Research Article

Moral and Ethical Orientations and Responses to Nonpharmaceutical Public Health Recommendations in the Early COVID-19 Pandemic

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During the early COVID-19 pandemic, citizens of the United States were asked to comply with strict nonpharmaceutical public health recommendations to stop the spread of the virus. As the response evolved, resistance to these recommendations began to emerge along moral and ethical lines. While a growing body of post-pandemic research examines moral associations with public health compliance, no studies have examined the ethical orientations that existed prior to large-scale politicization of the pandemic response. This study is a cross-sectional secondary analysis of a convenience sample (N=110) collected in March 2020, before mask mandates and widespread political polarization of the public health response. Participants completed Forsyth's[1] Ethics Position Questionnaire and indicated agreement or disagreement with six nonpharmaceutical public health recommendations. Analysis was triangulated using Pearson's correlation, independent samples t-test, and one-way ANOVA. Findings reveal a "Golden Hour" of broad consensus with collective public health recommendations during the early pandemic, with no statistically significant differences across Forsyth's[1] four ethical taxonomies. Exploratory trends that did not survive Bonferroni correction suggest an association between idealism and disagreement with the recommendation that senior citizens stay home, and between relativism and agreement that those with serious underlying health conditions should stay home. These findings suggest that collective public health recommendations can achieve high levels of compliance through uniform messaging; however, targeted, individualized recommendations require ethically segmented communication strategies. The Ethical Activation Messaging Model (EAMM) is proposed as a theoretical framework to guide future research and public health communication practice.

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Introduction

This paper evaluates the influence ethical orientations have on the response to nonpharmaceutical interventions in the early COVID-19 pandemic, specifically focusing on March 2020. In the early pandemic, some segments of the population immediately began to express resistance to the nonpharmaceutical public health interventions, which included avoiding large gatherings, sheltering in place, closing schools, closing restaurants, and asking those who are senior citizens and with underlying health conditions to quarantine[2]. The resistance was often centered around concerns about individual liberty versus concerns for the well-being of the community as a whole[3]. While there is a large body of research post-COVID that evaluates the numerous moral, behavioral, communal, and psychological influences that drive adherence to public health recommendations, there are few studies that evaluate the role that ethical frameworks play in determining adherence to public health recommendations[4].

This is particularly true for data collected in the early pandemic, March 2020. The data collected and analyzed in 2020 revealed preliminary directional trends suggesting a possible association between ethical orientation and public health compliance[5]. Since this time, numerous studies have explored the moral underpinnings of public health compliance, with some examining the role of moral identity and morality-as-cooperation in predicting support for public health behaviors and policies[6]. The data set from March 2020 shows a unique glimpse into the moral underpinning of 110 individuals' immediate reactions to the unprecedented crisis and response at a time so early that there was limited politicization of public health measures, offering a less confounded perspective on the intrinsic ethical considerations driving individual responses, prior to large scale moral and political framing that emerged as the pandemic response effort evolved[7][8]. This early ethical baseline is particularly relevant when considering the current public health challenges, which include an ever-expanding measles outbreak and consternation regarding the safety of the MMR vaccine[9]. Understanding the foundational moral and ethical orientations that influenced initial responses to public health directives, prior to extensive media polarization, provides critical insight into enduring public health communication challenges[10].

Literature Review

Forsyth's[1] model of ethical orientations identifies four ethical taxonomies: Absolutist, Situationist, Exceptionist, and Subjectivist. While the Absolutist ethical taxonomy favors rules and espouses high

idealism and low relativism, there is limited evidence supporting a relationship between the Absolutist taxonomy and compliance with public health recommendations during the COVID-19 pandemic[10]. This is a notable finding, particularly as public health messaging campaigns predominantly target the Absolutist ethical orientation by appealing to universal moral principles and duty-based directives[1][11][12]. However, evidence indicates that the Subjectivist ethical taxonomy, which espouses high relativism and low idealism and prioritizes personal autonomy over universal moral rules[13][14], predicts resistance and noncompliance with public health recommendations during the COVID-19 pandemic[10][13].

The Exceptionist taxonomy espouses both low relativism and low idealism[13], reflecting a pragmatic stance that rejects universal ideals in favor of consequentialist exceptions when practical benefits justify deviations from moral rules[1][14]. This aligns with self-interested motivations observed in public health compliance and underscores challenges for messaging strategies increasingly tailored to individual liberties amid ongoing resistance like vaccine hesitancy[10][15]. Notably, despite studies documenting limited effects of the Absolutist taxonomy on compliance[1][10] and resistance predicted by the Subjectivist taxonomy[10][13], there remains a paucity of research on attitudes towards compliance among those espousing the Situationist taxonomy, which features both high idealism and high relativism[1][13][14]. Situationists reject moral absolutes in favor of contextualized, case-by-case decision-making informed by ethical skepticism and situational specifics[1][14], which complicates efforts to predict or uniformly shape their responses to public health messaging. This gap is critical, as failures to account for diverse ethical orientations in public health messaging contributed significantly to noncompliance during the COVID-19 pandemic[16][11], and addressing it could enable tailored strategies that enhance messaging effectiveness and recommendation adherence[14]. Forsyth's[1] taxonomy provides a robust lens through which to analyze the relationships between individual ethical stances and subsequent behaviors concerning communal health recommendations[17]. Specifically, this study will investigate whether Moral Idealism correlates with agreement with public health recommendations protecting vulnerable populations, and conversely, whether Moral Relativism correlates with disagreement regarding communal restrictions.

The Centers for Disease Control and Prevention (CDC) has long faced challenges in effectively communicating public health interventions to diverse audiences whose moral decisions, shaped by political views, education, region, race/ethnicity, age, personal values, and ethical ideologies[18][1][11], profoundly influence compliance[10][11]. Interestingly, post-COVID-19, the CDC's messaging strategies focus on reframing communications to address specific socio-cultural contexts, while simultaneously failing to

leverage an understanding of underlying ethical orientations to develop targeted messaging campaigns that resonate with individuals holding diverse moral perspectives[18][11]. Historically, public health messaging appeals to the general public, often assuming a unified moral framework[11]. However, during the COVID-19 pandemic, a moral split emerged that began to influence the willingness of some members of society to not only adopt nonpharmaceutical interventions but also to adopt pharmaceutical interventions[19][20][21]. This moral fragmentation underscores the need to examine the role of individual ethical orientations, rather than socio-cultural context alone, in shaping public health compliance, particularly during the critical early period before politicization obscured intrinsic ethical drivers[10][11].

Textbook public health training encourages students to use a method that embraces the evaluation of beliefs, attitudes, and values that limit the adoption of public health system recommendations[22]. By nature, the public health system relies on a duty-based approach towards rules-based messaging that appeals to deontological orientations like Forsyth's[1] Absolutist orientation[23][12]. However, Forsyth[1] also identifies the Subjectivist, Exceptionist, and Situationist orientations that are teleological and more relativistic in their approach. The emergent and sudden nature of the pandemic created an inability to apply respected guidelines regarding the consideration of values and beliefs in messaging[24]. Irrespective of the cause, it is clear that the end result was an erosion of trust that significantly influenced efforts to stop the spread of the virus[24]. In a post-mortem of the COVID-19 response, many researchers point to the need for future messaging strategies that take moral stances and ethical orientations into account in order to preserve trust and gain compliance from those who are historically noncompliant[25][19][10][11][8][20][26][3][17]. The present study contributes to this post-mortem by examining ethical orientation data collected at the earliest moment of the pandemic response, prior to the politicization that complicated later compliance research.

The lessons learned during COVID-19 provide critical insight and renewed capability to address the resurgence of measles in the United States through widespread adoption of the MMR vaccination[27]. Although the cost to address measles cases varies by county depending on their medical infrastructure, it is estimated that the average cost to treat measles cases is $104,629 per case, and vaccination rates are declining by 1% per year, leading to a projected surge of 17,232 cases per year[9]. It is difficult to ascertain the actual number of measles cases or vaccination rates, as the CDC has made significant changes to both reporting and vaccination schedules[28][29]. It is clear, however, that the United States is at risk of losing its measles elimination status as the rates of the population that remains unvaccinated for measles continue to rise alongside active cases[30]. To maintain herd immunity, vaccination for a highly contagious disease

like measles must remain above 95%[30]. However, by estimation, the US may be well below the rate required to sustain herd immunity[9]. Antivaccination sentiment began to rise during the COVID-19 pandemic, with some research pointing to the rise of politically motivated misinformation as an impetus for increased measles unvaccination rates[31][15]. Moral communication strategies in public health messaging are necessary to overcome both the present measles resurgence and the emerging public health challenges that lie ahead[32][33]. Understanding how ethical orientations shaped early pandemic compliance provides a foundational framework for developing the targeted moral communication strategies needed to address both the current measles crisis and future public health emergencies.

This research study will evaluate the following questions using a unique data set from March 2020:

- RQ1: Is there a statistically significant relationship between moral idealism and agreement with public health recommendations (Pearson's correlation)?
- H_1: Higher levels of moral idealism will correlate with higher levels of agreement with public health recommendations ($r \neq 0$).
- H_0: Higher levels of moral idealism will not correlate with higher levels of agreement with public health recommendations ($r = 0$).
- RQ2: Is there a statistically significant relationship between moral relativism and disagreement with public health recommendations (Pearson's correlation)?
- H_1: Higher levels of moral relativism will correlate with higher levels of disagreement with public health recommendations ($r \neq 0$).
- H_0: Higher levels of moral relativism will not correlate with higher levels of disagreement with public health recommendations ($r = 0$).
- RQ3: Do significant differences exist between responses to public health recommendations based on levels of moral relativism and moral idealism (Independent T-Test)?
- H_1: Individuals who agree with public health recommendations will demonstrate significantly different levels of moral relativism and moral idealism than those who disagree with public health recommendations ($\mu_1 \neq \mu_2$).
- H_0: There is no significant difference between levels of moral idealism and moral relativism for those who agree and disagree with public health recommendations ($\mu_1 = \mu_2$).
- RQ4: Do significant differences in compliance with public health recommendations exist across Forsyth's[1] ethical taxonomies (absolutist, subjectivist, situationist, and exceptionist) (ANOVA)?

- H_1: The absolutist ethical taxonomy is associated with higher levels of agreement with public health recommendations than subjectivist, situationist, and exceptionist ethical taxonomies (at least one μ differs).
- H_0: The absolutist ethical taxonomy is not associated with higher levels of agreement with public health recommendations than subjectivist, situationist, and exceptionist ethical taxonomies ($\mu_1 = \mu_2 = \mu_3 = \mu_4$).

Methodology

This study is a cross-sectional, secondary analysis of data collected via a convenience sample through a survey distributed online early in the COVID-19 pandemic prior to mask or vaccination recommendations. This builds on a previous study published via preprint by Griffin[5] with a more robust analysis including triangulation using Pearson's correlation, independent samples *t*-test, and ANOVA. As this study constitutes a secondary analysis of anonymized data collected voluntarily with informed consent by an independent researcher unaffiliated with an institution, formal IRB oversight was not applicable. Data collection and handling were consistent with the ethical principles of the Belmont Report, including respect for persons, voluntary participation, and anonymization of all responses.

The survey was distributed via social media and professional networks, targeting adults in the United States. There were 115 respondents to the initial survey, but five outliers were identified and removed from the dataset. One outlier was removed based on the date of the response. Responses were collected between March 19, 2020 and March 28, 2020. One response was received on April 18, 2020, after mask recommendations were introduced, and much of the political dialogue surrounding the virus and the response began. Therefore, it was removed, as well as two outliers for idealism and two outliers for relativism. The interquartile range method was used to identify two idealistic responses that fell below 26.5 on the EPQ idealism scale and two relativistic responses that were the minimum possible response score. Minimum possible relativism scores were removed as they were determined to reflect respondent non-engagement with the instrument rather than a genuine ethical orientation. While this decision involves interpretive judgment, minimum possible scores on a 9-point Likert scale are consistent with established criteria for identifying non-engaged respondents.

As a result, 110 valid responses were used for data analysis. These responses represent 80% female and 20% male. Of the 110 respondents, 10% identified as 21-29 years old, 22.7% identified as 30-39 years old, 30% identified as 40-49 years old, 19.1% identified as 50-59 years old, and 18.1% identified as over 60 years

old. The respondents also include 4.5% people identified as American Indian or Alaskan Native, 8.2% identified as Asian, 40% identified as Black or African American, 2.7% identified as from multiple races, 5.4% identified as Hispanic or Latino, and 39.1% identified as white. Respondents were also asked to provide their educational level as descriptive data. Within the group, 4.5% have an associate's degree, 19.1% have a bachelor's degree, 63.6% have a graduate degree, 1.8% have a high school diploma or equivalent, .9% have less than a high school diploma, and 10% have some college but no degree. For employment status, 4.5% identified as disabled, 16.4% identified as employed and working 1-39 hours per week, 59.1% identified as employed working 40 or more hours per week, 2.7% identified as employed and looking for work, 4.5% identified as not employed, not looking for work, and 12.7% identified as retired.

Each of the respondents was given informed consent and asked to complete a Google Form anonymously, which included Forsyth's[1] 20-question Ethics Position Questionnaire. This questionnaire includes 10 items rated on a 9-point scale to measure idealism and 10 items rated on a 9-point scale to measure relativism. Cronbach's alpha was used to rate the level of internal consistency for idealism (α=.890) and relativism (α=.812). The questionnaire also asked respondents to provide answers to the 5 previously discussed demographic questions and respond agree or disagree to six non-pharmaceutical public health recommendations used during the early COVID-19 pandemic. These public health recommendations include: 1.) Gatherings of 10 or more people should be restricted. 2.) Restaurants and bars should be closed. 3.) Schools should be closed. 4.) Citizens should shelter in place. 5.) Older citizens should stay home and away from other people. 6.) Citizens with a serious underlying health condition should stay home and away from other people.

Individual demographic variables (Age, Gender, Race, Education, and Employment) and COVID-19 restriction items were originally collected as string variables. These were transformed into a numeric format using Automatic Recoding in SPSS. For the restriction items, a binary dummy-coding scheme was applied (Agree = 1, Disagree = 2) to allow for the calculation of an aggregate support index. This index was used to calculate an overall compliance score by summing responses across all six recommendations for each participant. Lower aggregate scores indicate greater overall compliance, as Agree was coded as 1 and Disagree as 2.

To measure ethical orientation, ten items each for Idealism and Relativism from the Ethics Position Questionnaire (EPQ) were aggregated. Composite scores were calculated by summing all ten items for each scale, yielding a possible range of 10 to 90. Participants were categorized into ethical quadrants by

dichotomizing composite sum scores at the theoretical midpoint of 50, consistent with Forsyth's[1] taxonomy.

To address the research questions, a multi-stage analytical approach was employed. Before analysis, assumptions of normality and homogeneity of variance were assessed using Levene's test for equality of variances. First, bivariate Pearson correlations (*r*) were calculated to examine the linear relationships between the sum of ethical orientation scores and individual public health recommendations variables. Second, independent samples t-tests were conducted to compare the mean levels of Idealism and Relativism between participants who "Agreed" and "Disagreed" with specific recommendations. Finally, a one-way Analysis of Variance (ANOVA) was utilized to determine if significant differences in overall policy consensus existed across Forsyth's[1] four ethical taxonomies. To assess the practical significance and strength of these associations, Eta-squared (η^2) effect sizes were calculated for all group comparisons. This comprehensive approach allowed for the evaluation of both individual ethical drivers and the overarching unified moral framework present during the early pandemic period.

Results

The final sample included *N*=110 participants. As shown in Table 1, mean scores for public health recommendation responses cluster near the Agree value (1). The following results address each research question in sequence:

Item	*N*	Min	Max	*M*	SD
Gatherings of 10 or more people should be restricted	110	1	2	1.15	.354
Restaurants and bars should be closed	110	1	2	1.21	.409
Schools should be closed	110	1	2	1.10	.301
Citizens should shelter in place	110	1	2	1.16	.372
Older citizens should stay home and away from other people	110	1	2	1.08	.275
Citizens with serious underlying health conditions should stay home and away from other people	110	1	2	1.03	.164

Table 1. *Descriptive Statistics for Public Health Recommendation Responses*

Note. Responses coded as Agree = 1, Disagree = 2. Lower means indicate greater overall compliance.

RQ1: Idealism and Agreement with Public Health Recommendations

A bivariate Pearson correlation study was performed to examine the relationships between moral idealism and overall agreement with public health recommendations. As shown in Table 2, there is no statistically significant relationship between idealism and agreement with public health recommendations (r=.027 and p=.783). These results indicate that idealism provided negligible predictive power for determining adherence to public health recommendations overall.

Variable	Statistic	Idealism	Relativism	COVID-19 Totals
Idealism	Pearson *r*	1	.031	.027
	Sig. (2-tailed) *p*	—	.748	.783
	N	110	110	110
Relativism	Pearson *r*	.031	1	-.009
	Sig. (2-tailed) *p*	.748	—	.922
	N	110	110	110
COVID-19 Totals	Pearson *r*	.027	-.009	1
	Sig. (2-tailed) *p*	.783	.922	—
	N	110	110	110

Table 2. *Overall Pearson Correlation Matrix: Idealism, Relativism, and Aggregate COVID-19 Public Health Compliance*

Note. COVID-19 Totals reflects the aggregate compliance score calculated by summing binary responses across all six public health recommendations (Agree = 1, Disagree = 2). Lower scores indicate greater overall compliance. None of the correlations reached statistical significance at $p < .05$.

To further examine the nature of these relationships, a bivariate Pearson correlation study was performed for each of the six public health recommendations evaluated in this study. As indicated in Table 3, there is no statistically significant relationship between idealism and agreement with the recommendation that

gatherings of 10 or more be restricted (r=.041 and p=.674), restaurants and bars be closed (r=.003 and p=.975), schools be closed (r=-.091 and p=.346), citizens shelter in place (r=.027 and p=.782), and citizens with underlying health conditions stay home and away from other people (r=-.146 and p=.129). However, there is a significant positive correlation between idealism and the public health recommendation that senior citizens stay home and away from others (r=.220 and p=.021), indicating that as idealism increased, disagreement with this recommendation also increased (note: given the binary coding scheme in which Agree=1 and Disagree=2, a positive correlation reflects a directional shift toward disagreement). These results largely support H_0. The significant positive correlation between idealism and the senior citizens' recommendation was in the opposite direction from H_1, with higher idealism associated with increased disagreement rather than agreement. This finding should be interpreted as exploratory, given the multiple comparisons conducted and the absence of Bonferroni correction.

Recommendation	Idealism *r*	Idealism *p*	Relativism *r*	Relativism *p*
Gatherings of 10 or more should be restricted	.041	.674	.064	.506
Restaurants and bars should be closed	.003	.975	.006	.947
Schools should be closed	-.091	.346	-.024	.806
Citizens should shelter in place	.027	.782	-.033	.731
Older citizens should stay home	.220*	.021	-.004	.964
Citizens with serious underlying health conditions should stay home	-.146	.129	-.192*	.044

Table 3. *Pearson Correlations Between Ethical Orientations and Individual Public Health Recommendations*

*Note. N = 110. * p < .05 (two-tailed). Values reflect point-biserial correlations between continuous ethical orientation scores and binary recommendation responses (Agree = 1, Disagree = 2). Due to the binary coding scheme (Agree = 1, Disagree = 2), a positive correlation indicates a directional shift toward disagreement, and a negative correlation indicates a directional shift toward agreement.*

RQ2: Relativism and Agreement with Public Health Recommendations

A bivariate Pearson correlation study was performed to examine the relationships between moral relativism and overall agreement with public health recommendations. As shown in Table 2, there is no statistically significant relationship between relativism and agreement with public health recommendations (r=-.009 and p=.922). These results indicate that relativism provided negligible predictive power for determining adherence to public health recommendations overall.

To further examine the nature of these relationships, a bivariate Pearson correlation study was performed for each of the six public health recommendations evaluated in this study. As indicated in Table 3, there is no statistically significant relationship between relativism and agreement with the recommendation that gatherings of 10 or more be restricted (r=.064 and p=.506), restaurants and bars be closed (r=.006 and p=.947), schools be closed (r=-.024 and p=.806), citizens shelter in place (r=-.033 and p=.731), and senior citizens stay home and away from other people (r=-.004 and p=.964). However, there is a significant negative correlation between relativism and the public health recommendation that those with underlying health conditions stay home and away from others (r=-.192 and p=.044), indicating that as relativism increased, agreement with this public health recommendation increased (note: given the binary coding scheme in which Agree=1 and Disagree=2, a negative correlation reflects a directional shift toward agreement). These results largely support H_0. The significant negative correlation between relativism and the underlying health conditions recommendation warrants cautious interpretation given the multiple comparisons conducted and the small number of disagreement-group participants for this recommendation.

RQ3: Differences in Responses to Public Health Recommendations Based on Moral Relativism and Moral Idealism

An independent samples t-test was conducted to examine the differences that may have existed in mean levels of moral idealism and relativism between participants who "Agreed" and "Disagreed" with each of the six public health recommendations. The results are as follows:

In Tables 4, 5, and 6, the independent samples t-test reveals effect sizes are negligible for both idealism (Hedges' g = -.113, 95% CI [-.639, .414]) and relativism (Hedges' g = -.179, 95% CI [-.706, .348]) in relation to the public health recommendation to restrict gatherings of more than 10, both of which cross zero and indicate no statistically significant difference.

In Tables 7, 8, and 9, the independent samples *t*-test reveals effect sizes are negligible for both idealism (Hedges' g = -.007, 95% CI [-.464, .449]) and relativism (Hedges' g = -.016, 95% CI [-.472, .441]) in relation to the public health recommendation to close restaurants and bars, both of which cross zero and indicate no statistically significant difference.

In Tables 10, 11, and 12, the independent samples *t*-test reveals effect sizes are negligible for both idealism (Hedges' g = .299, 95% CI [-.322, .918]) and relativism (Hedges' g = -.078, 95% CI [-.696, .541]) in relation to the public health recommendation to close schools, both of which cross zero and indicate no statistically significant difference.

In Tables 13, 14, and 15, the independent samples *t*-test reveals effect sizes are negligible for both idealism (Hedges' g = -.071, 95% CI [-.573, .431]) and relativism (Hedges' g = .088, 95% CI [-.414, .590]) in relation to the public health recommendation to shelter in place, both of which cross zero and indicate no statistically significant difference.

In Tables 16, 17, and 18, the independent samples *t*-test reveals that there is a statistically significant difference in idealism (Hedges' g = -.811, 95% CI [-1.495, -.123]) between those who agree and those who disagree with the public health recommendation that older citizens stay home and away from others. The *t*-test revealed that those who disagreed with this recommendation reported a higher mean idealism (M = 82.11) than those who agreed (M = 69.72). The effect was negligible for relativism (Hedges' g = .015, 95% CI [-.662, .692]) in relation to the public health recommendation, which crosses zero and indicates no statistically significant difference.

In Tables 19, 20, and 21, the independent samples *t*-test reveals that there is a statistically significant difference in relativism (Hedges' g = 1.183, 95% CI [.030, 2.331]) between those who agree and those who disagree with the public health recommendation that citizens with serious underlying health conditions stay home and away from others. The *t*-test revealed that those who agreed with this recommendation reported a higher mean relativism (M = 51.39) than those who disagreed (M = 33). The effect was negligible for idealism (Hedges' g = .889, 95% CI [-.258, 2.033]) in relation to the public health recommendation, which crosses zero and indicates no statistically significant difference. It should be noted that the disagreement group for this recommendation was extremely small, which limits the stability and interpretability of this effect size despite its statistical significance. These results partially support H_1, with statistically significant differences in idealism for the older citizens recommendation and in relativism for the underlying health conditions recommendation, although this did not survive Bonferroni correction. H_0 is supported for the remaining four recommendations.

Variable	Group	*N*	*M*	SD	SE Mean
Idealism	Agree	94	70.4787	15.01306	1.54848
	Disagree	16	72.2500	18.48783	4.62196
Relativism	Agree	94	50.4787	15.78534	1.62813
	Disagree	16	53.3125	15.13371	3.78343

Table 4. *Group Statistics: Idealism and Relativism for the Recommendation to Restrict Gatherings of More Than 10*

Note. Responses coded as Agree = 1, Disagree = 2. M and SD reflect composite sum scores (range 10–90).

Variable	Variance	*F*	Sig.	*t*	df	*p* (2-sided)	Mean Diff.	SE Diff.
Idealism	Equal variances assumed	.343	.559	-.421	108	.674	-1.77128	4.20325
	Equal variances not assumed			-.363	18.519	.720	-1.77128	4.87445
Relativism	Equal variances assumed	1.170	.282	-.668	108	.506	-2.83378	4.24496
	Equal variances not assumed			-.688	20.954	.499	-2.83378	4.11888

Table 5. *Independent Samples Test: Idealism and Relativism for the Recommendation to Restrict Gatherings of More Than 10*

Note. Equal variances assumed row used when Levene's test is non-significant (p > .05). Two-sided p values reported.

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Variable	Standardizer	Standardizer Value	Hedges' *g*	95% CI Lower	95% CI Upper
Idealism	Cohen's d	15.54219	-.114	-.644	.417
	Hedges' correction	15.65118	-.113	-.639	.414
	Glass's delta	18.48783	-.096	-.625	.437
Relativism	Cohen's d	15.69645	-.181	-.711	.350
	Hedges' correction	15.80652	-.179	-.706	.348
	Glass's delta	15.13371	-.187	-.718	.350

Table 6. *Independent Samples Effect Sizes: Idealism and Relativism for the Recommendation to Restrict Gatherings of More Than 10*

Note. Hedges' correction is the primary effect size reported in the manuscript. The denominator used in estimating effect sizes: Cohen's d uses the pooled standard deviation; Hedges' correction uses the pooled standard deviation plus a correction factor; Glass's delta uses the standard deviation of the Disagree group. 95% CI values crossing zero indicate no statistically significant difference.

Variable	Group	*N*	*M*	SD	SE Mean
Idealism	Agree	87	70.7126	14.95023	1.60283
	Disagree	23	70.8261	17.72172	3.69523
Relativism	Agree	87	50.8391	15.10496	1.61942
	Disagree	23	51.0870	17.95933	3.74478

Table 7. *Group Statistics: Idealism and Relativism for the Recommendation that Restaurants and Bars Should Be Closed*

Note. Responses coded as Agree = 1, Disagree = 2. M and SD reflect composite sum scores (range 10–90).

Variable	Variance	*F*	Sig.	*t*	df	*p* (2-sided)	Mean Diff.	SE Diff.
Idealism	Equal variances assumed	.255	.614	-.031	108	.975	-.11344	3.64704
	Equal variances not assumed			-.028	30.778	.978	-.11344	4.02788
Relativism	Equal variances assumed	.983	.324	-.067	108	.947	-.24788	3.68773
	Equal variances not assumed			-.061	30.723	.952	-.24788	4.07994

Table 8. *Independent Samples Test: Idealism and Relativism for the Recommendation that Restaurants and Bars Should Be Closed*

Note. Equal variances assumed row used when Levene's test is non-significant (p > .05). Two-sided p values reported.

Variable	Standardizer	Standardizer Value	Hedges' *g*	95% CI Lower	95% CI Upper
Idealism	Cohen's d	15.55490	-.007	-.467	.452
	Hedges' correction	15.66397	-.007	-.464	.449
	Glass's delta	17.72172	-.006	-.466	.453
Relativism	Cohen's d	15.72848	-.016	-.475	.444
	Hedges' correction	15.83876	-.016	-.472	.441
	Glass's delta	17.95933	-.014	-.473	.446

Table 9. *Independent Samples Effect Sizes: Idealism and Relativism for the Recommendation that Restaurants and Bars Should Be Closed*

Note. Hedges' correction is the primary effect size reported in the manuscript. Cohen's d uses the pooled standard deviation; Hedges' correction uses the pooled standard deviation plus a correction factor; Glass's delta uses the standard deviation of the Disagree group. 95% CI values crossing zero indicate no statistically significant difference.

Variable	Group	*N*	*M*	SD	SE Mean
Idealism	Agree	99	71.2020	15.03532	1.51111
	Disagree	11	66.5455	19.39775	5.84864
Relativism	Agree	99	50.7677	15.29628	1.53733
	Disagree	11	52.0000	19.42679	5.85740

Table 10. *Group Statistics: Idealism and Relativism for the Recommendation that Schools Should Be Closed*

Note. Responses coded as Agree = 1, Disagree = 2. M and SD reflect composite sum scores (range 10–90).

Variable	Variance	*F*	Sig.	*t*	df	*p* (2-sided)	Mean Diff.	SE Diff.
Idealism	Equal variances assumed	.651	.422	.946	108	.346	4.65657	4.92334
	Equal variances not assumed			.771	11.374	.457	4.65657	6.04070
Relativism	Equal variances assumed	.186	.667	-.247	108	.806	-1.23232	4.99754
	Equal variances not assumed			-.203	11.420	.842	-1.23232	6.05578

Table 11. *Independent Samples Test: Idealism and Relativism for the Recommendation that Schools Should Be Closed*

Note. Equal variances assumed row used when Levene's test is non-significant (p > .05). Two-sided p values reported.

Variable	Standardizer	Standardizer Value	Hedges' *g*	95% CI Lower	95% CI Upper
Idealism	Cohen's d	15.49094	.301	-.324	.924
	Hedges' correction	15.59957	.299	-.322	.918
	Glass's delta	19.39775	.240	-.397	.866
Relativism	Cohen's d	15.72438	-.078	-.701	.545
	Hedges' correction	15.83464	-.078	-.696	.541
	Glass's delta	19.42679	-.063	-.685	.562

Table 12. *Independent Samples Effect Sizes: Idealism and Relativism for the Recommendation that Schools Should Be Closed*

Note. Hedges' correction is the primary effect size reported in the manuscript. Cohen's d uses the pooled standard deviation; Hedges' correction uses the pooled standard deviation plus a correction factor; Glass's delta uses the standard deviation of the Disagree group. 95% CI values crossing zero indicate no statistically significant difference.

Variable	Group	*N*	*M*	SD	SE Mean
Idealism	Agree	92	70.5543	15.21521	1.58629
	Disagree	18	71.6667	17.22857	4.06081
Relativism	Agree	92	51.1196	15.25090	1.59002
	Disagree	18	49.7222	18.02549	4.24865

Table 13. *Group Statistics: Idealism and Relativism for the Recommendation that Citizens Should Shelter in Place*

Note. Responses coded as Agree = 1, Disagree = 2. M and SD reflect composite sum scores (range 10–90).

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Variable	Variance	*F*	Sig.	*t*	df	*p* (2-sided)	Mean Diff.	SE Diff.
Idealism	Equal variances assumed	.027	.869	-.278	108	.782	-1.11232	4.00756
	Equal variances not assumed			-.255	22.486	.801	-1.11232	4.35965
Relativism	Equal variances assumed	.018	.892	.345	108	.731	1.39734	4.05157
	Equal variances not assumed			.308	22.015	.761	1.39734	4.53643

Table 14. *Independent Samples Test: Idealism and Relativism for the Recommendation that Citizens Should Shelter in Place*

Note. Equal variances assumed row used when Levene's test is non-significant (p > .05). Two-sided p values reported.

Variable	Standardizer	Standardizer Value	Hedges' *g*	95% CI Lower	95% CI Upper
Idealism	Cohen's d	15.54942	-.072	-.577	.434
	Hedges' correction	15.65846	-.071	-.573	.431
	Glass's delta	17.22857	-.065	-.569	.442
Relativism	Cohen's d	15.72015	.089	-.417	.594
	Hedges' correction	15.83038	.088	-.414	.590
	Glass's delta	18.02549	.078	-.429	.582

Table 15. *Independent Samples Effect Sizes: Idealism and Relativism for the Recommendation that Citizens Should Shelter in Place*

Note. Hedges' correction is the primary effect size reported in the manuscript. Cohen's d uses the pooled standard deviation; Hedges' correction uses the pooled standard deviation plus a correction factor; Glass's delta uses the standard deviation of the Disagree group. 95% CI values crossing zero indicate no statistically significant difference.

Variable	Group	*N*	*M*	SD	SE Mean
Idealism	Agree	101	69.7228	15.54549	1.54683
	Disagree	9	82.1111	9.33333	3.11111
Relativism	Agree	101	50.9109	15.19414	1.51187
	Disagree	9	50.6667	21.30728	7.10243

Table 16. *Group Statistics: Idealism and Relativism for the Recommendation that Older Citizens Should Stay Home and Away from Other People*

Note. Responses coded as Agree = 1, Disagree = 2. M and SD reflect composite sum scores (range 10–90). The Disagree group for this recommendation was extremely small (n = 9), which limits the stability of effect size estimates.

Variable	Variance	*F*	Sig.	*t*	df	*p* (2-sided)	Mean Diff.	SE Diff.
Idealism	Equal variances assumed	1.890	.172	-2.347	108	.021	-12.38834	5.27813
	Equal variances not assumed			-3.566	12.384	.004	-12.38834	3.47444
Relativism	Equal variances assumed	1.280	.260	.045	108	.964	.24422	5.47150
	Equal variances not assumed			.034	8.740	.974	.24422	7.26156

Table 17. *Independent Samples Test: Idealism and Relativism for the Recommendation that Older Citizens Should Stay Home and Away from Other People*

Note. Equal variances assumed row used when Levene's test is non-significant (p > .05). Two-sided p values reported. Idealism reached statistical significance (p = .021).

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Variable	Standardizer	Standardizer Value	Hedges' *g*	95% CI Lower	95% CI Upper
Idealism	Cohen's d	15.17281	−.816	−1.505	−.124
	Hedges' correction	15.27920	−.811	−1.495	−.123
	Glass's delta	9.33333	−1.327	−2.241	−.372
Relativism	Cohen's d	15.72866	.016	−.666	.697
	Hedges' correction	15.83895	.015	−.662	.692
	Glass's delta	21.30728	.011	−.671	.693

Table 18. *Independent Samples Effect Sizes: Idealism and Relativism for the Recommendation that Older Citizens Should Stay Home and Away from Other People*

Note. Hedges' correction is the primary effect size reported in the manuscript. Cohen's d uses the pooled standard deviation; Hedges' correction uses the pooled standard deviation plus a correction factor; Glass's delta uses the standard deviation of the Disagree group. The idealism effect size (Hedges' g = −.811) is statistically significant as the 95% CI does not cross zero.

Variable	Group	*N*	*M*	SD	SE Mean
Idealism	Agree	107	71.1121	14.78100	1.42893
	Disagree	3	57.3333	34.77547	20.07763
Relativism	Agree	107	51.3925	15.47655	1.49617
	Disagree	3	33.0000	13.07670	7.54983

Table 19. *Group Statistics: Idealism and Relativism for the Recommendation that Citizens with a Serious Underlying Health Condition Should Stay Home and Away from Other People*

Note. Responses coded as Agree = 1, Disagree = 2. M and SD reflect composite sum scores (range 10–90). The Disagree group for this recommendation was extremely small (n = 3), which substantially limits the stability and interpretability of all effect size estimates.

Variable	Variance	*F*	Sig.	*t*	df	*p* (2-sided)	Mean Diff.	SE Diff.
Idealism	Equal variances assumed	7.438	.007	1.530	108	.129	13.77882	9.00865
	Equal variances not assumed			.685	2.020	.564	13.77882	20.12841
Relativism	Equal variances assumed	.301	.585	2.036	108	.044	18.39252	9.03576
	Equal variances not assumed			2.390	2.160	.130	18.39252	7.69666

Table 20. *Independent Samples Test: Idealism and Relativism for the Recommendation that Citizens with a Serious Underlying Health Condition Should Stay Home and Away from Other People*

Note. Equal variances assumed row used when Levene's test is non-significant (p > .05). Two-sided p values reported. Levene's test was significant for Idealism (p = .007), indicating unequal variances; the equal variances not assumed row should be interpreted with caution given the extremely small Disagree group (n = 3). Relativism reached statistical significance (p = .044).

Variable	Standardizer	Standardizer Value	Hedges' *g*	95% CI Lower	95% CI Upper
Idealism	Cohen's d	15.38919	.895	-.260	2.047
	Hedges' correction	15.49710	.889	-.258	2.033
	Glass's delta	34.77547	.396	-.846	1.559
Relativism	Cohen's d	15.43550	1.192	.031	2.347
	Hedges' correction	15.54374	1.183	.030	2.331
	Glass's delta	13.07670	1.407	-.355	3.071

Table 21. *Independent Samples Effect Sizes: Idealism and Relativism for the Recommendation that Citizens with a Serious Underlying Health Condition Should Stay Home and Away from Other People*

Note. Hedges' correction is the primary effect size reported in the manuscript. Cohen's d uses the pooled standard deviation; Hedges' correction uses the pooled standard deviation plus a correction factor; Glass's delta uses the standard deviation of the Disagree group. The relativism effect size (Hedges' g = 1.183) is statistically significant as

the 95% CI does not cross zero; however, results should be interpreted with caution given the extremely small Disagree group (n = 3).

RQ4: Differences Between Compliance with Public Health Recommendations Based on Ethical Taxonomies

A one-way ANOVA was conducted to examine differences in public health recommendations compliance across the four ethical taxonomy groups (Exceptionist [11.00, *n* = 31], Subjectivist [12.00, *n* = 30], Absolutist [21.00, *n* = 24], and Situationist [22.00, *n* = 25]) identified by Forsyth[1] (values reflect SPSS automatic recode assignments). Table 22 shows no statistically significant differences across any of the six recommendations, with all *p*-values exceeding .05: restrict gatherings of more than 10 ($F(3, 106) = .871$, $p = .459$), close restaurants and bars ($F(3, 106) = .674$, $p = .570$), close schools ($F(3, 106) = .425$, $p = .735$), shelter in place ($F(3, 106) = .144$, $p = .933$), older citizens stay home ($F(3, 106) = 1.834$, $p = .146$), and citizens with serious underlying health conditions stay home ($F(3, 106) = 1.110$, $p = .348$). Five of the six recommendations produced small effect sizes ($\eta^2 = .012–.049$), suggesting a modest practical relationship between ethical taxonomy groups and public health compliance that may warrant further investigation in larger samples. The shelter-in-place recommendations were the only exception, producing a negligible effect ($\eta^2 = .004$). These findings suggest that while ethical taxonomy group membership did not reach statistical significance as a predictor of public health compliance, the presence of small effects across most recommendations indicates this relationship may merit further exploration with larger, more adequately powered samples. These results support H_0, indicating no statistically significant differences in public health compliance across Forsyth's[1] four ethical taxonomies.

Recommendation	*F*	df1	df2	*p*	η^2
Restrict Gatherings of 10 or More	.871	3	106	.459	.012
Close Restaurants and Bars	.674	3	106	.570	.019
Close Schools	.425	3	106	.735	.012
Citizens Should Shelter in Place	.144	3	106	.933	.004
Older Citizens Should Stay Home	1.834	3	106	.146	.049
Citizens with Serious Underlying Health Conditions Should Stay Home	1.110	3	106	.348	.030

Table 22. *One-Way ANOVA: Compliance with Public Health Recommendations Across Ethical Taxonomy Groups*

Note. Ethical taxonomy groups: Exceptionist (n = 31), Subjectivist (n = 30), Absolutist (n = 24), Situationist (n = 25), df1 = between groups, df2 = within groups. η^2 = eta-squared effect size.

Discussion

These results indicate that there was a strong period of consensus around the recommendations that public health systems made in the United States during the early COVID-19 pandemic (March 2020). This could be referenced as the “Golden Hour” of compliance, where the general public responded to a perceived existential threat with large-scale compliance without regard to individual moral belief systems. This is supported by the correlational study, with high agreement means clustering near 1.0, and the lack of statistical difference (p>.05) demonstrated for most measures within the t-tests and ANOVA. This provides significant support for the theory of uniform response in public health messaging that uses a "universal, standardized and proactive approach" to health promotion and disease prevention to replace fragmented, reactive systems[34].

However, there is a notable exception to this. When individualized, targeted recommendations are introduced, moral orientation begins to predict compliance with public health measures. Consistent with exploratory trends in the data, higher idealism was associated with disagreement with the public health recommendation that older citizens should stay home and away from others, and higher relativism was associated with agreement with the public health recommendation that those with serious underlying health conditions should stay home and away from others. The uniform response works for messages that

are targeted to the group as a collective, but a different messaging strategy is needed to communicate targeted recommendations.

In 1984, the United States military found that isolation served as a catalyst for cohesion in military units, which was later found to work by producing a sense of collective efficiency[35]. The same mechanism appears to operate in public health settings. It could be argued that COVID-19 did not involve forced isolation; however, during the time of data collection, participants were effectively isolated due to the closure of public places. When the public perceives a shared existential threat, collective risk perception converges and drives uniform compliance. However, just as unit cohesion dissolves when soldiers return to civilian environments with divergent priorities, the collective identity in response to an emerging public health threat collapses when isolation ceases and divergent opinions emerge. When there is a perceived collective risk, the public complies well with stringent requirements; however, as divergent expert opinions and responses begin to emerge, the collective risk no longer sufficiently produces compliance, and new messaging strategies become necessary[36]. This same phenomenon can be observed in the sample used for this study, and further supports the idea that there appears to be an expiration on the uniform response in public health settings[37]. These findings show that when isolation ceases and the public health recommendations become more targeted, resistance emerges along morally idealistic and relativistic lines. The public health systems in the United States need to fill this void in messaging with messages that are targeted towards individual moral and ethical orientations[38][10]. A failure to recognize this shift and fill this void in messaging leaves room for high politicization to fill the vacuum and drive the future of the response[39][40].

The current measles response relies on uniform responses to encourage vaccination and vigilance[41][42]. Based on the results of this research, public health messages regarding measles should target moral and ethical orientations. For Absolutists, this would be a message that appeals to duty, universal safety, and expert authority. An example would be, “Follow the established medical path to eliminate measles. Vaccination is a universal moral duty to ensure no child suffers from a preventable disease. Trust the decades of proven science that protect our entire nation.” For Situationists, this would be a message that appeals to contextual harm reduction and local impact. An example of this would be, “Protect your specific community. With 1,200 cases reported this year, the risk in our city has changed. Look at the local data: vaccination is the most effective way to prevent a local outbreak and protect the vulnerable children in your neighborhood.″ For Subjectivists, this would be a message that appeals to personal autonomy and individual benefit. An example of this would be, “Make the best choice for your lifestyle. High-quality data

is available so you can weigh the risks and benefits for your own family. Stay informed and take control of your health decisions to keep your life and your family moving forward." For Exceptionists, this would be a m*essage* that appeals to pragmatism and utility. An example of this would be, "Keep our schools and businesses open. While no vaccine is perfect, the MMR is the most practical tool we have to avoid costly quarantines and disruptions. Vaccinate today to ensure your child doesn't miss school and you don't miss work."

Figure 1 presents the Ethical Activation Messaging Model (EAMM), a theoretical framework proposed in response to the findings of this study. The EAMM identifies two distinct phases of public health communication. Phase 1, the Collective Threat Phase, recommends the use of uniform messaging during the acute period of an emerging public health crisis, when collective risk perception converges, and individual ethical orientations are temporarily overridden. This is consistent with the Golden Hour of compliance observed in this study and supported by the high agreement means and lack of statistical difference across most measures. Phase 2 is triggered by the Ethical Activation Point, the moment at which isolation ceases, targeted recommendations emerge, and individual moral orientations re-emerge as drivers of compliance behavior. At this point, uniform messaging becomes insufficient, and public health communicators must pivot to ethically segmented outreach targeting the Absolutist, Situationist, Subjectivist, and Exceptionist orientations identified by Forsyth[1]. The EAMM is a proposed framework that warrants further empirical validation, but offers a practical and theoretically grounded approach to closing the messaging gap before politicization fills the void.

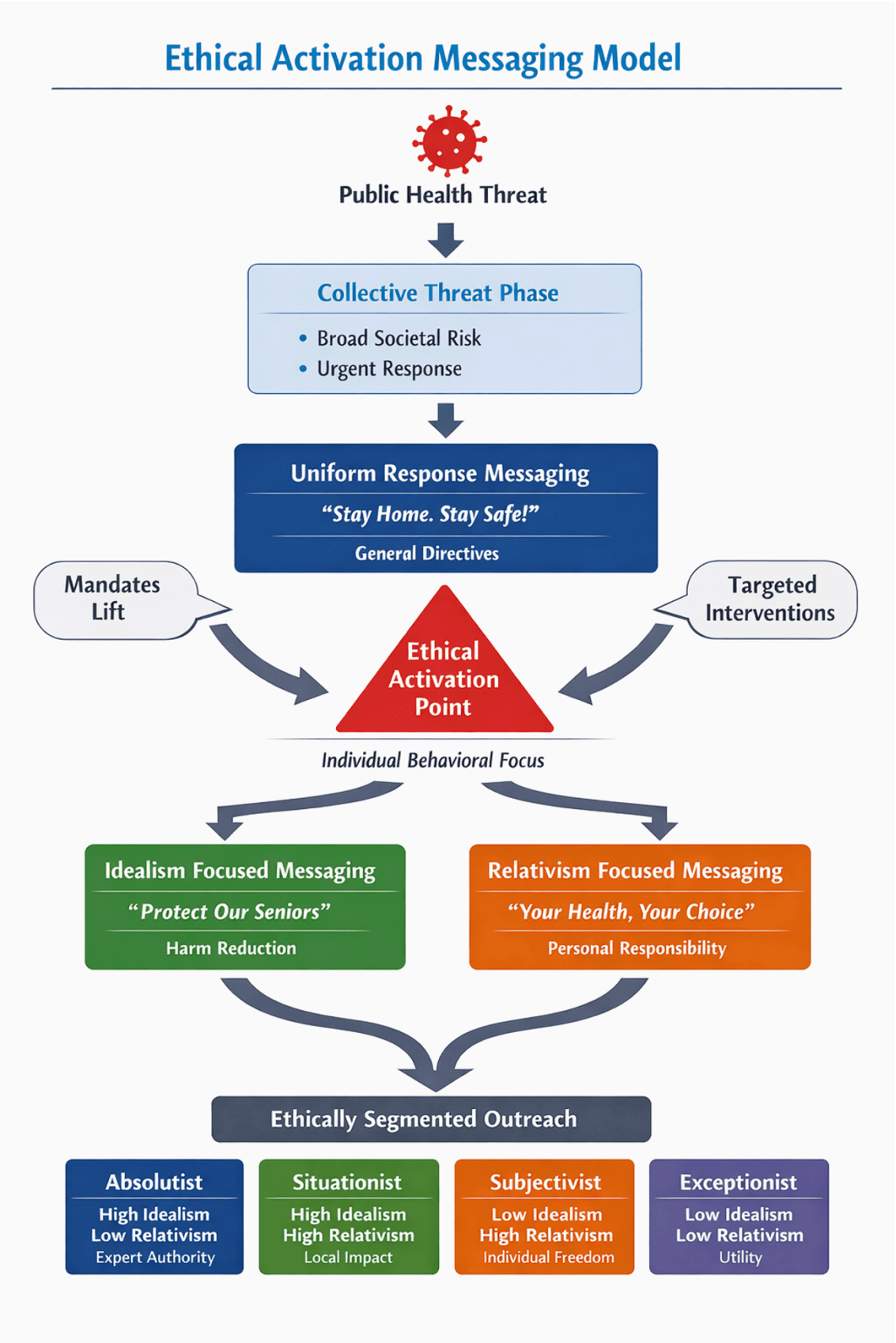

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Figure 1. Ethical Activation Messaging Model.Note. The Ethical Activation Messaging Model (EAMM) illustrates a two-phase framework for public health communication grounded in Forsyth's[1] ethical taxonomy. Phase 1, the Collective Threat Phase, occurs when a public health threat presents broad societal risk requiring urgent response. During this phase, Uniform Response Messaging, characterized by general directives such as "Stay Home. Stay Safe!", is effective because collective risk perception temporarily overrides individual ethical orientations, producing the "Golden Hour" of broad compliance observed in this study. Phase 2 is triggered by the Ethical Activation Point, the juncture at which mandates lift or targeted interventions emerge, causing individual moral orientations to re-emerge as primary drivers of compliance behavior. At this point, public health communicators must pivot from uniform directives to Ethically Segmented Outreach tailored to Forsyth's[1] four ethical taxonomies: the Absolutist (high idealism, low relativism), who responds to expert authority and universal duty; the Situationist (high idealism, high relativism), who responds to contextual harm reduction and local impact; the Subjectivist (low idealism, high relativism), who responds to personal autonomy and individual freedom; and the Exceptionist (low idealism, low relativism), who responds to pragmatism and utility. The EAMM represents a proposed theoretical framework warranting validation through larger, more representative samples before broad implementation.

Limitations

Although there are significant limitations to this research, the practical implications are meaningful. The sample size is extremely small, and the use of convenience sampling means participants were not randomly selected from the broader population and may not be representative of the diverse moral and ethical orientations present across the United States. The sample was also demographically skewed, with a disproportionate number of participants agreeing with public health recommendations across all six measures, which constrained the statistical power of the analyses and limited the ability to detect meaningful differences between groups. This creates an alternative explanation for the 'Golden Hour' of compliance argument, in that the study population was disproportionately female and highly educated. However, the diverse distribution of ethical orientations observed across ANOVA taxonomy groups provides some evidence that the sample was not uniformly predisposed toward compliance on the basis of demographic composition alone. Additionally, compliance data were based on self-reported responses, which may be subject to social desirability bias, potentially inflating agreement rates across all six recommendations. It would be ideal to reevaluate these responses in a larger, more representative sample, but the temporal nature of the data means that it can no longer be replicated. It is important to note that

while the results are not generalizable, they provide an additional piece to the post-mortem that is being conducted to understand the successes and failures of the COVID-19 pandemic response. These findings also point to the practicality of a new messaging framework that supports a bifurcated messaging approach to future public health crises.

A further statistical limitation involves the risk of Type I error due to multiple comparisons. For RQ1 and RQ2, six separate Pearson correlations were conducted for each ethical orientation dimension, yielding two significant findings. Applying a Bonferroni correction would adjust the significance threshold to α=.0083, under which neither the idealism-senior citizens finding (p=.021) nor the relativism-underlying health conditions finding (p=.044) would survive correction. These findings should therefore be interpreted as exploratory signals rather than confirmatory evidence, and replication in larger, adequately powered samples is necessary before drawing firm conclusions about these relationships. Additionally, the use of binary recommendation responses as the dependent variable in the ANOVA represents a technical violation of the normality assumption underlying that analysis. Although chi-square analyses were explored as an alternative, assumption violations due to small expected cell counts (50.0% of cells had expected counts less than 5) precluded their reliable use; nevertheless, results were consistent with the ANOVA findings across all six recommendations: restrict gatherings ($\chi^2(3, N=110) = 3.350$, $p = .341$), yielding non-significant results throughout. The ANOVA results should therefore be interpreted with appropriate caution, and future studies should employ larger samples that permit robust non-parametric alternatives.

Conclusion

The findings of this study demonstrate that the initial public health response in March 2020 was defined by a unique "Golden Hour" of consensus, where a unified moral framework, reinforced by acute threat salience and social isolation, temporarily overrode individual ethical orientations. The lack of statistically significant differences across Forsyth's[1] taxonomies during this period supports a Unified Response Theory, suggesting that centralized, deontological messaging is highly effective during the Collective Threat Phase of an emergency. However, as the 2026 measles resurgence and the decline of herd immunity to 92.5% demonstrate, this unified response possesses a clear expiration point[43].

As proposed in this study, the EAMM is a necessary evolution for public health communication. The EAMM identifies the Ethical Activation Point, the juncture at which public health recommendations stabilize or cease as the moment when individual ethical taxonomies (Idealism and Relativism) re-emerge

as the primary drivers of behavior. To prevent a "messaging vacuum" from being filled by politicization, public health systems must pivot from universal directives to Ethically Segmented Outreach.

By utilizing the EAMM to tailor messages, appealing to the Harm Reduction of Idealists and the Personal Responsibility of Relativists, officials can engage the diverse "moral engines" of the American public. While the "Golden Hour" of 2020 provided a historical benchmark of unity, the future of public health compliance in the face of the 2026 measles outbreak depends on a sophisticated, quadrant-based approach to ethical messaging. It should be noted that the EAMM represents a proposed theoretical framework grounded in preliminary findings and warrants validation through larger, more representative samples before broad implementation.

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