

Text S3

Additional Statistical Analyses.

Social content and image complexity. Image complexity for social and non-social stimuli was similar, although non-social scenes actually were slightly more complex. Given the absence of a universally accepted measure of image complexity, we used two common measures of image complexity to compare social and nonsocial scenes: the JPEG size of full-color images (Donderi, 2006) and the entropy of grayscale images (Marchewka et al., 2014). JPEG size reflects the compressibility of an image and strongly correlates with human-based ratings of perceptual complexity (Machado et al., 2015). Entropy is a statistical measure of randomness and can be used to characterize the texture of an image, such that high entropy indicates a high degree of intensity variation from pixel to pixel, whereas low entropy indicates large areas of uniform intensity.

We conducted independent-samples *t*-tests to test differences in image complexity between social and nonsocial scenes. We also conducted equivalence tests using the TOST procedure (two one-sided tests; Lakens, 2017) to test the similarity of image complexity between social and nonsocial scenes. For equivalence testing, we used the equivalence bounds of -.35 and .35 based on 80% power, $\alpha=0.05$, and the sample size (i.e., number of stimuli) of 150 in each scene category (Lakens, 2017).

Independent-samples *t*-tests revealed no statistically significant difference in image complexity measured as either JPEG compressibility ($t(298)=-1.82$, $p=0.069$, $d=-0.21$) or entropy ($t(298)=0.842$, $p=0.400$, $d=0.097$) between social and nonsocial scenes. The TOST procedure revealed that social and nonsocial scenes were not equivalent in image complexity measured as JPEG compressibility ($t(298)=1.21$, $p=0.114$), but were equivalent in image complexity measured as entropy ($t(298)=-2.19$, $p=0.015$).

Overall, these results suggest that social content has a small effect on COMPASS image complexity, with nonsocial COMPASS scenes being somewhat more complex than social scenes. However, the effect of social content on image complexity depends on the measure of image complexity.

Effects of scene category on image luminance and contrast. We conducted a set of equivalence tests using the TOST procedure (two one-sided tests; Lakens, 2017) to test the similarity of image contrast and image luminance between 1) social and nonsocial scenes; 2) higher arousal and lower arousal scenes; 3) negative and neutral scenes, 4) positive and neutral scenes, and 5) positive and negative scenes. We used the equivalence bounds of -.5 and .5 (benchmark for a medium effect size) based on 80% power, $\alpha=0.01$ (adjusted for 5 tests), and the sample size (i.e., number of stimuli) in each scene category (Lakens, 2017).

Equivalence testing revealed that image luminance was similar for social and nonsocial scenes ($t(298)=2.87, p=0.002$), higher and lower arousal scenes ($t(298)=4.12, p<0.001$), positive and neutral scenes ($t(198)=3.53, p<0.001$), negative and neutral scenes ($t(198)=2.09, p=0.019$), and positive and negative scenes ($t(198)=2.16, p=0.016$). Equivalence testing also revealed that image contrast was similar for social and nonsocial scenes ($t(298)=-2.12, p=0.017$), higher and lower arousal scenes ($t(298)=-3.75, p<0.001$), positive and neutral scenes ($t(198)=2.46, p=0.007$), negative and neutral scenes ($t(198)=-3.05, p=0.001$), and positive and negative scenes ($t(198)=-1.86, p=0.033$).

References

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