

5

## **Supplementary Information for**

Alcohol Narrows Physical Distance Between Strangers

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10

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### **This PDF file includes:**

15

Supplementary text  
Figure S1  
SI References

### **Other supplementary materials for this manuscript include the following:**

20

Datasets S1 to S4  
Code S1

## Supplementary Information Text

### Participants

Participants were healthy social drinkers recruited from the local community for a large-scale ongoing alcohol-administration trial (NCT03449095). In line with National Advisory Council recommendations for the administration of alcohol in human subjects (1), participants were excluded if they had medical conditions or were taking drugs/medications for which alcohol consumption is contraindicated, were pregnant (HCG urine test strip), or reported a history of severe alcohol use disorder. Participants were required to be between the ages of 21-30 and report drinking alcohol regularly. Of a total sample of 246 participants, profile video views were missing from a subsample,<sup>1</sup> leading to a final sample of 212. Of this final sample, 53% were female. Sixty-five percent of participants identified as White, 7% Black, 25% Asian, and 3% multiracial. See also below for power analysis.

### Procedure

For each study visit, two friend dyads (N=4 participants) were invited for simultaneous beverage-administration sessions. Participants were randomly assigned to either familiar (drink with own friend) or stranger (drink with the friend of the other participant) condition on the day of beverage administration. Dyads assigned to the alcohol condition received an alcoholic

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<sup>1</sup> As noted above, data from this study was taken from a large-scale ongoing trial (NCT03449095; see below section on power analysis). The parent project began several years before the COVID-19 pandemic. Although video data was collected for all groups, for a subset of dyads (N=24 participants; K=17 dyads) we did not capture the profile view of both participants required for interpersonal distance calculations.

beverage intended to achieve a target peak BAC of .08%, with doses calculated individually for participants according to formulas adjusting for approximate body water (2). Dyads assigned to the control condition received an isovolumic amount of a non-alcoholic soda beverage. We employed a control rather than a placebo condition, as previous research suggests that placebo alcohol manipulations can lead to unanticipated compensatory behaviors in social contexts and the comparison of alcohol to (non-placebo) control beverage mirrors more closely the real-world phenomena this particular study sought to capture (3, 4). Members of the same dyad were assigned to the same beverage condition. Given prior research indicating that alcohol's impact on social behavior does not differ across same-gender and mixed-gender groups (3), this initial study of alcohol's impact on physical distance focused on same-gender dyads.

Consent for alcohol-administration procedures was gained at study initiation. To avoid measurement effects, participants were initially informed that the video cameras were monitoring their drink consumption—consent was later gained from all participants for the analysis of social behaviors from video. Participants administered alcohol registered a blood alcohol concentration (BAC) of .071% immediately following beverage administration, rising to an average peak of .080% approximately 50 minutes post-drink. Participants assigned to consume alcohol remained in the laboratory until their BACs dropped below .025%. Participants were instructed not to drive or operate machinery after their visits.

### Measures

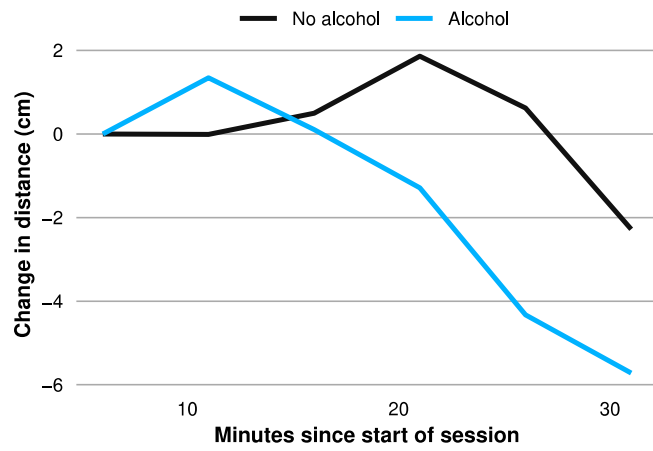
Computer-vision algorithms were employed to recognize the relative position of participants' faces from profile video views of dyadic interaction. Specifically, algorithms embedded within OpenPose software (5) identified the screen coordinates associated with participant facial features at 10-second intervals, and an average face position value was created

on the basis of these coordinates. The length of the resulting distance between participants' faces (in pixels) was converted to centimeters by measuring the pixels occupied by an object of known diameter in the frame (90cm table) for each dyad/zoom and then adjusting distance estimates for out-of-plane rotation based on the average angle formed by the participants' faces. Frames in which greater or fewer than two individuals were detected were discarded (e.g., times when the experimenter entered the room to refill drinks).

### Power Analysis

Data for this study were derived from a large-scale ongoing project exploring the effect of alcohol and familiarity on behaviors in social context, suspended in March 2020 due to COVID-19. The project and hypotheses are pre-registered in [clinicaltrials.gov](https://clinicaltrials.gov) (NCT03449095). Given its relevance for informing public health policy during COVID-19, interpersonal distance data derived from this project were analyzed prior to the completion of recruitment. Note that the parent project was originally powered for a secondary project aim exploring statistical interactions between individual difference criteria and beverage condition within specific study conditions (i.e., the interaction between relationship quality and beverage condition within familiar social groups). Therefore, although study recruitment was not yet complete at the time data was analyzed for this project, a sizable quantity of data had nonetheless accumulated prior to the pandemic and power was sufficient for the purposes of the current analyses. Specifically, we had 80% power to detect a small within-between factors interaction between alcohol condition and the passage of time within both strangers (Cohen's  $f=.056$ ) and familiar conditions (Cohen's  $f=.060$ ), assuming  $\alpha=.05$ .

## Figures



**Figure S1.** Estimated centimeter reduction over time in physical distance after baseline among participants consuming alcohol or control beverage with a stranger.

## References

1. National Advisory Council on Alcohol Abuse and Alcoholism, Recommended Council Guidelines on Ethyl Alcohol Administration on Human Experimentation (1989).
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3. C. E. Fairbairn, et al., Speech volume indexes sex differences in the social-emotional effects of alcohol. *Exp. Clin. Psychopharmacol.* **23**, 255–264 (2015).
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5. Z. Cao, G. Hidalgo, T. Simon, S. Wei, Y. Sheikh, OpenPose: Realtime multi-person 2D pose estimation using Part Affinity Fields. *IEEE Trans. Pattern Anal. Mach. Intell.* **43**, 172–186 (2019).