# Article information:

Non-linear associations between metabolic syndrome and four typical heavy metals: Data from NHANES 2011-2018 - PubMed  
<https://pubmed.ncbi.nlm.nih.gov/34800500/>

# Article summary:

1. This study explored the associations between four typical heavy metals (lead, cadmium, mercury and manganese) and metabolic syndrome (MetS) among adults using data from the US National Health and Nutrition Examination Survey 2011-2018.

2. After adjusting for covariates, higher levels of blood Pb, Cd and Hg were associated with lower risks of MetS in participants overall, and in all subgroup analyses. Higher levels of blood Mn had a higher risk of MetS only in the age group of 30-49 years.

3. Non-linear associations between heavy metal levels in blood with risk of MetS were observed in participants overall, in specific age groups and in both genders.

# Article rating:

May be slightly imbalanced: The article presents the information in a generally reliable way, but there are minor points of consideration that could be explored further or claims that are not fully backed by appropriate evidence. Some perspectives may also be omitted, and you are encouraged to use the research topics section to explore the topic further.

# Article analysis:

The article is generally trustworthy as it provides a detailed analysis of the association between four typical heavy metals (lead, cadmium, mercury and manganese) and metabolic syndrome (MetS). The authors have used data from the US National Health and Nutrition Examination Survey 2011-2018 to explore these associations. The article is well written with clear explanations of the methods used to analyze the data. Furthermore, the authors have adjusted for covariates which helps to reduce potential bias.

However, there are some potential biases that should be noted. Firstly, there may be selection bias due to self-selection into the study sample as participants may not be representative of the general population due to their willingness to participate in this survey. Secondly, there may be recall bias as participants may not accurately remember or report their exposure to heavy metals or other factors related to MetS such as diet or lifestyle habits which could affect results. Finally, there may be confounding factors that were not taken into account such as environmental exposures or genetic predisposition which could influence results.

In conclusion, this article is generally trustworthy but potential biases should be noted when interpreting results.

# Topics for further research:

* Selection bias
* Recall bias
* Confounding factors
* US National Health and Nutrition Examination Survey
* Heavy metal exposure
* Metabolic Syndrome

# Report location:

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