

HBM4EU-MOM: intervene to raise awareness to specific dietary recommendations and reduce prenatal exposure to mercury



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Key findings: This study will allow to characterize mercury exposure in pregnant women in five European countries and its results will support the definition of policies to protect human health in vulnerable populations.

Background

- Mercury and its compounds are toxic and are among the substances of higher concern globally.
- Toxicity depends on mercury compounds, route of exposure and duration.
- The European population is mostly exposed to organic mercury (methylmercury) due to seafood consumption.
- Previous studies have shown that mercury levels in the European population are higher in countries with higher seafood consumption.
- However, because of the beneficial nutrients it provides, seafood is an essential component of the human diet.



- To reduce exposure and avoid adverse health effects, it is extremely important to balance the risks and benefits of eating seafood, especially in vulnerable groups such as pregnant women.
- Most European countries do not have official guidelines for the consumption of seafood during pregnancy, and even if these guidelines exist, they are often not communicated to pregnant women in an appropriate way.
- As such, under the European Human Biomonitoring Initiative (HBM4EU, www.hbm4eu.eu) an intervention study is being developed in five European countries with high seafood consumption (Cyprus, Greece, Iceland, Portugal, Spain) to help reduce prenatal exposure to mercury, while ensuring the nutritional benefits of fish by developing and raising awareness to specific national recommendations for seafood consumption during pregnancy.



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Materials and Methods

A pilot randomized intervention study is being developed in five European countries (Cyprus, Greece, Iceland, Portugal, Spain) on pregnant women with the following criteria:

- being 18-45 years old;
- having a single pregnancy;
- living in the sampling country for over three years;
- being able to provide a hair sample;
- not facing any medical conditions;
- having a diet not excluding seafood.

Sample size goal: 600 European pregnant women

120 in each country → 60 in the intervention group
→ 60 in the control group

Recruitment done through health-care providers.



Intervention: provide and reinforce national recommendations on seafood consumption.

Hg levels assessed through analysis of total mercury in scalp hair samples collect at the beginning and at the end of the intervention period.

Sampling phase 1



- Hair sample 1
- Questionnaire 1

Intervention: Women receive dietary advice on seafood consumption to minimize Hg exposure



Control: Standard care

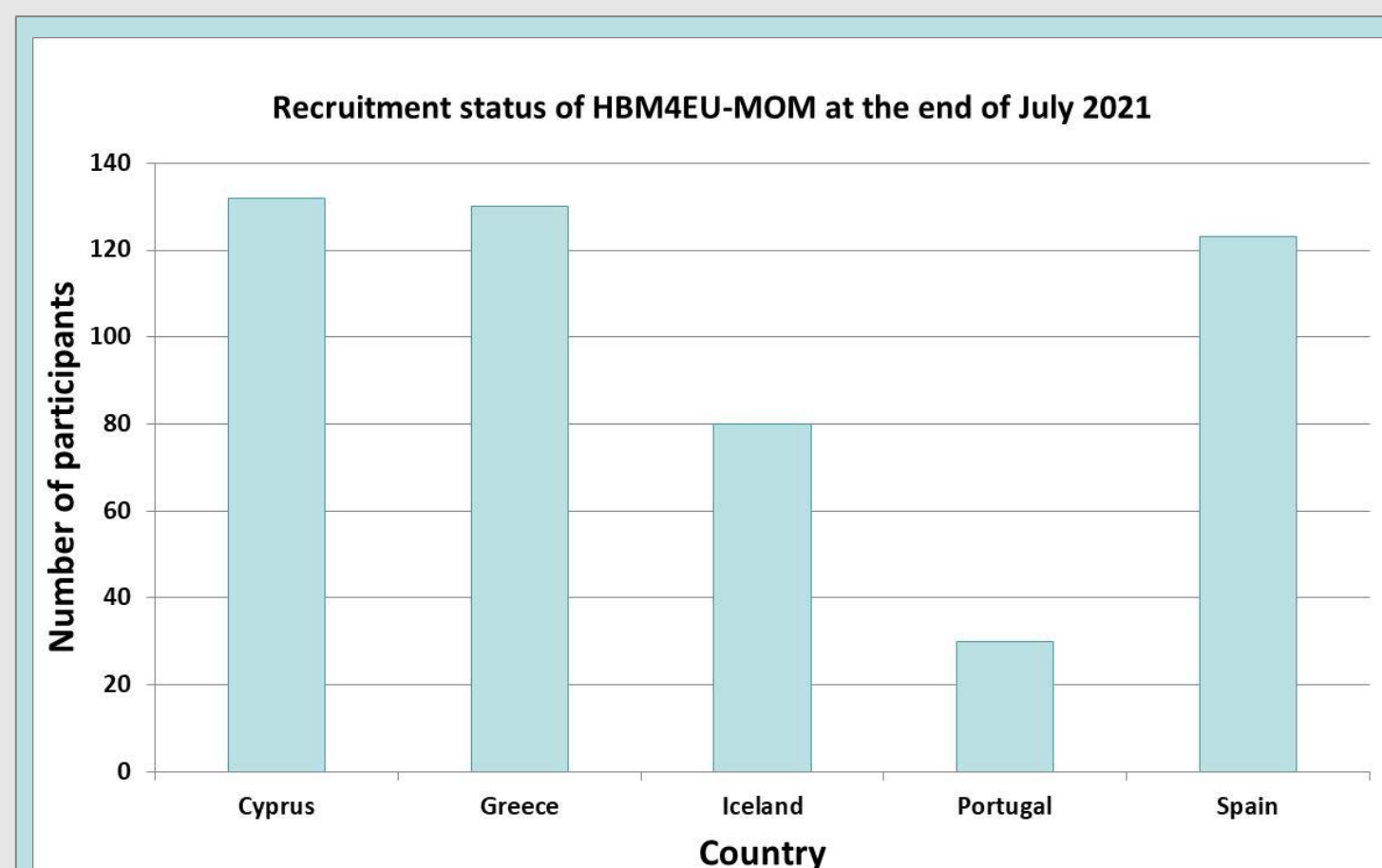
Sampling phase 2



- Hair sample 2
- Questionnaire 2

Results

Recruitment has face substantial challenges due to the COVID-19 pandemic (restrictions and lockdowns, overwhelmed health-care providers, extra-cautious pregnant women due to the pandemic) and although national teams worked hard to overcome obstacles and try to achieve the foreseen sampling goal the recruitment period had to be extended and recruitment it is still ongoing in some countries.



Conclusions

- This study will raise awareness about the importance of seafood consumption during pregnancy and promote the consumption of species with low mercury levels according to the existing national recommendations, contributing to the reduction of prenatal methylmercury exposure while ensuring the nutritional benefits of seafood consumption. Furthermore it will allow to characterize the levels of mercury exposure in a susceptible population in five European countries.

Funding: HBM4EU is funded by the European Union's Horizon 2020 research and innovation programme under grant agreement N° 733032.



European Commission

Horizon 2020 European funding for Research & Innovation

References:

Deliverable Report D8.7 HBM4EU-mom Interim Report, WP8 - Targeted field work surveys and alignment at EU level. HBM4EU, April 2021.