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Raquel Bertoldo, Laure Malleret

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Exposure of young children to settled dust

an analysis of parental knowledge and risk perception



Raquel Bertoldo
Social Psychology Laboratory



Laure Malleret
Environmental Chemistry Laboratory

Context and goals

Child: Floor games,
hand/mouth object contact,
hygiene



Chronic ingestion:
20-100 mg/day (USEPA, 2017)
→ **Exposition ??**

Ingestion



Inhalation

Skin contact

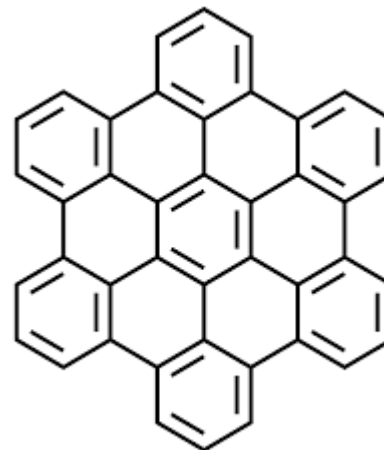
Children = fragile population
In development, Size/weight
ratio, Latency of effects
→ **Danger??**

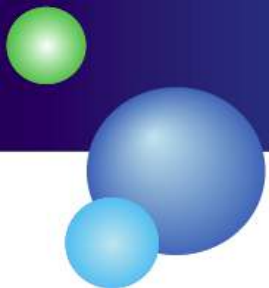
**Study the risk that dust settled on the ground
represents for young children**

- **Chemical** analysis of settled dust in schools
 - playgrounds
 - Classroom
- **Genotoxic** analysis of the settled dust
 - Mutagenic potential → by ‘ingestion’ and ‘skin contact’
- **Exposure** to settled dust in the household
 - Analysis of **cleaning behaviour** in the household
 - **Risk perception**

First chemical results

- Preliminary analysis show the presence of PAH in settled dust in schools – both in urban and rural areas
 - Polycyclic Aromatic Hydrocarbon



- 
- Literature shows that
 - **Exterior** environment is regarded as ‘dirtier’ than **interior** environment
 - **Microorganisms** present in dust raise more concerns than other **chemical particles**

[Mackendrick, N. (2014); Crighton et al. (2013)]

- How do parents of young children think about dust?
 - How they **understand** settled dust?
 - How do they **perceive risks** related to settled dust?
 - What are the variables explaining cleaning behaviours?

- 1 pre-study (50 parents)
- Study 1 (212 parents)

Aix-Marseille Region

Variables

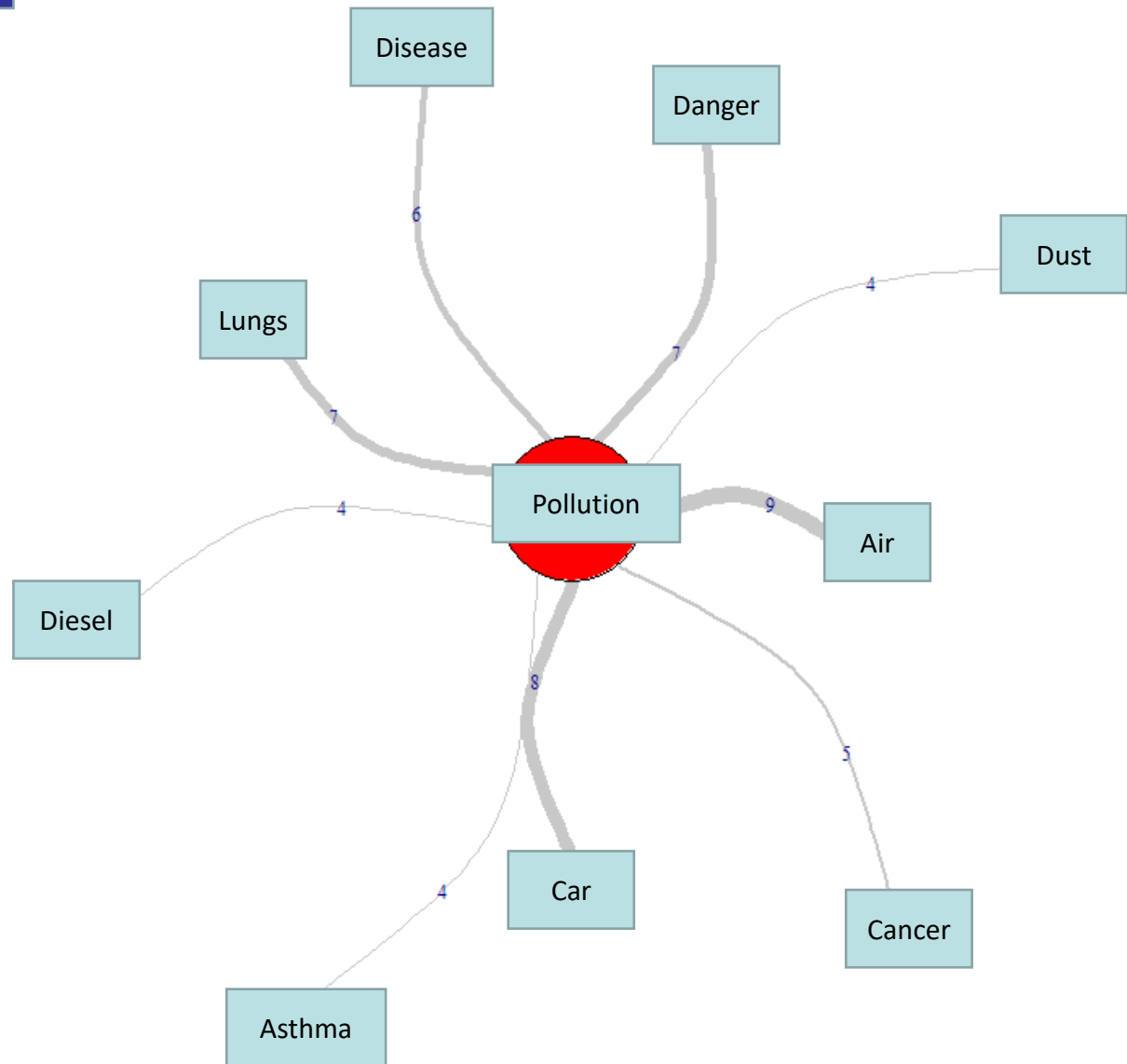
- ‘risk perception’ of settled dust
 - home, exterior, at school
 - Own kid, other kids
- Knowledge about settled dust
- Preventive **behaviour** → cleaning!
- **Parenting** style
- Trust in institutions

VARIABLES

Qualitative pre-study to better target the “types” of household chores and those that are relevant for this study

Results

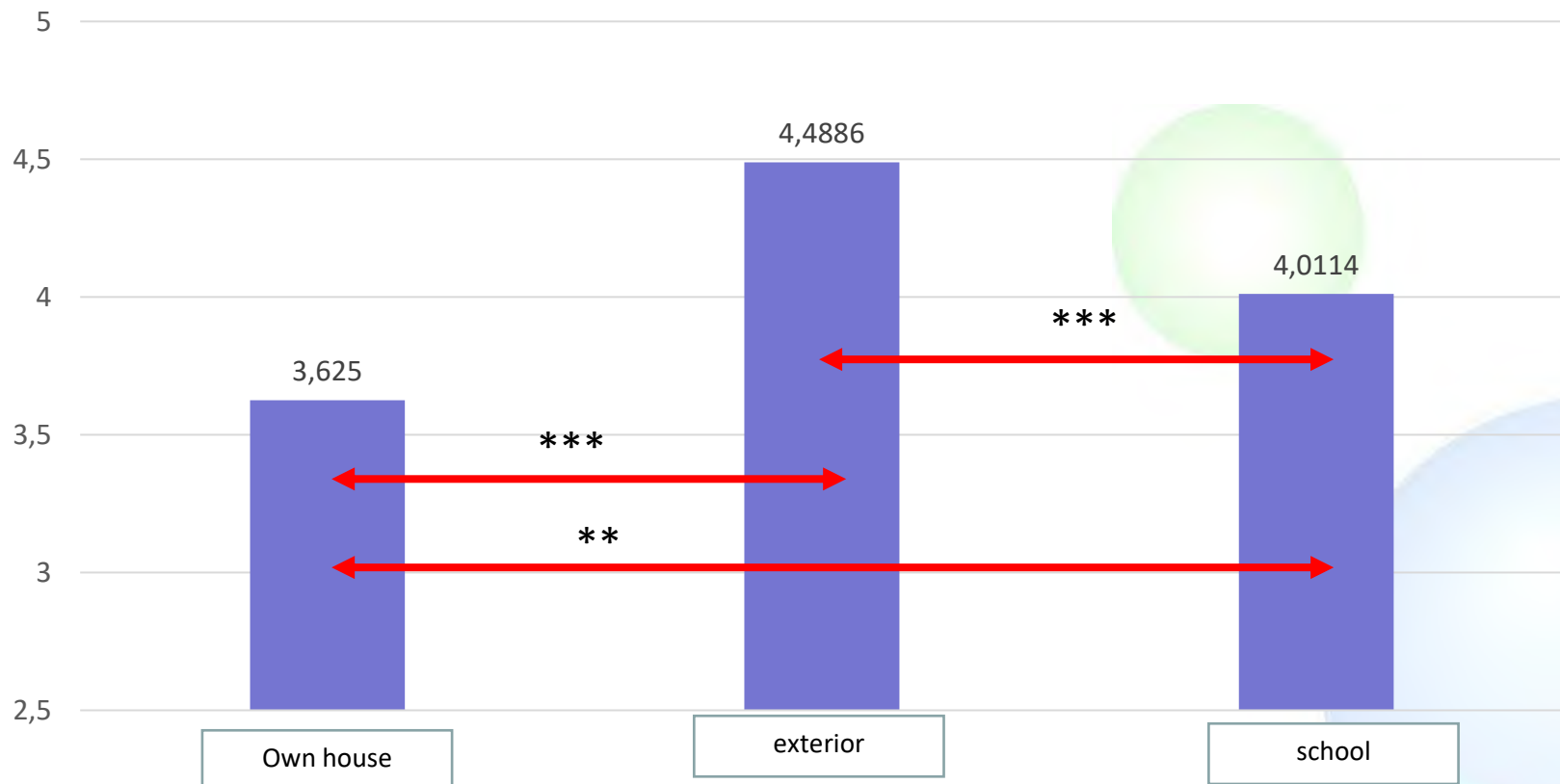
What are the first ideas that come to mind when you think about 'settled dust' (fine particles)



Results

Pre-study (end of first COVID lockdown, 2020)

Perception of the risk of exposure to fine particles



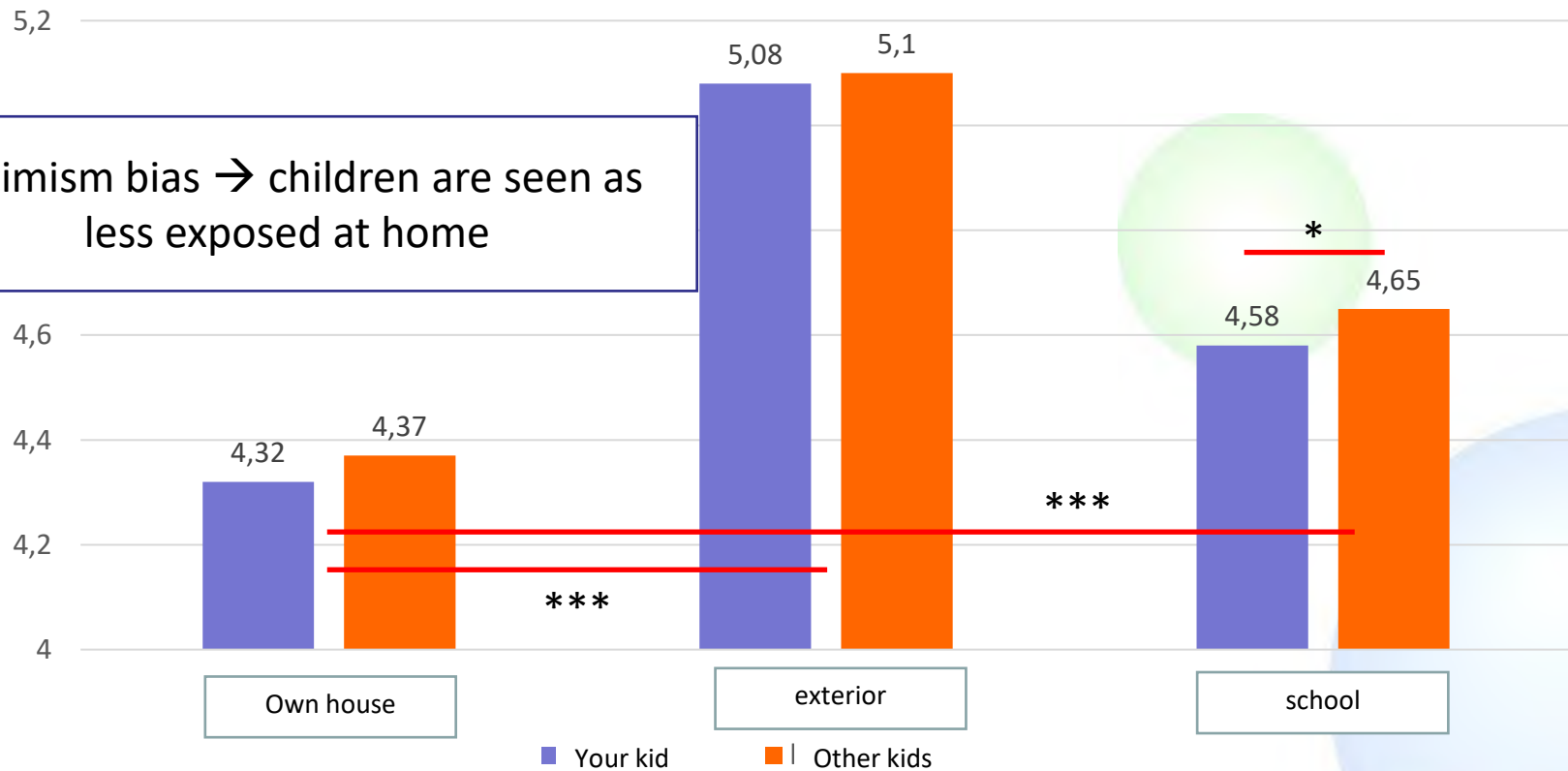
Results

Main effects

1. Optimism bias ($p < .05$)
2. proximity ($p < .001$)

Perception of the risk of exposure to fine particles

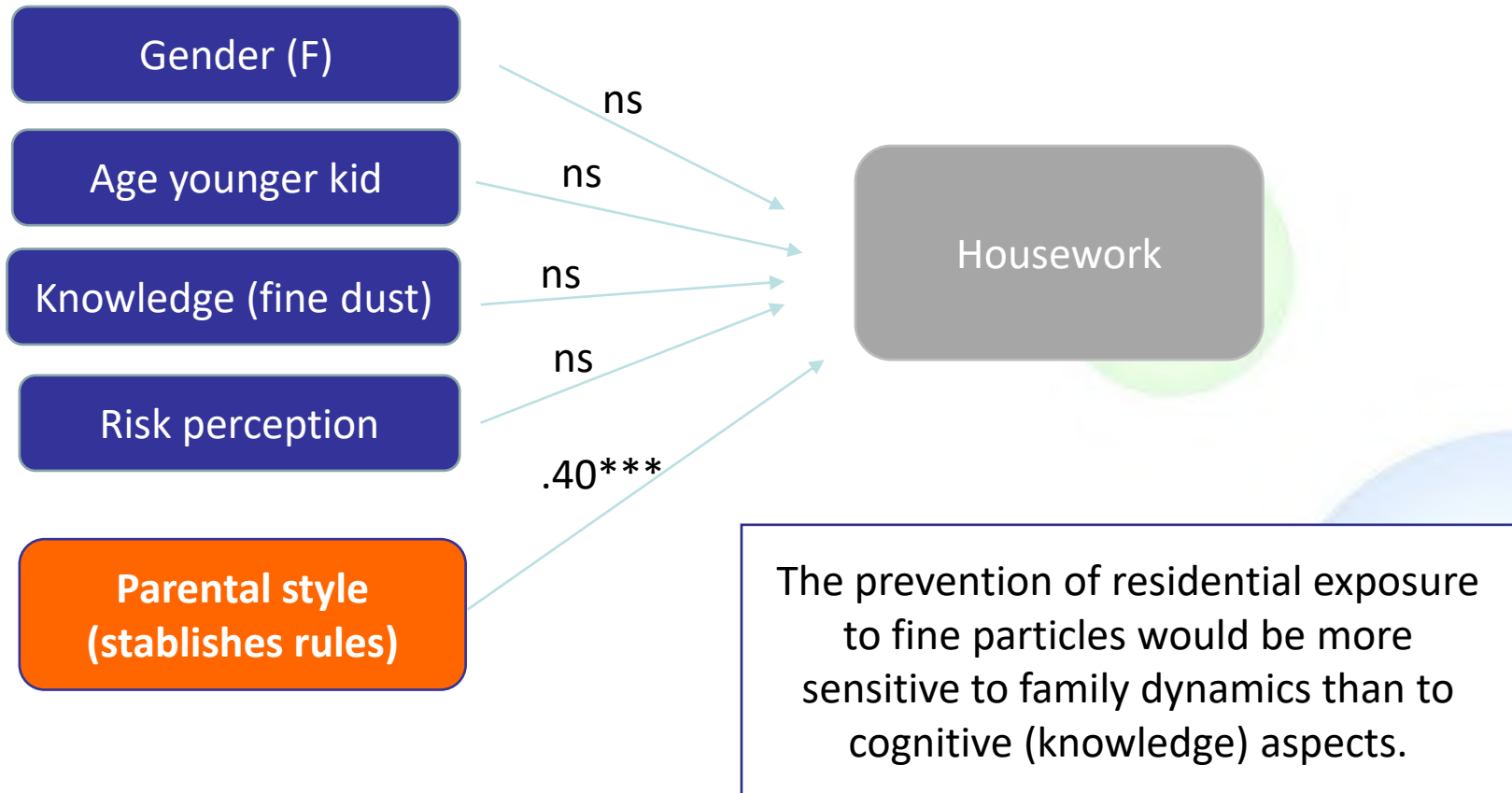
Optimism bias → children are seen as less exposed at home



Results

Regression analysis
housework (cleaning surfaces)

Campagne 2 – février-mars 2021



- *Optimism bias*
 - Fine particles are seen as more dangerous **outside the household** – in contradiction with toxicological analysis
 - Impacts are regarded as relatively more important on other peoples' kids
- Weight of contextual over cognitive variables in explaining household practices (e.g. Aune, 2007; Bertoldo et al., 2015)
 - **Family dynamics** contextual factors largely shape behaviours with potential impacts on young children health