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Original article

Barriers to healthy eating in Switzerland: A nationwide study

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SUMMARY

Background & aims: Several barriers can hinder healthy eating in the population. We aimed to assess the prevalence of self-reported barriers to healthy eating in Switzerland and examine their socioeconomic and demographic determinants.

Methods: Using representative cross-sectional data from the Swiss Health Survey 2012, we assessed, separately by gender, the prevalence of ten barriers and their association with demographic and socioeconomic determinants; we used age- and multivariable-adjusted logistic regression and report the odds ratio for likelihood to identify each barrier according to each demographic and socioeconomic determinant.

Results: The most prevalent barriers were "price" (43.2% in women, 35.8% in men), "daily habits, constraints" (39.8%, 37.5%), "fondness of good food" (38.8%, 51.0%), "time constraint" (34.8%, 29.0%) and "lack of willpower" (22.0%, 21.2%). Prevalence of most barriers decreased with age, increased for "fondness of good food" and remained constant for "price." After multivariable adjustment, obese participants were more likely to report "fondness of good food" [Odds ratio (95% confidence interval) for obese vs. normal weight women and men, respectively: 1.63 (1.38–1.91), 2.02 (1.72–2.38)]. Participants with lower education were more likely to report "fondness of good food" [mandatory vs. tertiary women and men, respectively: 1.93 (1.62–2.39), 1.51 (1.26–1.81)], but less likely to report "lack of willpower" [0.45 (0.38–0.55), 0.40 (0.33–0.49)] and "time constraint" [0.61 (0.51–0.73), 0.78 (0.63–0.96)]. Participants with lower income were more likely to report "price" [lowest vs. highest quartile for women and men, respectively, 1.65 (1.43–1.90), 1.47 (1.26–1.71)] but less likely to report "lack of willpower" [0.71 (0.61–0.82), 0.40 (0.33–0.49)]. Smoking, living situation, nationality and living area showed little or no association.

Conclusion: Several barriers to healthy eating were highly prevalent regardless of gender; the most important determinants were age, obesity, education, and income, with different effects per barrier. This requires multifaceted interventions to tackle several barriers simultaneously.

1. Introduction

Healthy eating is associated with lower risk of developing many chronic noncommunicable diseases such as obesity, diabetes, hypertension, myocardial infarction, stroke and many forms of cancer [1,2], all of which disproportionately affect people of lower socioeconomic status (SES) [3,4]. Indeed, healthy eating—any diet high in fruits, vegetables, whole grains, nuts and seeds, and low in sugar, salt, red meat and processed foods—tends to be more common in women, older people, those with normal BMI and higher SES [5,6].

The demographic and socioeconomic inequalities in healthy eating are likely driven by the conditions in which people live and work, and by the distribution of and access to resources and money in their communities—the social determinants of health [7]. The evidence points to access barriers such as food price and availability of healthy foods in stores [8–12]; external barriers such as time and work constraints [8,9,13]; individual barriers such as food taste preference [8,11,12] and willpower [8]; and social barriers such as lack of social support [14]. Thus, despite widespread dietary

Abbreviations: CVD, cardiovascular disease; SES, socioeconomic status; SHS, Swiss Health Survey.

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guidelines in most high-income countries aiming to provide sufficient nutrition knowledge, people face several barriers that prevent compliance to healthy eating recommendations. In clinical nutrition, these barriers may hinder preventive measures and adversely affect outcomes.

In Switzerland, compliance to dietary guidelines is low, with men, obese people, and those with low education being less likely to comply [15]. The Swiss population enjoys a high quality of life, low unemployment and poverty, universal and mandatory healthcare, and one of the longest life expectancies worldwide [16]. Compared to bordering France or Germany, Switzerland has low cardiovascular disease (CVD) mortality and relatively low CVD risk factors [17]. A recent study in a Swiss city showed that people with high education, older age and living in couple were more likely to follow a healthy diet [18]. However, no study has investigated potential barriers to healthy eating in Switzerland. Thus, using a nationally representative sample of the Swiss adult population, we aimed to assess, separately by gender, the prevalence of barriers to healthy eating and their demographic and socioeconomic determinants.

2. Methods

2.1. Database and sampling

Data from the Swiss Health Survey (SHS) of 2012 was analyzed. The SHS is a cross-sectional, nationwide, population-based study conducted every five years since 1992 by the Swiss Federal Statistical Office under a mandate of the Swiss Government. The SHS is considered representative of the Swiss adult population, does not require consent from an Ethics Committee, and the data are anonymized before use.

Selection of participants is based on a stratified random sampling applied to a database of all private Swiss households with landline telephones (over 90% of the population). The first sampling stratum consists of the seven main administrative regions (Leman, Mittelland, Northwest, Zurich, Northeast, Central and South). The second stratum consists of the cantons, the number of households drawn being proportional to each cantonal population. In some cantons, oversampling of the households was made to obtain accurate cantonal estimates, and extra strata were used for the cantons of Zurich and Bern. Overall, 29 strata were used. The third stratum is the household. For each household, one member aged ≥15 years was randomly selected; an invitation letter to participate in the survey was sent, and phone contacts were made if no response to the letter was obtained. Participants aged <75 years were interviewed by phone using computer-assisted telephone interview software, while participants aged ≥75 years received face-to-face interviews at home. All participants were invited to fill out an additional written questionnaire sent by mail. The interviews were conducted in German, French or Italian—individuals unable to speak any were excluded, as were those with asylum-seeker status or with very poor health. The telephone survey and the written survey had participations rates of 53% and 45%, respectively. SHS 2012 details are available at http://www.bfs.admin.ch/bfs/portal/fr/index/infothek/erhebungen__quellen/blank/blank/ess/04.html.

2.2. Barriers to healthy eating

Barriers to healthy eating were assessed by the written questionnaire, completed by 85% of participants in the telephone survey. To the main question “Many people, maybe including yourself, place importance in following a healthy diet. Please identify which of the following obstacles prevent you from having a healthy diet,” participants answered “yes” or “no” from a 10-item list (Supplementary Table 1). To facilitate the discussion from a social determinants of health perspective, the barriers were further categorized into four domains: a) access to healthy foods (items 2, 3 and 4); b) social support (items 5 and 6); c) external constraints (items 1 and 9) and d) individual factors (items 7, 8 and 10). The questions assessing barriers were set by a multidisciplinary group of experts before the first Swiss Health Survey took place in 1992, and no reference to any previously validated instrument could be found. However, the barriers assessed are similar to those in the pan-European survey and previous research that investigated barriers to healthy eating [8,10–12,19]. Hence, in the absence of a standard, validated instrument, the current questionnaire is the best and only option for the Swiss population.

2.3. Demographic and socioeconomic variables

All data was self-reported. Age was categorized into 18–35, 36–50, 51–65 and > 65 groups. Weight and height were collected; body mass index (BMI) was calculated and categorized as normal or underweight (BMI < 25 kg/m^2), overweight (25 ≤ BMI < 30 kg/m^2), and obese (BMI≥30 kg/m^2). Smoking status was categorized as never, former, or current. Living situation was categorized as alone (i.e., living alone or as single parent) or with someone (i.e., living with couple or adult family). Nationality was categorized as Swiss and non-Swiss. Living area was categorized as urban or rural. Education was categorized as mandatory, secondary, or tertiary. Income was categorized into quartiles: <2857; 2857–3999; 4000–5332 and ≥ 5333 CHF (1 CHF = 0.92 € or 1.01US$, as of 25.11.2015). Occupation was categorized as upper/middle management work, office/non-manual/small independent work, or manual work.

2.4. Statistical analysis

Statistical analyses were performed using Stata 13 (Stata Corp. College Station, TX, USA) and were stratified by gender. Results were expressed as number of participants (percentage) for qualitative data or as average ± standard deviation for quantitative data. Bivariate analyses were conducted using chi-square test for qualitative variables and student's t-test for quantitative variables. Multivariable analyses were conducted using logistic regression. Two models were applied: 1) adjusting for age only and 2) adjusting for all demographic and socioeconomic variables. As a large proportion (20%) of the sample could not be categorized regarding their occupation, occupation was used for sensitivity analyses only. A second sensitivity analysis included the same procedure but with weighted data. To reduce the likelihood of type I error due to the high number of tests performed, statistical significance was considered for two-sided tests with $p < 0.001$.

3. Results

3.1. Sample selection and characteristics

Of the initial 21,597 participants, 6803 (31.5%) were excluded because they were below age 18 or had missing information on demographic or socioeconomic determinants or on barriers to healthy eating (Supplementary Fig. 1). The characteristics of included and excluded participants are summarized in Supplementary Table 2. Excluded participants were less frequently aged 36 to 65, overweight or obese, never smokers or of Swiss nationality than included participants; excluded participants also had lower educational and income levels than included participants.

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