Healthy action against poverty: a descriptive analysis of food redistribution charity clients in Berlin, Germany

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Introduction

Lifestyle-related diseases such as obesity and cardiovascular diseases are increasing in Germany as well as globally.¹,² One major contributing factor to these developments is a diet generally too low in nutrients and vitamins but conversely with high energy density. There is evidence that socioeconomically disadvantaged people, in particular, eat an inadequate unhealthy diet.³⁻⁷ Consistently, there is evidence for the association between lower socio-economic status and poorer self-rated health status in many countries.⁸⁻¹⁰ Since healthy foods are often less affordable than processed foods such as snacks, fast food and sugar-sweetened beverages, people with financial constraints tend to eat a diet with more refined grains, added sugars and fats.⁵,⁶,¹⁰

For Germany, it is shown that the socio-economic gap and its associated health inequalities are increasing in Germany. Actions against poverty include the redistribution of foods through charities. One project supported by the main German food redistribution charity is offering fresh produce including mostly fruits, vegetables and bread to people receiving welfare in Berlin, Germany. Methods: Through retrospective analysis of monthly visits (from January 2006 to June 2010) data from 45 surplus food redistribution points was examined. Clients' health status and health behaviour were examined using self-report questionnaires. Results: On average, 10 485 people visited the 45 food redistribution points weekly. A monthly increase of ~900 additional clients per week over all distribution points could be observed since 2006. The percentage of retirees (28.2%), single parents (20.6%) and families with children (29.5%) was high. The results of the self-report questionnaires (n=101) revealed a sample population with a high percentage of smokers (59.4%) and moderate to heavy alcohol consumers (58.8%). Buying additional fruits and vegetables to those received through distribution points and eating breakfast regularly was associated with significantly better self-rated health status. Conclusion: Especially, vulnerable groups appear to supplement their diet with fresh produce from food redistribution points. The health status of the sample population is somewhat different from the German population with more unhealthy behavioural patterns. Future research is necessary to further investigate this impoverished population with increased health risks.

Methods

Two separate methodological approaches were used in conjunction and are outlined in the following.
Longitudinal retrospective descriptive analysis

Based on routine data collected from each of the LAIB und SEELE distribution points in Berlin, Germany, a longitudinal retrospective descriptive analysis investigated chronological trends in absolute figures of clients and client subgroups, e.g. single parents or senior citizens, over 4½ years (January 2006–June 2010).

At the distribution points, people who fit the eligibility criteria can pick up groceries from overproduction and left over foods on a weekly basis. Mainly fruits, vegetables and bread are being offered. Adults pay about 1€ per person as a symbolic token with the intention to reduce embarrassment for not being able to pay for food. Foods supplied to children are not charged.

Since 2006, the distribution points collected data systematically on how many households per month visited each location to collect produce using the average visitor rate over the four week period of each month. Additionally, client information was stratified by the number of adults, children and single parents visiting the distribution points. The type of eligibility was also recorded. Eligible categories are senior citizens with small pensions, students with registered social subsidies and people living on social benefits. The maximum income per month for eligibility is €900 (one person household), €1200 (two-person households), and €1500 (three-person households). An extra €150 is allowed for every child. Unemployed people in Germany receive unemployment pay1 (ALG1) as coverage from their unemployment insurance, the tax-funded social subsistence level is called unemployment pay2 (ALG2).14

The average visitor rate over the four week period of each month was used to calculate mean values over all distribution points for each year and each month and compared in order to demonstrate the trends within a year and between the years (2006–2010).

Cross-sectional survey

A cross-sectional survey was conducted in three food redistribution points, located in the districts Reinickendorf, Marzahn and Kreuzberg in Berlin, Germany. A sample of 101 clients was asked to fill out a questionnaire regarding their socio-demographic status, health condition and nutritional behaviour. Given the demographic heterogeneity of these three districts, it can be assumed that the clients surveyed are representative of the clients visiting the food redistributions points in Berlin, Germany.

The questionnaire containing 31 questions were handed out to adult clients in October and November 2009. No information allowing identification of individuals participating in the survey was collected. Characteristics such as age, height, weight, sex, school education and household size, as well as questions regarding health behaviours such as smoking, alcohol consumption, self-perceived health status, chronic diseases and diet were collected. Clients who had difficulties reading or understanding German were offered help filling out the questionnaire.

Body mass index (BMI) was calculated from self-reported height and weight. For school education level, the category ‘none’ contains both young adults still at school and clients who never finished any school education.

For associations between categorical variables, chi-squared tests were used. For associations between categorical and continuous variables, one-way analyses of variance were conducted. Pearson’s Correlation Coefficient was calculated for correlation of age and BMI. A significance level of 5% was chosen. The questionnaires were analysed using Microsoft Excel 2007 and SPSS Version 18.

Results

Longitudinal retrospective descriptive analysis

Before 2006, there were 40 food redistribution points of the LAIB und SEELE project in Berlin. Between 2006 and 2010 seven additional distribution points were opened and two were closed down over time. As of June 2010, 45 distribution points existed in the 12 Berlin districts. On average, each distribution point served 233 clients per week. All 45 distribution points were frequented by a total of 10 485 clients per week all over the city which equated to 0.3% of the total Berlin population. The percentage of retired people visiting the distribution points was 28.2%, and 20.6% of the clients indicated to be single parents. According to the data provided, 29.5% of the households had children. When comparing the former Western part of the city to the Eastern districts, a slightly higher percentage of women and children could be found in the West, whereas the share of clients receiving ALG2 was much lower in the former West part compared to the East part.

Figure 1 shows absolute monthly numbers of visiting clients on average per distribution point reported in annual quartiles. The numbers were increasing from 2006 to 2010. The daily number of individuals served each week on average increased by 9% from 231 people in May 2006 to

![Figure 1](https://academic.oup.com/eurpub/article-abstract/22/5/721/496426 by guest on 16 February 2019)
Table 1 Baseline characteristics for the survey sample population of people in need visiting the surplus food redistribution points (n = 101)

<table>
<thead>
<tr>
<th>Baseline characteristics</th>
<th>Population (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age [Mean (SD)]</td>
<td>47.2 (15.1)</td>
</tr>
<tr>
<td>Household size [Mean (SD)]</td>
<td>1.8 (1.2)</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>43.6</td>
</tr>
<tr>
<td>Female</td>
<td>53.5</td>
</tr>
<tr>
<td>District</td>
<td></td>
</tr>
<tr>
<td>Kreuzberg</td>
<td>36.6</td>
</tr>
<tr>
<td>Reinickendorf</td>
<td>30.7</td>
</tr>
<tr>
<td>Marzahn</td>
<td>32.7</td>
</tr>
<tr>
<td>Nationality</td>
<td></td>
</tr>
<tr>
<td>German</td>
<td>90.1</td>
</tr>
<tr>
<td>Other</td>
<td>8.9</td>
</tr>
<tr>
<td>Country of birth</td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>85.1</td>
</tr>
<tr>
<td>Other</td>
<td>13.9</td>
</tr>
<tr>
<td>School education</td>
<td></td>
</tr>
<tr>
<td>University entrance level</td>
<td>21.4</td>
</tr>
<tr>
<td>Secondary education</td>
<td>34.7</td>
</tr>
<tr>
<td>Primary education/other</td>
<td>36.7</td>
</tr>
<tr>
<td>None</td>
<td>7.2</td>
</tr>
<tr>
<td>Proof of eligibility</td>
<td></td>
</tr>
<tr>
<td>ALG2</td>
<td>52.5</td>
</tr>
<tr>
<td>Small pension</td>
<td>19.8</td>
</tr>
<tr>
<td>ALG1</td>
<td>4.0</td>
</tr>
<tr>
<td>Other (e.g. Bafög)</td>
<td>22.0</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>39.2</td>
</tr>
<tr>
<td>Married</td>
<td>14.4</td>
</tr>
<tr>
<td>Divorced</td>
<td>43.3</td>
</tr>
<tr>
<td>Widow</td>
<td>3.1</td>
</tr>
<tr>
<td>Single household</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>57.4</td>
</tr>
<tr>
<td>No</td>
<td>42.6</td>
</tr>
<tr>
<td>Household with children</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>23.8</td>
</tr>
<tr>
<td>No</td>
<td>72.3</td>
</tr>
</tbody>
</table>

A total of 101 questionnaires were returned. Table 1 shows the socio-demographic baseline characteristics. The majority of the sample population were women. The mean age of the clients was 47.2 years with the majority being between 42 and 62 years. Most clients were born in Germany and held German nationality. More than half received ALG2 and one out of five clients were senior citizens. Almost one quarter of all clients lived in households with children and more than every second had secondary school education or higher.

Table 2 presents the clients’ lifestyle factors. Almost two-third of the clients were smokers and more than half indicated moderate or high alcohol consumption. Almost every second client was overweight or obese (22.8 and 19.8%, respectively).

Significant associations could be found for school education and smoking (P = 0.020) as well as alcohol consumption (P = 0.007). More smokers had a lower school education but alcohol consumption was higher in the group of participants with higher school education. No significant association was found for school education and BMI (P = 0.070). In this sample, women’s BMI was slightly, but not significantly, higher compared to that of men. As expected, a significantly higher BMI was found among clients with diabetes (P = 0.000) and hypertension (P = 0.042). No significant gender differences were found for smoking, but men drank significantly more alcohol than women (P = 0.001).

Examining the client’s health condition and dietary behaviour, it was shown that self-rated health status decreased significantly (P = 0.008) with increasing age (good health = 42.3 ± 16.5 years; moderate health = 47.8 ± 14.7 years; poor health = 54.9 ± 9.7 years). The distribution of good, moderate and poor health was similar in men and women.
Clients who bought additional fruits, besides those produce collected at LAIB und SEELE, indicated to have a significantly better health status compared to those who did not \( (P = 0.005) \); the same was true for purchasing additional vegetables \( (P = 0.037) \). With increasing age, more fruits and vegetables were consumed. The patterns for fruit and vegetable consumption was similar for men and women but women ate significantly less ready-made foods compared to men \( (P = 0.019) \).

Clients who had breakfast on a daily basis reported significantly higher consumption of fruits \( (P = 0.026) \) and vegetables \( (P = 0.031) \) compared to those who had breakfast only sometimes or never. Those having daily breakfast also had a lower consumption, yet not significantly, of ready-made foods.

Prevalence of chronic diseases such as asthma, diabetes, hypertension, back pain and rheumatism was examined in relation to self-rated health status. Each single disease was associated with poorer health, but only results for back pain \( (P = 0.001) \) and rheumatism \( (P = 0.012) \) were significant.

**Discussion**

**Longitudinal retrospective descriptive analysis**

Despite fluctuations within the years, the overall number of LAIB und SEELE clients in Berlin has increased over all food redistribution points by \( \approx \) 900 additional clients per month, or almost 10%, between 2006 and 2010. Possibly, the increasing number of clients might either be a consequence of increasing publicity of the project or, rather disturbingly, it may be due to increasing numbers of poor people in the society. Among all clients, increasing numbers were mainly found in the category ‘retired and others’. This is worrisome, because it could mean that for an increasing number of senior citizens who have worked regularly and are receiving pensions, the amount of pension received is not sufficient to keep them above the poverty threshold. While one could speculate that senior citizens have more time at hand and might be more likely to hunt for bargains, the collection of produce from food redistribution charities implies stigmatization of poverty. Especially, the elderly in Germany are a group who does not lightly want to be associated with poverty. However, the routinely collected data does not distinguish clients in this group in more details.

During summers, the food redistribution points had fewer clients compared to wintertime. This pattern could be repeatedly shown annually. One possible explanation is the higher living costs during the winter months such as electricity and other expenses whereas more can be spent on food during the summer.

**Socio-demographic factors**

In our sample, one-fifth of all clients were senior citizens, more than half women and almost one-quarter lived in households with children, confirming senior citizens, women and people who live in households with children being at higher poverty risk.\(^{15,16}\) We explain the fact that the majority of clients lived in single households partly by the high percentage of divorced clients \( (43.3\%) \) and senior citizens.

Surprisingly to us, in this group of poor people, more than every second had a secondary school education or higher. This suggests that high education levels do not protect against poverty among this particular group, or that among the group analysed, some bias is introduced. It could be assumed that those with higher education are more likely to attend food redistribution points, or were more willing to participate in the survey.

Only 15% of the sample population analysed were born outside of Germany, 9% did not have German nationality. As a comparison, 28% of the general population in Germany receiving ALG II have some migrant background according to the German Federal Ministry of Labour and Social Affairs in 2008.\(^{17}\) It is possible that LAIB und SEELE clients with migration background had language barriers that prevented them to participate. However, one research scientist conducting the survey had a migration background herself and spoke Turkish fluently. It is assumed that this would have reduced survey participation barriers for some LAIB und SEELE clients. Another reason for the low number of people with migration background in the sample could be related to cultural and religious differences in accepting these types of facilities providing social and financial support.

**Lifestyle factors**

The BMI of women in the sample was higher compared to men whereas in the general population the opposite could be found.\(^2\) This could suggest that women among disadvantaged groups often show even poorer health and worse dietary behaviour compared to those women with higher socio-economic standing.

Both drinking and smoking were more prevalent in men than in women which reflects the situation in the general population.\(^{18,19}\) The overall percentage of smokers in the sample, however, was more than twice as high as in the general German population.\(^20\) This finding is remarkable although exact quantitative information such as how many cigarettes were smoked per day are lacking for further interpretation. Nevertheless, it again reflects unhealthy lifestyles in disadvantaged groups of society.

There is evidence that socio-economic inequalities in dietary behaviour can contribute to overweight and obesity.\(^{21}\) Correspondingly, higher school education level in our sample was associated with lower BMI which is supported by evidence elsewhere.\(^{10,22}\) This is also in line with our findings of significantly fewer smokers with higher education (university entrance level or enrolment) compared to non-smokers.

Surprisingly, higher alcohol consumption was significantly associated with higher school education. It could be speculated that existing or past substance abuse might have lead to impoverishment.

**Health and diet**

There is evidence for breakfast as a protective factor against obesity, cardiovascular events and diabetes and its importance for health-related quality of life.\(^{23,24}\) This matches the result that clients who had daily breakfast seemed to be healthier than those who did not.

No significant association was found for health status and consumption of fruits or vegetables. However, clients who bought additional fruits and vegetables besides LAIB und SEELE produce reported significantly better health compared to those who did not. An explanation for these differences between significant associations could be that people are possibly more aware of how much they purchase compared to how much they eat. Furthermore, those clients not buying additional ready-made foods reported a better health status. It is assumed that consuming fresh produce instead of ready-made food can positively contribute to health.\(^1,2,5\)

Fruit and vegetable consumption did not differ between various school education levels, which could indicate that clients’ education does not have an influence on fresh food consumption. Women ate significantly less ready-made food compared to men, possibly because often men are less skilled cooks and also because more men lived in single households which probably decreases the chance of cooking.

**Limitations**

In any retrospective analysis, data are often incomplete and some data for several of the food redistribution points was missing or only in parts available for some months. Also, comprehensive information on proof of eligibility and gender differences in the overall client population and in subgroups such as single parents was lacking for some distribution points. Still, we believe that we are able to present very interesting and important results within the context of an overall worrying development of increasing poverty in a high-income country.

Only 101 clients responded in this survey, which we acknowledge as a small sample size resulting in limited validity and generalizability. Some variables, for example clients with diabetes or households with children only showed small numbers that did allow meaningful statistical analysis. In addition, the results were based on self-reports which also affect the study’s validity. Finally, no observational study allows determining causal relationships between the variables studied.
Conclusion

This study is the first to explore surplus food redistribution charities and their impoverished clients in Berlin, Germany. Until now not much research is being conducted examining actions against poverty and their health effects in Germany. The results showed that the number of clients receiving surplus produce is increasing, especially among senior citizens. Although, almost one-third of people receiving financial support in Germany have a migrant background, this subgroup is very small amongst LAIB und SEELE clients. The representation of those with migrant background questions actions against poverty coverage equality amongst all groups of impoverished people.

Our findings add to the growing evidence of associations between health status and dietary behaviour of impoverished people, in particular the growing body of evidence of association between poverty and unhealthy diets.

Further research is urgently needed in Germany and elsewhere in order to identify generalizable patterns between poverty and health in high-income countries and to contribute to an evidence-based debate on policies for the reduction of health inequalities.

Supplementary data

Supplementary data are available at EURPUB online.

Conflicts of interest: None declared.

Key points

- Health inequality in Europe, especially in Germany, is not well researched.
- The number of people who use food charities in Berlin, Germany is increasing.
- There is a lack of knowledge on health behaviour among poor people in Europe and Germany in particular.
- The impoverished people studied showed a higher percentage of unhealthy behaviour such as smoking and alcohol consumption compared to the general German population.
- Food charities provide an important service to society but it remains unknown whether they can reach the people who need it the most.

References

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Psychotropic drugs and accidents in Scania, Sweden

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Background: Injuries are second to cardiovascular diseases, the main cause of hospital care in Sweden. The aim of the present study was to investigate the associations between medication with psychotropic drugs and injuries from two types of accidents, i.e. falling accidents and transportation accidents, respectively, in the whole population aged ≥18 years in the county of Scania, Sweden. Methods: Injuries from falling accidents and transportation accidents during 2007 were identified from the Region Healthcare database. Exposure to psychotropic medication expressed as defined daily doses (DDDs) during the 18 months before baseline, i.e. 1 January 2007, was identified from the Swedish Medication Register. The results were stratified by sex and three age groups, i.e. 18–34 years, 35–64 years and ≥65. The logistic regression models were adjusted for marital status, country of origin, income, previous disease and previous accidents. Results: Using psychotropic drugs was associated with increased odds for a falling accident in all age groups, however, with a dose–response relationship only among the elderly. Furthermore, using psychotropic drugs was associated with increased odds of transportation accidents in the ages 18–34 years and 35–64 years, respectively, but with a weaker association among the elderly. A similar pattern of association was seen for specific groups of psychotropic drugs: opioids, anti-depressants and anxiolytics/hypnotics/sedatives. Conclusions: In this total population-based study, there were nearly consistent associations between use of psychotropic drugs and injuries from falling accidents and transportation accidents, even after adjustment for previous accidents, previous disease and socio-demographic variables.

Introduction

In Sweden, more than 135 000 persons, i.e. 1.3% of the population, are hospitalized each year due to some kind of injury.1 Injuries are second to cardiovascular diseases, the main cause of hospital care.1 These damages are often associated with long-term suffering and lowered functioning. In Sweden, more than 70 000 people were hospitalized after a fall-related injury in 2008.1 Transportation accidents also cause a large proportion of the serious and fatal injuries, about 13 000 in Sweden, 2008, especially among younger adults.1 A number of chronic diseases are associated with a higher risk of accidents,2,3 and so are several classes of drugs, particularly psychotropic drugs such as tranquilizers and anti-depressants.4–7 The pharmacological use of psychotropic drugs is mainly to mitigate various psychiatric conditions such as psychosis, depression, sleeping problems, anxiety and worrying.8–9 However, all pharmacological treatments are associated with side-effects, and so is the use of psychotropic drugs.10 Usual side-effects from psychotropic drugs include dizziness, sedation/tiredness with negative effects on cognition, alertness and psychomotor function11 which in turn increase the risk of injuries. For example, studies have shown a detrimental effect of the use of psychotropic drugs on driving capacities.12 Considering their high prevalence, side effects related to the use of these drugs may be a relevant risk factor for injuries that could be prevented by an increased rational medication use. However, few population-based studies have assessed the independent association between the use of psychotropic drugs and transportation accidents13–25 or falling accidents.26–31

By using data from the whole population of Scania, Sweden, aged ≥18 years, we aim to quantify the association between the use of psychotropic drugs [assessed as defined daily doses (DDDs)] and future injuries from falling accidents and transportation accidents.

Methods

Study population

The present study was based on the whole population of men and women, ≥18, that were living in the region of Scania (n = 936 449), the southern-most part of Sweden, on 31 December 2006. These individuals were followed for injuries from falling accidents and transportation accidents.