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Abstract

Across five studies ($N=3,071$), we explore the interpersonal consequences of COVID risk communication when rejecting social invitations. In Study 1, people underestimate the benefits and overestimate the costs of rejecting social invitations for risk-related reasons. In Studies 2a&b, people are more likely to communicate risk when they are focused on welfare (vs. social) concerns. In Studies 3a&b, we replicate and extend these results in the context of actual social invitations. Together, these studies suggest that people should feel less concerned about rejecting social concerns for COVID-related reasons: risk communication could be more effective, and more positively perceived than people predict. These studies also suggest that policy makers should emphasize the welfare (vs. social costs) of COVID in ongoing communications.

Keywords: COVID; social invitations; interpersonal perception; interpersonal communication

The Unexpected Benefits and Underlying Motivations for Communicating COVID-19 Contagion Risks When Rejecting In-Person Social Invitations

COVID-19 has infected millions of people world-wide. Like many other respiratory illnesses, COVID-19 spreads between humans predominantly through droplets produced when an infected person coughs or sneezes (Lu et al. 2020). Accordingly, without a vaccine, one of the most effective strategies for avoiding exposure to the virus and preventing exponential community spread is to engage in physical distancing (US Centers for Disease Control and Prevention 2020). Physical distancing involves staying at least six feet (~2 meters) from other people and avoiding crowded places or group interactions that involve non-household members.

While health experts agree that physical distancing is imperative for lowering the peak of simultaneously infected people and preventing the overburdening of the health care system (US Centers for Disease Control and Prevention 2007; 2020), lay-people possess a spectrum of opinions about the importance and personal appeal of social distancing. Before governmental injunctions were enacted to prohibit social gatherings, the behavioral response to the emergence of COVID-19 varied widely. While some people swiftly chose to completely self-isolate, other people vowed to keep physical interactions limited to only a few friends or family. Others still continued to gather in large groups. As of April 2020, 91% of Americans surveyed as part of a nationally representative poll conducted by Pew felt uncomfortable attending a party with 10+ people, but only 38% feel uncomfortable meeting with close friends (Pew Research Center 2020). These statistics suggest that people hold varied beliefs about the risk of social events.

With government restrictions now lifting across the US and the globe, it is increasingly up to individuals to reject social invitations to large gatherings by saying 'no' to people who ask them to engage in social activities, which is an action that can have interpersonal consequences

(Gerber & Wheeler, 2009). As restrictions continue to be relaxed by governments, continued physical distancing will become an essential means of preventing a resurgence of cases until the virus can be adequately managed such as by increasing critical care capacity, developing vaccines, and/or developing treatments. Consequently, many people are already in the position of wanting or needing to effectively reject social invitations and to discourage other people from gathering socially due to contagion concerns. Moreover, this situation is one that people will likely find themselves in for quite some time in the future. In fact, recent models suggest that some version of social distancing may be required into the year 2022 (Kissler et al. 2020).

Given how important it will be for people to reject social invitations for group gatherings now and into the future, the current project investigates the interpersonal consequences of communicating COVID-19 contagion risks in the context of social invitations. We draw on affective and behavioral forecasting literature to hypothesize that excuse-givers will incorrectly forecast the negative consequences of communicating contagion risks when declining social invitations. Forming and maintaining strong and stable interpersonal relationships is a fundamental human motivation (Baumeister and Leary 1995). Being socially rejected can lead to negative emotions and distress, and can reduce belonging, self-esteem, and control (Mendes, Major, McCoy and Blascovich 2008; Twenge, Catanese and Baumeister 2003). When rejecting invitations for social opportunities, excuses play an integral role in preventing hurt feelings and fractured personal relationships, in part by shifting attributions of responsibility away from the excuse-giver and on to external factors or circumstances (Schlenker 1997; Schlenker, Britt, Pennington, Murphy and Doherty 1994; Schlenker, Weigold and Doherty 1991).

While excuses can be effective in social and punitive situations (Crant and Bateman 1993; Wood and Mitchell 1981), people can still sometimes demonstrate apprehension towards

making excuses for their decisions or behaviors. This reticence is consistent with the idea that giving bad news is a difficult process for most people (Legg & Sweeny 2014; Sweeny & Shepperd 2007). Additionally, when providing an excuse, the rationale a person chooses to cite – and whether they decide to be honest in the excuse they provide or not – can feel like a difficult decision that requires guessing how the excuse-receiver will react to any particular explanation.

The art of excuse-giving is further complicated by the fact that people generally are not very skilled at predicting others' thoughts and feelings (Wilson & Gilbert, 2003). Related to social interactions, people often underestimate the positive effects of honesty in communication (Levine and Cohen 2018; Donnelly et al., 2018) and overestimate the adverse interpersonal ramifications of delivering negative information (Legg & Sweeny, 2014). More specifically, in the realm of excuse-giving, people are miscalibrated: They believe that honest excuses will damage relationships and engender hurt feelings more than is the case (Donnelly et al., 2019). Consequently, in the context of rejecting social invitations due to COVID-19 risk concerns, it is likely that people will underestimate the benefits and overestimate the costs of explicitly communicating contagion risks as an excuse for saying 'no' to in-person social interactions.

However, communicators often perceive difficult conversations as involving a tradeoff between benevolence and honesty (Levine, Roberts, and Cohen 2020). Given this, there are times when the motivation to be honest (vs. kind) prevails. For example, even when people predict that communicating negative information - such as providing an honest excuse for rejecting a social invitation - will have detrimental interpersonal consequences, they still sometimes choose to endure those consequences, and provide such information if they believe it will ultimately promote individual or social welfare (Sweeny & Cavanaugh, 2012; Levine, Roberts, and Cohen 2020). Therefore, people who are primarily concerned about social

impressions and benevolence may feel compelled to avoid citing COVID-19 risks when rejecting social invitations. However, people who are predominantly concerned with general health and contagion vs. social impressions may be more likely to honestly communicate risk.

More precisely, in the context of choosing whether to communicate COVID-19 contagion risk concerns when rejecting social invitations, we put forward the following four hypotheses.

H1: Excuse-givers will *underestimate* the positive benefits of communicating risk on whether they are seen as a good person, i.e., their moral reputation (Study 1).

H2: Excuse-givers will *underestimate* the effect of communicating risk concerns on discouraging the excuse-receivers from gathering socially (Study 1).

H3: Excuse-givers will *overestimate* the negative effects of communicating risk on excuse-receiver's feelings, i.e., how judged and how close they will feel (Study 1, Studies 3a&b).

H4: Excuse-givers who choose to communicate risk will report being more motivated by welfare than social concerns; whereas excuse-givers who choose to avoid communicating risk will report greater consideration of social vs. welfare concerns (Studies 2a-3b).

We test these four hypotheses across five studies ($N=3,071$) and provide evidence that excuse-givers underestimate the benefits and overestimate the costs of communicating COVID contagion risks when rejecting social invitations. In testing these hypotheses, this paper contributes to the literature on excuse-giving and affective forecasting by providing robust evidence for a psychological barrier that prevents people from communicating risk in the context of social invitations: a heightened concern for social (vs. welfare) related concerns. Practically, these results could help public health officials design interventions that successfully encourage social distancing by encouraging people to continue to discuss COVID-related risks. This paper

therefore fits with recent calls from researchers to apply knowledge from behavioral science to critical components of the COVID situation (e.g., West, Michie, Rubin & Amlot, 2020).

Across five pre-registered studies, we tested several psychologically relevant mechanisms that predict people's willingness to communicate risk. In Study 1, we studied excuse-givers' perceptions of communicating risk in response to social invitations and examined whether excuse-receivers shared similar perceptions of receiving risk communications as part of social rejections (H1-H3). In Studies 2a&b, we explored *when* participants communicate risk: when they are thinking about safety and welfare concerns (vs. social and personal impression concerns) (H4). In Studies 3a&b, to increase ecological validity, we sought to replicate our effects in the context of actual social invitations recalled by participants. These studies suggest that people are unwilling to communicate risk when rejecting social invitations—despite the interpersonal and health benefits—especially when focused on social vs. welfare concerns.

We recruited participants from Amazon's Mechanical Turk, given that participants from Mechanical Turk are typically more representative of the US population than other samples, like college students (e.g., Mullinix, Leeper, Druckman & Freese, 2015). See Table 1 for demographic characteristics for all studies. All studies were pre-registered on the AsPredicted website: Study 1 (<https://aspredicted.org/blind.php?x=gf94dn>), Study 2a&b (<https://aspredicted.org/blind.php?x=3eq6dy>, <https://aspredicted.org/blind.php?x=iu4cs8>), Study 3a&b (<http://aspredicted.org/blind.php?x=px7vk3>, <http://aspredicted.org/blind.php?x=5t7h92>). Given the conceptual similarity across studies, respondents were unable to complete more than one of our studies. We highlight any deviations from the pre-registration for each study in text.

Study 1

In Study 1 ($N=822$; $M_{age}=46-55$, 54.0% female)¹, we systematically varied the perspective of the participant and the presence of risk communication. Participants were randomly assigned to the role of excuse provider or excuse recipient, and imagined the identical social scenario: a small porch gathering. Specifically, participants imagined that they gave (or received) a rejection to this social invitation that included an explicit mention of risk concerns or did not. In the *no risk* condition, the excuse giver said, “I’m sorry, but I can’t.” In the *risk* condition, the excuse receiver said, “I’m sorry, but I can’t. And I don’t think you should go either. Hanging out in groups of any size risks spreading coronavirus more.”

This design enabled us to test excuse givers’ *predicted* perceptions against excuse receivers’ *reported* perceptions using a 2 (perspective: excuse-giver vs. excuse receiver) x 2 (risk communication: absent vs. present) between subjects-design. Participants then answered the following set of dependent variables, allowing us to examine critical perceptual differences between excuse-givers and receivers (H1-H3). Participants in the excuse-receiver condition reported their *actual* responses using the same measures described in detail below.

Perceived Morality of Risk Communication. Participants in the excuse-giver condition reported the extent to which their friend would view them as moral after rejecting the invitation on the following 9-item scale: loyal, considerate, compassionate, caring, admirable, trustworthy, moral, a good friend, and a close friend, with responses ranging from 1=*Not at All* to 7=*Very*; ($\alpha=0.97$; adapted from Van Lange & Kuhlman, 1994). Participants in the excuse-giver condition then reported the extent to which their friend would view them as morally superior on the

¹ We pre-registered collecting $N=800$ responses, and slightly over-recruited. As outlined in our pre-registration, we collected 2-items on perceived closeness. These items were captured as part of the morality scale; therefore, we have not included the results of these items in text to limit redundancy. The full data sets are available through the Open-Science Framework.

following 3-item scale: judgmental, overly cautious, and condescending with responses ranging from 1=*Not at All* to 7=*Very* ($\alpha=0.82$; adapted from Van Lange & Kuhlman, 1994). Participants in the excuse-giver condition then reported the extent to which the excuse-receiver would feel judged and insulted by the response on a 4-item scale: judged, offended, hurt, and insulted ranging from 1=*Not at All* to 7=*Very* ($\alpha=0.96$; adapted from Epley & Dunning, 2000).

Interest in Cancelling the Activity: Participants in the excuse-giver condition then indicated how interested the excuse-receiver would be in engaging in the social activity after receiving their rejection. They rated the excuse receivers' interest in the activity, and the likelihood they would cancel plans on a scale from 1=*Not at all* to 7=*Very*. Responses were combined and reverse-scored such that higher values indicated greater effectiveness at discouraging the activity ($\alpha=0.73$).

Demographics: Lastly, in Study 1 (and all other studies) participants completed an identical series of demographic items that asked how their health and employment had been affected by COVID and their age, gender, income, and the number of people living at home. Demographic items and descriptive statistics for these items across studies are located in Table 1.

Table 1 - Demographics

Variable	Study 1	Study 2a	Study 2b	Study 3a	Study 3b
N	822	401	897	474	477
Ethnicity	74.6% Caucasian 11.1% African American	58.6% Caucasian; 20.5% African American	64.6% Caucasian; 10.2% African American	70.4% Caucasian; 10.2% African-American	67.1% Caucasian; 14.8% African-American
Md. Household Income Pre-Tax	\$50,000-\$59,999	\$50,000-\$59,999	\$50,000-\$59,999	\$50,000-\$59,999	\$50,000-\$59,999
Median # People at Home	3.00 (Range 1-10.00)	3.00 (Range 1-11.00)	3.00 (Range 1-11)	3.00 (Range 1-11.00)	3.00 (Range 1-8)
Health Impacted by COVID (Not at all)	73.1%	76.9%	77.8%	81.4%	84.5%
Employment Impacted by COVID (Not at all)	38.3%	36.3%	35.5%	29.2%	32.2%
How often do you leave home at the moment?	<i>Md.</i> 3.00 = Once per week	<i>Md.</i> 3.00 = Once per week	<i>Md.</i> 3.00 Once per week	<i>Md</i> 3.00 = Once per week	<i>Md</i> 3.00 = Once per week
Political Orientation	46.1% Democrat, 23.9% Republican	59.6% Democrat; 20.5% Republican	38.9 Democrat 24.4% Republican	47.3% Democrat 25.2% Republican	35.7% Democrat 32.4% Republican

Note. Degrees of freedom per variable vary due to missingness. See OSF page for syntax and data sets.

Results

Perceived Morality of Risk Communication: Consistent with our hypothesis, there was a significant interaction between the perspective and communication conditions, $F(3,812)=10.79$, $p=0.001$, $\eta^2=0.013$. See Table 2 for the means and standard deviations across conditions.

Decomposing this interaction, within the risk-communication condition, participants who were assigned to the excuse-provider condition believed that the excuse receiver would view them as significantly less moral ($M=4.43$, $SD=1.37$) than excuse providers reported ($M=5.51$, $SD=1.13$), $F(1, 809) = 68.75$, $p<0.001$, $\eta^2=0.08$. These results supported our hypothesis that excuse providers underestimate the interpersonal benefits of communicating interpersonal risk.

In contrast to our predictions, there was no interaction between conditions to predict either moral superiority ($p=0.817$) or perceived judgement ($p=0.618$). See Table 2.

Interest in Cancelling the Activity: Lastly, participants reported the extent to which their friend would be interested in cancelling the event after receiving their rejection (excuse-provider) or the extent to which they personally would be interested in cancelling the event (excuse-receiver). Again, there was a significant interaction between perspective and risk communication predictions to predict interest. $F(3, 814) = 45.32$, $p<0.001$, $\eta^2=0.05$.

Decomposing this interaction, within the risk condition, excuse-receivers were significantly more interested in cancelling the event ($M=5.05$, $SD=1.62$) than excuse providers anticipated ($M=3.62$, $SD=1.19$), $F(1, 811) = 52.19$, $p<0.001$, $\eta^2=0.06$. These results support our critical hypotheses (H1-H3) that excuse providers underestimate the benefits of communicating interpersonal risk. See Table 2 for the means and standard deviations across all four conditions.

See Figures S1-S4 in the SOM for visual depiction of the results of Study 1.

Table 2. Means and standard deviations for perceived morality of the excuse provider.

	DV1: Morality of Excuse Provider	DV2: Moral Superiority of Excuse Provider	DV3: Judgement of Excuse Receiver	DV4: Interest in Attending Event of Excuse Receiver
Excuse Provider – No Risk Communication	4.05 (1.40) ^a	3.84 (1.51) ^a	3.23 (1.61) ^a	3.29 (1.22) ^a
Excuse Provider – Risk Communication	4.43 (1.37) ^b	4.75 (1.50) ^b	4.09 (1.58) ^b	3.62 (1.19) ^b
Excuse Receiver – Risk Communication	5.51 (1.13) ^c	2.36 (1.40) ^c	2.67 (1.62) ^c	3.34 (1.73) ^b
Excuse Receiver – No Risk Communication	4.53 (1.34) ^d	3.23 (1.67) ^d	1.92 (1.46) ^d	5.05 (1.62) ^a

Note. Subscripts indicate conditions that are significantly different from one another at $p < 0.05$.

Study 1 Discussion

Together, the results of this pre-registered, well-powered experiment provides reliable evidence that excuse-providers underestimate the interpersonal benefits of communicating risk in terms of perceived morality and underestimate the benefits of risk communication for dissuading others from attending events. In Studies 2a&b, we explored *when* excuse-givers fail to communicate risks—when they are considering social vs. safety or welfare concerns. We also used another common social scenario to increase the generalizability of our results, i.e., a hike.

Specifically, we examined whether excuse-givers who avoided risk communication were more strongly considering social vs. welfare concerns, undermining interest in communicating risk when declining social invitations (H4). In Studies 2a&b, participants imagined they were invited to go hiking with a small group of 4-6 people next weekend by one of their friends.

Studies 2a&b

Study 2a. In Study 2a ($N=401$; $Mage=46-55$, 60.3% female),² participants imagined that they wanted to say “no” to an invitation for hiking because they were worried about contracting and/or spreading coronavirus. Across Studies 2a&b, we included this rationale to hold risk perception consistent across respondents. Participants were asked, out of the following response options, what they would *want* to say in response to their friend and what they would *actually* say in response to their friend. The response options included the experimental conditions from Study 1 as follows: “I’m sorry, but I can’t” and “I’m sorry, but I can’t. And I don’t think you should go either. Hanging out in groups of any size risks spreading coronavirus more.”

² We pre-registered we would recruit $N=400$ participants and slightly over-recruited. We reported that we would analyze the dependent variables using three 1-way ANOVAs, but we chose to use t-tests for ease of interpreting effect sizes. All results hold using ANOVAs.

Next, participants indicated the extent to which they were considering the following concerns when responding to their friend: their relationship (i.e. social concerns), how to discourage their friend from engaging in the behavior (i.e. risk communication/welfare concerns), and how moral or good they would appear (i.e. personal impressions). Participants indicated the extent they considered each of these concerns on a scale from 0-100%.

Results of Study 2a

Social Concerns. Consistent with the notion that people feel uncomfortable communicating risks when rejecting social invitations, 73.8% of participants wanted to communicate risk and advise their friends not to engage in this activity, yet only 45.5% reported they would *actually choose* this response when replying to their friend ($Z=5.79, p<0.001$).

Next, we explored *when* participants felt comfortable communicating risk. We conducted t-tests to explore differences between people who would communicate risk on each of the concerns that we studied (i.e., social, welfare, and personal/moral impression concerns).

As predicted, people who said they would not communicate risk scored significantly higher in social concerns ($M=54.81, SD=21.79$) compared to people who said they would communicate risk ($M=38.27, SD=19.98$), $t(398) = 7.92, p<0.001, d=0.54$. Also as predicted, people who said they would communicate risk scored significantly higher in welfare concerns ($M=37.95, SD=22.89$) compared to people who said they would not communicate risk ($M=20.21, SD=18.30$), $t(397.31) = 8.61, p<0.001, d=0.86$. There was no between groups differences on personal impression concerns ($p=0.487$). These results support H4 by suggesting that people feel more comfortable communicating risk when they are focused on welfare vs. social concerns.

Study 2b

In Study 2b ($N=867$; $M_{age}=46-55$, 60.3% female), we wanted to conceptually replicate Study 2a, while allowing for open-ended responses.³ Participants imagined the identical scenario from Study 2a. Specifically, participants imagined that they wanted to say “no” to an invitation for hiking because they were worried about contracting and/or spreading coronavirus. Yet, rather than selecting from pre-populated response options, participants were asked to write what they would say to say “no” and reject the social invitation in a free-response box. Participants free responses were then coded to indicate whether or not they mentioned risk concerns when rejecting the social invitation. We coded the responses using the thesaurus synonyms dictionary. To do so, we used the synonyms library in the statistical program *R* (which uses the thesaurus dictionary) and coded the open texts automatically. This library provides all synonyms of a specific word (i.e., “risk”). We added words related to the current context: “covid”, “virus”, “coronavirus.” See SOM for words used. We automatically coded the number of instances where one of these words was mentioned in the free responses as the “risk communication” group, while people who did not mention these words were coded as “no risk communication” group.

Study 2b Results

Social Concerns Replication. As in Study 2a, people were fairly reluctant to communicate risk: 57.9% responses included some type of risk communication compared to 42.1% of responses that did not. Consistent with Study 2a, people who did *not* communicate risk reported significantly higher social concerns ($M=46.07$, $SD=25.77$) as compared to people who said they would be likely to communicate risk to their friend ($M=42.48$, $SD=23.85$), $t(770.75) =$

³ We pre-registered that we would recruit $N=400$ participants and doubled our sample size to ensure that we the responses could be reliably coded for risk using the thesaurus function. We also reported that we would analyze the dependent variables using three 1-way ANOVAs, but chose to use t-tests for ease of interpreting effect sizes. All results hold when using ANOVAs.

2.11, $p=0.035$, $d=0.14$. Similarly, as predicted, people who said they would communicate risk scored significantly higher in their welfare concerns ($M=33.09$, $SD=26.57$) as compared to people who said they would not communicate risk ($M=27.83$, $SD=26.01$), $t(887) = 2.91$, $p=0.004$, $d=0.20$. There was no difference between groups on personal impressions ($p=0.896$).

Study 2a&b Discussion

These results of Study 2a and 2b suggest that people feel comfortable communicating risk when they are focused on welfare vs. social concerns. However, the generalizability of these studies is somewhat limited, given that we used two very specific types of social invitations. We aimed to improve the generalizability of asking participants to reflect on actual social invitations. Thus, in Study 3a&b, we replicated our results using actual invitations respondents received.

Study 3a&b

Study 3a

In Study 3a ($N=471$; $Mage=36-45$, 52.3% female), participants were asked to reflect on an invitation they had received for a social event that had not been cancelled. Specifically, participants were asked to reflect on the most recent social invitation they had received, for an event that was still happening. Of the 486 people we surveyed, 36.4% of respondents had already declined the social event. After describing the event, participants reported on their social, personal, and risk concerns using the identical measures from Studies 2a&b. Participants also reported the extent to which they felt that the excuse-recipient would feel judged (using the same 3-item measure from Study 1), and how close they thought the excuse-recipient felt to them both before and after receiving their rejection. While we pre-registered collecting data from $N=600$

participants, we were unable to recruit this number of participants who had rejected an invitation. Thus, these data should be considered as tentative.⁴

On an exploratory basis, participants responded to questions about the event including “whether the event was important to them,” “whether the event was important to the person who invited them,” “whether the event was something they thought they *had* to attend,” “whether this event is something that could have been completed at another time,” and “whether this event was something that participants would *want* to attend” if COVID was not a concern. Participants responded to these items on a scale from 1=*Not at all* to 10=*Extremely*. Participants also reported their relationship with the person who invited them by indicating how close they were with the person who invited them (1=*Not at all* to 10=*Extremely*) and their formal relationship with this person: grandmother/grandfather, mother/father/guardian, friend/colleague/acquaintance, other.

Results

Event Characteristics. On an exploratory basis, we first examined the factors that predicted whether people declined the event. Upon entering all factors into a regression to predict event attendance (1=*yes*), the only factors that significantly predicted declining the event were event importance and whether the event was something participants would have wanted to attend if concerns about COVID were not an issue (see Table 3 for regression coefficients).

Social Relationship. We also explored whether event attendance depended on *who* asked. Respondents were more likely to say “yes” to an invitation from people they felt close to ($B=0.02$, $SE=0.004$, Wald = 25.97, $p<0.001$, $Exp(B) = 1.02$). However, the formal relationship

⁴ Participants also reported the extent to which they thought the excuse-receiver would cancel the event after hearing their rejection. However due to an oversight, we did not collect this item in Study 3b, thus we do not discuss this item further as we are unable to compare judgements between excuse-providers and recipients.

between the inviter and receiver did not predict attendance (i.e., whether or not the person that invited them was their grandmother/grandfather, mother/father/guardian, friend, colleague, or other acquaintance), $p_s \geq 0.327$. See Table 4. Together these exploratory analyses suggest that, in the COVID environment, people are more likely to say “yes” to events they would want to attend anyway, and to say “yes” to people they feel close to, regardless of their formal relationship, again suggesting that social concerns strongly predict people’s willingness to reject invitations.

Social Concerns. We then analyzed data from respondents who reported ‘declining’ the invitation. We asked respondents about the extent to which they were ‘declining’ the invitation for risk-related reasons. Specifically, we asked participants whether their decision to say “no” was a result of concerns related to risks of contracting and/or spreading COVID-19, partially, or not at all. Since almost no one stated that their decision was *not* influenced by COVID ($n=8$), we chose to compare respondents who agreed that “their decision to attend was entirely related to COVID-19 contagion risks” (79.2%) as compared to respondents who said “their decision to not attend was *only partially due* to concerns related to COVID-19 contagion risks” (16.3%).

Consistent with Study 3a & b, participants who said that their decision was entirely influenced by COVID related concerns were significantly *more* likely to endorse welfare motivations ($M=57.03$, $SD=23.82$) compared to people who said that their decision was only partially related to contagion concerns ($M=37.52$), $t(166) = 3.37$, $p < 0.001$, $d=0.79$. Similarly, participants who said that their decision was entirely influenced by COVID related concerns were significantly *less* likely to say that their response was driven by social concerns ($M=23.86$, $SD=20.14$) as compared to participants who said that their decision was only partially related to contagion concerns ($M=33.83$, $SD=21.65$), $t(166) = 2.39$, $p=0.018$, $d=0.24$. These findings once again provide evidence for the importance of underlying motivations, such that participants who

said that risk was at the forefront of their minds in rejecting the social invitation were more likely to say that their response was primarily attributable to welfare-related (vs. social) concerns.

Closeness. We then examined whether participants who declined their social invitations reported that the event-requester would report lower levels of closeness to them after their rejection. Because we added these questions during a second round of data collection, we obtained data from about one-third of the number of respondents who reported having declined social invitations prior to data collection. Before rejecting the invitation, participants felt relatively close to the individual who invited them to the event ($M=59.20$, $SD=27.86$). After rejecting the invitation, participants expected that the person they rejected would feel significantly less close to them ($M=53.22$, $SD=27.38$), within subject t-test, $t(40) = 3.56$, $p < 0.001$, $d = 0.24$. These results corroborate our earlier findings by showing that people expect to be negatively perceived when they reject social invitations due to COVID concerns.

Table 3. Event characteristics predicting event attendance (1=yes attend) in Study 3a.

Variable	Regression Coefficient	Statistical Significance	
Grandmother/Grandfather	$B=0.21$	0.764	
Mother/Father/Guardian	$B=-0.23$	0.693	
Aunt/Uncle/Cousin	$B=-0.49$	0.121	
Friend	$B=-0.001$	0.998	
Colleague	$B=0.29$	0.529	
Model Statistics	$Wald = 35.51$	<0.001	$Exp(B) = 1.76$

Table 4. Relationship characteristics predicting event attendance (1=yes attend) in Study 3a.

Variable	Regression Coefficient	Statistical Significance	
Event Importance to Participant	$B=0.004 (0.013)$	0.727	
Event Importance to Inviter	$B=-0.01 (0.014)$	0.498	
Want to Attend Event	$B=0.07 (0.009)$	<0.001	
Have to Attend Event	$B=-0.009 (0.007)$	0.203	
If there was no COVID	$B=0.05 (0.02)$	0.01	
Model Statistics	$F(5, 482) = 22.73$	<0.001	$R^2 = 0.18$

Study 3b

In Study 3b ($N=477$; $M_{age}=36.1$, 36.4% female), participants reflected on a recent invitation sent for a social event they had not cancelled, where at least one person had declined. After describing their most recent rejection, participants completed the identical items from Study 3a. Specifically, respondents reported how judged they felt by the excuse-providers, how close they felt to the excuse provider, and they reported a variety of different characteristics about their relationship to the person who rejected their invitation, and the event itself. Free responses were coded to indicate whether or not the excuse-provider mentioned risk. Of the 439 people who completed the study, 33.3% said that they had received at least one person who declined their invitation; 66.7% said they had not received any rejections. Of the respondents who said they had received at least one person declining their invitation, 57.3% reported that the person who had declined mentioned risk. We again asked participants to complete the identical event characteristic questions from Study 3a as well as to report how close they felt and their relationship to the most recent person who rejected their event.

Results

Event Characteristics. On an exploratory basis, we examined whether people had received rejections depending on event characteristics, such as whether the event was important to them (see Study 3a for the full items). These factors did not predict rejection. See Table 5. The only significant predictor was how many invitations the participant had sent, $B=0.21$, $p<0.001$.

Social Relationship. Next, we explored whether certain kinds of social interaction partners were more likely to decline the event invitation. In these analyses, inviters were significantly more likely to say they had received an event decline from a friend (54.1%) as compared to their grandmother/grandfather (2.7%), mother/father/guardian (10.8%), aunt/uncle

cousin (18.0%), other acquaintance (18.0%) or colleague (3.6%). These results corroborate the findings of Study 3a by suggesting that people who feel less close to the person who invited them felt more comfortable (Study 3a) about rejecting (Study 3b) invitations for social events.

Closeness. We then looked at participants who reported receiving a ‘declined’ invitation from a social acquaintance. We asked participants who received invitations from people in their social environment whether they felt less close to people before vs. after they had rejected a social invitation. Beforehand, participants felt relatively close to the individual who they invited to the event ($M=74.37$, $SD=21.01$). After receiving a rejected invitation, the participant said they felt marginally less close to the person who had rejected their social invitation ($M=72.39$, $SD=21.46$), within-subject t-test, $t(113) = 1.99$, $p=0.049$, $d=0.08$. Closeness after receiving the rejection was not predicted by whether the person who rejected the invitation communicated risk or not ($\beta=-0.02$, $p=0.662$). Thus, in comparing the results of Study 3a and 3b, it is clear that people who imagined how close the other person would feel after they rejected the social invitation (Study 3a) once again interpreted more negative consequences for interpersonal closeness than the person who received the rejection (Study 3b).

Table 5. Event characteristics predicting rejection received (1=yes) in Study 3b.

Variable	Regression Coefficient	Statistical Significance	
Event Importance to Participant	$B=0.02$ (0.02)	0.232	
Event Importance to Recipient	$B=-0.02$ (0.01)	0.177	
Have to Attend Event	$B=0.0001$ (0.01)	0.990	
Want to Attend Event	$B=-0.01$ (0.01)	0.453	
Event could be Postponed	$B=0.01$ (0.01)	0.124	
Model Statistics	$F(5, 482) = 1.07$	0.379	$R^2 = 0.03$

General Discussion

Across five studies, we found evidence that people overestimate the negative interpersonal costs of rejecting social invitations and underestimate the personal benefits. In Study 1, excuse providers who communicated risk while rejecting a social invitation overestimated how much their friend would feel judged and underestimated how likely their friend would report lower intentions to the event. In Study 2a&b, people were more likely to communicate risk when concerned with welfare (vs. social) concerns. In Study 3a&b, we replicated the results of Study 2a&b, and once again observed—in the context of actual event invitations—that people who rejected social invitations overestimated the closeness costs of declining. Overall, these studies suggest that people overestimate the costs and underestimate the benefits of communicating risk within the context of various, common, social invitations.

For the foreseeable future - and likely repeatedly over the next several years - individuals are going to find themselves faced with the task of enforcing social distancing and encouraging their friends to do the same to prevent a damaging resurgence of COVID-19 infections and fatalities in their area. As a result, people will regularly face the decision of whether to explicitly communicate concerns over risks of COVID-19 contagion or not when rejecting invitations to in-person social gatherings. In deciding how to communicate their declination, individuals will likely feel stuck; deliberating about whether to prioritize interpersonal and reputational concerns and not communicate risk or prioritize welfare concerns and decide to communicate risk.

The results of the current work should provide people with confidence: if they want to reject an invitation for an in-person social event, they should feel comfortable doing so. Additionally, they should feel comfortable explicitly highlighting how risky social events are to

their friends, and potentially even advising friends to consider their personal risks too. Our data suggests that rejecting social invitations in combination with communicating risk could lower people's desire to attend social events and could have the unexpected effect of bolstering interpersonal connection and enhancing perceptions of the excuse-giver. With nearly all states reopening, social events will become increasingly tempting (even if cases surge), and we will all need to remind ourselves of the importance of social distancing, and of the value in being open with others about our discomfort with in-person social interactions and their risks.

While excuse-givers may be apprehensive to communicate risk when rejecting social invitations, or feel uneasy after doing so, believing that their friend might be insulted or the relationship will be weakened, risk communications appear to be a win-win, positively influencing others' risky social intentions more than excuse-givers predict, while simultaneously enhancing their moral reputation without substantially decreasing social closeness or leaving excuse-receivers feeling judged or insulted. In the interest of the health of humankind, we hope that this research has the intended effect of reassuring people to continue to enforce social distancing and to feel comfortable expressing concerns about COVID-19 contagion risks when rejecting social invitations without fear of social or interpersonal ramifications. It is also possible that public health officials could use these data to encourage people to think about welfare concerns (vs. social impressions) when thinking about social invitations as a mechanism by which to encourage citizens to communicate their risk-related concerns to one another.

Across studies, we examined risk communication within the context of friends and close family members and observed similar results. However, future research should hone in more specifically on *when* people might be or less concerned with rejecting social invitations by citing COVID-related risks. In a survey that we conducted with a US representative study in April

2020, we asked respondents to indicate whether they were planning to reject an upcoming social invitation, and if so, whether they would communicate risk when rejecting the invitation ($N=736$, $M_{age}=44.75$, $SD_{age}=16.58$, 51.4% female). In this survey, we found that people were more likely to communicate risk to friends than to family members, then colleagues, and acquaintances. Because people typically communicate more openly with friends and family, these results provide an initial indication that people see it as a burden to reject a social invitation while citing risk-related reasons—especially with people they are less comfortable with (see SOM Figure 4). Broadly, these results support our underlying proposition that people are less likely to communicate risk in contexts where they are more concerned with making a positive impression regardless of who that social interaction partner is (see also: Dunn et al., 2007).

Conceptually, these results contribute to an emerging line of research looking at social excuses. Specifically, these studies fit with recent research showing that people often overestimate the costs of rejecting invitations to social events (Donnelly et al., 2019). While prior research has focused on everyday interactions that have no possible health or welfare consequences, the current research extends this prior work by showing that similar patterns emerge even when people are declining in the context of critical health-relevant concerns.

Overall, these results point to the important of affective forecasting errors in risk communication, and suggest that policy makers and leaders should help people feel less concerned about expressing their honest concerns about risk to better facilitate social safety.

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Supplemental Online Material

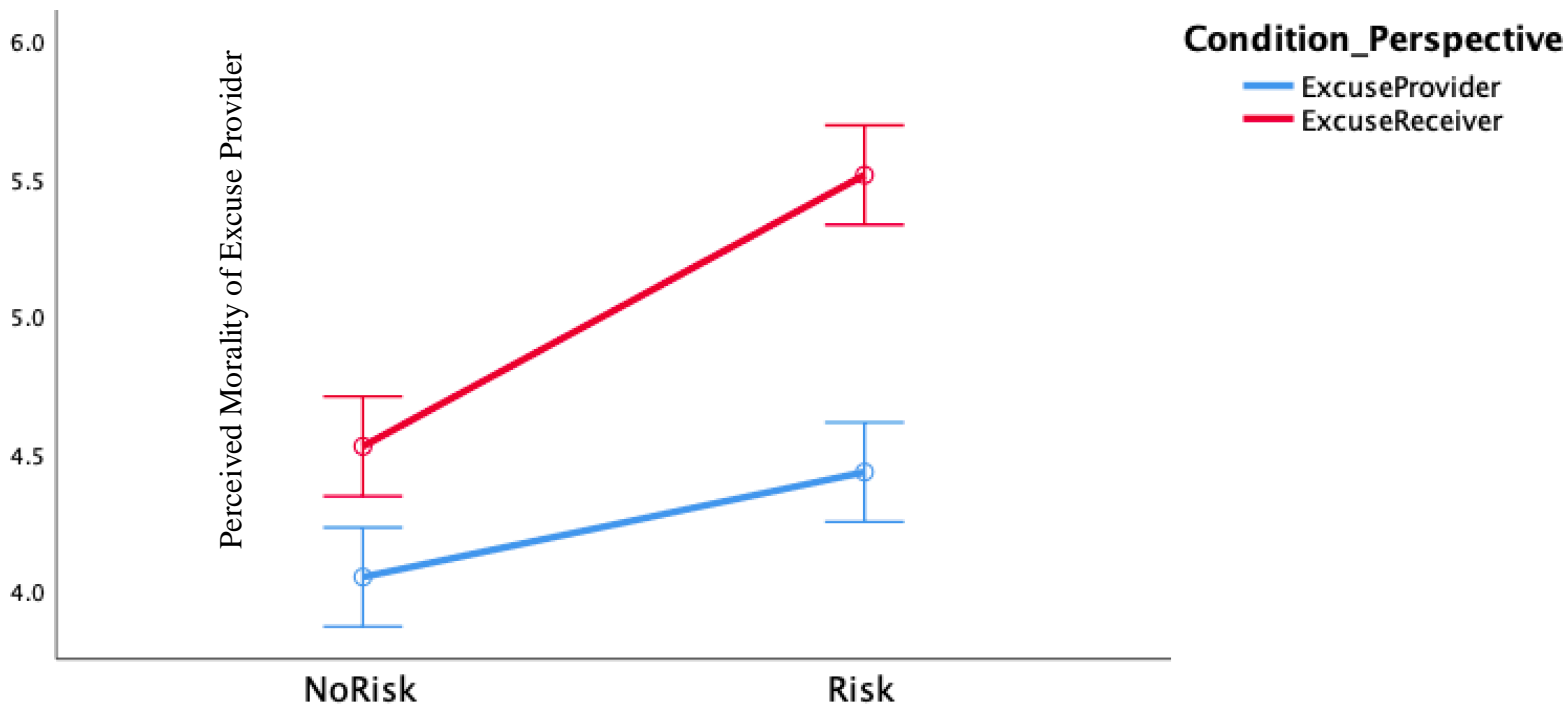
Words used in R code for 'risk coding'

accident	accidentality	actuarial calculation	admit of	adventitiousness	adventure
be liable	be subjected to	beard	bet	bid fair to	brave
break	breakers ahead	buy in	buy into	calculated risk	cardhouse
casualness	cause for alarm	chance	chance it	compromise	confront
court destruction	crisis	danger	dangerous ground	dare	defy
defy danger	destiny	desultoriness	emergency	encounter	encounter danger
endanger	endangerment	expose	exposure	face	face up to
fate	financier	flier	flukiness	forget the odds	fortuitousness
fortuity	fortune	gamble	gamble on	gamble with	gaping chasm
gathering clouds	good fortune	good luck	hap	happenstance	happy chance
hazard	heedless hap	house of cards	how they fall	imperil	imperilment
incur danger	indeterminacy	indeterminateness	infirmity	insecurity	insolidity
instability	insubstantiality	invest	invest in	investment	jeopard

jeopardize	jeopardy	law of averages	lay open	lay out money	liability
liableness	lie under	lot	luck	make an investment	make book
meet	menace	moira	openness	opportunity	pass
peril	perilousness	pinch	place	play	play with fire
plight	plow back into	plunge	precariousness	predicament	predict
prime investment	principle of indeterminacy	probability	problematicness	prognosticate	put
put in danger	put in jeopardy	quicksand	random sample	reinvest	rely on fortune
risk	riskiness	rocks ahead	run a chance	run of luck	run the chance
run the risk	serendipity	set at hazard	shakiness	shiftiness	shiftingness
sink	sink money in	slipperiness	speculate	speculation	speculativeness
stand a chance	stand fair to	stand to gain	stand to lose	statistical probability	storm clouds
strait	take a chance	take a flier	take chances	tempt fortune	tempt Providence
the breaks	theory of probability	thin ice	threat	ticklishness	treacherousness

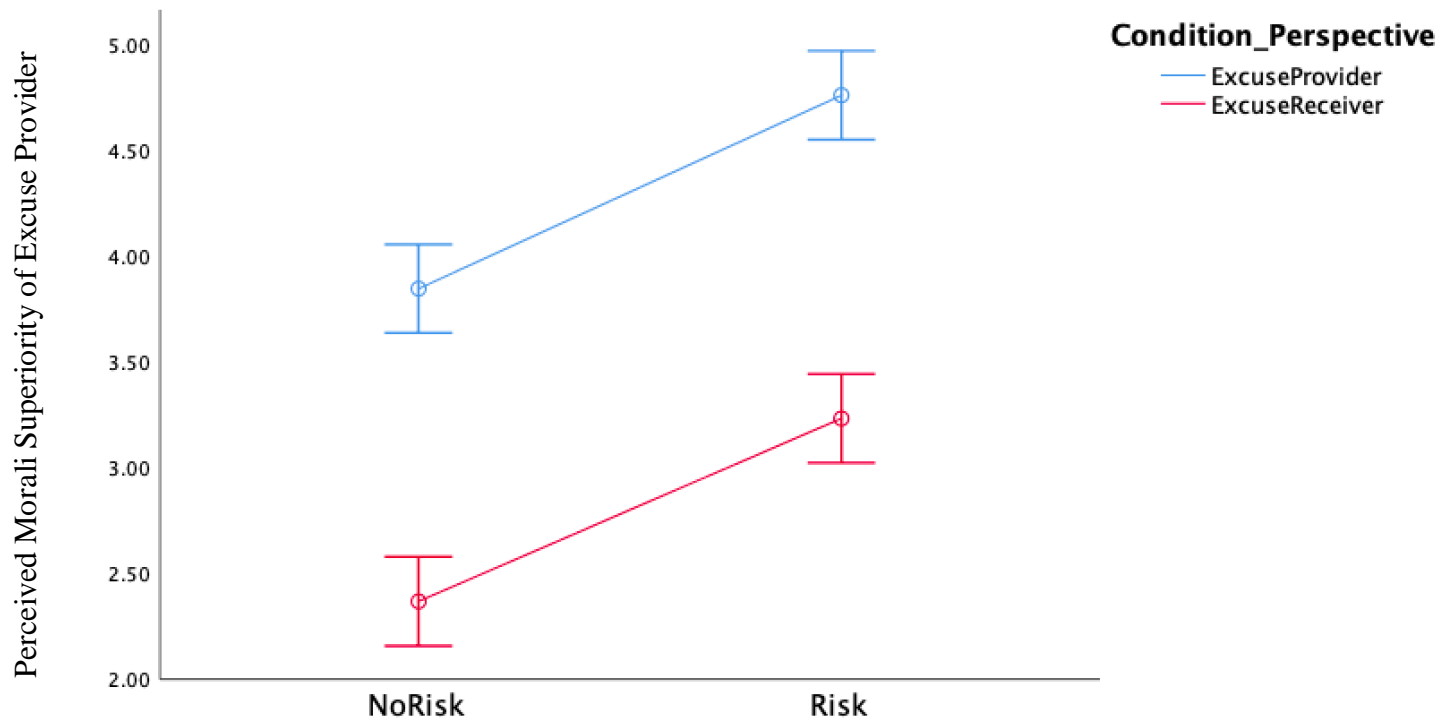
treachery	trust to chance	try the chance	unauthenticity	unauthoritativeness	uncertainty
uncertainty principle	undependability	unfaithworthiness	unreliability	unsolidity	unsoundness
unsteadfastness	unsteadiness	unsubstantiality	unsureness	untrustworthiness	venture
wager	whatever comes	risk	corona	covid	virus

Figure S1. Mean differences between conditions on perceived morality of the excuse-provider plotted with 95% CI.



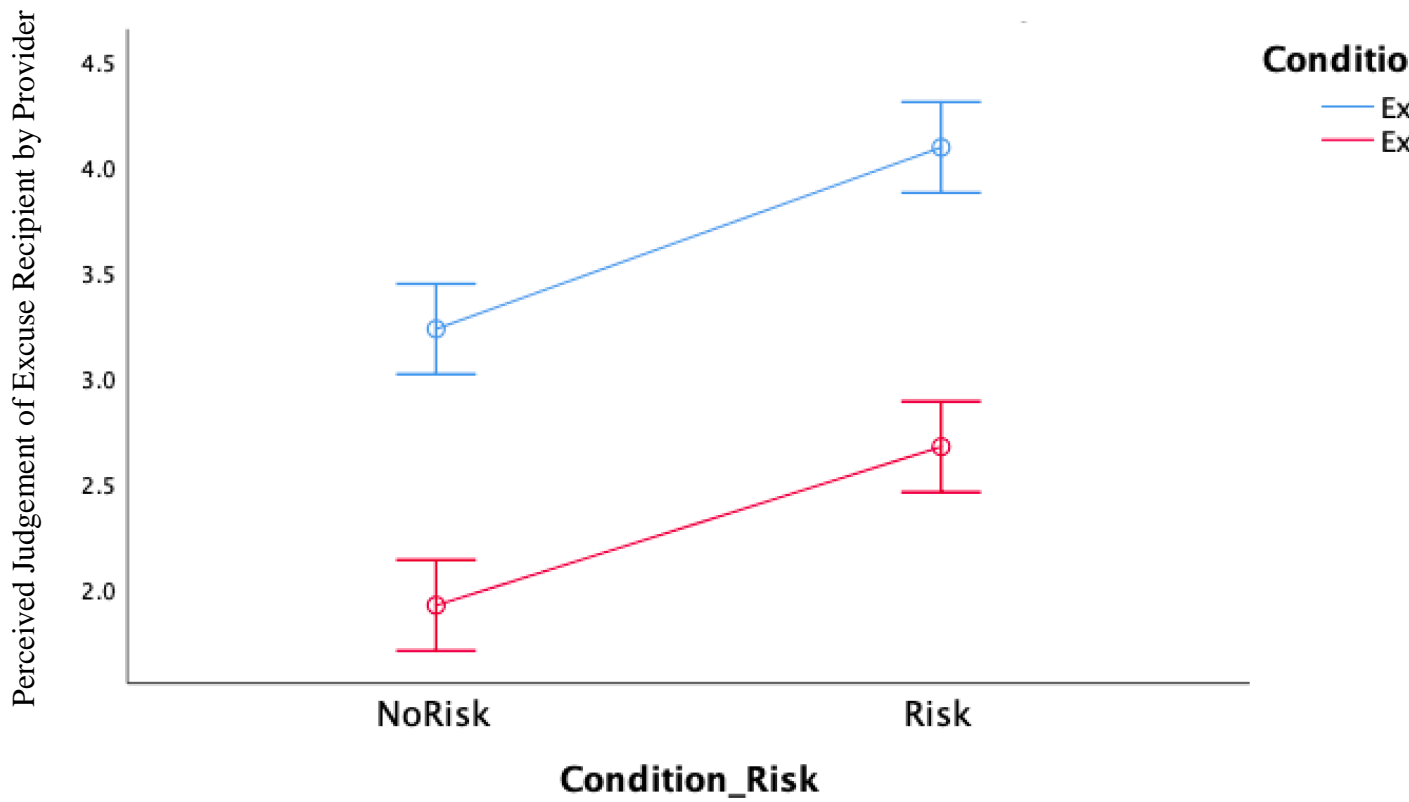
Note. The interpretation of this figure is that there was a main effect of perspective, such that excuse providers always believed that the excuse receiver would see them as less moral than the excuse receiver actually did. However, the excuse receiver was especially likely to underestimate the excuse-receivers perception of their morality in the risk (vs. no risk communication) condition.

Figure S2. Mean differences between conditions on perceived moral superiority of the excuse provider plotted with 95% CI.



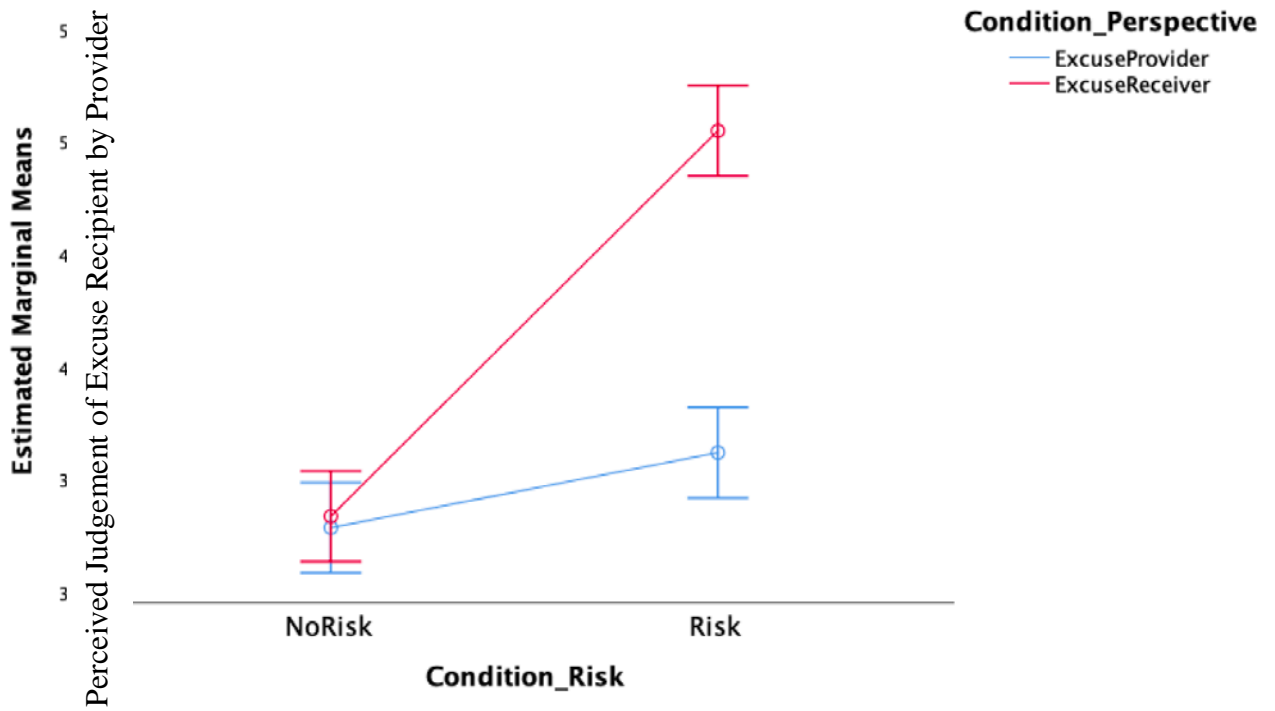
Note. The interpretation of this figure is that excuse providers believed that the excuse receiver would judge them as someone who thought they were morally superior, regardless of whether they declined the social invitation by communicating risk or not.

Figure S3. Mean differences between conditions on perceived judgement of excuse recipient by excuse provider plotted with 95% CI.



Note. The interpretation of this figure is that excuse providers believed that the excuse receiver would see them as being more judgmental than excuse recipients, regardless of whether they declined the social invitation via communicating risk or not.

Figure S4. Mean differences between conditions on perceived event interest of excuse recipient by excuse provider, plotted with 95% CI.



Note. The interpretation of this figure is that excuse providers believed that the excuse receiver would not be as positively impacted by the risk communication in terms of their decreased interest in attending as they actually were.

Figure S5. Risk communication in the context of various social interactions, plotted with 95% CI.

