of convergence, among Turkish women we found a clear reversed trend for smoking: among first generation women (OR: 1.11, CI: 0.80–1.54) the prevalence of smoking was similar to ethnic Dutch women, while among second generation significantly more women smoked (OR: 1.64, CI: 1.20–2.23). Moreover, among Turkish men, the already significantly higher prevalence of overweight in the first generation compared to the ethnic Dutch reference group (OR: 1.91, CI: 1.22–2.97) was even greater in second generation Turkish men (OR: 2.73, CI: 1.94–3.84).

Regarding physical inactivity and alcohol intake (not shown in figures), the converging trends were less clear: we only found a trend in second generation Turkish women who approached the prevalence rate in the ethnic Dutch reference group (first generation OR: 1.78, CI: 1.21–2.61, second generation OR: 0.82, CI: 0.56–1.17).

In addition, Moroccan women showed the least indications for convergence of risk factors towards the ethnic Dutch women: among both generations, significantly lower prevalence rates were found for smoking and alcohol consumption and a significantly higher prevalence of physical inactivity.

Discussion

We examined whether the prevalence of behavioural risk factors in Turkish and Moroccan migrants in the Netherlands tends to converge towards the prevalence rates in the host population with increasing generational status. Trends of converging risk factors were found for smoking (Turkish men), overweight (women) and physical inactivity (Turkish women). However, these trends were not found in all subgroups by ethnicity and sex. Some groups showed a trend in opposite direction: Turkish women of second generation smoked significantly more than ethnic Dutch women, while the first generation did not differ from ethnic Dutch. Among Turkish men we found that the difference with the ethnic Dutch men in prevalence of overweight is even greater in second generation compared to first generation men. The only risk factor that did not seem to differ between the generations within all four subgroups was the consumption of alcohol.

Limitations of the study

Before discussing the main results, a few limitations of the study need to be mentioned. First, as the LASER-study did not include data of the ethnic Dutch population we compared our data of the Turkish and Moroccan population in Amsterdam with existing data among ethnic Dutch from a

national representative survey [34]. The Dutch national survey was held within the same period (2003–2004) as the LASER study and included similar outcome measures.

However, we must take into consideration the existence of regional differences in prevalence rates of the risk factors, in this case the difference between Amsterdam and The Netherlands. However, these regional differences were generally rather small for the younger age groups within the general Dutch population [37]. As a result we expect that the trends we found in this study would be similar when comparing our data with the ethnic Dutch living in Amsterdam.

A second limitation of the study concerns the self-reported data on weight and height within the national Dutch survey. This implies that the prevalence of overweight might be underestimated within the ethnic Dutch comparison groups [35, 36]. However, we found extremely large differences in prevalence rates between the migrant populations and the ethnic Dutch, in particular among the Turkish and the Moroccan women of the first generation. Therefore, we expect that the trends of decreasing overweight across the generations would not be different when using measured data on weight and height.

A third limitation is the possible social desirability in answering the questions on alcohol consumption due to the fact that the consumption of alcohol is prohibited by Islam and therefore less accepted among Muslims, especially among women [38]. We tried to enhance the reliability of the answers by allowing the participant to fill in the questions on paper and by conducting the interview without the presence of other persons. In addition, prior research has indicated that the prevalence of alcohol consumption among second generation Turks and Moroccan is higher when using a postal survey or when interviews are held by ethnic Dutch interviewers instead of interviewers with the same ethnic background as the participants [39]. However, considering the large differences in percentage of alcohol users between ethnic Dutch and the Turkish and Moroccan participants, in line with other studies, we expect that different methods would not affect the main outcomes regarding alcohol consumption in this population.

Finally, we did not take into account the fact that behaviour in the Dutch population is also changing over time. To further investigate whether behaviour of migrants will change in the same direction, it will be necessary to compare the trends in behaviour with the trends in the host population.

Interpretation of the results

Our findings of a generally higher prevalence of overweight and physical inactivity in most of the subgroups compared to the host population, are in line with other studies among mostly Turkish and (to a lesser extent) Moroccan migrants in Western-European countries such as in Sweden and the Netherlands [19, 21, 22, 40–43].

The same applies to the higher prevalence of smoking among first generation Turkish men, the lower smoking rates among women and the overall low prevalence of alcohol consumption [6, 19, 39, 44].

However, these studies either did not differentiate between the first and second generation, or they only reported about ethnic differences between first generation migrants (foreign born) and the host population. In the US however, a growing number of studies have assessed generational differences in behavioural risk factors among migrants, but most of these studies only reported a positive or negative association with generational status without making an explicit comparison with the prevalence rates in the host population [7–9, 12–14, 45–50]. As a result these studies cannot demonstrate whether the pattern of convergence towards the prevalence rates in the host population was found.

Our study observed the assumed pattern of convergence most clearly for smoking, overweight and physical inactivity, but not within all ethnicity–sex subgroups. We also found two trends in the opposite direction. First, among Turkish women the first generation did not differ from ethnic Dutch women, while second generation Turkish women smoked much more. This might be due to the fact that the second generation has a higher education level, which in turn has been shown to be related to a higher prevalence of smoking in Turkish women [51]. Second, the difference in prevalence of overweight between ethnic Dutch and Turkish men is even greater in second generation than in first generation.

Furthermore, it appeared that Moroccan women, showed the least trends of convergence. They had extremely low prevalence rates of smoking and alcohol consumption and a high prevalence of physical inactivity, with no differences between the generations.

Another finding was the very low prevalence of alcohol consumption within all subgroups (by ethnicity and sex) in both generations. This is probably related to the religious and cultural norms towards these behaviours in Islamic cultures, which might be of great influence in first as well as second generation migrants [39, 52]. Most Turks and Moroccans seem to adhere to the Islamic rule of alcohol abstinence, especially when they are practicing Islam and adhering to their own cultural and religious traditions [39]. If religious norms or attitudes towards a behaviour are very strongly embedded in a culture, it might be that the behaviour does not converge or at least converges more slowly. This might also be an explanation for the absence of convergence of smoking among Moroccan women, because of the strong negative attitudes towards smoking, particularly among women in Moroccan culture.

However, the prevalence of alcohol use does not give information about the drinking patterns, which might differ between the generations. Therefore, we suggest that a further exploration of drinking patterns is useful, within a study focusing on alcohol consumption in particular.

In addition to comparing prevalence rates among the generations with ethnic Dutch, we also explored whether there were significant generation effects (results not shown). We found that most generation effects confirmed the presented results, however, some of the expected differences were not statistically significant, probably due to a lack of power. When combining subgroups, for example Turkish and Moroccan women, significant effects of generation on overweight were found (OR of second generation: 0.53 (0.31–0.91). However, in contrast to other studies, generation effects *per se* were not the main issue in our study as the test of the convergence hypothesis required us to focus on the differences with the host population in particular.

Other studies have found that apart from generational status (based on country of birth), the age at which people migrate might influence the adoption of behavioural practices from the host country [14, 53]. Unfortunately, in the LASER-study we were not able to analyse the influence of age at migration due to the small numbers of participants. We suggest this effect should be further explored.

In addition, several studies have explored the effect of number of years since migration on prevalence rates of behavioural risk factors [40, 42, 47–49, 54]. Considering that our study population was young and age was limited to 15–30 years, it was less relevant to study this effect.

Overall, this study indicated that the prevalence of some of the behavioural risk in second generation Turkish and Moroccan migrants is more similar to the prevalence in the host population than among first generation migrants. We anticipate that the pattern of convergence we have found, as well as the opposite trends, might be found in these same ethnic groups living in other Western-European countries, such as in Germany, Sweden, France and Belgium [24, 25].

To understand why some risk factors converge within two generations and others do not, mechanisms that are associated with the changes in behavioural risk factors over generations need to be explored. These mechanisms are, among others, the process of acculturation and the changing socio-economic position of migrants [1]. Generally, higher acculturated migrants are, in contrast with the lower acculturated, more likely to be exposed to similar cultural stimuli and share the same environmental influences on their behaviour as the host population [55]. Assuming that second generation migrants will be more acculturated, it is expected that they will be more likely to adopt the attitudes and norms towards certain behaviour that is common in the host population [15–18]. It might be however, that some norms will change faster than others, such as cultural or religious norms about alcohol consumption.

Similarly, the changing socio-economic position between generations might be related to the differences in behavioural risk factors. Higher educated migrants may be more likely to resemble the host population, as was observed in a study of (amongst other behaviours) smoking in Turkish women [51].

In conclusion, our results indicated that the prevalence of behavioural risk factors in non-Western migrant populations does not necessarily converge across two generations towards the lower prevalence rates in the host population. We suggest therefore that it remains necessary for health promotion programmes to specifically target these high-risk groups. Of particular concern are the trends in smoking behaviour among Turkish women, overweight in Turkish men and the high level of physical inactivity among Moroccan women. In order to develop ethnic specific preventive programs, further exploration of the mechanisms involved in the tendency of adopting (or not adopting) the behavioural risk factors of the host population is needed. In addition, this information might help to predict future development of behavioural risk factors (and related mortality) across generations of migrants.

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