

## PEER REVIEW HISTORY

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### ARTICLE DETAILS

<b>TITLE (PROVISIONAL)</b>	Food insecurity among Dutch food bank recipients - a cross-sectional study
<b>AUTHORS</b>	Neter, Judith; Dijkstra, Coosje; Visser, Marjolein; Brouwer, Ingeborg

### VERSION 1 - REVIEW

<b>REVIEWER</b>	Katie Martin, PhD University of Saint Joseph USA  I have collaborated briefly with Dr. Judith Neter. I have tried to provide unbiased comments to help improve the article and make it suitable for publication.
<b>REVIEW RETURNED</b>	28-Feb-2014

<b>GENERAL COMMENTS</b>	This paper makes an important contribution to food security literature. It fills a gap in knowledge about food insecurity and food banks in the Netherlands and I believe will be of interest to BMJ readers. I provided comments and some minor edits for making the article stronger.  This is an important article, and I believe the edits and comments will strengthen the finished product.
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- The reviewer also provided a marked copy of the manuscript with comments. Please contact the publisher for full details.

<b>REVIEWER</b>	Valerie Tarasuk Department of Nutritional Sciences Faculty of Medicine University of Toronto Toronto, Ontario Canada
<b>REVIEW RETURNED</b>	17-Mar-2014

<b>GENERAL COMMENTS</b>	Line 31: The nutrient inadequacies identified in these studies do not necessarily indicate nutrient deficiencies or malnutrition. The nutrient reference standards applied reflect optimal or recommended levels of nutrient intake; a failure to meet these standards may or may not indicate deficiency.  Line 36-40: The prevalence rates are presented as if they are comparable, but they are based on different measurement instruments, administered to samples with different levels of
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population representativeness, at different points in time.

Line 51-52: a clearer statement of purpose is needed, specifying the nature of the 'potential factors' investigated and providing some rationale for this direction of inquiry. I think it is impossible to do this without first discussing the meaning of food bank use in the Netherlands. Who is able to use food banks and how does (or might) their clientele relate to the larger population of food insecure people in the Netherlands? Surely, food bank users are a non-random subset of those unable to meet their food needs independently. Even if no study has been conducted to examine the relationship between food bank use and food insecurity in this country, some inferences can surely be drawn from what is known about the accessibility and availability of food banks in the Netherlands.

Lines 60-65: The authors do not report any comparison of participants' responses by food bank. Why not? Was there no possibility of systematic differences in participant characteristics across the 11 food banks?

Lines 54-139 – What is the logic for measuring the particular variables selected, and for constructing the analysis in the way it was? What were the authors looking for? Why, for example, was it important to examine participants' use of expired food?

Lines 89-93: There is a growing body of literature suggesting that people who respond affirmatively to even one question on a food security scale are different from those who affirm no items. See for example the writing of Alisha Coleman-Jensen. I suggest that the authors report the number of participants who affirmed one item on their scale, and depending on the size of the group, consider including the 'marginally food insecure' as a separate group in analyses.

Line 99-105: The single strongest predictor of food insecurity and severity of food insecurity in other studies published in this field has been income. Why was this variable not measured?

Lines 196-199: Why were these particular interactions examined?

Lines 214-282: The discussion reflects considerable confusion about how this particular study relates to the broader literature. This is not a study of a population-based sample, but a study of a very highly selected subset of the Dutch population – i.e., those who seek assistance from food banks and are served by them. Thus it makes no sense to compare the findings here with results from population surveys in other countries. The comparison of study results with published studies of food stamp recipients in the US is also of questionable value given that food stamps are a publicly-run entitlement program, whereas the food banks here are presumably private charities. Even comparing the study findings to those of studies of charitable food assistance recipients in other settings is of questionable value, given that food charities in different settings serve different population subgroups (e.g., depending on the factors that determine access to charitable food assistance, recipients in one program may be in much more extreme need than those in another program). The authors need to think through the relationship between food bank use and food insecurity in the Netherlands, and then develop a discussion of their work that reflects the actual meaning of their sample.

## VERSION 1 – AUTHOR RESPONSE

Reviewer Katie Martin, PhD

This paper makes an important contribution to food security literature. It fills a gap in knowledge about food insecurity and food banks in the Netherlands and I believe will be of interest to BMJ readers.

I provided comments and some minor edits for making the article stronger.

I edited the article using track changes and adding comments which I hope will be more useful to the authors than providing a list of comments. The edited article is attached.

This is an important article, and I believe the edits and comments will strengthen the finished product.

Answer:

We thank Katie Martin for the useful edits and comments on our paper. We revised the manuscript based on the edits and comments which has improved the manuscript.

Comment [MOU6]: For future research, you may want to ask: how often do you receive a food parcel? How many days does the food usually last?

Answer:

1) Food banks in the Netherlands supply food parcels every week or every other week. The latter is the case in a very small number of food banks and therefore we selected only food banks which supply food parcels once a week. So, all recipients received one food parcel per week.

2) The food banks aim to supply food parcels that supplement the normal diet for 2-3 days a week. In focus groups we asked food bank recipients about the food parcel; i.e. the need to buy foods to supplement the food parcel and the type of foods. Based on this research, we know that many recipients are not able to buy foods on top of their food parcel.

For Table 1, please include Mean +/- SD in the Heading.

Answer:

We chose not to include mean +/- SD in the heading because this would only apply for some of the variables listed. A footnote explains presented values: "Values are presented as mean  $\pm$  SD, frequency or relative frequency". (Page 14)

Comment [MOU7]: This would be bivariate analyses. Could you create a Table with the Bivariate Results? You could then summarize the major findings and report all the data in the Table.

Answer:

In lines 202-203 it was stated that "Univariate analyses regarding associations of demographic and lifestyle characteristics with low or very low food security.....". For this paper univariate and multivariate analyses have been performed. The wording of this sentence may have implied the use of bivariate analyses. Therefore, the sentence is rephrased into "Univariate analyses regarding associations of demographic as well as lifestyle characteristics with low or very low food security....."

You could also cite Robaina et al [5] who found a food insecurity of 84% among food pantry recipients, which is also comparable to your findings.

Answer:

The suggested paper has been added.

For these two paragraphs (the last two paragraphs of the results section), I would report the main regression model first, then list the significant interactions.

Answer:

The main regression model for multivariate analysis is shown in Tables 2A and 2B. On top of the main regression model we tested a selection of variables for interaction with age, sex and education. These results are described in lines 235-241.

Reviewer Valerie Tarasuk

Line 31: The nutrient inadequacies identified in these studies do not necessarily indicate nutrient deficiencies or malnutrition. The nutrient reference standards applied reflect optimal or recommended levels of nutrient intake; a failure to meet these standards may or may not indicate deficiency.

Answer:

We agree with the reviewer that a failure to meet nutritional recommendations may or may not lead to nutrient deficiencies. Therefore, we changed the sentence into: "Food insecure people have a lower intake of fruit and vegetables[2-5] and a lower nutrient intake[5-8] which consequently may lead to micronutrient deficiencies and malnutrition.[7, 9]" (Lines 33-35)

Line 36-40: The prevalence rates are presented as if they are comparable, but they are based on different measurement instruments, administered to samples with different levels of population representativeness, at different points in time.

Answer:

We agree with the reviewer that prevalence rates in our paper are based on different measurement instruments, administered to samples with different levels of population representatives and at different periods in time. However, to indicate the severity of the problem in the introduction section we gave an overview of available national prevalence rates. In the discussion section we compared our prevalence rates with prevalence data of food insecurity from the US and South Korea, based on people who make use of any type of public food assistance. To make the above described differences clear the following was added to the discussion section: "Possible explanations for this difference are the differences in time-period where the food security question refers to, in the year food insecurity was measured and in the measurement instruments that were used" (Lines 265-267).

Line 51-52: a clearer statement of purpose is needed, specifying the nature of the 'potential factors' investigated and providing some rationale for this direction of inquiry. I think it is impossible to do this without first discussing the meaning of food bank use in the Netherlands. Who is able to use food banks and how does (or might) their clientele relate to the larger population of food insecure people in the Netherlands? Surely, food bank users are a non-random subset of those unable to meet their food needs independently. Even if no study has been conducted to examine the relationship between food bank use and food insecurity in this country, some inferences can surely be drawn from what is known about the accessibility and availability of food banks in the Netherlands.

Answer:

1) To make a clearer statement of the purpose of our study the aim has been changed into: "to determine the prevalence of low and very low food security among Dutch food bank recipients, and to identify potential demographic, lifestyle and nutrition-related factors associated with low and very low food security" (Lines 67-70). It is hard and unrealistic to speculate on a direction of inquiry because

this study is the first on identifying factors associated with food insecurity in Dutch food bank recipients. We tested demographic characteristics which were associated with food insecurity in other studies and expanded this list of variables with lifestyle and nutrition-related factors of which an association with food insecurity would be plausible.

2) To make clear who is able to use food banks and how their recipients relate to the larger population of food insecure people in the Netherlands the following has been added to the introduction section: "Of the more than 7 million Dutch households in 2012, 664 thousand households (9.4%) were living below the low-income threshold. These 664 thousand households comprise over 1.3 million individuals (8.4% of the Dutch population). Moreover, over 811 thousand individuals had an income that was even below the basic needs variant of the low-income threshold. This lowest-needs variant relates to costs incurred by a single person for purchasing goods which are regarded as (virtually) unavoidable in the Netherlands, such as food, clothing, housing and personal care.[28]

The Dutch Food Bank aims to provide food parcels that supplement the normal diet for 2-3 days. Individuals living alone with a monthly disposable income <180 Euros qualify for food assistance as do families with a monthly disposable income of <180 Euros with the additional income allowance of 60 Euros per adult and 50 Euros per child (<18 years of age). In 2013, the food banks weekly provided over 35 thousand food parcels and thereby supported approximately 85 thousand individuals in the Netherlands".[29] (Lines 45-57)

Lines 60-65: The authors do not report any comparison of participants' responses by food bank. Why not? Was there no possibility of systematic differences in participant characteristics across the 11 food banks?

Answer:

Unfortunately we are not able to report a comparison of participants' responses by food bank due to the small number of participants at some food banks. To make this more clear we added the number of recipients participating per food bank in the methods section: "Apeldoorn (N=29), Boxtel (N=11), Breda (N=42), Enschede (N=71), Groningen (N=17), Haarlem (N=6), Hilversum (N=16), Huizen (N=14), Rotterdam (N=28), Wageningen (N=12), and Zeewolde (N=5)" (Lines 82-84).

Lines 54-139 – What is the logic for measuring the particular variables selected, and for constructing the analysis in the way it was? What were the authors looking for? Why, for example, was it important to examine participants' use of expired food?

Answer:

1) Because the Household Food Security Survey Scale measures people's ability to acquire sufficient quantity and quality of foods it is important to take into account all variables which might influence this food security. To make the logic for measuring the particular variables selected clear we added the following to the methods section: "The selection of explanatory variables was based on common sense and literature. Literature showed that sex[23, 27, 32], level of education[27, 33, 34], employment status[27, 33, 34], ethnicity[23, 24, 34-36], household size[7, 13, 35], household composition[12, 24, 34, 35] and weight status[13, 37-39] were associated with food insecurity and therefore included in this study. Physical activity was included because it may influence the energy-balance and consequently food security status. Smoking and money spent on grocery shopping were included because they may influence food purchases and consequently food security status. Furthermore, satisfaction with the food parcel, satisfaction with overall food intake, perceived healthiness of food intake, self-efficacy of eating healthy and the use of products from the food parcel may influence the variety, quality and quantity of food intake and consequently food security status." (Lines 115-125)

2) The content of food parcels depends on what is donated by food industry and supermarkets. Most of the donated foods are close to or beyond the expiration date. Therefore, the quality of foods is not always optimal which is an important reason for food bank recipients not to be satisfied with the

content of the food parcel, their overall food intake and for not consuming certain foods. To make this clear we added the following to the methods section: "Food parcels provided by the Dutch food banks consist of donated foods only and often include foods which are close to the expiration date" (Lines 162-163).

3) Multinomial regression techniques makes it possible to compare low and very low food secure households separately with food secure households, and therefore to answer our research question. The usual comparison, combining the low and very low food secure group, would of course be possible by dichotomizing the outcome variables, but this would have led to an unnecessary loss of information.

Lines 89-93: There is a growing body of literature suggesting that people who respond affirmatively to even one question on a food security scale are different from those who affirm no items. See for example the writing of Alisha Coleman-Jensen. I suggest that the authors report the number of participants who affirmed one item on their scale, and depending on the size of the group, consider including the 'marginally food insecure' as a separate group in analyses.

Answer:

We added the following information to the results section: "Of the sample 84.9% (N=213) responded affirmatively to at least one item on our food security scale. Of those, 14% (N=30) affirmed only one item and were therefore classified as marginally food secure." (Lines 194-196).

Lines 99-105: The single strongest predictor of food insecurity and severity of food insecurity in other studies published in this field has been income. Why was this variable not measured?

Answer:

The variable income was not measured because all Dutch food bank recipients are selected based on a specific disposable income level. Individuals living alone with a monthly disposable income <180 Euros qualify for food assistance as do families with a monthly disposable income of <180 Euros with the additional income allowance of 60 Euros per adult and 50 Euros per child (<18 years of age).

Lines 196-199: Why were these particular interactions examined?

Answer:

We examined age, sex and level of education as particular interactions based on a combination of common sense and literature. However, based on the reviewers' comment, our new analyses and the possibility to test for interaction regarding the number of people per stratum we looked further into detail to which interaction terms were logical to test for. Therefore, we have chosen to test age, sex and level of education on interaction with the following selection of variables: age, sex, duration of being recipient, household size, household composition, level of education and money spent on groceries. (Lines 172-183)

Lines 214-282: The discussion reflects considerable confusion about how this particular study relates to the broader literature. This is not a study of a population-based sample, but a study of a very highly selected subset of the Dutch population – i.e., those who seek assistance from food banks and are served by them. Thus it makes no sense to compare the findings here with results from population surveys in other countries. The comparison of study results with published studies of food stamp recipients in the US is also of questionable value given that food stamps are a publicly-run entitlement program, whereas the food banks here are presumably private charities. Even comparing the study findings to those of studies of charitable food assistance recipients in other settings is of questionable value, given that food charities in different settings serve different population subgroups (e.g., depending on the factors that determine access to charitable food assistance, recipients in one program may be in much more extreme need than those in another program). The authors need to

think through the relationship between food bank use and food insecurity in the Netherlands, and then develop a discussion of their work that reflects the actual meaning of their sample.

Answer:

We agree with the reviewer that our results are based on a highly selected subset of the Dutch population and therefore it might seem odd to compare our food insecurity prevalence rates with population based samples and other charitable food assistance recipients. To make this comparison more clear we added the following to the discussion section: "To indicate the severity of food insecurity in our study sample we compared our prevalence rates with available national prevalence rates and other charitable food assistance populations. The last group consists of people who depend on food assistance programs regarding their food intake and therefore are not able to choose what they eat. We examined Dutch food bank recipients - a very specific group of low-income people - and one should therefore compare the prevalence rates of food insecurity with other samples with caution. Furthermore, in contrary to the US, in the Netherlands we do not have publicly-run entitlement programs." (Lines 249-256)