Original Research

Risk groups for overweight and obesity among Turkish and Moroccan migrants in The Netherlands

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Summary *Objectives*: The association between sociodemographic factors and acculturation with overweight/obesity in Turks and Moroccans was studied to identify target groups for prevention.
Study design: A cross-sectional study was undertaken among a sample of 1384 Turks and Moroccans aged 35–74 years in Amsterdam, The Netherlands.
Methods: Data were collected by structured face-to-face interviews. Body mass index (BMI) was calculated from self-reported height and weight data. Socio-demographic variables collected were sex, age, educational level, marital status, parity and income level. Acculturation was measured by cultural orientation and length of residence in The Netherlands. Data of 1095 Turks and Moroccans were analysed using logistic regression, with overweight/obesity (BMI $\geqslant 25.0$) as the dependent variable.
Results: The prevalence of overweight/obesity was high (57–89%). Age, marital status, parity, income level, cultural orientation and length of residence were not associated or only weakly associated with overweight/obesity. Educational level and overweight/obesity were strongly associated in Turkish women (odds ratio 4.56; 95% confidence intervals 1.54–13.51).
Conclusions: The high prevalence of overweight/obesity in Turkish and Moroccan migrants varies little across sociodemographic groups and is not associated with acculturation. Poorly educated Turkish women are at particularly high risk.
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Introduction

Overweight and obesity are important problems for public health. They result from an imbalance between energy intake and energy expenditure, and are associated with chronic diseases such as cardiovascular disease and diabetes mellitus.[1] The prevalence of overweight/obesity is increasing in The Netherlands, as it is worldwide. Migration to a Western culture seems to increase the risk of overweight/obesity.[2,3] In Europe, two important migrant groups are Turks and Moroccans. There are indications that the prevalence of overweight/ obesity in these groups is high, especially among women.[4–7]

Identifying the important determinants of the development of overweight/obesity may help to define target groups for prevention. Previous studies have shown that the prevalence of overweight/ obesity is higher in women, some ethnic groups and lower socio-economic groups, and increases with age and parity. Inconsistent results have been found for the association between marital status and overweight/obesity.[8,9] Furthermore, the prevalence of overweight/obesity among migrant groups may be influenced by the process of acculturation, i.e. the cultural changes as a result of contact with the host country.[10] In Europe, few studies have explored this topic. One Dutch study demonstrated that the prevalence of overweight/obesity among young, second-generation Turkish and Moroccan women tends to converge to the prevalence rate among ethnic Dutch women, presumably as a result of acculturation. However, the same study showed that this was not the case among second-generation Turkish men, where the prevalence of overweight/ obesity tends to diverge.[11] Studies in the USA have shown a variable association between acculturation and body mass index (BMI) depending on ethnic background and gender.[12–15]

Little is known about the determinants of overweight/obesity in Turks and Moroccans in Europe. Therefore, this study investigated the association of overweight/obesity with sociodemographic factors and acculturation in Dutch residents of Turkish and Moroccan origin in order to identify target groups for preventative activities.

Methods

Data collection and subjects

Data for this study were collected as part of a general health questionnaire. The Turkish and Moroccan respondents aged 35–74 years ($n = 1384$) were derived from a sample taken from the Amsterdam population register that included non-institutionalized inhabitants. Ethnic origin was based on the respondent's country of birth and the country of birth of the respondent's parents, as recorded in the register. The response rate among Turks and Moroccans was 42%. Between October 1999 and November 2000, the respondents were interviewed at home in Dutch, Turkish or Arabic. Interviewers were matched to respondents according to ethnic origin and sex. The interviews were based on a questionnaire that was forward and back translated from Dutch to Turkish and Arabic by professional translators. The discrepancies between the two versions were resolved by experts.[16] The analyses reported in this paper concern Turkish and Moroccan respondents with available data on BMI ($n = 1095$).

Measures

Overweight/obesity was defined as a $BMI \geqslant 25.0\,kg/m^2$ and was calculated from self-reported data on height and weight. Demographic characteristics included sex, age, marital status and parity. Socio-economic status included educational level (none or primary school versus more than primary school) and family income (below versus above the poverty line). Acculturation was measured by length of residence in The Netherlands and cultural orientation. Length of residence (in years) was dichotomized on the median. The questionnaire on cultural orientation included 29 items such as language use, food preferences and emancipation.[17,18] Three subscales were constructed using principal component analysis as a method for data reduction: 'cultural orientation public' (five items; score 5–15; $\alpha = 0.78$), 'private communication' (three items; score 3–9; $\alpha = 0.72$) and 'emancipation' (six items; score 6–18; $\alpha = 0.76$). The internal consistency of the scales was assessed by reliability analysis (Cronbach's α). The three subscales were summed to produce an overall score for cultural orientation (14 items; score 14–42; $\alpha = 0.82$). The overall score was dichotomized on the median, with subjects in the lower 50% percentile being least oriented towards the Dutch culture. The dichotomized overall score was used in the analysis.

Analysis

Logistic regression analysis was used to study the association of overweight/obesity with sociodemographic variables and acculturation among Turks and Moroccans. The data were adjusted for age and