

University of California, Santa Cruz

**EVALUATION, ADHERENCE, AND REPORTING: WHEN, WHY, AND HOW
COLLEGE STUDENTS SUPPORT NEW BEHAVIORAL NORMS DURING THE
COVID-19 PANDEMIC**

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Abstract

To enable the safe re-opening of college campuses across the United States, it is crucial that we first understand the extent to which students support and oppose behavioral norms intended to cease the spread of COVID-19. These norms include regulations concerning: social distancing, quarantine, and mask-wearing. The act of following, or reporting the violation of these norms, presents students with complex dilemmas: concerns of public health versus students' concerns with establishing and maintaining close and loyal relationships. This study will use a survey method to examine how closeness within a relationship (relation), perception of the threat of COVID-19 (virus severity rating), and the specific type of pro-health norm being violated (behavior), can determine college students' likelihood of accepting or rejecting COVID-19 pro-health norms. This study will additionally investigate participants' willingness to follow and report violations of these norms. Other individual difference variables evaluated include: susceptibility to peer group influence (need to belong), and the motive of the individual for breaking the pro-health norm (motive). The findings of this study will inform both moral psychological theories of how individuals accept or reject new behavioral norms, and campus efforts to re-open safely during the pandemic.

Keywords: College campuses, college students, COVID-19, quarantine, social distancing, mask-wearing

Introduction

The emergence of COVID-19 in the United States at the start of 2020 led to its rapid expansion across the country, which would have a considerable impact on the habitual American way of life (Holzwarth, 2020; Swoyer, 2020). For many, the risk of contracting the virus, and the uncertainty around its transmission and effects, presented the most dangerous and critical threat (Sissons, 2020). As a consequence, developing new behavioral norms regarding mask-wearing, social distancing, and quarantine, have become essential to preventing the spread of the virus (Bourgeois, Harell, & Stephenson, 2020; CDC, 2020; Holzwarth, 2020; Telford, 2020; Thompson, 2020; YouGov, 2020; Zara, 2020).

Nonetheless, some Americans have rejected these new pro-health norms— either because they do not perceive the virus to be particularly harmful (Bajak & Howe, 2020; Herrin, 2020; Tennant, 2020), because they perceive these pro-health norms to be overreactions (Tennant, 2020; Flood, 2020; Giang-Paunon, 2020), or because they believe the potential consequences of adopting these norms to outweigh the potential benefits (Banker, 2020; Campbell, 2020; DeLuca, Papageorge, & Kalish, 2020; Sher, 2020; Siegel & Van Dam, 2020; Usher, Bhullar, Durkin, Gyamfi, & Jackson 2020).

However, the implications of opposing judgments concerning these new pro-health norms can be particularly impactful. Most notably, this is the case on college campuses— where students are attempting to balance the maintenance of their social lives, while navigating these new norms (Andrew, 2020). Even more so, college campus environments vary widely— especially in their response to COVID-19. While some college campuses have attempted to find ways to incorporate both socialization and pro-health measures (Ladyzhets, 2020; University of Notre Dame, 2021), others have bolstered cultures of suspension and shame as a way to enforce

pro-health behaviors (Acevedo, 2020; Giuliani-Hoffman, 2020; Haynie, 2020). Further, emerging differences in pro-health cultures on college campuses have also been largely influenced by students themselves and the effects of their own judgments surrounding COVID-19. In some of these college environments, students have engaged in community efforts to cease the virus' spread (Reagan, Getahun, & Beck, 2020). In others, college students have participated in creating environments that either encourage the virus' spread, or which perpetuate disregard for the gravity of the risks involved (Hutchinson, 2020; O'Kane, 2020). The present research examined the psychological basis for the acceptance and rejection of new pro-health norms on college campuses during the COVID-19 pandemic.

COVID-19: The Adoption of New Behavioral Norms

In the objective of slowing the spread of COVID-19, the adoption of new pro-health norms has become absolutely critical. These new pro-health norms, outlined by the CDC, include the practice of quarantine, social distancing, and mask-wearing. According to the CDC, self-quarantine—a practice in which one stays in their home and away from others while monitoring their health—should be applied in the case that one may be at risk of having the virus (CDC, 2020). The CDC has also heavily emphasized the necessity of both social distancing and mask-wearing for minimizing the virus' spread. They define social distancing as staying at least 6 feet apart from others (CDC, 2020). In addition, the CDC underlines that mask-wearing can be particularly useful in instances where one may be asymptomatic despite having the virus (CDC, 2020). Hence, the adoption of these new pro-health norms is absolutely essential if we wish to cease the spread of COVID-19.

Conflicts about COVID-19 Norms: Creating and Maintaining Social Networks

However, certain individuals may be reluctant to embrace these new pro-health norms—particularly as a result of their context or environment. This can be especially problematic on college campuses, where students might feel conflicted as a result of wanting to maintain and create new social networks (Andrew, 2020). Undoubtedly, socializing plays a central role in the college experience, yet these practices can form considerable obstacles in the preservation of these relationships, as well as in the creation of new ones (Gyurovski, 2020; Sikali, 2020). Most concretely, this can be illustrated through the practice of quarantine, which naturally leads to a decreased time with friends as a result of physical isolation. A similar outcome can additionally be demonstrated through the effects of social distancing, as the increase in physical distance can simultaneously prompt a growing separation in these friend groups (Sikali, 2020). Finally, the adoption of any of these three practices (quarantine, social distancing, and mask-wearing), has the possibility of leading to judgment from peers, and can additionally contribute to complications in maintaining and developing these relationships (Andrew, 2020; Gyurovski, 2020; Sikali, 2020)

Thus, some college students may feel particularly conflicted in their attempts to adopt these new pro-health norms— as their incentives to preserve and develop relationships could potentially transcend their initial judgments of the virus itself (Andrew, 2020; Sikali, 2020).

In this study, I propose that, as a result of wanting to maintain and develop these relationships, students will be most approving of, and less willing to report, pro-health norm violations committed by their friends— relative to those committed by strangers. I also propose that students will be more willing to violate some pro-health norms, when it impedes their ability to maintain these friendships. In other words: a higher willingness to violate social distancing

and quarantine norms— as their implications involve a physical division which is potentially more difficult to overcome in contrast to the merely abstract separation mask-wearing entails.

Moral Reasoning and Decision-Making

Further understanding of the conflicting perspectives in the dispute against the adoption or rejection of these pro-health norms can also be understood through the lens of moral judgments and reasoning. Research in moral reasoning has shown that children and adults distinguish moral concerns regarding welfare, rights, fairness, and justice— from other concerns regarding right and wrong, such as authority, rules, and cultural traditions (Turiel & Dahl, 2019). Moral reasoning is developed through the understanding of concepts surrounding welfare, justice, and rights (Turiel, 1983)— a process which begins in early childhood through the continuous participation in observation, perception, and understanding of social experiences and interactions (Turiel & Dahl, 2019). Moreover, these moral judgments often generate strong emotional reactions, as evidenced by outrage at others' moral violations, as well as guilt in responses to one's own moral violations (Turiel & Dahl, 2019). In the context of COVID-19, these findings propose that individuals who perceive pro-health norm violations as morally wrong are less likely to commit the norm violations themselves, and more likely to experience a strong negative emotional reaction when witnessing others engaging in them. In addition to signaling a higher rejection of these violations, these powerful emotional reactions might also suggest a higher willingness to report violations when witnessed.

However, research in moral psychology has also pointed out that moral judgments can become more complex as certain contexts obligate individuals to grapple with conflicts among their moral and other principles (Dahl, Gingo, Uttich, & Turiel, 2018; Turiel & Dahl, 2019). In relation to COVID-19, this has been observed most prominently in religious contexts: where

some individuals believe that not regularly attending religious services is a moral transgression, yet simultaneously also feel that gathering indoors— and potentially putting others at risk as a consequence— is equally morally wrong. In these contexts, individuals are obligated to face contradictory moral considerations and goals, as well as other social considerations and goals. As a result, making a decision becomes all the more difficult, as individuals must contemplate and coordinate these varying goals and considerations (Dahl, Gingo, Uttich, & Turiel, 2018; Turiel & Dahl, 2019).

In addition, research has also indicated that judgments about right and wrong can also be based on attributions of beliefs and intentions to others: A person who knowingly causes harm is judged more harshly than a person who accidentally causes harm (Tsoi & Young, 2018). The basis of these judgments can be observed through the very encoding mechanisms in the brain regions associated with theory of mind (Young & Saxe, 2008). Moreover, the outcome of the act also plays a role in influencing how individuals judge the act as well (Young & Saxe, 2008; Tsoi & Young, 2018). These findings are particularly relevant for judgments concerning pro-health norm violations, since individuals disagree considerably on how transmissible and dangerous the virus is (Bajak & Howe, 2020; Herrin, 2020; Tennant, 2020; Wood, 2020).

Social Conformity

On the other hand, our own behaviors can be largely influenced by our perception of how others behave— particularly those who are close to us. In a recent book evaluating the psychological effects of COVID-19, Steffens (2020) explains that observing the behaviors of noncompliant individuals can influence those who identify with them to become noncompliant as well— as they'll begin to perceive these violations as normative (Steffens, 2020). In this way, how we perceive others to behave plays an important role in how we assess what is appropriate

for ourselves to do. To further illustrate how these processes apply to the context of COVID-19, if a college student observes that their friends are continuing to gather and hold parties despite the ongoing pandemic, then that individual might feel more compelled to engage in these behaviors— as these pro-health norm violations now appear normative.

Other researchers have further argued this point, and have continued to develop on the significance of relatability— particularly in the context of groups— in influencing similar behaviors (Chung & Rimal, 2016). Chung and Rimal (2016) define this concept through the norm moderator of perceived social distance. Through this lens, the individual from our previous example would be more inclined to attend parties during the pandemic if they feel they identify with the groups that are encouraging the partying. They would also be less likely to attend parties if they identify more with the groups that are discouraging it.

Further, Chung and Rimal (2016) have also depicted the significant influence of groups through the norm moderator of group involvement (Chung & Rimal, 2016). According to this concept, individuals are more compelled to follow the norms of their in-group because it's a part of their in-group identity, and because they want to feel accepted (Chung & Rimal, 2016). In sum, much evidence has been provided in depicting the ways in which sentiments of relatability to others can play a profound role in predicting, determining, and influencing individual behavior.

Furthermore, understanding the influence these groups have in determining behaviors— either as a result of an in-group identity or otherwise— also suggests that individuals could additionally be motivated through a desire to avoid conflict with their in-group. Indeed, Chung and Rimal's (2016) use of the norm moderator “injunctive norms”, demonstrates that individuals are less likely to follow a norm in contexts where they feel at risk of facing social sanctions for

doing so. Further evidence on the existence of this influence has also been witnessed through behaviors in children, who in some situations resist confronting moral transgressions— in part because of their group-loyalty, but also out of fear of being excluded or retaliated against (Dahl & Killen, 2018). In sum, these findings further reflect the extent to which the in-group has authority in influencing individual behaviors.

It should also be noted, however, that there are also instances in which an individual's own moral values can confront— and at times overpower— the values of the group. This has been the case historically, such as in instances in which women would maintain their own moral views (such as those of fairness and equality) regardless of the cultural or societal traditions and customs (such as gender inequality), and even go about acting out these views despite the ways in which it opposed their societal group (Turiel & Dahl, 2019). Thus, while one's group might have a strong influence on the decision-making process, it is possible for other factors to have a stronger impact on one's reasoning as well. This ultimately leads to a clashing with, or overriding of, these influences.

Individual reasoning processes that function independently from the group can additionally be understood through the norm moderator of outcome expectations (Chung & Rimal, 2016). In these instances, individuals partake in behaviors they associate with positive outcomes, and refrain from engaging in behaviors which they associate to negative outcomes (Chung & Rimal, 2016). Moreover, the degree to which an individual notices others engaging and benefiting from this behavior, or lack thereof, also influences their perception of the behavior (Rimal, Real, & Morrison, 2004; Chung & Rimal, 2016). Thus, while behavior can be heavily influenced by the group's own judgment, there are also instances in which individuals

behave in accordance with their own personal beliefs: either as a result of more deeply rooted moral values, or as a result of witnessing the consequences of the group's actions.

Main Beliefs on COVID-19: Threatening or Nonthreatening

In the specific context of COVID-19, however, some individuals might be less inclined to follow pro-health norms simply because they underestimate the likelihood of being negatively impacted by it. In a study conducted in March 2020 in the United States, researchers found that while a majority of individuals appeared to be aware of the threat of the virus, they often underestimated their own susceptibility to it (Wise, Zbozinek, Michelini, Hagan, & Mobbs, 2020). This could be understood as a case of optimism bias: underestimating the probability that negative events will occur (Sharot, 2020; Wise et al., 2020). Other studies have shown that optimism bias is particularly prevalent in adolescence, and typically increases with age (Bränström & Brandberg, 2010). Thus, it might be the case that college students, in underestimating their own susceptibility to the transmissibility of the virus, will be most likely to contract and transmit it.

Furthermore, other research has revealed that risk-perception and fear of the virus are predictors for engaging in pro-health behaviors (Harper, Satchell, Fido, & Latzman, 2020). This has also been exemplified through findings revealing that an increased belief in the severity of the virus is associated with an increase in pro-health behaviors (Wise et al., 2020). In examining individuals with pathologies typically encompassing lower levels for fear and anxiety, researchers have also found a lower likelihood of complying to pro-health norms, and a lower likelihood of engaging in behaviors to protect at-risk others (Blagov, 2020).

Lastly, while these instances are rare, other small subsets of the population have been found to not believe in the threat of COVID-19, to not engage in pro-health behaviors, and to not

seek-out more information regarding the virus (Wise et al., 2020). Similarities can also be observed in terms of political differences, as conservative and Republican populations seem to judge the virus as less threatening, are generally less willing to comply with these pro-health norms, and are less likely to seek out COVID-related information (Barrios & Hochberg, 2020; Conway, Woodard, & Zubrod, 2020; Rothgerber, Wilson, Whaley, Rosenfeld, Humphrey, Moore, & Bihl, 2020), in comparison to Democrats (Clinton, Cohen, Lapinski, & Trussler, 2020). Most prominently, these findings have revealed that individuals who are less willing to comply are generally less trusting of the media sources covering COVID-19 as well (Conway et al., 2020; Rothgerber et al., 2020). These findings further reflect that the discrepancy in adopting pro-health norms is perhaps simply the result of a different ideological lens: one in which COVID-19 is not perceived as sincerely threatening.

In this study, I propose that individuals will be more likely to follow pro-health norms, and report their violations, when they believe the consequences of the virus to be more severe.

This Study

This study examines how college students evaluate these pro-health norms, and make decisions regarding the maintenance and creation of peer groups, all while attempting to maintain the health and safety of their college environment. We evaluate students' likelihood of following or rejecting these new norms, as well as their likelihood of reporting these violations, by examining the influence of: (1) closeness in relationship to the norm transgressor (friend or stranger), (2) beliefs about the threat of the virus, and (3) the pro-health norm being violated (quarantine, social distancing, or mask-wearing).

In this study, I propose three main hypotheses. (1) Students will be more accepting, and less likely to report, pro-health norm violations when they're committed by a friend, rather than

when they're committed by a stranger. (2) Students will be more likely to follow pro-health norms, and more willing to report their violations, if they believe the consequences of the virus to be more severe. (3) Students will show a higher preference for mask-wearing norms, as opposed to social distancing and quarantine norms— which impede on social connectedness to a greater extent.

Methods

Participants

The final sample consisted of 345 participants from two public research universities in the Western United States. The data from an additional 48 respondents was removed as they either did not complete the survey, or because they completed the survey in less than 15 minutes (median completion time: 33 minutes). In the final sample, 75% of participants identified as female, 22% identified as male, and 2% identified as other gender; 41% identified as Asian American, 33% identified as White, 26% identified as Hispanic/Latinx, 3% identified as Black, 1% identified as Native American, and 9% identified as belonging to another racial or ethnic group. Most (72%) identified as politically Democratic, whereas 11% identified as Independent, 3% as Republican, and 14% as “other”. Data were collected between October 21 and December 11, 2020.

Design

This study consisted of a 2x2x3 between-subject factorial design, which studied the effects of (1) closeness of relationship, (2) transgressor beliefs about the danger of COVID-19, and (3) type of behavioral norm— on judgments about violations of pro-health norms, and judgments concerning the reporting of such violations.

Materials and Procedure

This study was conducted through the online survey platform Qualtrics.

Participants were given information regarding the purpose of the study, confidentiality, and the risks and benefits of participating, before being asked for their consent to continue. They were additionally told that they had the option to skip questions or stop at any time. Overall, this study took between 15 and 60 minutes per participant.

Before beginning the survey, participants were instructed to read the presented vignettes carefully, and to answer the questions according to their own thoughts and beliefs. They were also instructed to answer the questions with the acknowledgement that the COVID-19 pandemic was still ongoing. Lastly, they were reminded of their college campus' rules regarding COVID-19. These rules included: (1) avoid large gatherings, (2) wear a mask in public and common areas, (3) quarantine for 14 days after traveling, moving, or being in contact with someone who has COVID-19.

The survey then presented participants with 12 distinct third-person vignettes (See Appendix) regarding different scenarios. Each vignette was presented individually to the respondents, only allowing them to answer question-sets regarding a single vignette at a time, and preventing them from re-viewing their previously answered vignettes.

Of the 12 vignettes presented, 6 characterized scenarios in which the protagonist was a close friend, and 6 others characterized scenarios in which the protagonist was a stranger. Further, of the 12 vignettes, 6 characterized scenarios in which the protagonist believed that COVID-19 was a threat (conflicted), and 6 others characterized scenarios in which the protagonist believed that COVID-19 was not particularly threatening (indifferent). Finally, the 12 vignettes also comprised 4 scenarios for each 1 in 3 pro-health norms being violated (mask-wearing, social distancing, quarantine). In all 12 vignettes, a protagonist is placed in a conflicting

situation: they must choose between following a pro-health norm, or participating in a context in which they would violate this norm.

Following each vignette, participants were asked a series of 11 open and closed-ended questions to assess their judgments of each scenario (Table 2). More precisely, these questions aimed to evaluate participants' judgment surrounding: if the protagonist should violate the pro-health norm, if violating the pro-health norm would be okay, if violating the pro-health norm would be very bad, if it would be okay to report the pro-health norm violation, and if they themselves would report the pro-health norm violation.

Table 2. *Vignette Question Sets*

Vignette Question	Answer Option
Should [X do the pro-health norm violation]?	<ul style="list-style-type: none"> • Yes, they should • No, they should not
Why should/shouldn't [X do the pro-health norm violation]?	<i>[Open-ended, text box option]</i>
How good or bad would it be for [X] to [do the pro-health norm violation]?	<ul style="list-style-type: none"> • Very bad • Somewhat bad • Neither bad nor good • Somewhat good • Very good
What if they decided to [do the pro-health norm violation], would that be okay?	<ul style="list-style-type: none"> • Yes, that would be okay • No, that would not be okay
What do you think should happen to [X] if they decided to [do the pro-health norm violation]? Do you think they should be...	<i>[Answer options per sub-question]</i>
...reported to the university	<ul style="list-style-type: none"> • Strongly disagree • Somewhat disagree • Neither disagree nor agree • Somewhat agree
...prohibited from leaving the dorm room?	
...barred from campus for the rest of the quarter	

...called out on social media?	<ul style="list-style-type: none"> • Strongly agree
If they decided to [do the pro-health norm violation], do you think they should pay a fine? If so, how much?	<i>[Open-ended, \$0 to \$500 cap]</i>
Imagine that another student saw that [X] decided to [do the pro-health norm violation] and wanted to report them to the university. Would it be okay for the other student to report them to the university?	<ul style="list-style-type: none"> • Yes, it would be okay to report what happened • No, it would not be okay to report what happened
Imagine that YOU saw that [X] decided to [do the pro-health norm violation]. How likely would you be to report it to the university?	<ul style="list-style-type: none"> • Very likely to report • Somewhat likely • Neither likely nor unlikely • Somewhat unlikely • Very unlikely to report

Following the vignette, the participants were asked whether they believed the individual should comply with the pro-health norm, or partake in the activity that would violate it. This was asked through a quantitative “yes/no” question, and was followed by a qualitative open-ended “why” question in order to gain more insight into the respondent’s reasoning. Then, the participants were asked through a five-point Likert scale how good or bad it would be to partake in that given activity. The participants were also asked through a closed-ended “yes/no” question whether it would be okay if the individual did do the activity.

Next, participants responded to four-point Likert scale questions, ranging from Strongly Disagree to Strongly Agree, about what they believed the consequences should or should not be for the individual if they did engage in that activity. The four consequences that participants were asked to rate were whether the individual should be: (1) reported to the university, (2) prohibited from leaving their dorm room, (3) barred from campus for the rest of the quarter, (4) called out

on social media. The participants were additionally asked how much of a fine the individual should be fined if they violated the norm, on a scale from 0 to 500 dollars.

Lastly, the survey asked the participants through a closed-ended “yes/no” question whether it would be okay for another student to report that individual to the university if they witnessed them partaking in that activity. As well as a final five-point Likert scale question asking the participant how likely they would be to report this individual to the university if they witnessed them partake in that activity.

All 11 of these questions were attributed to all 12 vignettes. Moreover, the questions were on the same page as the vignette they were attributed to, so that participants were able to look back at the given situation when answering these questions. There was also only 1 vignette presented per page, in order to avoid confusion when answering these questions.

Data Reduction and Analysis

As an operationalization of transmissibility of the virus, we calculated the average likelihood for transmission of the virus for a person who had the virus but was not symptomatic (3 items, Cronbach's alpha: .77). As an operationalization of the severity of the consequences of the virus, we averaged the probability ratings for each of the possible consequences (fever, cough, breathing difficulties, hospitalization, Intensive Care Unit, death, Cronbach's alpha: .85). Since these two composite indices were highly correlated (Pearson's $r = .30$), we standardized and averaged the composite indices to yield an average *virus danger rating*.

Political orientation was translated into a 5-point scale, ranging from 1 (Extremely Liberal) to 5 (Extremely Conservative). Need to Belong items were averaged to yield a single score (Cronbach's Alpha: .83).

Data were analyzed using Generalized Linear Mixed Models (GLMMs) with binomial distribution and logistic link function. Models included random intercepts for participants and fixed effects of virus severity rating, political orientation, need to belong, motive, relation, behavior, and study site. Hypotheses were tested using likelihood ratio tests for model fit and Wald tests for individual coefficients.

Results

Should the protagonist break the norm?

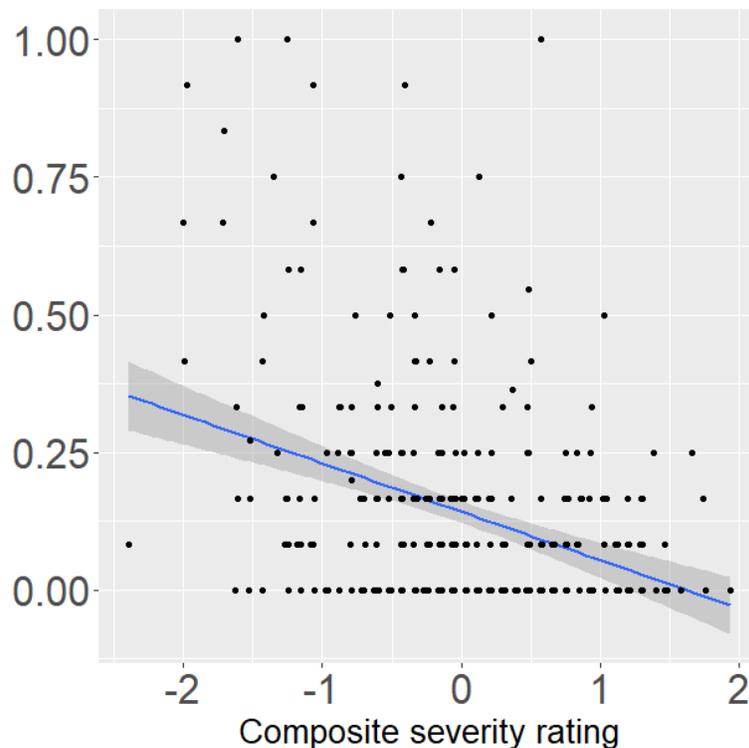
Participants said the protagonist should violate the pro-health norm in only 5% of cases. In judging whether or not the protagonist should break the pro-health norm, there was a significant effect in virus severity rating, $D(1) = 18.75, p < .001$. Participants were more accepting of the protagonist breaking pro-health norms when they believed the consequences of the virus to be less severe than those who believed the consequences of the virus to be more severe.

The effects of behavior were also significant $D(2) = 15.79, p < .001$. Participants were slightly more likely to support the protagonist in violating pro-health norms regarding mask-wearing (6%), rather than violations of gathering (4%) and quarantine (4%). There was also a significant effect in motive, $D(1) = 90.59, p < .001$, with participants indicating slightly more acceptance toward the indifferent protagonist breaking pro-health norms (7%), relative to the conflicted one (2%). There was no significant effect in reflecting whether relation, $D(1) = 0.43, p = .51$, or need to belong, $D(1) = 0.001, p = .97$ played a role in determining participants' acceptance towards the protagonist breaking the pro-health norm.

Was the Norm Violation Okay?

When evaluating whether participants believed the pro-health norm violation to be okay, virus severity rating had a significant effect $D(1) = 37.24, p < .001$, and revealed that participants who believed the consequences of the virus to be more severe were also significantly less approving of pro-health norm violations, compared to those who believed the consequences of the virus to be less severe (Figure 1).

Figure 1. Average Okay Judgments as a Function of Composite Severity Rating

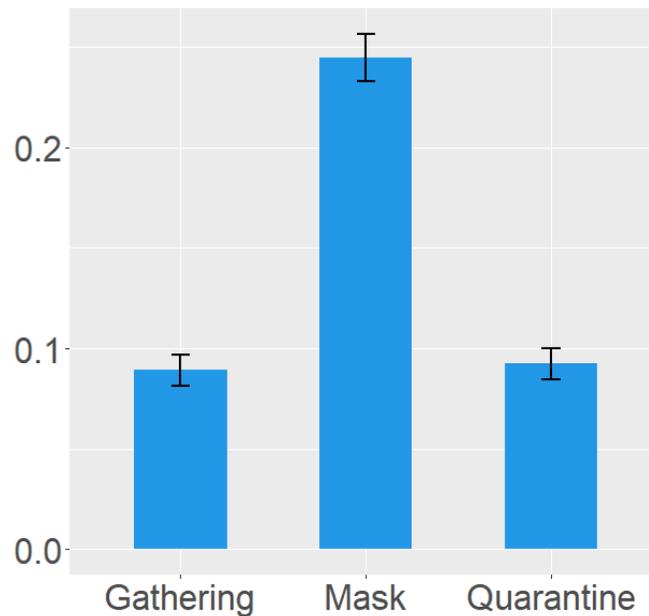


Note. The y-axis represents the average proportion of trials on which each participant said the protagonist's action was okay. The horizontal axis represents each participant's composite severity rating, with higher values indicating greater perceived severity of the coronavirus.

Behavior type also had a significant effect, $D(2) = 235.48, p < .001$, with participants revealing slightly more approval for mask-wearing violations (24%), as opposed to gathering

violations (9%), and quarantine violations (9%, Figure 2). Overall, 14% of participants showed approval for violating pro-health norms.

Figure 2. *Okay Judgments as a Function of Behavior Type*



Note. The y-axis represents the average proportion of trials on which participants said the protagonist's action was okay. Error bars represent one standard error above and below the mean, calculated separately for each condition.

The effect of relation was also significant, $D(1) = 7.98, p < .001$, with participants being slightly more approving of pro-health norm violations committed by a friend (16%), than by a stranger (13%).

There were no significant effects of motive, $D(1) = 1.51, p = .22$, or need to belong $D(1) = 0.52, p = .47$, for predicting acceptance of the pro-health norm violations.

Would this Violation be “Very Bad”?

In determining how “bad” the pro-health norm violation would be, the effects of virus severity rating were significant, $D(1) = 44.93, p < .001$. Participants who believed the

consequences of the virus to be more severe, were significantly more likely to characterize these pro-health norm violations as “very bad”, contrasting heavily to those who believed the consequences of the virus to be less severe.

The results of behavior were also significant, $D(2) = 542.83$, $p < .001$, and this time indicated slightly different results than when judged against our previous variables. While our previous results—in judging if the protagonist should break the pro-health norm, and in judging how acceptable a pro-health norm violation would be—showed that participants perceived quarantine and gathering norms to be of similar importance, results here instead revealed that participants perceived gathering violations to be significantly worst (70%) than quarantine violations (55%). Consistent with our previous results, participants continued to perceive mask-wearing as less important (35%) than these two others.

Relation, $D(1) = 10.00$, $p = .002$, and motive, $D(1) = 33.70$, $p < .001$, also had significant effects and supported our previous findings. Pro-health norm violations committed by strangers (55%) were judged as slightly worse than those committed by friends (52%). Further, pro-health norm violations committed by conflicted individuals were judged as slightly worse (57%) than those committed by indifferent individuals (50%). There was no significant effect in need to belong, $D(1) = 0.38$, $p = .54$.

Would it be Okay to Report the Behavior?

In judging how acceptable it would be to report pro-health norm violations, the effects of virus severity rating were significant, $D(1) = 21.32$, $p < .001$, and indicated that participants who believed the consequences of the virus to be more severe were significantly more willing to accept reporting these violations, comparatively to those who believed the consequences of the virus to be less severe.

Further, the effects of behavior were also significant $D(2) = 322.11, p < .001$, and remained consistent with our previous findings which judged gathering and quarantine norms to be of similar importance above mask-wearing norms. Results here indicated that participants judged reporting gathering violations (86%) and quarantine violations (86%) as more acceptable than reporting mask-wearing violations (67%).

The effects of motive were significant, $D(1) = 5.80, p = .02$, although they contrasted to our previous findings. While participants previously judged pro-health norm violations slightly harsher when committed by conflicted individuals, participants here instead indicated that they were slightly more accepting of reporting pro-health norm violations committed by indifferent individuals (81%), than in reporting the pro-health norm violations of conflicted individuals (79%). There was no significant effect of relation, $D(1) = 2.22, p = .14$, or need to belong, $D(1) = 3.20, p = .08$.

Would You Report the Behavior?

When asking participants how likely they would be to report the behavior, the effects of virus severity rating were significant, $D(1) = 39.07, p < .001$, and revealed that participants who believed the consequences of the virus to be more severe were significantly more likely to report pro-health norm violations, than those who believed the consequences of the virus to be less severe.

Behavior also had a significant effect in participants' likelihood of reporting, $D(2) = 406.06, p < .001$, with participants indicating that they were slightly more likely to report gathering violations (82%), than quarantine violations (78%). Participants were least likely to report mask-wearing violations (61%). These results were consistent with all our previous findings, which continued to weigh gathering and quarantine violations similarly (if not giving

slightly more importance to gathering violations), and which consistently judged mask-wearing violations as significantly less important than these two others.

The motive of the individual committing the pro-health norm violation also had a significant effect $D(1) = 4.22, p < .001$. Consistent with our findings regarding whether or not it would be acceptable to report, participants indicated that they were slightly more likely to report pro-health norm violations committed by indifferent individuals (75%), than those committed by conflicted individuals (73%).

There was no significant effect of relation, $D(1) = 0.91, p = .35$, or need to belong, $D(1) = 0.27, p = .61$, in determining the likelihood of participants reporting pro-health norm violations.

Discussion

The present study examined the predicting factors and judgments of college students' acceptance and rejection of pro-health norms, as well as their attitudes and judgments towards reporting these violations.

Virus Severity Rating

Virus severity rating was a significant determining factor. In accordance with our hypothesis (Hypothesis 2), participants who perceived the virus' consequences to be more severe, were less accepting overall of pro-health norm violations, and were more willing to report them. More specifically, participants who believed consequences of the virus to be more severe were less accepting of a protagonist breaking pro-health norms, significantly less likely to perceive pro-health norm violations as "okay", and more likely to believe these violations were worst, than participants who perceived the consequences of the virus to be less severe. Our findings are consistent with previous research, which indicated that risk-perception is among the

strongest factors in influencing individuals to adopt COVID-19 pro-health norms (Harper et al., 2020; Wise et al., 2020).

In addition, participants who believed the virus' consequences to be more severe, were also more accepting of reporting these pro-health norm violations, and indicated that they were more likely to report these behaviors themselves, in contrast to participants who believed the virus to be less severe. While previous research has shown that emotional factors (fear of the virus) were stronger predictors than moral views (Harper et al., 2020), it could be that our results reflect emotional reactions stemming from moral judgments (Turiel & Dahl, 2019). If moral reasoning originates in our understanding of welfare, justice, and rights (Turiel, 1983), and individuals are more likely to report violations when they believe the consequences of the virus to be more severe, than the emotional reaction of reporting could be indicative of a more personal and profound issue: the direct violation of this moral reasoning foundation, consequentially leading to more harsh moral judgments, and a stronger willingness to actively fight back against it—represented through a stronger propensity to report.

Behavior: Quarantine, Gathering, and Mask-Wearing

When analyzing the significant effects of behavior, results appeared to consistently reveal a hierarchical organization in participants' judgment. Across all variables, participants indicated higher rejection towards mask-wearing norms, comparative to quarantine and gathering norms. These findings rejected our initial hypothesis (Hypothesis 3), that participants would favor the less socially restrictive norm of mask-wearing, over gathering and quarantine.

In some instances, participants perceived quarantine and gathering norms to be of similar importance, and perceived both to be significantly more important than mask-wearing norms. Participants indicated slightly more acceptance for a protagonist violating the mask-wearing

norm, than for a protagonist violating the gathering or quarantine norm. They also indicated that it was significantly more acceptable to violate the mask-wearing norm, than to violate the gathering or quarantine norms. Lastly, they revealed that it would be most acceptable to report gathering violations and quarantine violations, comparative to mask-wearing violations. In all of these instances, participants perceived quarantine and gathering norms to be of similar importance— and both significantly more important— than mask-wearing norms.

In other instances, participants perceived gathering norms to be more important than quarantine norms, though they continued to perceive mask-wearing norms as significantly less important than these two others. Participants judged gathering violations as significantly worse than quarantine violations. They judged mask-wearing violations as significantly less bad than these two others. This was further reinforced when participants revealed slightly more willingness to report gathering violations, comparative to quarantine violations. They were again least willing to report mask-wearing violations.

Previous literature has demonstrated the ways in which social connection and peer relationships are necessary— particularly in adolescence and emerging adulthood— for maintaining mental health and preventing the development of adverse psychological consequences, such as anxiety and depression (Gyurovski, 2020; Sikali, 2020). These findings from previous research provided support for our initial hypothesis (Hypothesis 3), that college students would act in accordance with favoring social connection over the potential risk of contracting the virus— consequentially prompting them to favor least socially restrictive pro-health norms (mask-wearing) over more socially restricting pro-health norms (quarantine and social distancing). However, findings from this study have provided evidence that the opposite is

true: participants instead favored the most socially restrictive norms, gathering and quarantine, over mask-wearing.

A more recent study performed in March 2020 revealed that 70% of adolescents reported not engaging in social distancing practices (Oosternoff & Palmer, 2020). However, of their 789 participants, only 3.9% were college students, with the rest being 9th to 12th graders (Oosternoff & Palmer, 2020). Conversely, our participants showed a consistently higher preference for social distancing norms above all other pro-health norms, and all of our participants were college-level students. So, while our findings cannot indicate whether or not college students are impacted by the psychological consequences of decreased social connection, we have found that— even if they are— it doesn't influence their judgments on the adoption of socially restrictive pro-health norms. Thus, it could be that our participants— relative to adolescents such as those in the Oosternoff & Palmer (2020) study— are less willing to engage in the risk-taking behaviors inherent to social distancing violations due to the brain maturation and slightly more developed impulse control found in young adults relative to adolescents (Casey, Getz, & Galvan, 2008). The profound contrasts between our results could therefore be indicative of the ways in which age group differences influence the decision-making process.

With that being said, it's probable that our participants developed their judgments instead through the outcome expectations norm moderator, which influences behavior through the perceived consequences of a given behavior (Chung & Rimal, 2016). In other words, our participants might have perceived social distancing and quarantine norms to be of greater importance either because they associated following these norms with particularly positive outcomes, or because they associated their violations with particularly negative outcomes, relative to the violation of mask-wearing norms. Either way, these findings are consistent with

previous research (Chung & Rimal, 2016) and continue to build on theories regarding the role of brain maturation and impulse control in making these decisions (Casey et al., 2008).

On the other hand, it's not evident why our participants developed the judgment that mask-wearing is significantly less important than gathering and quarantine norms. Previous evidence suggested that exposure to media information concerning COVID-19 is a primary component for explaining the profound political divide in judgments concerning the adoption of pro-health norms (Conway et al., 2020; Rothgerber et al., 2020). However, the majority of our participants were left-leaning, and left-wing media sources have continued to emphasize the importance of mask-wearing as crucial and significant for ceasing the spread of COVID-19—contrasting heavily from information shared by right-wing media sources. To further illustrate the ongoing prominence of this fact, a recent study published by the CDC on mask-wearing revealed that mask-mandates were associated with a decrease of up to 1.8% of COVID-19 cases, and a decrease of up to 1.9% of COVID-19 death growth rates, in 100 days after mask-mandate implementations (Guy, Lee, Sunshine, et al., 2021). After publishing these results, left-wing media sources were quick to use this study and its findings to further emphasize the importance of mask-wearing and mask mandates as a way to decrease the number of COVID-19 cases (O'Connor, 2021; Tin, 2021). Conversely, right-wing media sources used this study and its findings to downplay the efficiency of mask wearing (OAN Newsroom, 2021). This trend has been consistent throughout the pandemic, with right-wing media continually using either false data, or misleading rhetoric, in order to downplay the effectiveness of mask-wearing (Cathey, 2020; Reuters, 2020), while left-wing media has continually emphasized the importance of wearing masks (Telford, 2020). So, while we do know that our participants consistently felt that mask-wearing was significantly less important relative to social distancing and quarantine norms,

it's not evident why or how our participants developed this judgment— particularly since it opposes the existing research on the topic.

Nevertheless, our findings— which also revealed consistent preference for social distancing and quarantine norms— suggest that college students are more likely to follow the pro-health norms that are most impactful in reducing the spread of COVID-19. Arguably, mask-wearing in the context of social distancing or quarantine is less crucial than in contexts where individuals are gathering in close proximity. Still, however, the implications of our findings suggests the necessity of reminding college students of the importance in following all three of these pro-health norms. Attempts at social distancing can easily fail— and mask-wearing is an effective practice to further reduce the likelihood of contracting the virus if and when it does.

Motive: Conflicted or Indifferent

When evaluating judgments towards pro-health norm violations, it was found that the motive of the norm transgressor, as indifferent or conflicted, had only a minor role in shaping participants' judgments of the act. For the purpose of this study, we characterized indifferent individuals as individuals who believed the virus to not be threatening. We characterized conflicted individuals as individuals who believed the virus to be threatening, but who were placed in a conflicting situation in which they felt influenced to violate pro-health norms despite their personal beliefs.

Overall, our participants were less accepting of pro-health norm violations, and believed they were worse, when they were committed in situations where the protagonist was aware of the threat of the virus, but placed in a conflicting situation. Comparatively, participants were more accepting of pro-health norm violations, and believed they were less bad, when they were committed in situations where the protagonist was simply indifferent to the overall threat of the

virus. Previous literature on moral judgments and the role of mental states has also demonstrated that individuals who knowingly commit harmful acts are judged more harshly than individuals who commit harmful acts unknowingly (Tsoi & Young, 2018). Thus, it's understandable why our participants felt the violations of conflicted individuals to be worse— since, unlike indifferent individuals, they're well-aware of the virus' threat, and yet still actively choosing to violate these pro-health norms nevertheless.

On the other hand, our participants were slightly more likely to report pro-health norm violations, and slightly more accepting of reporting these violations, when the norm transgressor was indifferent to the threat of the virus— rather than conflicted. It could be that participants perceived the act of reporting as a type of intervention strategy to deter the transgressor from continuing to violate the norm in the future (Pogarsky, 2002). Since our previous findings regarding virus severity ratings have indicated that perceived threat of the virus is one of the most influential factors in determining the adoption of pro-health behaviors, and since indifferent individuals are— by definition— least likely to perceive the virus as threatening, it is possible that our participants believed that reporting their violations could be somewhat effective in deterring this behavior. Furthermore, feelings of guilt and shame can be deterrents to engaging in behaviors that may elicit them (Tibbetts, 2003). Because conflicted individuals are more likely to experience guilt and shame as a result of committing pro-health norm violations, they're less likely to commit more of these violations in the future. Conversely, reporting the violations of indifferent individuals could be perceived as potentially effective in deterring their behavior because of the shame it may elicit. Lastly, it is also probable that our participants believed indifferent individuals to be more likely to reoffend than conflicted individuals— who are by

definition already hesitant in their decision-making process— thus rendering greater reason to report the violations of indifferent individuals instead.

Overall, our findings showed that participants were still typically critical of these pro-health norm violations, regardless of whether they were committed by indifferent or conflicted individuals, and many of the differences differentiating these two motives were only slight. Moreover, it should be mentioned that there was no significant effect in whether or not the pro-health norm violation was okay ($D(1) = 1.51, p = .22$).

Relationship: Friend versus Stranger

Participants judged pro-health norm violations slightly harsher when they were committed by a stranger, rather than when they were committed by a friend. They also judged pro-health norm violations as slightly more acceptable when committed through interactions with a friend, rather than with a stranger. These findings suggest that our participants became more passive, and less willing to confront these violations, because they were committed by friends. This is consistent with previous literature reflecting the existence of conflict-avoidant behaviors within the in-group (Dahl & Killen, 2018). It also reinforces the existence and significance of perceived in-group versus out-group in influencing behavior (Chung & Rimal, 2016).

Our findings are in accordance with our initial hypothesis (Hypothesis 1), that participants would be more accepting of pro-health norm violations when the norm transgressor is a friend rather than a stranger. Our initial hypothesis (Hypothesis 1) also indicated that participants would be more likely to report norm transgressors in instances where this was a stranger. Because I did not find any significant effects in judgment towards reporting, or likelihood of reporting, I was unable to accept or reject this part of the hypothesis.

Overall, these findings suggest that the virus has a slightly higher likelihood of spreading across friend groups, before traversing to out-groups. The trouble with this notion is that most individuals typically have friends in more than one group. If individuals perceive these violations to be more acceptable when interacting with a friend, then that could allow the virus to spread to larger portions of the population. The more individuals that agree and adopt this notion, the more this will allow the virus to spread. For this purpose, it's particularly important that college students, as well as others, understand that the implications of pro-health norm violations can be equally detrimental regardless of what portions of the population they're practiced in.

With that being said, the effects of relation were rather minimal, especially in contrast to the differences evaluated in perception of the threat of the virus, and judgment towards specific pro-health norms. While this doesn't diminish the importance of understanding how relation can play a role in the continuation of COVID-19, it does suggest that other factors might be having a stronger impact.

Need to Belong

This study revealed no significant effects of need to belong on students' views about pro-health norms and their violations. The lack of relation between need to belong scores and judgments may reflect that students distinguished what they wanted personally from what someone *ought* to do (Turiel & Dahl, 2019). That is, it remains possible that individuals with a strong need to belong would be highly motivated to violate quarantine or other pro-health norms, even if they were no more likely to judge such violations acceptable. These potential motivational conflicts could be explored in future research.

Limitations and Future Directions

While the present study revealed psychological predictors of the rejection and acceptance of pro-health norms, more research should be done to evaluate why participants felt mask-wearing was significantly less important in comparison to social distancing and quarantine norms. Previous studies investigating these topics have not explicitly demonstrated preferences for certain COVID-19 pro-health norms over others, or have evaluated why that distinction might be. Existing research on the adoption, or lack thereof, of pro-health norms has typically evaluated social distancing specifically, and has characterized this distinction by political orientation (Barrios & Hochberg, 2020; Clinton et al., 2020; Rothgerber, et al., 2020). However, this explanation was not suitable for our own findings.

Moreover, further research should also be done on the role of peer groups in influencing the acceptance or rejection of these pro-health norms, as well as its role in influencing the likelihood of reporting these violations. While I was unable to find any significant effects, it's possible that a different approach might be needed to evaluate the entirety of its influence. Given the known implications of peer group influence on shaping behaviors in adolescents and young adults, this information could be particularly useful in further understanding college students' behaviors regarding pro-health norms.

Lastly, longitudinal studies could be particularly advantageous in continuing to substantiate these findings. A first longitudinal study evaluating shifts in responses to these questions, and comparing them to actual COVID-19 cases per campus, could help inform further research in identifying the degree to which these different judgments are impactful in increasing or decreasing the spread of COVID-19. A second longitudinal study, tracking the responses of the same participants throughout time, could also be effective for identifying how individuals might shift in their responses towards the adoption or rejection of these pro-health norms.

Admittedly, our study evaluated the factors that influence college students' propensity to accept or reject these norms— however, it is equally important that individuals maintain these practices through time. Hence, it could be useful to evaluate how commitment to these norms might shift through time as well. Because much during the pandemic has become unpredictable and uncontrollable, it could be useful to look inwards at the independent factors we can control: such as evaluating how a more strict adherence to pro-health norms can lead to either ingraining long-term habits that will become natural with time— or, on the contrary— a “burnout”. Research examining the processes that lead to either of these outcomes can be useful for gaining a perspective on the factors that influence the maintenance of pro-health norms in the long-term. Additionally, they can further supplement and explain our own findings on the initial processes that influence the adoption of these norms.

In conclusion, the present study offers evidence that college students are most likely to reject and report violations when they believe the virus to be particularly threatening, and when these violations are regarding social distancing or quarantine violations, compared to mask-wearing violations. Other factors— including motive, relation, and need to belong— were not as influential in determining college students' judgments. Thus, to ensure the safe reopening of college campuses across the United States, it is important to continue raising awareness about the dangers of COVID-19, and the risks associated with contracting this virus by violating pro-health norms. College students should be reminded that mask-wearing is an effective means of stemming the pandemic, and can serve to protect them in situations where others might violate social distancing or quarantine regulations. In sum, this study suggests that taking these steps may not only influence college students to engage in safer behaviors themselves, but also render them more willing to report violations of these unsafe practices when they do take place.

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Appendix

Table 1. *Vignettes and Encoding Processes*

Variable		Vignette	Motive	Act
Relation	Friend	Blake is a college student. Blake's best friend is organizing a large party at the beginning of the year with lots of people.	Blake feels conflicted because they know COVID is dangerous.	Go to the party
Behavior	Distancing			
Motive	Conflicted			
Relation	Stranger	Riley is a college student. When visiting one of the Facebook pages of their university, Riley notices that a large party is being organized by a group of people they don't know.	Riley feels conflicted because they know COVID is dangerous	Go to the party
Behavior	Distancing			
Motive	Conflicted			
Relation	Friend	Sam is walking with friends across campus. Sam's friends all take off their masks as they walk and talk about their summers. Sam hasn't seen them in months, and doesn't know if they've been cautious about COVID.	Sam knows that the virus is dangerous	Take their mask off
Behavior	Mask			
Motive	Conflicted			
Relation	Stranger	Alex is walking across campus. As Alex continues their walk, they notice that they're the only one wearing a mask. Alex doesn't know any of the other students they see, or if they've been cautious about COVID.	Alex knows that the virus is dangerous.	Take their mask off
Behavior	Mask			
Motive	Conflicted			
Relation	Friend	Casey just moved back into the on-campus dorms after the summer, and is required by	Casey wants to see their friends, but is afraid of the potential	Break quarantine

Behavior	Quarantine	the school to stay in quarantine for 14 days before returning to regular habits. Casey's friends are going out and ask Casey if they want to come.	risk of getting exposed to the virus or unknowingly passing it to their friends.	
Motive	Conflicted			
Relation	Stranger	Remi just moved back into the on-campus dorms after the summer, and is required by the school to stay in quarantine for 14 days before returning to regular habits. A group of new students living on Remi's floor are going out and ask Remi if they want to come.	Remi wants to make new friends, but is afraid of the potential risk of getting exposed to the virus or unknowingly passing it to them.	Break quarantine
Behavior	Quarantine			
Motive	Conflicted			
Relation	Friend	Ari is a college student. Ari's best friend is organizing a large party at the beginning of the year with lots of people.	Ari isn't worried about COVID and believes the virus is being overblown by the media.	Go to the party
Behavior	Distancing			
Motive	Indifferent			
Relation	Stranger	August is a college student. When visiting one of the Facebook pages of their university, August notices that a large party is being organized by a group of people they don't know.	August isn't worried about COVID and believes the threat is being overblown by the media.	Go to the party
Behavior	Distancing			
Motive	Indifferent			
Relation	Friend	Drew is walking with friends across campus. Drew's friends all take off their masks as they walk and talk about their summers. Drew hasn't seen them in months, and doesn't know if they've been cautious about COVID.	Drew isn't worried about COVID and believes the virus is being overblown by the media.	Take their mask off
Behavior	Mask			
Motive	Indifferent			

Relation	Stranger	Charlie is walking across campus. As Charlie continues their walk, they notice that they're the only one wearing a mask. Charlie doesn't know any of the other students they see, or if they've been cautious about COVID.	Charlie isn't worried about COVID and believes the virus is being overblown by the media.	Take their mask off
Behavior	Mask			
Motive	Indifferent			
Relation	Friend	Taylor just moved back into the on-campus dorms after the summer, and is required by the school to stay in quarantine for 14 days before returning to regular habits. Taylor's best friend asks if Taylor wants to hang out.	Taylor wants to see their friend, and doesn't believe the virus is dangerous, even if either of them do have it.	Break quarantine
Behavior	Quarantine			
Motive	Indifferent			
Relation	Stranger	Loren just moved back into the on-campus dorms after the summer, and is required by the school to stay in quarantine for 14 days before returning to regular habits. A group of new students living on Loren's floor are going out and ask Loren if they want to come.	Loren wants to make new friends, and doesn't believe the virus is dangerous, even if either of them do have it.	Break quarantine
Behavior	Quarantine			
Motive	Indifferent			