

## Peer Review Report

# Review Report on Association between physical activity and prevalence/mortality of non-alcoholic fatty liver disease in different socioeconomic settings

Original Article, Int J Public Health

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### EVALUATION

#### **Q 1** Please summarize the main findings of the study.

Authors explored the association between physical activity and prevalence of nonalcoholic fatty liver disease in two retrospective cohorts derived from NHANES study. The authors found that higher level of physical activity was associated with lower prevalence of NAFLD in unadjusted data as well as adjusted for broad selection of health related and socio-economic confounders. Lower physical activity was associated with poorer survival, but only in a subpopulation of NAFLD defined by USFLI.

#### **Q 2** Please highlight the limitations and strengths.

Study uses a robust, well described cohort of patients, the results, although not very novel, confirm a well known fact on a large population.

Besides obvious drawbacks of retrospective study and different availability of variables in different time periods, the study suffers from definitions of outcomes and confounders. The NAFLD is defined in three ways, as well as socioeconomic status is defined rather strangely (by the prevalence of insurance and employment - less insured and more employed?)

#### **Q 3** Please provide your detailed review report to the authors. The editors prefer to receive your review structured in major and minor comments. Please consider in your review the methods (statistical methods valid and correctly applied (e.g. sample size, choice of test), is the study replicable based on the method description?), results, data interpretation and references. If there are any objective errors, or if the conclusions are not supported, you should detail your concerns.

Major points.

1) The definition of NAFLD by three separate criteria (Ultrasound and two laboratory indexes). The definition of NAFLD clearly says that NAFLD is steatosis on histology or imaging and the non-existence of other defined liver diseases. Since the ultrasound is available in the whole cohort, only this criterion should be used only, the laboratory indexes are only surrogates where USG is not available. Also this would allow the combination of NHANES III and NAHNES 1999–2014 cohorts)

2) The conclusion that the physical activity is more beneficial in individuals with better socioeconomic status is weakened by the definition of the three levels of socioeconomic status that can not be generalized. It should be mentioned that this conclusion is valid only for U.S. population as the "insurance" is mostly not part of the definition of SES.

Minor comments

- abbreviations should be explained also in the abstract
- terminology is a bit confusing regarding USFLI, as there is similar abbreviation US-FLI which is an ultrasound based definition, this difference could be highlighted

### PLEASE COMMENT

#### **Q 4** Is the title appropriate, concise, attractive?

yes

**Q 5** Are the keywords appropriate?

yes

**Q 6** Is the English language of sufficient quality?

yes

**Q 7** Is the quality of the figures and tables satisfactory?

Yes.

**Q 8** Does the reference list cover the relevant literature adequately and in an unbiased manner?)

yes

#### QUALITY ASSESSMENT

**Q 9** Originality



**Q 10** Rigor



**Q 11** Significance to the field



**Q 12** Interest to a general audience



**Q 13** Quality of the writing



**Q 14** Overall scientific quality of the study



#### REVISION LEVEL

**Q 15** Please make a recommendation based on your comments:

Minor revisions.