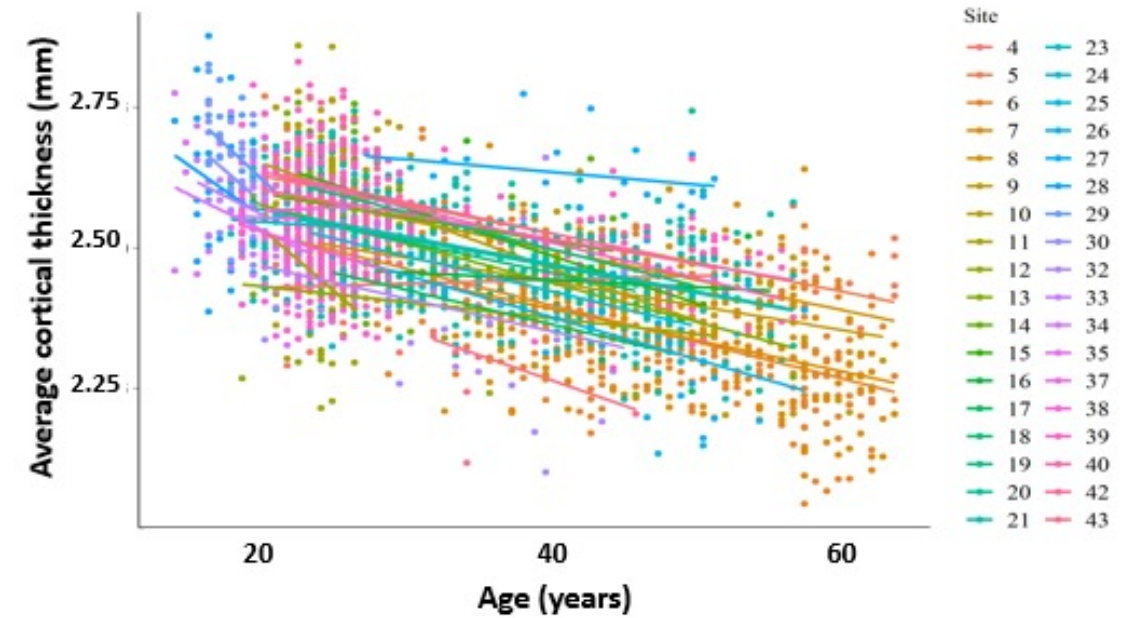
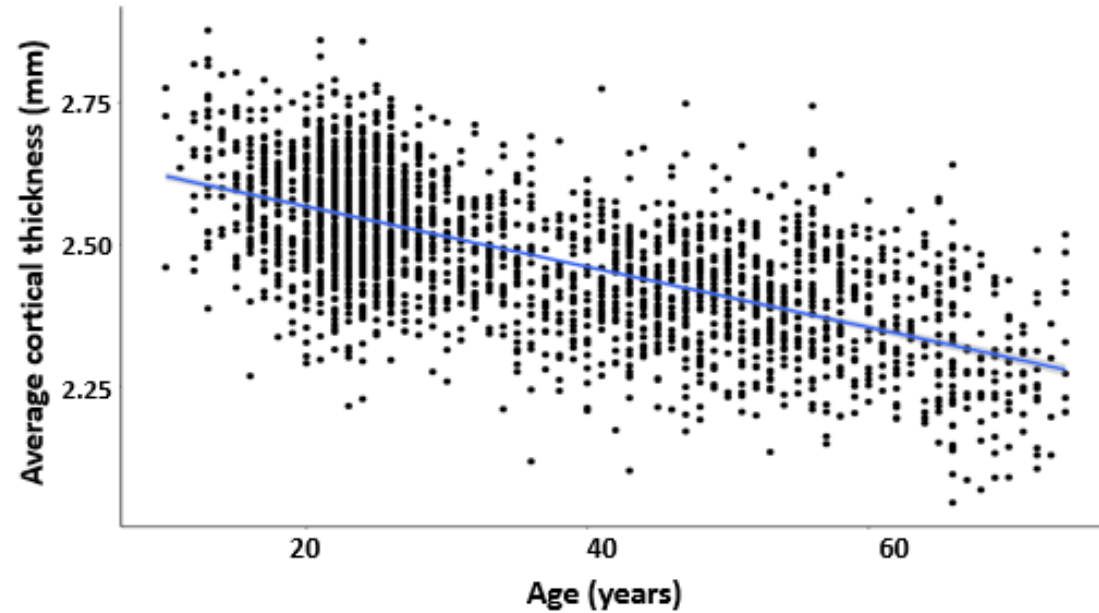


SITE EFFECT CORRECTION USING NORMATIVE MODELLING

Normative modelling educational course
OHBM 2024, Seoul

THE SITE EFFECT PROBLEM



ORIGINS OF SITE EFFECTS

'Sites'
may differ in

Scanner platform

- Contrast-to-noise ratio
- Coil inhomogeneity

Sequence

- Sensitivity to tissue differences
- Sensitivity to motion

Acquisition

Procedure

- Task Details
- Instructions
- Circadianity
- Motion | Immobilisation

Image Postprocessing

- *Despite pipeline harmonization*

Neurobiological (co-)factors

Severity of a condition of interest
(e.g., a psychiatric disease)

Age

Sex | Gender

Age-by-disease interaction

Neurological and medical comorbidity

Past psychiatric disease

Life events

Past and current medication

Background population

(e.g., ethnicity, genetic background)

Definition of healthy controls

Definition of clinical inclusion criteria

Other diagnostic instruments

Study protocol differences

METHODS TO CORRECT FOR SITE EFFECTS



OPEN ACCESS

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SPECIALTY SECTION

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Site effects how-to and when: An overview of retrospective techniques to accommodate site effects in multi-site neuroimaging analyses

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Christopher R. K. Ching³, Mengting Liu⁴, Andrew Chen^{5,6},
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Review

Image harmonization: A review of statistical and deep learning methods for removing batch effects and evaluation metrics for effective harmonization



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NOMRATIVE MODELLING FOR SITE EFFECT CORRECTION

Accommodating site variation in neuroimaging data using normative and hierarchical Bayesian models

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RESEARCH ARTICLE | [Open Access](#) |

Estimating cortical thickness trajectories in children across different scanners using transfer learning from normative models

C. Gaiser, P. Berthet, S. M. Kia, M. A. Frens, C. F. Beckmann, R. L. Muetzel, Andre F. Marquand

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