Reviewer's report

Title: Physical inactivity is strongly associated with anxiety and depression in Iraqi immigrants to Sweden: A cross-sectional study

Version: 1 Date: 6 February 2014

Reviewer: Anu Molarius

Reviewer's report:

This is a cross-sectional study about the prevalence of anxiety and depression among Iraqi immigrants and native Swedes in Malmö city in Sweden and factors related to these mental health conditions. Mental health among immigrants is an important issue and the authors do indeed find a considerably higher prevalence of anxiety/depression among Iraqis compared to native Swedes. Economic insecurity was found to be a risk factor among both Iraqis and Swedes and among Iraqis also reading skills in Swedish.

The authors present as their main result that physical activity is more strongly associated with mental health among Iraqis than among native Swedes and recommend physical activity to prevent poor mental health in this group. Even though physical inactivity is known to be associated with poor mental health, this is quite a simplistic view. What is more surprising is that physical activity was not associated with anxiety/depression among the Swedes in this study. There are many possible explanations to this difference in the effect of physical activity. The measure was not very strong, only one dichotomised variable (<150 min per week), with no additional information of its distribution, was used. The representativeness of the study is also questionable. No response rates are given, but one can read from figure 1 that the response rate for Iraqis was 48% and for Swedes 32%. This is very low and differs between Iraqis and Swedes. The p-value given for the interaction term between physical activity and ethnic origin is not even statistically significant (although on the borderline). In that case even the finding that marital status was significant among Swedes but not among Iraqis would have been as important as the difference in physical activity. Also the cross-sectional design limits the interpretation considerably. And last, no possible mechanism for this difference is given in the discussion.

A more relevant question, than looking the Iraqis and Swedes separately, would have been to find out why Iraqis have poorer mental health. Table 1 gives some hint, in addition to lower physical activity, the Iraqis have more economic insecurity, higher unemployment and lower social participation. The authors state in the results section that Iraqis had three times higher odds of anxiety/depression even when adjusted for all the variables included in the model, so these variables do not explain the difference in prevalence (not even physical activity), but it would have been important to know to what extent they do and have variables that further contribute to these differences.
Specific comments:
The response rates should be given in the abstract and in the methods section and their possible effect on the reliability of the prevalence estimates and other results should be discussed.

The background begins with a long description of the size of immigrant population in Europe and Sweden. This should be compressed and a description of what is known about the mental health of immigrants, in particular those from Middle East, should be given. Also, cardiovascular and metabolic diseases are brought up as the reason why to study mental health among immigrants, but the mental health of immigrants should be a focus on its own right.

To calculate the standardised odds ratios standard deviations of categorical variables have been used. Either this is inappropriate or very poorly explained. Why would they be necessary?

Only p-values for the interaction models are given, but the complete models should also be reported.

In the discussion the authors seem to argue that their study is the best in this area of research. A more neutral comparison with other similar studies and taking into consideration the limitations of the current study would be preferable.

Backwards elimination was used in Table 2. In the note under the table it is said that the data were adjusted for age, male sex, physical activity etc. But if all these variables were not included in the model, they cannot have been adjusted for. In addition, instead of backwards elimination it would be better to include all the variables in the model to see the real differences in odds ratios e.g. for physical activity.

The figures are difficult to read due to quality problems.

Level of interest: An article of limited interest

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

I declare that I have no competing interests.