

The nutritional situation of adults from low-income households at risk of poverty

An analysis of data from the National Nutrition Survey II with particular emphasis on nutritional education

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Summary

Analyses of data from the Scientific Use File of the National Nutrition Survey II (NVS II) showed that groups at risk of poverty did not reach the dietary recommendations of the German Nutrition Society (DGE) to the same extent as those not at risk of poverty: they consumed less fruits, fish and water, and notably more soft drinks.

Women at risk of poverty also ate fewer vegetables whereas men at risk of poverty consumed more milk and dairy products as well as more meat. The food consumption of women at risk of poverty resulted in a lower intake of dietary fiber, vitamin C, magnesium, calcium, iron and alcohol; men at risk of poverty had a higher intake of energy, fat (% of energy intake), cholesterol, vitamin A, B₁, B₂, B₁₂ and zinc, as well as a lower intake of fiber. However, when considering education, nutritional knowledge, age, and sex the risk of poverty was of no or only minor importance for food consumption (except water and soft drink consumption). Thus, education, especially nutritional education makes a significant contribution to nutritional health promotion.

Keywords: risk of poverty, National Nutrition Survey II, food consumption and nutrient intake, education, nutritional knowledge

at risk of poverty had a decreased life expectancy of 8.4 and 10.8 years, respectively compared to those of the highest income group [4]. The reasons are likely to be greater psychosocial burdens such as worries about the future, experience of exclusion as well as differences in health behaviour [3]. Adults at risk of poverty smoke more often, have lower levels of physical activity and are more often affected by obesity than individuals of higher income groups [2].

No current population-based data on food consumption and nutrient intake of adults at risk of poverty is available for Germany. Epidemiological studies of other countries [5–8] show that groups at risk of poverty have a less favourable eating behaviour than those not at risk of poverty. In this context the association between income-related differences in dietary behaviour and education are discussed [6, 9, 10]. Thus, education results in knowledge and competence to act responsibly which in turn is supportive in terms of a health promoting lifestyle and when coping with stress [3].

Introduction

Despite being one of the wealthiest European nations, the German Federal Government's 4th Report on Poverty and Wealth shows an estimated 14 to 16 % of the German population to be at risk of poverty or classified as being poor (at-risk-of-poverty rate) [1].

In Germany, as in other countries, poverty is associated with an increased prevalence of chronic diseases, such as cardiovascular diseases, malignant neoplasms, mental disorders, psychosomatic disorders and other health problems. These health inequalities are reflected in a higher risk of mortality and lower life expectancy [2, 3]. Thus, women and men

Study hypotheses

The current study is based on representative data for Germany, the National Nutrition Survey II (NVS II) [11]. Using the corresponding Scientific Use File analyses were conducted in terms of the association between nutrition and poverty.

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The question investigated was to what extent people from low-income households differ from people not at risk of poverty, with respect to food consumption, energy and nutrient intake, supplement use, and attitude towards nutrition and grocery shopping. It was also examined whether a potential association between poverty risk and food consumption remains when nutritional knowledge and education are taken into account.

Methods

National Nutrition Survey II

The NVS II is currently the most extensive nutrition survey available in Germany. It was commissioned by the Federal Ministry for Food, Agriculture and Consumer Protection, aiming to obtain representative data concerning the current food consumption and eating behaviour of the population [12]. Data were collected between 2005 and 2007 including 20,000 people between the age of 14 and 80. Participants were interviewed about their food consumption over the last four weeks using a computer supported diet history method (DISHES 2005). The German nutrient data base (BLS version II.4) was used to calculate energy and nutrient intake. Socio-demographic parameters, nutrition and health-related behaviour as well as shopping behaviour and questions concerning lifestyle factors were determined using a computer based interview (CAPI) or questionnaire. Concerning exercise, subjects were asked to indicate how many hours a week they spent doing low, moderate and/or high levels of sporting activities. Individuals who reported to smoke at least one cigarette a day were classified as smokers. Anthropometric measurements were performed in the examination center according to standardized guidelines. The data generated in NVS II are available for scientific use as a Scientific Use File [11]. The

Glossary

- **At-risk-of-poverty rate:** Proportion of the population threatened by poverty
- **Risk of poverty:** People whose income is less than 60 % of the national median income.
- **Net equivalent income:** Designed to facilitate comparability of net income in households of different sizes and structures. It is calculated by dividing the net household income by number of persons living in the household (equivalent scale). Accordingly, the first adult living in the household is weighted as 1, a weight of 0.3 for every child below the age of 14, and a weight of 0.5 for other persons aged 14 and over is used.
- **Semi net equivalent income:** Due to the fact that no complete data on the age of the household members was available within the dataset of the NVS II, this variable was calculated for the present study. It is calculated by dividing the net household income by a facilitated equivalent scale (semi equivalent scale). Accordingly, the first adult living in the household is weighted as 1, and a weight of 0.4 for other persons is used.

Calculation example:

- Adult, four-person household, household net income 1.600 Euros per month
- Semi net equivalent income = $1,600 / (1 + 0.4 \times 3) = 727$ Euros per month

Source: [15, 16]

Max Rubner-Institute (MRI) made this file available on request for the present study. The analyses take into account the data of 11,829 persons who were at least 18 years of age and of whom information on household income and household size were available.

Healthy Eating Index (HEI-NVS)

Quality of overall food consumption and nutritional pattern was assessed by calculating the Healthy Eating Index of the National Nutrition Survey II (HEI-NVS) [13]. A „favourable“ diet was defined using a points-based system. A total of ten categories of food were considered: vegetables, fruits, grains, milk, meat, fish, spreadable fats, eggs, alcohol and beverages. The consumption was then set in relation to the recommendations of the German Nutrition Society, respectively [14]. The maximum HEI-NVS score was 110 points. According to their total

score, subjects were divided in tertiles. This enabled a differentiation into unfavourable (35.3–78.9 points), moderate (78.9–88.4 points) and favourable (88.4–109.6 points) food consumption.

Operationalizing the risk of poverty

In the present study, the operationalization of the at-risk-of-poverty rate is based on the declared net household income and number of persons living in this household. In the NVS II, net income data was collected in income categories. Thus, in each case the mean value for each category was calculated. As the NVS II offered no complete data on the age of the household members, in the present investigation the semi net equivalent income was calculated: Net household income divided by semi equivalent scale ($1 + [\text{number of persons living in household} - 1]$

	Women		Men	
	At risk of poverty (n = 643)	Not at risk of poverty (n = 5 633)	At risk of poverty (n = 440)	Not at risk of poverty (n = 5 113)
Age [years]	44.5 ± 16.3	49.5 ± 14.8***	43.2 ± 16.0	51.2 ± 15.1***
Semi net equivalent income [Euros/month]	544 ± 108	1 572 ± 645***	542 ± 102	1 696 ± 709***
BMI [kg/m ²]	26.8 ± 6.0	26.1 ± 5.2**	26.8 ± 4.8	27.3 ± 4.1*
BMI-categories [%]				
- underweight	3.3	1.6	0.7	0.4
- normal weight	42.4	47.9	35.3	29.3
- overweight	26.6	30.4	43.2	48.5
- obese	27.6	20.1***	20.8	21.7*
School-leaving qualification level				
- low	44.1	31.7	47.4	35.9
- medium	30.7	37.1	25.1	28.4
- high	23.9	30.9***	24.6	35.3***
Nutritional knowledge	2.0 ± 0.8	2.2 ± 0.7***	1.7 ± 0.7	1.8 ± 0.7
Smokers [%]	31.8	21.0***	45.4	26.8***
Level of sporting activity [h/week]	2.6 ± 4.8	3.4 ± 4.7***	3.4 ± 6.5	3.9 ± 5.4*

Tab. 1: Characteristics of the sample (Mean ± SD or %) Unpaired t-test or chi-square-test: * P < 0.05, ** P < 0.01, *** P < 0.001 SD = standard deviation

x 0.4) [15, 16]. In reference year 2005 the median income in Germany was 1,301 Euros per month [17]. Hence, persons whose semi net equivalent income was less than 781 Euros per month were classified as being at risk of poverty.

Education and nutritional knowledge

In the personal interviews participants were asked to provide information on their highest school-leaving qualifications. The categories were as follows: without having completed school and qualifications from a *Hauptschule* were classified as low, qualifications from a *Realschule* or an equivalent school type as medium, and qualifications from a *Gymnasium* as high level of education¹. As part of the NVS II questionnaire, participants were also asked to answer three questions on the topics: probiotic yogurts, multi-vitamin juices and the 5-a-day campaign. One point was awarded for each correct answer. If a question

was not answered, or answered incorrectly no point was given. Then, the points were added to give a total nutritional knowledge score.

Statistical analyses

Data were analysed using the statistical analysis software SPSS, version 21. Mean values and standard deviations (SD) are stated as statistical figures. Differences between the group of people at-risk-of-poverty and the group not-at-risk-of-poverty were examined using unpaired t-tests or chi-square-tests. Multiple stepwise regression analyses were performed to test the influence of poverty risk, education, nutritional knowledge, age and sex on food consumption collectively. The results (♦ Table 4) display the factors in order of their importance (step). If a variable did not provide sufficient information in the sense of variance explanation, it was excluded. If the p-values were less than .05 the null hypotheses were rejected in all procedures used.

Results

10.2 % of women and 7.9 % of men were classified as being at-risk-of-poverty. Subjects at-risk-of-poverty had more often a low level of education, they smoked more often and had lower levels of sporting activity than those not-at-risk-of-poverty (♦ Table 1). Furthermore, women at risk of poverty had a worse nutritional knowledge score. Both women and men at risk of poverty consumed significantly less fruits, water, fish as well as more eggs and soft drinks than those not at risk of poverty (♦ Table 2).

¹ German secondary education includes different types of schools. The *Hauptschule* (year 5 to 9) teaches at a slower pace and prepares pupils for vocational education. The *Gymnasium* (year 5 to 12 or 13, respectively) is the highest type of secondary education and designed to prepare pupils for university study. The *Realschule* (year 5 to 10) is the intermediate track and is meant to prepare pupils for vocational training in trade, technical and administrative professions.

Furthermore, women at risk of poverty consumed fewer vegetables, whereas men at risk of poverty consumed more milk and dairy products as well as more meat. ♦ Table 3 shows the proportion of participants who reached the food-related recommendations of the German Nutrition Society [18] stratified for poverty risk. The resulting HEI-NVS was lower for those at risk of poverty compared to those not at risk of poverty. Furthermore, the dietary pattern of those at risk of poverty was significantly more unfavourable and even more so, rarely favourable.

The overall food consumption resulted in a lower intake of dietary fiber and alcohol among women at risk of poverty. Whereas men at risk of poverty had a higher intake of energy, fat (% of energy intake) and cholesterol, as well as a lower dietary fiber intake than men not at risk of poverty (♦ Table 4).

♦ Figure 1 shows the vitamin and mineral intake compared to the reference values for German-speaking countries: Germany, Austria and

Switzerland (D-A-C-H) [14]. The recommendations were largely achieved. However, women at risk of poverty had a lower intake of vitamin C, magnesium, calcium and iron compared to those not at risk of poverty; men at risk of poverty had a higher intake of vitamin A, vitamin B₁, vitamin B₂, vitamin B₁₂ and zinc. Proportionally fewer individuals used nutrient supplements among those at risk of poverty than those not at risk of poverty (women: 23 vs. 34 %; men: 19 vs. 26 %). The most important aspects identified concerning grocery shopping were freshness, taste, health, seasonality and low price in descending order, for both groups (♦ Figure 2). The types of shops most commonly used are shown in ♦ Figure 3.

Multiple stepwise regression analyses were performed to test, if poverty risk has an influence on food consumption, when education and nutritional knowledge were considered collectively. Sex and age were also included in this mode. The results were as follows (♦ Table 5): The factor poverty had no significant effect on the intake of vegetables, fruits,

grain products, milk and dairy products, meat and fish. The higher the nutritional knowledge score and/or level of education, the more favourable the dietary behaviour was found to be. However, the adverse effect of poverty remained for the intake of spreadable fat, eggs, water and soft drinks as well as the general dietary pattern; even when a higher level of education and/or nutritional knowledge were associated with more favourable behaviour and were of greater importance. This effect was strongest for beverage intake. Subjects at risk of poverty drank an average of 152 mL less water and 42 mL more soft drinks, regardless of their level of education or nutritional knowledge.

Discussion

Analyses show that people at risk of poverty have less favorable dietary behaviour, than those not at risk of poverty. The most significant differences are found for both sexes in the consumption of soft drinks. This is a particular source of worry,

	Women		Men	
	At risk of poverty (n = 643)	Not at risk of poverty (n = 5 633)	At risk of poverty (n = 440)	Not at risk of poverty (n = 5 113)
Vegetables, fungi and legumes [g/d]	239 ± 161	257 ± 158**	223 ± 173	236 ± 151
Fruit and fruit products [g/d]	260 ± 235	292 ± 231***	205 ± 201	255 ± 223***
Grains, bread and pastries, potatoes and potato products [g/d]	308 ± 122	313 ± 112	410 ± 181	394 ± 140
Milk and dairy products [g/d]	246 ± 243	246 ± 212	291 ± 339	249 ± 252*
Meat, cold meats, meat-based products [g/d]	85.7 ± 59.5	82.1 ± 53.0	174 ± 128	146 ± 92.0***
Fish, fish products and seafood [g/d]	21.1 ± 24.5	24.9 ± 24.8***	27.7 ± 30.8	31.8 ± 30.5**
Spreadable fats [g/d]	18.2 ± 19.4	17.3 ± 17.0	27.4 ± 29.2	26.6 ± 26.5
Eggs [g/d]	18.4 ± 19.8	16.2 ± 16.6**	25.5 ± 29.1	19.8 ± 21.5***
Sweets and salty snacks [g/d]	53.2 ± 50.8	51.0 ± 46.4	63.4 ± 66.3	58.9 ± 51.0
Water [mL/d]	1 043 ± 815	1 175 ± 799***	1 045 ± 943	1 133 ± 867*
Soft drinks [mL/d]	113 ± 309	63.2 ± 238***	266 ± 580	145 ± 387***

Tab. 2: Food consumption (Mean ± SD)
Unpaired t-test: *P < 0.05; ** P < 0.01; *** P < 0.001
SD = standard deviation

	Recommendations [14, 18]	Women		Men	
		At risk of poverty (n = 643)	Not at risk of poverty (n = 5 633)	At risk of poverty (n = 440)	Not at risk of poverty (n = 5 113)
Vegetables, fungi and legumes [g/d]	≥ 400 g/d	30.3	35.6**	26.1	30.9*
Fruit and fruit products [g/d]	≥ 250 g/d	42.3	50.0***	28.2	40.4***
Grains, bread and pastries, potatoes and potato products [g/d]	≥ 350 g/d	32.9	33.0	60.1	59.6
Milk and dairy products [g/d]	≥ 2 portions (400–500 g/d milk/ yoghurt or 100–120 g/d cheese/quark)	33.4	36.7	37.5	36.3
Meat, cold meats, meat-based products [g/d]	≤ 300 g/week	21.9	21.9	7.3	6.8
Fish, fish products and seafood [g/d]	≥ 150 g/week	36.6	47.7***	46.5	57.9***
Spreadable fats [g/d]	≤ 15 g/d	56.3	56.1	43.9	40.4
Eggs [g/d]	≤ 180 g/week	76.4	81.2**	65.0	73.4***
Alcohol	Women: ≤ 10 g ethanol/d Men: ≤ 20 g ethanol/d	51.9	34.2***	34.8	19.1***
Beverages, total	≥ 1,5 L/d	78.1	85.4***	79.8	81.1
HEI-NVS [Mean ± SD]	max. 110 points	82.3 ± 10.7	85.6 ± 9.93***	75.7 ± 11.7	80.8 ± 10.9***
Food consumption [%]					
- unfavourable		35.8	23.8	60.0	41.2
- moderate		33.4	34.5	26.4	32.7
favourable		30.8	41.8***	13.6	26.1***

Tab. 3: Proportion of participants who reach the food-related recommendations of the DGE (%) and Healthy Eating Index (HEI-NVS)

Chi-square-test *P < 0.05; ** P < 0.01; *** P < 0.001

Unpaired t-test: *** P < 0.001

since an excessive consumption of such beverages is considered a significant risk factor for the development of overweight and obesity [19, 20]. The observed differences in food consumption are similar to findings from other countries, whereby the income-related differences are best demonstrated in the consumption of fruits and vegetables [5–8]. The food-related analyses of the NVS II by socioeconomic position [21] also showed that adults with a lower socioeconomic position have a lower intake of fruits, vegetables and fish

and a higher consumption of meat and soft drinks. However, it should be taken into account that the socioeconomic position provides only limited information on the risk of poverty. The socioeconomic position is based on income as well as occupation and education of the main earner. It is particularly interesting to compare our results with the income-based results of the first National Nutrition Survey [22], conducted from 1985–1989 in the population of West Germany. Even though no consistent income

related consumption patterns can be outlined, it can however be shown that persons from low-income households tend to have a lower intake of fruit and vegetables. They also tend to consume less meat and fish as well as more foods with a favourable price/quantity relationship, such as bread and pasta. Based on the current analysis of the NVS II data, these findings suggest a shift from traditional carbohydrate sources to animal products, especially among males at risk of poverty. A possible explanation could be the

	Women		Men	
	At risk of poverty (n = 643)	Not at risk of poverty (n = 5 633)	At risk of poverty (n = 440)	Not at risk of poverty (n = 5 113)
Energy [kcal/d]	1 906 ± 675	1 914 ± 566	2 656 ± 1 084	2 474 ± 784***
Protein [% of energy intake]	14.6 ± 3.0	14.7 ± 2.7	14.9 ± 3.1	14.8 ± 2.8
Carbohydrates [% of energy intake]	49.5 ± 7.6	49.2 ± 7.3	45.8 ± 8.3	46.0 ± 7.5
Fat [% of energy intake]	36.0 ± 7.2	35.5 ± 7.0	37.2 ± 7.8	36.3 ± 7.1*
Dietary fiber [g/d]	23.8 ± 9.7	25.5 ± 9.7***	25.4 ± 11.3	27.6 ± 11.3***
Cholesterol [mg/d]	277 ± 138	275 ± 119	424 ± 236	369 ± 166***
Alcohol [g/d]	4.19 ± 10.0	5.80 ± 8.11***	15.3 ± 25.2	16.0 ± 17.6

Tab. 4: : Energy and nutrient intake (Mean ± SD)
Unpaired t-test: *P < 0.05; ** P < 0.01; *** P < 0.001
SD = standard deviation

relatively cheap price of meat and meat products these days compared to the 1980s.

The unfavourable dietary pattern among women at risk of poverty was associated with a lower nutrient intake. Even so, average reference values could be reached with the exception of vitamin D, folic acid and iron. In contrast, men at risk of poverty showed a slightly higher energy and nutrient intake than those not at risk of poverty, which may be due to the higher consumption of animal products. At this point, only speculations can be made concerning the noticeable finding that men at risk of poverty have a lower BMI despite their higher energy intake compared to those who are not affected by poverty. Possibly, this effect is due to the fact that the group of people at risk of poverty is younger. Thus a lower age is associated with both a higher energy intake and a lower BMI [12, 21].

Overall, the differences between the groups are rather small and the D-A-C-H reference values [14] for vitamin and mineral intake can be achieved on average, in a similar way. These findings may at first seem surprising; however, they coincide with those of a representative study from the United Kingdom (UK) on nutrition in low income

populations [8]. Here, also only few income-related differences in nutrient intake were found, contrary to the expectations of the authors.

Perhaps the results are also an expression of the so-called „new poverty“. New poverty means that large segments of the population are affected by financial hardship. Impoverishment often occurs at short notice and is only temporary. This phenomenon has developed mainly due to increasing unemployment, insufficient income from employment and the increasing number of single parents [23, 24]. Thus, the present study also shows that health has an important meaning in grocery shopping, even if it is rated less important among men at risk of poverty than those not affected by poverty. Moreover, the fact that nutrient supplements are used by approximately a quarter of the people at risk of poverty indicates a certain interest and awareness for a balanced diet. This finding confirms the results of LEONHÄUSER and LEHM-KÜHLER [25]. In a qualitative study (GESA study) they could demonstrate that poverty households (new poverty) try very hard to feed their family members a healthy diet. Individuals that showed interest in nutrition and had corresponding skills and abilities succeeded better in eat-

ing healthily. After all, providing a healthy diet on a low income situation compared to an average income situation requires more thrifty skills to make best use of the limited financial budget. Thus, in the present study men and women at risk of poverty make use of the possibility to shop in cheaper discount stores much more frequently.

The analyses also clearly show that both education and nutritional knowledge have a stronger effect on dietary behaviour than the risk of poverty. Other studies [6, 10] could also prove that income-related differences in food consumption can be explained by education. A recent evaluation of the German Health Interview and Examination Survey for Adults (DEGS) [9] also shows that education has a larger effect than income on the frequency of foods consumed with a high fat and sugar content as well as fruit and vegetables. A current systematic review [26] has also shown that nutritional knowledge has a small, but significant impact on food consumption. Consequently, it can be assumed that with appropriate education and nutritional knowledge, respectively, groups at risk of poverty are less affected by diet-related adverse effects of poverty.

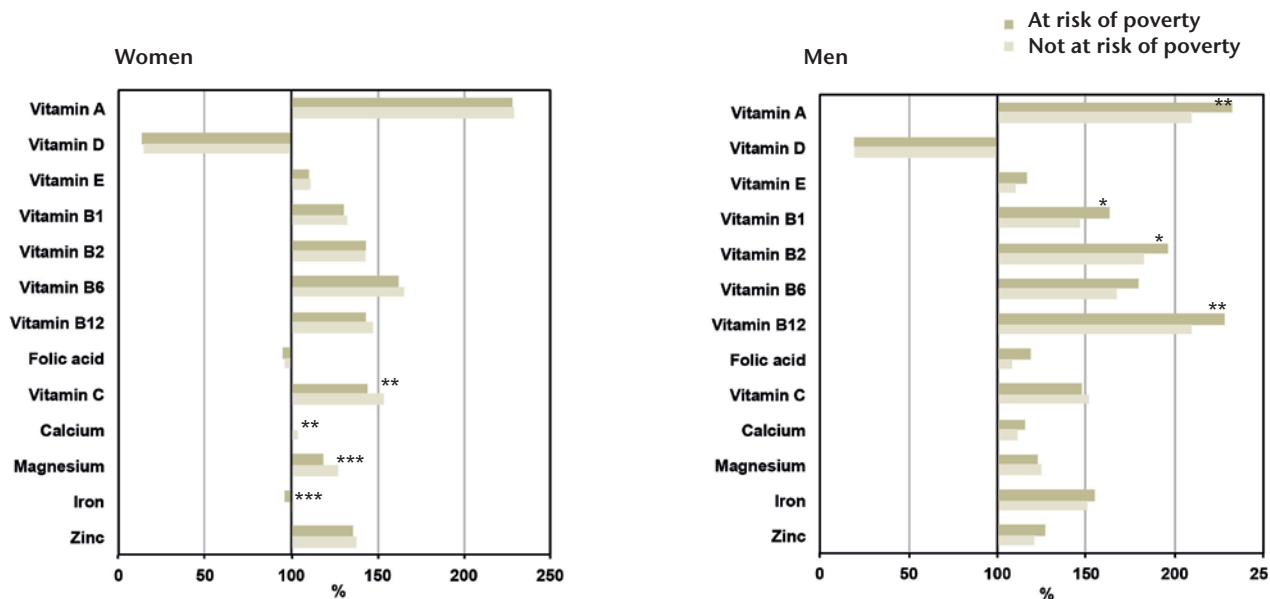


Fig. 1: Vitamin and mineral intake compared to the DACH reference values (Mean)
Unpaired t-test: * P < 0.05; ** P < 0.01; *** P < 0.001

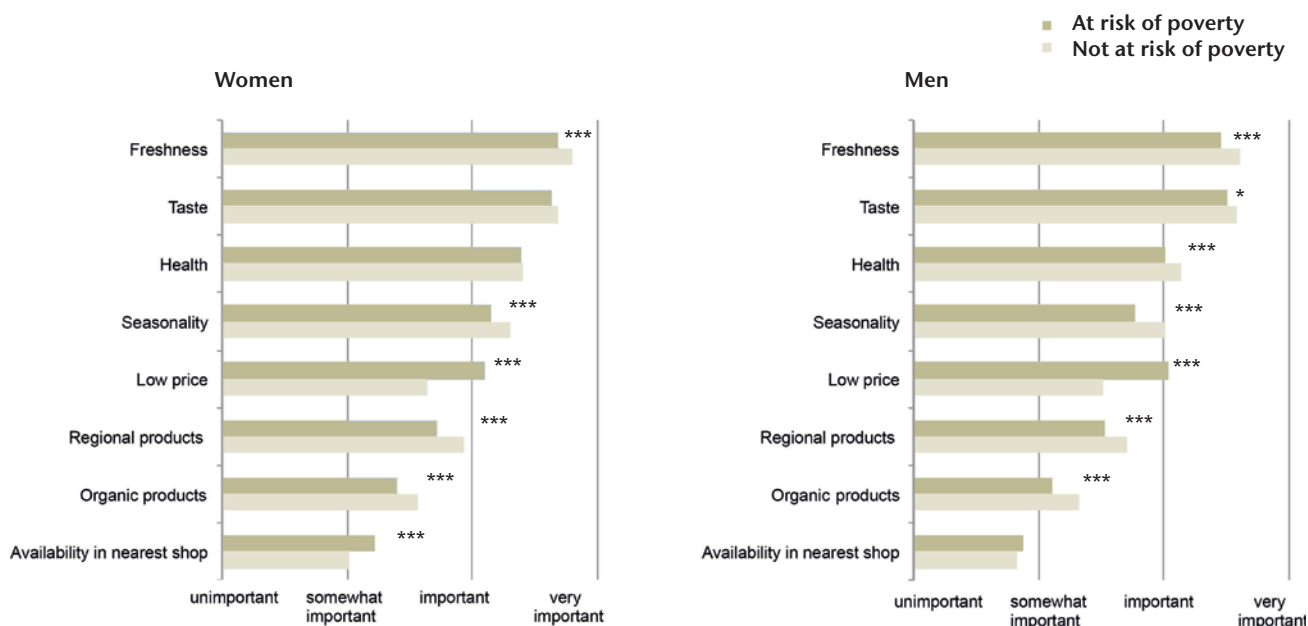


Fig. 2: Important aspects concerning grocery shopping (Mean)
Chi-square-test: * P < 0.05; ** P < 0.01; *** P < 0.001

However, irrespective of education and nutritional knowledge, poverty risk is associated with an unfavourable intake of spreadable fat, eggs, soft drinks and water. The effect of poverty was particularly evident on beverage consumption. One can only speculate about the reasons. Possibly, the relatively cheap price of soft drinks is one

reason. In Germany, soft drinks are often no more expensive than bottled water, so the consumption of such beverages could also be an expression of social participation for groups at risk of poverty. As, from a nutritional point of view a high consumption of soft drinks is seen as unfavourable [19, 20], this could be a good starting point for

pondering health-promoting measures within groups at risk of poverty.

Limitations

In the present study, it still remains unclear whether or not the investigated group at risk of poverty really is representative for the population of adults currently at risk of poverty

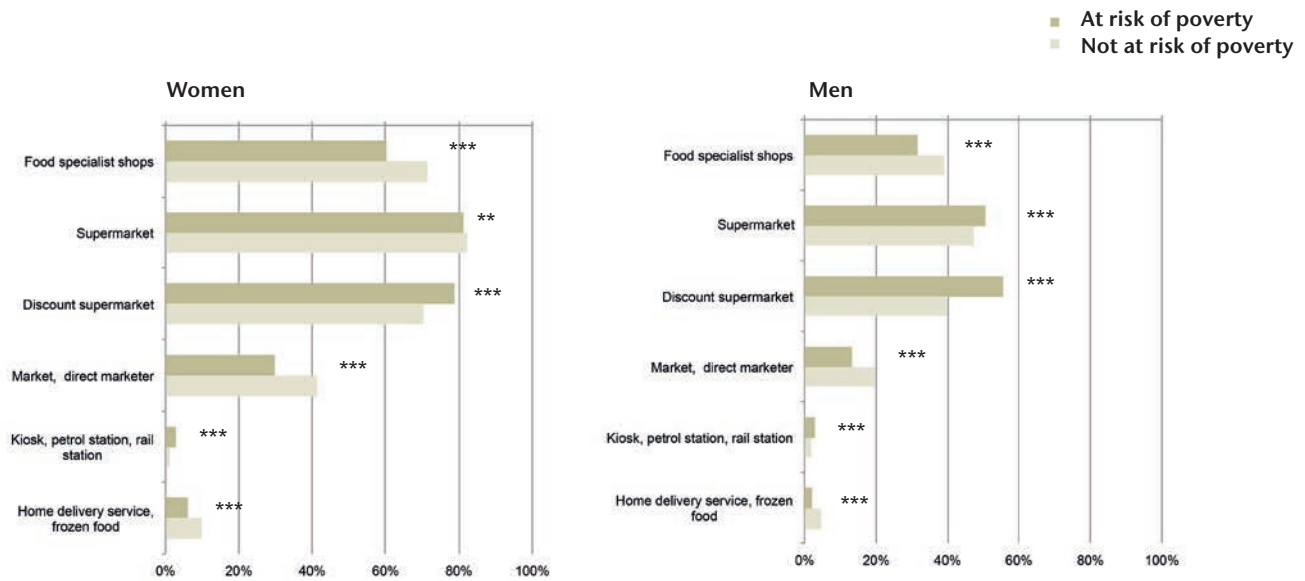


Fig. 3: Types of shops most commonly used for grocery shopping (Mean)
Chi-square-test: * P < 0.05; ** P < 0.01; *** P < 0.001

in Germany. The prevalence of participation for those at risk of poverty as estimated from NSV II was lower than the national estimate (NSV II: 9 % vs. Germany 2005: 14 % [1]). This may be attributable either to the exclusion of individuals with limited language skills (e. g. immigrants) or lower response rates to nutrition studies among groups at risk of poverty [27]. Furthermore, participants with low income may not have reported income-related data and therefore are excluded from the present analyses. In this context, it is also to be taken into account that the NSV II data only allow an approximate estimate of the net equivalent income and thus the group at risk of poverty (semi net equivalent income). The same applies for nutritional knowledge, which is based on only three nutrition related questions. Finally, it should be noted that in the present analyses only nutritional intake data were considered, and neither food quality nor psychological and sociocultural aspects of eating could be taken into account. A tight financial budget can lead to substantial limitations in this area and thus affect wellbeing and health.

Conclusions

Although groups at risk of poverty have a less favourable dietary intake than those who are not at risk of poverty, it can be clearly shown that education and nutritional knowledge have a stronger influence on the dietary pattern than the risk of poverty. Furthermore, groups at risk of poverty may well be interested in a healthy diet. Education, especially nutritional education can thus make a significant contribution to nutrition-related health promotion and thus also to reduce income-related inequalities in nutrition and health.

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Conflict of Interest:

The authors declare no conflict of interest according to the guidelines of the International Committee of Medical Journal Editors.

	Constant	Sex	Age [y]	Education	Nutritional knowledge
Vegetables, fungi and legumes [g/d]	121	16.9 (3)	1.4 (1)	9.3 (4)	15.3 (2)
Fruit and fruit products [g/d]	23.0	36.1 (2)	3.6 (1)	9.6 (4)	19.5 (3)
Grains, bread and pastries, potatoes and potato products [g/d]	440	-89.5 (1)	-1.1 (2)	-	8.4 (3)
Milk and dairy products [g/d]	265	-17.1 (3)	-0.5 (1)	-	12.4 (2)
Meat, cold meats, meat-based products [g/d]	253	-66.7 (1)	-1.3 (2)	-13.7 (3)	-6.3 (4)
Fish, fish products and seafood [g/d]	8.9	-7.3 (2)	0.4 (1)	1.2 (4)	1.5 (3)
Spreadable fats [g/d]	27.9	-8.7 (1)	-	-	-1.1 (2)
Eggs [g/d]	23.1	-3.6 (1)	-0.05 (3)	-0.6 (4)	-
Sweets and salty snacks [g/d]	97.9	-9.6 (2)	-0.6 (1)	-3.9 (3)	-
Water [mL/d]	1 418	-	-3.9 (1)	-25.7 (3)	-
Soft drinks [mL/d]	624	-100.9 (2)	-6.2 (1)	-55.8 (3)	-24.1 (4)
HEI-NVS	66.1	4.3 (1)	0.2 (2)	1.0 (4)	1.9 (3)

Tab. 5: Results of the multiple stepwise regression analyses on the influence of sex, age, education, nutritional knowledge and poverty risk on food consumption and Healthy Eating Index (HEI-NVS)
 Specification on influencing factors: regression coefficients (step in the regression analysis)
 Sex: men = 0, women = 1
 Education: 1 = low, 2 = medium, 3 = high
 Nutritional knowledge: number of correctly answered questions
 Poverty risk: 0 = not at risk of poverty, 1 = at risk of poverty

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Poverty risk	R ²	p
-	0.021	< 0.001
-	0.051	< 0.001
-	0.119	< 0.001
-	0.003	< 0.001
-	0.223	< 0.001
-	0.047	< 0.001
1.8 (3)	0.044	< 0.001
2.7 (2)	0.011	< 0.001
-	0.033	< 0.001
-152 (2)	0.005	< 0.001
42.0 (5)	0.088	< 0.001
-2.1 (5)	0.124	< 0.001

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