Supplementary Table S1. Cross-experiment regression analyses of the associations of AQ with touch message agreement and perceived pleasantness

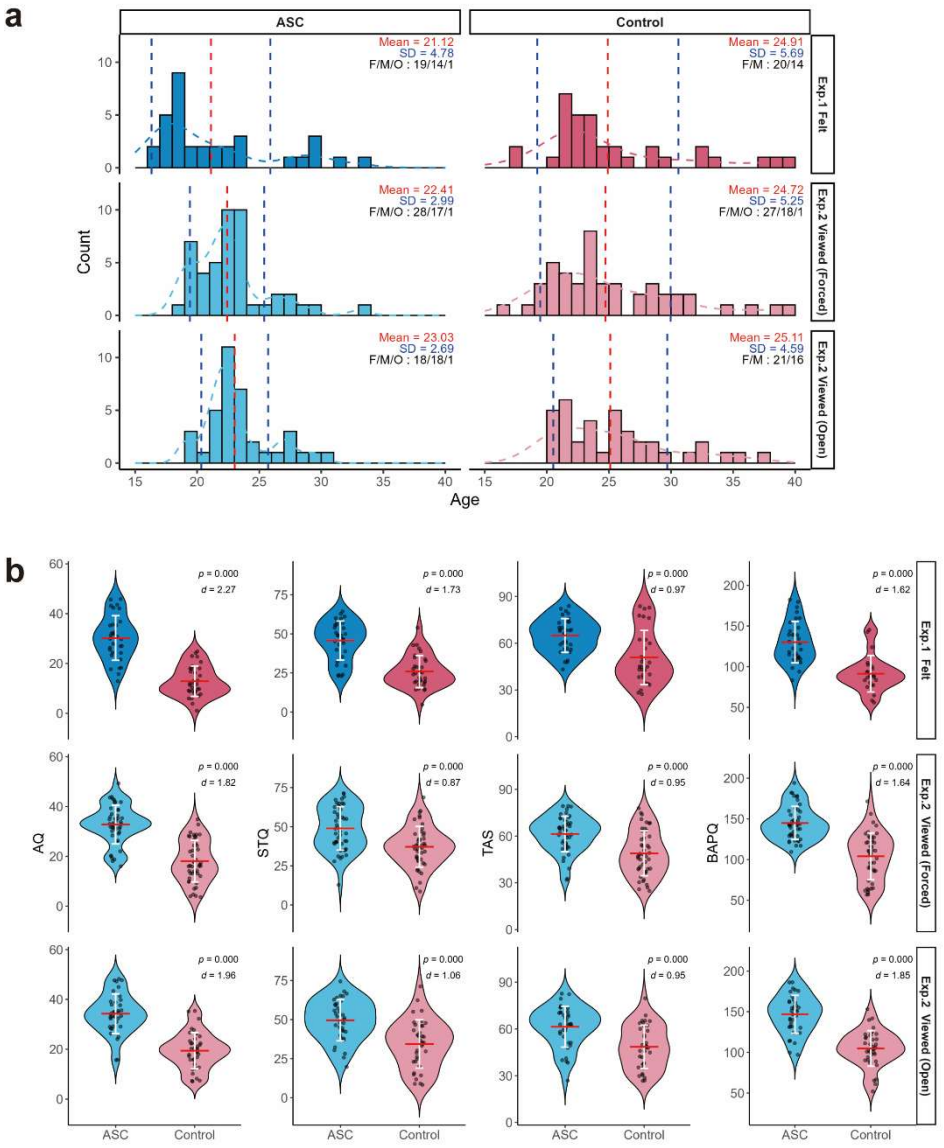
Model	Sample size, n (ESS)		Experiment-specific AQ slope, b [95% CI]		AQ x experiment	
	Felt touch	Viewed touch	Felt touch	Viewed touch	Viewed - felt, b [95% CI]	p
Touch message agreement						
Unweighted	64	88	-0.0054 [-0.0093, -0.0016]	0.0009 [-0.0027, 0.0044]	0.0063 [0.0012, 0.0114]	0.016
Primary overlap-weighted	64 (63.3)	88 (86.4)	-0.0050 [-0.0086, -0.0013]	0.0008 [-0.0029, 0.0044]	0.0057 [0.0007, 0.0108]	0.025
Trait-balanced sensitivity	58 (50.7)	87 (76.1)	-0.0056 [-0.0098, -0.0014]	0.0009 [-0.0030, 0.0048]	0.0065 [0.0009, 0.0121]	0.022
Perceived pleasantness						
Unweighted	64	159	-0.224 [-0.293, -0.155]	-0.125 [-0.173, -0.078]	0.099 [0.016, 0.182]	0.020
Primary overlap-weighted	64 (63.5)	159 (152.9)	-0.226 [-0.278, -0.174]	-0.124 [-0.174, -0.074]	0.103 [0.030, 0.175]	0.006
Trait-balanced sensitivity	58 (52.0)	157 (126.6)	-0.238 [-0.294, -0.181]	-0.126 [-0.180, -0.072]	0.112 [0.034, 0.190]	0.005

Note. Values are unstandardized regression coefficients (*b*) with 95% confidence intervals. The felt-touch and viewed-touch slopes represent the estimated change in the outcome associated with a one-point increase in AQ within each experiment. n is the observed sample size; effective sample size (ESS) is shown in parentheses for weighted models. Primary overlap weights were estimated using age, gender and diagnostic group. The trait-balanced sensitivity model additionally included AQ, STQ and TAS in the weighting model and therefore used the trait-complete sample. All outcome models included AQ, experiment, the AQ x experiment interaction, age and gender. BAPQ was not included in the trait-balanced model because AQ was specified as the primary autistic-trait measure and BAPQ indexes a closely related construct. AQ, Autism-Spectrum Quotient; BAPQ, Broad Autism Phenotype Questionnaire; CI, confidence interval; ESS, effective sample size; STQ, Social Touch Questionnaire; TAS, Toronto Alexithymia Scale.

Supplementary Table S2. Sensitivity power analysis for AQ–outcome associations.

Outcome	Experiment	Sample size, n	Smallest detectable |r| (80% power)
Touch message agreement	Felt touch	68	0.332
	Viewed touch	91	0.289
Perceived pleasantness	Felt touch	68	0.332
	Viewed touch	165	0.216

Sensitivity power analyses were conducted using the final sample sizes for each experiment and outcome. Values indicate the smallest absolute Pearson correlation between AQ and each social-touch outcome detectable with 80% power at $\alpha = 0.05$ using a two-sided test. These analyses characterize the detection sensitivity of the achieved samples and were not used to determine the original sample sizes.



Supplemental Figure 1 Participant characteristics across the felt- and viewed-touch experiments.

a, Distributions of participant age and gender in Experiment 1 (felt touch; top row) and Experiment 2 (viewed touch), including the forced-choice condition (middle row) and open-ended condition (bottom row). Blue indicates the ASC group and pink indicates the control group. Red dashed lines indicate mean age, and blue dashed lines indicate one standard deviation above and below the mean. F, female; M, male; O, other. Mean age did not differ across experiment samples within either group (one-way ANOVA: ASC, $F(2,114) = 2.70$, $p = 0.072$; control, $F(2,114) = 0.058$, $p = 0.943$). The same between-group age pattern was observed across experiments, with the ASC group being younger than the control group in each experiment (two-sided Welch's two-sample t-tests: felt touch, $t(64.1) = -2.98$, $p = 0.004$, Cohen's $d = -0.72$; viewed-touch forced choice, $t(71.4) = -2.59$, $p = 0.012$, $d = -0.54$; viewed-touch open ended, $t(58.1) = -2.38$, $p = 0.021$, $d = -0.55$).

b, Distributions of Autism-Spectrum Quotient (AQ), Broad Autism Phenotype Questionnaire (BAPQ), Social Touch Questionnaire (STQ) and Toronto Alexithymia Scale (TAS) scores for the ASC and control groups in each experimental condition. Red lines indicate group means, and white bars indicate one standard deviation. ASC and control groups were compared separately within each experimental condition using two-sided independent-samples *t*-tests. Exact *p* values and Cohen's *d* effect sizes are reported in the corresponding panels. The ASC group had higher scores than the control group on all four questionnaires in each experimental condition.