

## Press release

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### Basic information

Name: Malene Thygesen      Email: [mthygesen@ph.au.dk](mailto:mthygesen@ph.au.dk) Phone: 87166061

Department of: Public Health

Main supervisor: Professor Søren Dalsgaard

Title of dissertation: Environmental Exposures in Early Childhood and their Association with ADHD

Date for defence: 12<sup>th</sup> of March at (time of day): 1.00 PM Place: Online (Via ZOOM)

Press release (Danish)

Har miljømæssig eksponering i den tidlige barndom betydning for senere udvikling af ADHD?

Miljømæssig eksponering i den tidlige barndom og sammenhængen med udvikling af ADHD er et nyt ph.d.-projekt fra Aarhus Universitet, Health. Projektet er gennemført af Malene Thygesen, der forsvaret det d. 12/3 kl. 13.00

ADHD er en hyppigt forekommende udviklingsforstyrrelse, som på verdensplan berører 5-7% af alle børn og mellem 2,5 og 5% af alle voksne. Symptomerne på ADHD er uopmærksomhed, hyperaktivitet og impulsivitet i en sådan grad, at de virker forstyrrende på individets daglige liv. Årsagerne til, hvorfor nogle børn udvikler ADHD kendes endnu ikke med sikkerhed, men det menes at udviklingen af ADHD sker på baggrund af et samspil mellem både genetiske og miljømæssige risikofaktorer. Formålet med dette ph.d.-projekt er at bidrage til en bedre forståelse af forskellige miljømæssige eksponeringers betydning for udvikling af ADHD ved at undersøge eksponering for luftforurening (NO<sub>2</sub> og PM<sub>2.5</sub>), 17 forskellige sporstoffer i drikkevandet og mængden af grøn vegetation omkring bopælsadressen i den tidlige barndom og sammenhængen med senere udvikling af ADHD. Resultater af ph.d.-projektets analyser viste, at eksponering for højere niveauer af NO<sub>2</sub> og PM<sub>2.5</sub> øgede risikoen for at udvikle ADHD. Denne sammenhæng var mest udtalt i forhold til NO<sub>2</sub>, hvorimod højere niveauer af grøn vegetation omkring bopælsadressen havde en potentielt beskyttende effekt i forhold til at udvikle ADHD. Der fandtes ikke bevis for en sammenhæng mellem nogle af de 17 undersøgte sporstoffer i drikkevandet og en senere udvikling af ADHD.

Forsvaret af ph.d.-projektet er offentligt og finder sted den 12/3 kl. 13.00 online via ZOOM. Titlen på projektet er "Environmental Exposures in Early Childhood and their Association with ADHD". Yderligere oplysninger samt tilmelding til forsvaret kan ske ved henvendelse til Ph.d.-studerende Malene Thygesen, e-mail: [mthygesen@ph.au.dk](mailto:mthygesen@ph.au.dk), tlf. 8716 6061

Bedømmelsesudvalget består af:

Trine Brink Henriksen (moderator), Professor, Institut for Klinisk Medicin - Børn og Unge, Aarhus Universitetshospital, Danmark

Samuele Cortese, Professor, Department of Psychology and Medicine, University of Southampton, United Kingdom

Katrine Strandberg-Larsen, Associate Professor, Afdeling for Epidemiologi, Institut for Folkesundhedsvidenskab, Københavns Universitet, Danmark

Press release (English)

## Does environmental exposures in early childhood influence the risk of later development of ADHD?

Environmental exposures in early childhood and their association with later development of ADHD is a new Ph.d-project from Aarhus University, Health. The project was carried out by Malene Thygesen, who is defending her dissertation on the 12<sup>th</sup> of March at 1 PM.

ADHD is a prevalent neurodevelopmental disorder, which is estimated to affect 5 to 7% of all children and between 2.5 and 5% of adults worldwide. ADHD is characterised by symptoms of inattention, hyperactivity and impulsivity to a degree that is disturbing for an individual's functioning. The reasons why some children develop ADHD are still largely unknown, but it is believed that the development of ADHD may be a consequence of an interaction between genetic and environmental risk factors. The aim of this PhD dissertation was to contribute to a better understanding of the impact of different environmental exposures on the development of ADHD by investigating early life exposure to air pollution (NO<sub>2</sub> and PM<sub>2.5</sub>), 17 different trace elements in drinking water and the level of green space in the residential surroundings, and later development of ADHD. The results from this PhD dissertation suggested that exposure to higher levels of NO<sub>2</sub> and PM<sub>2.5</sub> may be associated with an increased risk of later development of ADHD, with the association being most pronounced in relation to NO<sub>2</sub>. As opposed to this, higher levels of green space surrounding the residential address may have a potential protective effect in relation to developing ADHD. Finally, the project did not find any evidence of an association between exposure to any of the trace elements under investigation and later development of ADHD.

The defence is public and takes place on the 12<sup>th</sup> of March at 1.00 PM via ZOOM. The title of the project is "Environmental Exposures in Early Childhood and their Association with ADHD". For more information and registration for the defence, please contact PhD student Malene Thygesen, email: [mthygesen@ph.au.dk](mailto:mthygesen@ph.au.dk), Phone +45 8716 6061.

Assessment committee:

Trine Brink Henriksen (chair), Professor, Department of Clinical Medicine, Aarhus University Hospital, Denmark

Samuele Cortese, Professor, Department of Psychology and Medicine, University of Southampton, United Kingdom

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