U can't touch this: Spatial topography of social touching

J.T.M. Suvilehto^{a,b}, E. Glerean^a, L. Nummenmaa^{a,b,c}

- Brain and Mind Laboratory, Department of Biomedical Engineering and Computational Science (BECS), School of Science, Aalto University, Finland
- b Brain Research Unit (BRU), O.V. Lounasmaa Laboratory, School of Science, Aalto University, Finland
- Turku PET Centre, University of Turku, Finland

C-75

Introduction

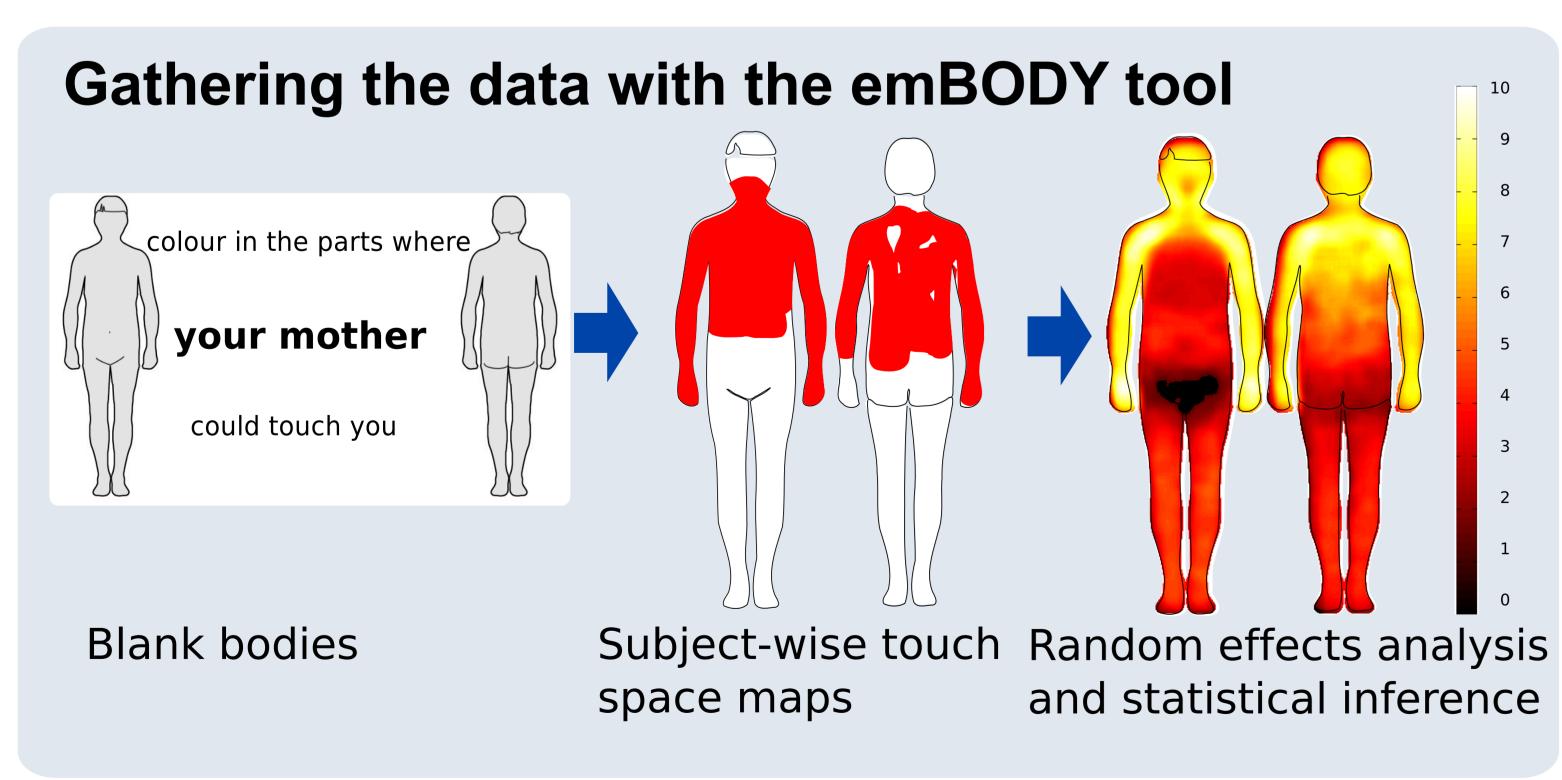
- Social touching is the most intimate way of human communication.
- Touching can be used for communicating positive and negative affect, and establishing and maintenance of social bonding.
- Consequently, spatiotemporal patterns of touching behavior should vary across different social relationships (Dunbar, 2010), yet this hypothesis remains unexplored in humans.
- Here we used a unique computer-based self-report tool to reveal culturally universal, relationship-specific Touch Space Maps (TSMs) in humans.

Methods

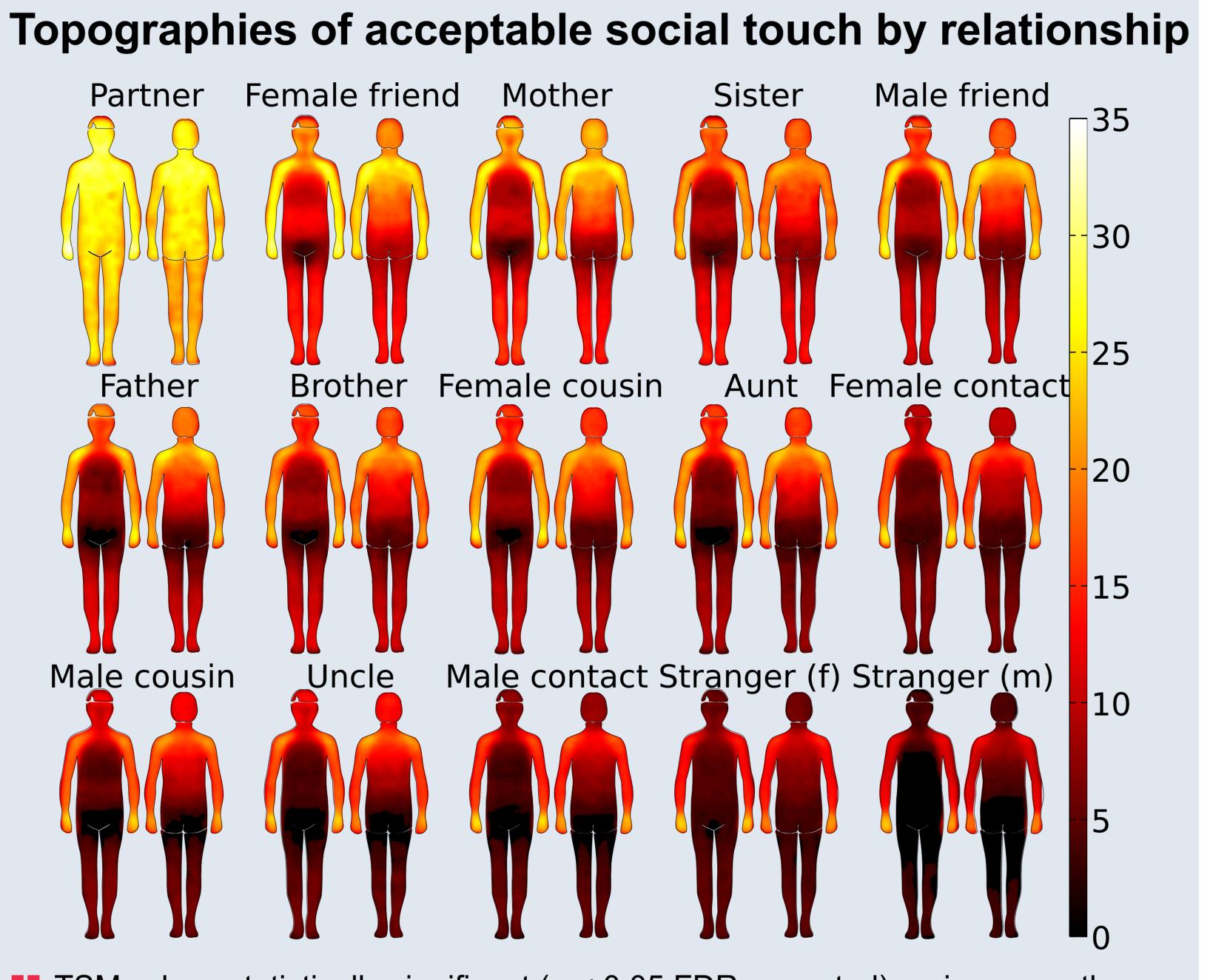
Experiment 1: Participants (n = 91, all Finnish) completed an online questionnaire where they reported the reasons for touching different member of their social network.

Experiment 2: Participants (n=972) from Finland, France, Italy, and Russia first completed a questionnaire mapping their social network, and reported the strength of emotional bond with each member of the network. Relationship-specific TSMs were acquired using the on-line embody tool (Nummenmaa et al., 2014). Participants were shown front and back silhouettes of a human body alongside with a word denoting a member of their social network (e.g. 'Sister'). Participants were asked to consider carefully where this member of their social network could touch them so that it would feel natural or comfortable to them.

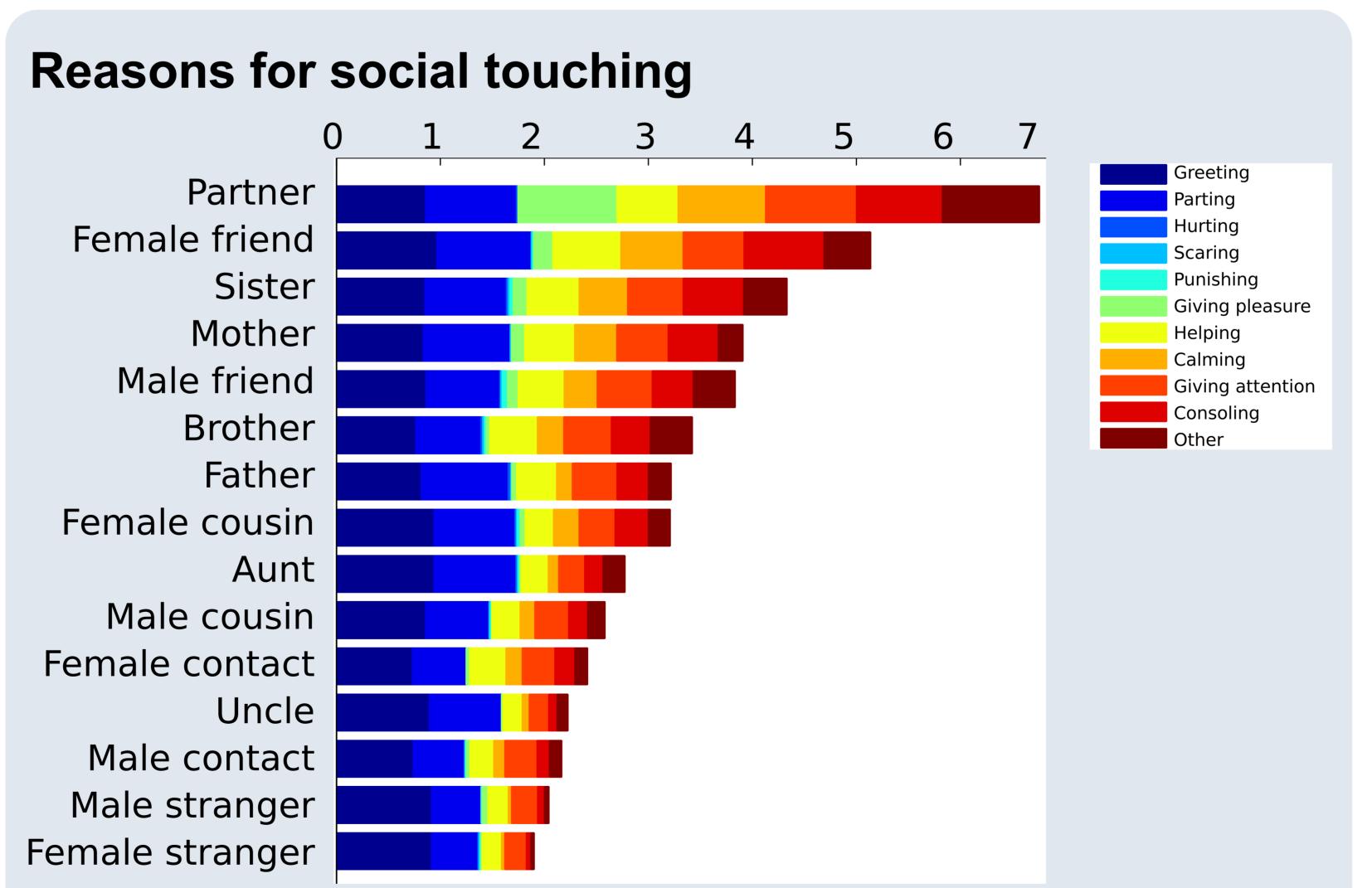
Subject-wise TSMs were generated for each social network member and subjected to random effects analysis with FDR-corrected mass univariate t-tests.



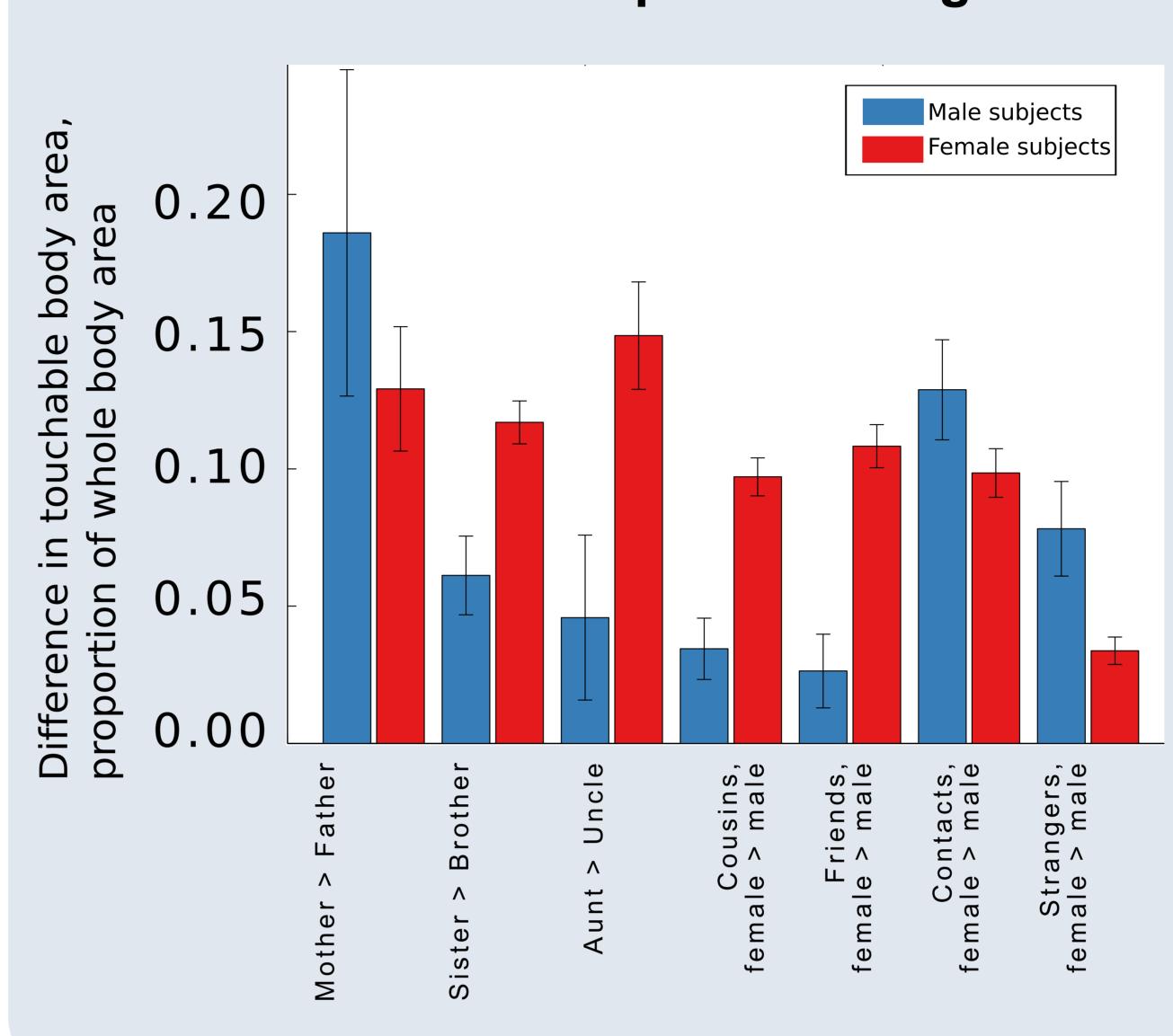
Results



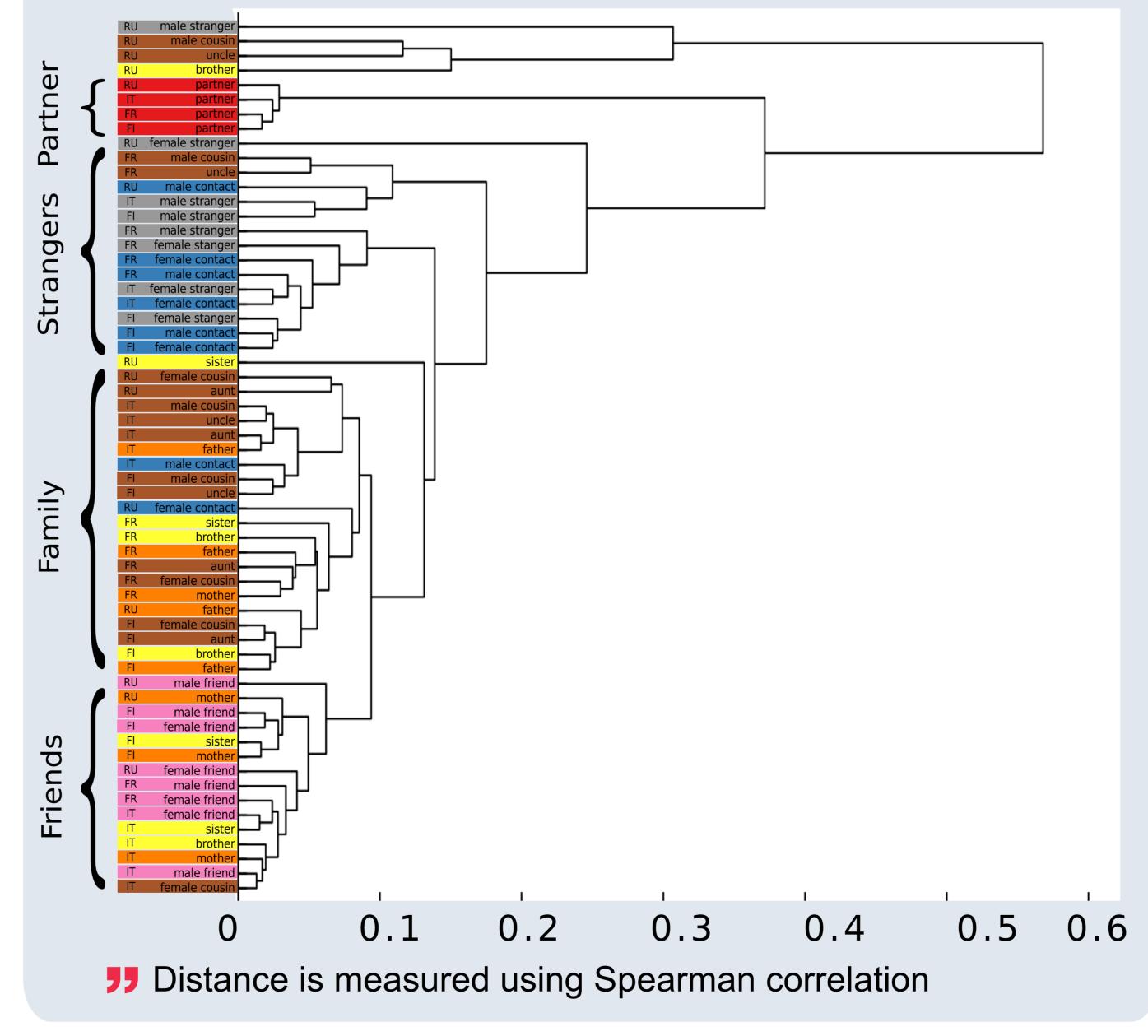
TSMs show statistically significant (p < 0.05 FDR corrected) regions over the whole sample and arranged by the mean touchable area



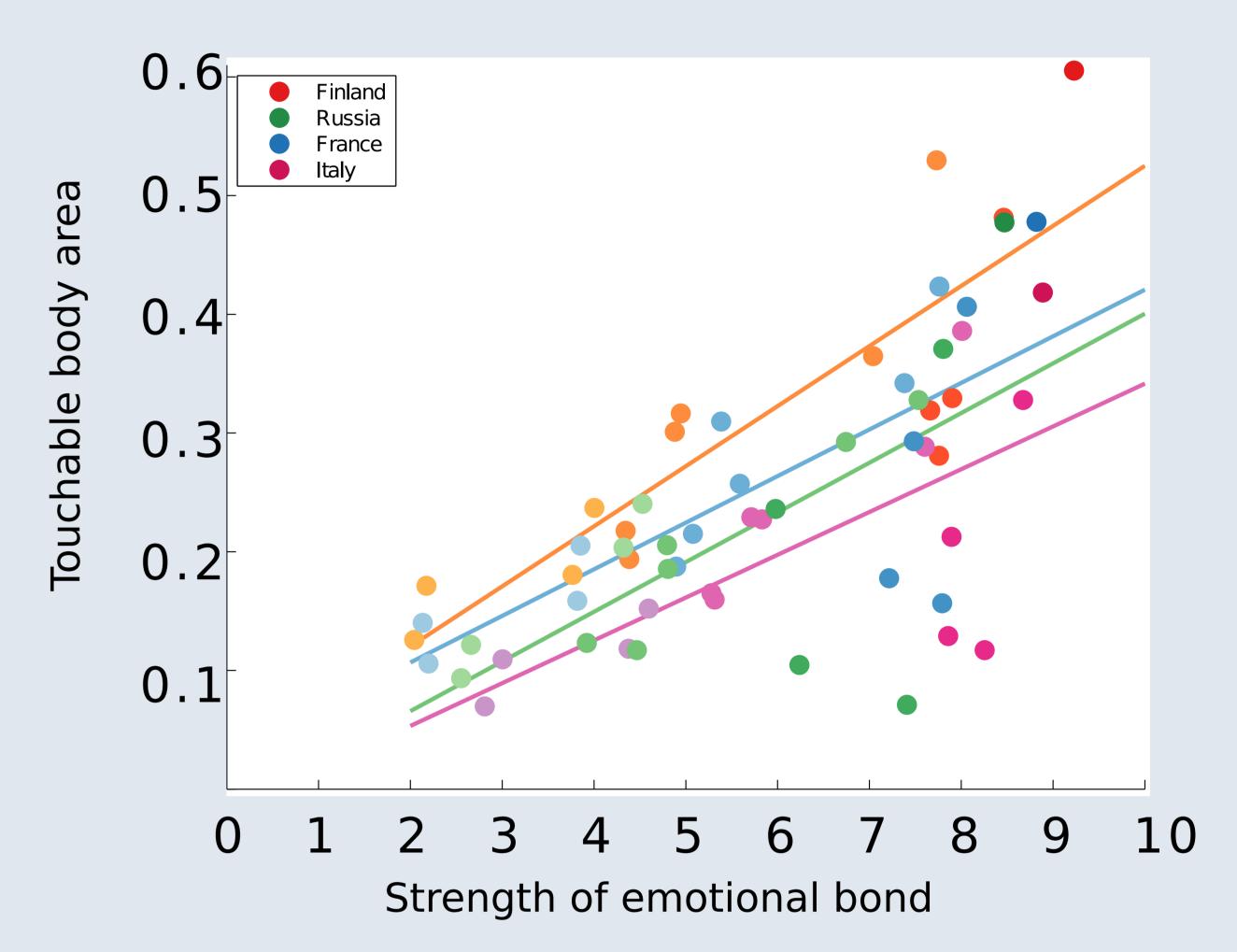
Touchable body area depends on the gender of the toucher and the person being touched



Relationship-specific TSMs are consistent across cultures



Strength of emotional bond correlates with touchable body area



Intensity of marker color reflects the layer of social network where the toucher is located (dark = close, light = distant)

Conclusions

- Social relationship modulates spatial patterns and reasons for social touching in a culturally universal manner.
- Strength of emotional bond with an individual is associated with how much body area this person is allowed to touch.
- Both males and females allow females to touch them in larger areas than men.
- We propose that relationship-specific spatial patterns of social touching may be the key mechanism supporting establishing and maintenance of social bonds.

References

Dunbar, R.I.M. (2010). The role of social touch in humans and primates: Behavioural function and neurobiological mechanisms. Neuroscience and Biobehavioral Reviews, 34(2), 260-268.

Nummenmaa, L., Glerean, E., Hari, R., & Hietanen, J. K. (2014). Bodily maps of emotions. Proceedings of the National Academy of Sciences, 111(2), 646-651.













Contact information

Juulia Suvilehto
Deparment of Biomedical Engineering
and Computational Science
00076 AALTO, Finland
email: juulia.suvilehto@aalto.fi
tel: +358 50 5250753

download poster:

