Cultural Universalism in Social Touch

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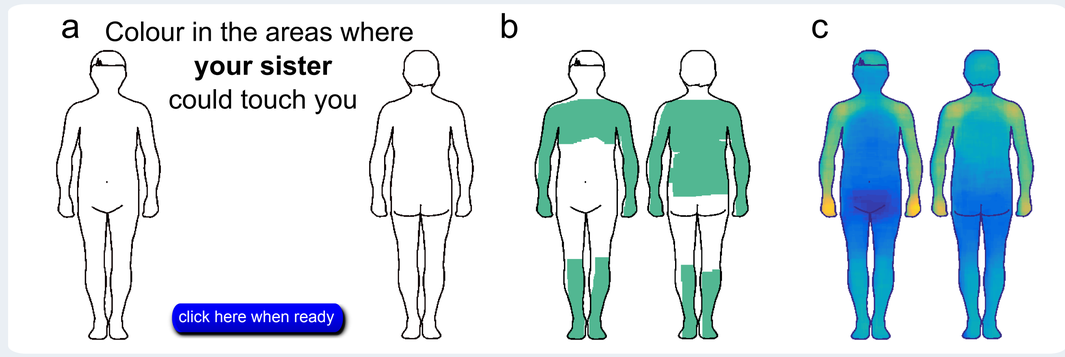
Introduction

- Previous studies have shown that patterns of human social touch are relationship-specific, and similar across a wide range of European cultures (Suvilehto et al., 2015)
- It is unknown if these patterns are similar in cultures outside of Europe.
- Here we tested whether relationship-specific patterns of social touch are concordant across West Caucasian (WC) versus East Asian (EA) cultures.

Methods

384 British and 255 Japanese participants (209 and 125 males, mean ages 46 and 40 years, SDs 12.6 and 14.6 years respectively) gave information about their social network members. Subsequently, they report where in their body they would allow different members of their social network to touch them (Figure 1) using an on-line tool (Nummenmaa et al., 2014). Subject-wise Touch Space Maps (TSMs) were generated for each social network member, and subjected to statistical analyses.

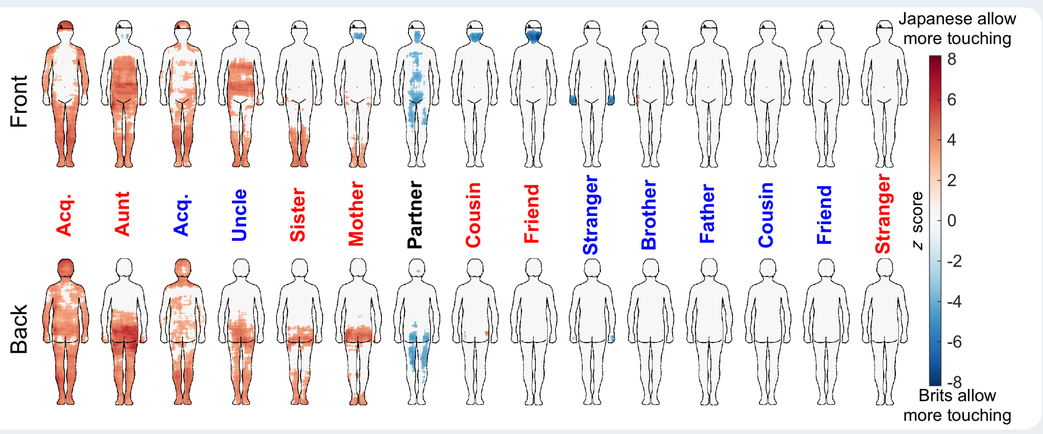
1. Measuring Touch Space Maps with the emBODY tool



Subjects were shown an initial screen with blank bodies and instructed to colour bodily areas where the specified social network member would be allowed to touch them (a). Resulting subject-wise Touch Space Maps (b) were subjected to random effects statistical analysis (c) to reveal relationship-specific patterns of social touch in EA and WC subjects.

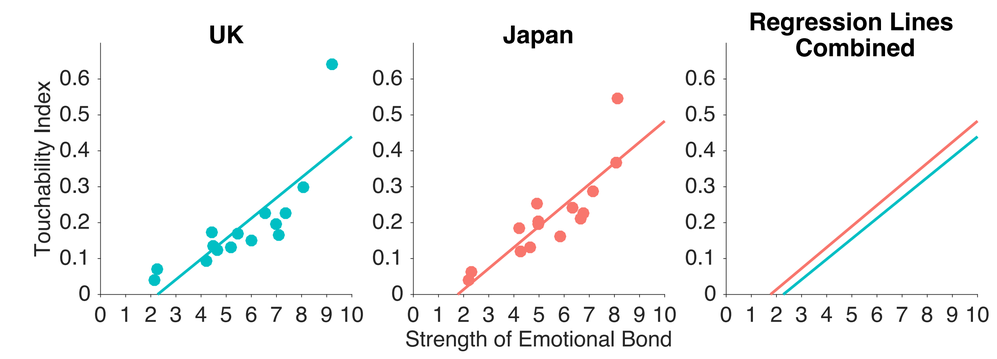
Results

2. Comparing topographies in Japan and UK



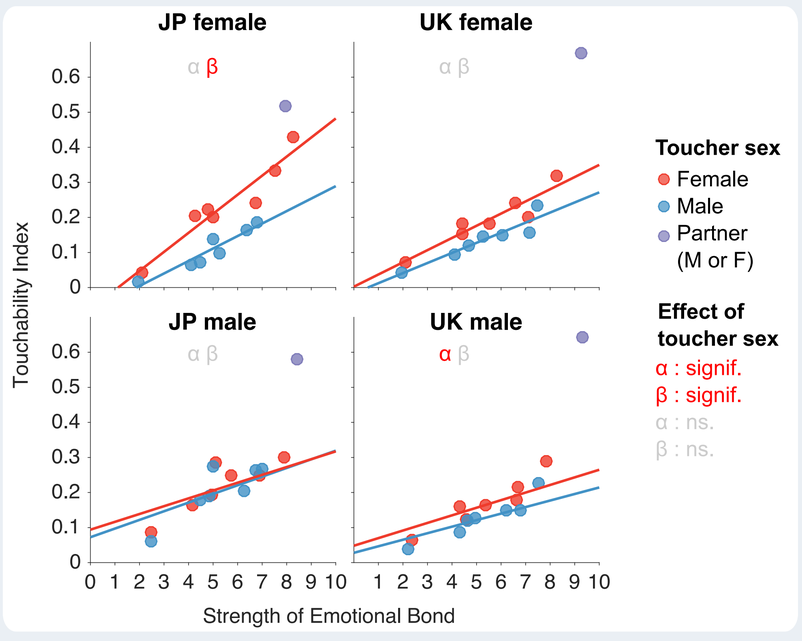
Pixel-wise two sample z-test for the proportion of subjects who coloured that pixel in British and Japanese samples. The data are thresholded at $p < 0.05$, FDR-corrected.

3. Correlation between Touchability Index (TI) and Emotional Bond is remarkably similar between Japan and UK



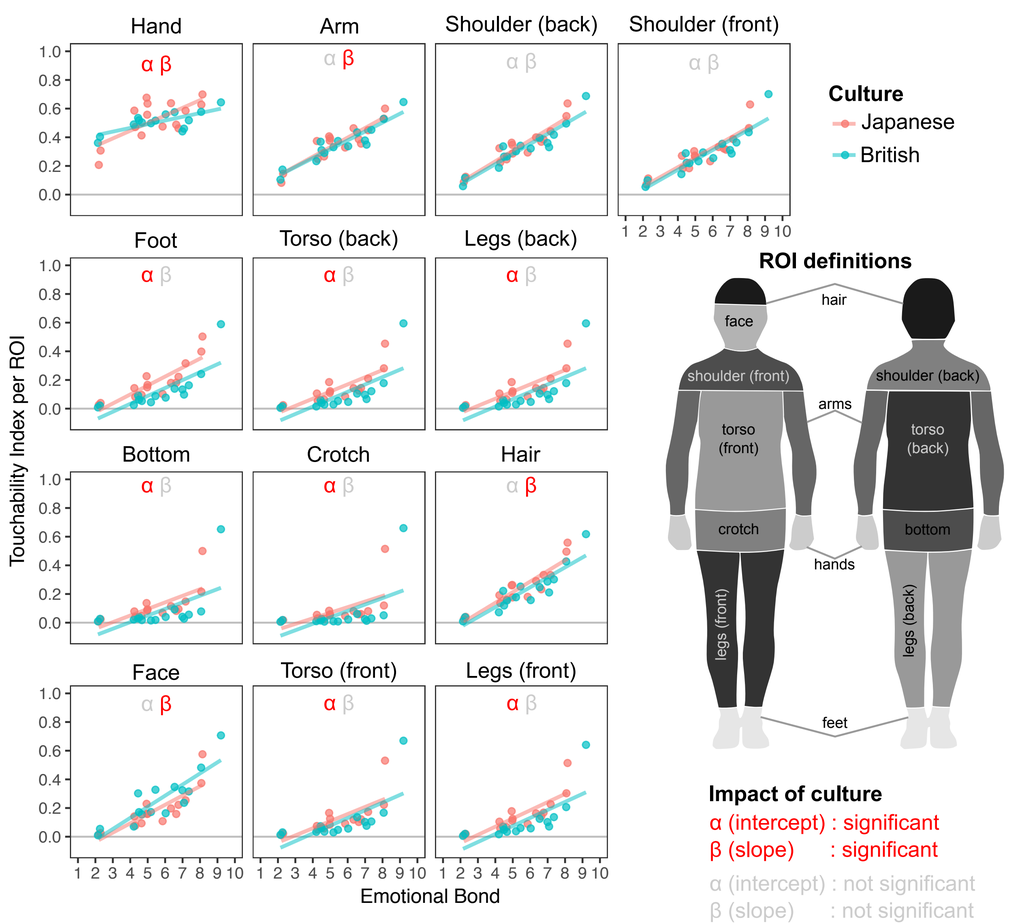
Correlation between TI (proportion of body allowed for touching) and Emotional Bond (1=no emotional bond to 10=strongest possible emotional bond). Each dot represents the average response for a particular social network member in one culture. Last panel shows the linear model fits in same figure to facilitate comparison.

4. Japanese female subjects' responses differentiate between male and female touchers



Sex of toucher significantly impacts the touch allowance for Japanese females and British males. Plot shows values averaged for each social network member, but presented statistics are for un-averaged data. α denotes Y-intercept, β denotes slope.

5. Region of Interest analyses show minor cultural impact on touchability of different ROI



Touchability of anatomically defined Regions of Interest (ROIs) was calculated from each TSM. Plot shows values averaged for each social network member, but presented statistics are for un-averaged data. In a linear model (TI ~ emotional bond * culture), the relative importance (Grömping, 2006) of emotional bond was between 84% - 99%, i.e. much larger than relative importance of culture.

Conclusions

- Culture modulates social touch, yet its impact is modest compared to that of social relationship or emotional bond.
- Association between strength of social relationships and extent of social touching is remarkably similar in WC and EA cultures, suggesting biological rather than cultural basis of social touch behavior.
- These data support the notion that humans might use social touch as a method of maintaining social bonds.

References

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