Bisphenol A, S and F predictors in young adults and teenagers of the Czech Republic

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INTRODUCTION

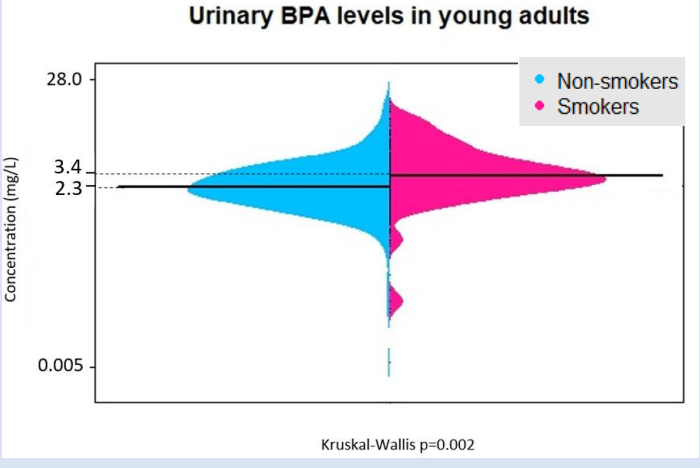
- **Bisphenol A** (BPA) is known as an **environmental contaminant** widely used in a range of consumer products.
- BPA is classified as an **endocrine-disrupting chemical**. Endocrine disorders influence male and female fertility as well as leading to obesity and diabetes. Moreover, BPA has harmful effects **on the cardiovascular, central and peripheral nervous systems**.
- Since 2010s manufacturers have started replacing BPA with **analogues such as bisphenol S and F** (BPS and BPF). Recent studies showed that – like BPA – these novel bisphenols **could adversely affect human health**.
- There are **no data** reporting **BPS and BPF** measurements in human fluids in the Czech Republic.
- **In this study, we measured BPA, BPS and BPF in urine of teenagers and young adults and attempted to estimate associations between the concentrations and questionnaire data that could reflect potential sources of exposure.**

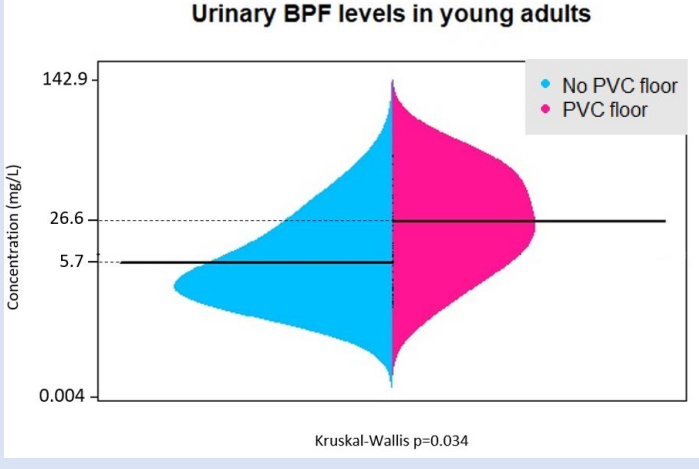
METHODS

- In this study, within the CELSPAC program, participated **616 people born in the Czech Republic**. The people are participants of two cohorts: **young adults** (315 participants, a long-term cohort) and **teenagers** (301 participants, a short-term cohort).
- Two types of data were collected. **First, bisphenols A, S and F** were measured in **urine** samples. **Second, questionnaire data** were reported by the teenagers and young adults. **The questionnaire included 232 questions:** socioeconomic and sociodemographic questions , detailed questions concerning surrounding environment, lifestyle questions, questions concerning consumer product usage, and questions about health issues.
- **Total bisphenol** concentrations were measured and **specific gravity adjusted**. The measurements were performed by liquid chromatography mass spectrometry analyses.
- Urinary concentrations were **log-transformed**. Associations between the analytes and questionnaire data were analyzed by using a **Spearman correlation** (for continuous variables) and **Kruskal-Wallis test** (for non-continuous variables). Dependencies of predictors were assessed prior the analyses.

RESULTS

- **The preliminary analyses** of the data showed **significant correlations** between BPA, BPS and BPF levels in young adults urine and **56 questionnaire answers**. Among them, for instance, correlations between: BPA and PVC floor at home; BPA, BPS and smoking; BPF, BPS and meat consumption; BPF and house insulation; BPS and a wide range of cosmetics use etc. (find some corresponding graphs below). Analyses for the teenagers continue.





- **In progress:** Now associations between urinary BPA, BPS and BPF levels and exposures are being explored with linear regression models. A desired outcome is the log-transformed urinary concentrations and the recoded questionnaire responses referring to everyday lifestyle as predictors.