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The Morgue the Merrier? COVID19-Related Threat, Existential Isolation, & Well Being

Lauren P. Sedivy

THE MORGUE THE MERRIER?

COVID19-RELATED THREAT, EXISTENTIAL ISOLATION, & WELL BEING

LAUREN P. SEDIVY

Bachelor of Arts in Neuroscience & Biomedical Humanities

Hiram College

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We hereby approve this thesis for

LAUREN P. SEDIVY

Candidate for the Masters of Psychological Science degree for the

Department of Psychology

and the CLEVELAND STATE UNIVERSITY'S

College of Graduate Studies by

Committee Chairperson, Dr. Kenneth E. Vail III

Psychology, 12/8/22

Department & Date

Committee Member, Dr. Eric Allard

Psychology, 12/8/22

Department & Date

Committee Member, Dr. Shereen C. Naser

Psychology, 12/8/22

Department & Date

Committee Member, Dr. Kathleen W. Reardon

Psychology, 12/8/22

Department & Date

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ABSTRACT

Prior research suggests that COVID-19 perceived threat and existential isolation (EI) would be associated with an individual's subjective health, levels of anxiety, and feelings of hope relating specifically to the COVID-19 pandemic. However, it was unclear whether such concerns might be unique predictors (no interaction, two cumulative main effects) or interact (one effect modifies the other). To learn more about the possible combined effects, I analyzed data gathered via MTurk, during an 11-week period at the height of the COVID-19 pandemic (March-June 2020). **Method:** This study (N = 2,673) measured perceived COVID19-related threat, EI, anxiety, subjective health, and hope. **Results:** EI was found to be positively correlated with anxiety and negatively correlated with subjective health and hope. Perceived COVID-19-related threat was negatively correlated with subjective health and positively correlated with anxiety. Greater perceived threat was not found to be negatively correlated with feelings of hope. One outcome interaction was observed such that perceived COVID-19-related threat decreased hope when people felt existentially isolated, but increased hope when people felt a sense of existential connection (e.g., "we're all in this together"). **Conclusion:** Discussion highlights theoretical considerations, limitations, and practical implications of addressing mental health.

Keywords: COVID-19; perceived threat; existential isolation; anxiety; hope; well-being

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CHAPTER I

INTRODUCTION

By late February 2020, it had become apparent that COVID-19, an infectious disease that initially emerged in December 2019, had spread to the United States (Sohrabi et al. 2020). In addition to travel restrictions, recommendations from the CDC to wear masks in public, sanitize surfaces, and maintain a distance of 6 feet from others, additional measures to ensure the public's safety needed to be taken. By the end of March, the United States had issued mandatory stay-at-home orders for non-essential workers in 30 states (AJMC, 2020). In multiple states, schools, businesses, and restaurants were completely shut down and their workers were asked to stay home to control the virus's spread.

During this uneasy time, people differed in the degree to which they felt COVID-19 posed a threat to their own lives, the lives of others, and their livelihood in general. The number of COVID-related deaths had indeed begun to rise, and news outlets were focused on the spread, hospitalization, and deaths. As a result, for many COVID-19 represented a strong existential threat. In contrast, some people clearly did not perceive COVID-19 as very much of a risk worth changing their daily routine over. Despite the

stay-at-home orders, some individuals thought that COVID-19 was being over-exaggerated and posed no more of a threat than the common flu (Malik et al.,2020).

Likewise, people clearly varied in the degree to which they felt like they were going through experiences that nobody else was experiencing (existential isolation). For example, the countrywide responses to the pandemic created many situations in which people likely felt like they were alone in their experiences. Many people were either required to stay home for long periods of time or forced to go out into dangerous social conditions because they were deemed "essential personnel' (Kessel et al. 2022), involving new and uncharted experiences that may not have seemed like they were shared by many (if any) others. On the other hand, many people clearly saw common threads and shared experiences, and felt that "we're all in this together."

Such variation in perceived COVID-related threat, and variation in a sense of existential isolation, may have had an important influence on whether people were generally feeling anxious, or worried about their health, or whether they felt hopeful about successfully resolving the pandemic. The present thesis, therefore, is built on prior theory and research to study the roles of Covid-19-threat and existential isolation on levels of anxiety, self-reported physical health, and hope. Below, I will review theory and research suggesting relationships between these outcomes and both Covid-19-threat and existential isolation, including two sets of (competing) predictions about whether there might be either a unique predictors or an interactive relationship between Covid-19-threat and existential isolation on these well-being outcomes. I will then describe an existing dataset, created during the height of the pandemic, that can help to test these

hypotheses—including its methods and procedures and my planned analytic strategy. I will then share the results and provide further discussion relating to this information.

COVID-19 Threat

It is nearly impossible to discuss any aspect of the COVID-19 pandemic without associating it with the threat of death. Indeed, by mid-May 2020 it had resulted in the deaths of more than 300,000 people worldwide, with nearly 4.5 million cases confirmed (World Health Organization, 2020), and it would eventually become the third leading cause of death in the U.S. (Ahmad, 2020). News outlets and social media consistently reviewed such data, covering the number of casualties and positive cases of the virus.

Prior theory and research point to the importance of perceived COVID-19-related threat as it might pertain to anxiety and depression, subjective health and well-being, and a sense of hope. COVID-19 elicited death-related anxiety (Barnes, 2021) which clinical research has found is a transdiagnostic factor underlying a variety of mental health conditions (Iverach et al., 2014)—including depressive disorders and anxiety disorders (Finch et al., 2016; Menzies et al., 2019, 2021; Menzies & Dar-Nimrod, 2017). Other work, with non-clinical samples, has similarly found that when people lack psychological buffers (e.g., self-esteem, meaning in life) existential threat increases anxiety and reduces subjective well-being (Juhl, 2019) and precipitates withdrawal, depression, and hopelessness (Hayes et al., 2016).

Some of this work has focused on anxiety. For example, a study of 810 Australian participants found a significant positive correlation between death anxiety and anxious behaviors related to COVID-19, self-reported health anxiety, and overall psychological distress (Newton-John et al., 2020). In a different study, Paredes et. al. (2021) found that

perceived threat from COVID-19 had a negative impact on subjective mental well-being, future anxiety, and resilience. In Poland, COVID-19-related stress was associated with anxiety, lower well-being, and reduced hope (Trzebiński et al., 2020); and perceived COVID-19-related threat was related to anxiety, which in turn mediated coping responses such as support for spread prevention (e.g., social distancing) and economic sacrifice (e.g., lock-downs) (Cypryańska & Nezlek, 2020).

Other studies have focused on subjective physical health. In Italy, perceived COVID-19-related threat was associated with lower well-being, worse subjective health, and undermined hope (Paleari et al., 2021). In a study focused on 121 chronic medical patients, Karademas et al. (2008) found that perceived threat to self-preservation and social integration was strongly related to illness-related perceptions as well as overall self-related health, and that these perceived threats mediated the relationship between illness-related factors and subjective health measures. And in Japan, death anxiety from the COVID-19 pandemic impacted anxiety, self-esteem, and health-related quality of life among geriatric caregivers during the pandemic (Zhao et al., 2022).

And still other work has focused on hopeful optimism. In the Philippines, the long period of lockdown resulted in psychological problems that led to self-harm and self-destructive behaviors (Egargo & Kahambing, 2021). In Poland, COVID-19-related stress impacted levels of anxiety, and well-being and reduced hope (Trzebinski et al.,2020). And in Italy, perceived COVID-19-related threat was associated with worse well-being, worse subjective health, and reduced hope (Paleari et al., 2021).

Thus, previous findings suggest that perceived COVID-19 threat should have a significant impact on levels of anxiety, reports of subjective health, and feelings of hope.

Based on the present analysis, I expected that covid-threat would have a significant relationship with subjective health, anxiety, and feelings of hope, as follows:

- **Hypothesis 1:** Covid-19 threat will be negatively correlated with subjective health.
- **Hypothesis 2:** Covid-19 threat will be positively correlated with anxiety.
- **Hypothesis 3**: Covid-19 threat will be negatively correlated with feelings of hope.

Existential Isolation

Prior theory and research point to the importance of existential isolation (Helm, Greenberg, et al., 2019; Pinel et al., 2004), beyond socio-emotional loneliness. Social loneliness involves the perceived absence of an engaged social network and emotional loneliness involves the perceived absence of intimacy or attachment bonds (Gierveld & Tilburg, 2006; Weiss, 1973). *Existential isolation* (EI), however, involves the ontological problem of being alone in one's subjective consciousness—the "unbridgeable gap" that renders each of us alone in our experience, uncertain about whether we are perceiving and interpreting "reality" in valid ways (Yalom, 1980). Although EI is a "given" for all humans, there are individual differences in the degree to which people *feel* isolated in their experiences (high EI) compared to feeling consensual validation and belonging with others who appear to perceive and interpret reality the same way (low EI) (Pinel et al., 2017).

Thus, one might feel high or low EI regardless of whether one has been spending the pandemic in interpersonal isolation (e.g., living alone during lock-down, or on quarantine due to sickness) or is surrounded by other people (e.g., on lock-down with family, or leaving home to work with others as "essential" personnel). Indeed, past

research shows that EI is distinct from loneliness. EI scale validation only shows small to moderate correlations between the two constructs (Pinel et al., 2017). Loneliness and EI also have different relationships with other variables such as a need to belong; while loneliness correlates positively with a need to belong, EI does not (Helm et al. 2019).

The role of existential isolation is gaining attention as an important factor in mental health (Heidenrich et al., 2021). Research on EI has found it is related to clinical outcomes, such as anxiety, depression, and clinical distress; and it can undermine intentions to seek therapy, increase pessimistic beliefs about therapist expertness, and among those undergoing therapy it can reduce satisfaction with mental health treatment. A cross-sectional study with 500 adults found that high levels of EI were positively correlated with worse depression, higher anxiety, more stress, and caused participants to hold pessimistic beliefs about therapy (Constantino et al., 2019). These pessimistic views being related to EI suggest that feeling isolated from others might undermine feelings of hope for the future to come. One study found that feelings of Existential Isolation predicted depression as well as suicidal ideation in a group of undergraduates (Helm et al. 2019). While high levels of EI are shown to relate to mental health concerns, including neuroticism, depression anxiety, and stress, they are also found to impact participants' self-reported physical health (Costello & Long, 2014). In contrast, experts suggest that resolving EI—by restoring a sense of epistemic validation and belonging—can improve the therapeutic alliance, extra-therapeutic relationships, and treatment outcomes (Pinel et al., 2015).

During the pandemic, based on the analysis, I predicted that that EI would have a significant association with subjective health, anxiety, and feelings of hope, as follows.

- **Hypothesis 4**: EI will be negatively correlated with subjective health.
- **Hypothesis 5**: EI will be positively correlated with anxiety.
- **Hypothesis 6:** EI will be negatively correlated with hope.

Unique Predictors vs. Interactive Effects

Together, the theory and research reviewed here suggest that COVID-19 related threat and Existential Isolation would each have a quantifiable impact on anxiety, subjective health, and feelings of hope. However, whereas prior research has studied the effects of EI and COVID-19-related threat on their own, the present work examines both predictor variables together in the same study. This is an important contribution given that prior theory and research are ambiguous about how the effects of these two constructs might relate to each other.

There were two predictions for possibilities for how COVID-19 related threat and EI might operate together. On one hand, classic theoretical work (e.g., Yalom, 1980) presents concerns about life/death and isolation as distinct existential stressors, which might suggest that these effects are unique predictors. In such a relationship there would be no interaction, but instead, two main effects uniquely impacted the outcome variable. On the other hand, one prior study found that experimentally increasing EI led to increased death-related cognitions (though the finding did not replicate) (Helm, Lifshin, et al., 2019), raising the possibility that reduced EI might also be associated with reduced life/death concern. In other words, it is possible that EI may moderate death-related concerns. If so, it is possible that threat and EI might interact such that the effect of perceived COVID-19 Threat may be moderated by the degree to which people believe they are alone in their experiences (variation in EI) during the pandemic.

Thus, I did not make firm predictions one way or another but instead sought to more open-mindedly explore whether EI and COVID-19-related threat might be unique predictors (no interaction, two main effects) or interact with each other (one effect modifies the other). If there is an interactive effect, greater perceived COVID-19 Threat would be associated with greater anxiety (for example) among those with greater EI, but that effect should be mitigated or eliminated among those with reduced EI. Similar possible patterns may emerge for participants' subjective health and sense of hope.

Thus, the perspective predicting unique predictor effects would offer the following hypotheses:

- **Hypothesis 7**: Main effects of perceived COVID-19-threat and EI on subjective health, with no interaction.
- **Hypothesis 8:** Main effects of perceived COVID-19-threat and EI on anxiety, with no interaction.
- **Hypothesis 9:** Main effects of perceived COVID-19-threat and EI on hope, with no interaction.

The perspective predicting interactive effects would offer the following hypotheses:

- **Hypothesis 10:** An interaction will be observed, such that perceived COVID-19 threat would be negatively associated with subjective health but not among participants who report having low EI (high existential connection).
- **Hypothesis 11:** An interaction will be observed, such that perceived COVID-19 threat would be positively associated with anxiety but not among participants who report having low EI (high existential connection).

- **Hypothesis 12:** An interaction will be observed, such that perceived COVID-19 threat would be negatively associated with hope but not among participants who report having low EI (high existential connection).

The practical (e.g., policy) and therapeutic implications of unique predictors would be that interventions must address each existential concern (e.g., an intervention must address both COVID-19-related threat and EI issues), whereas the implications of interaction patterns would be that an intervention could mitigate one concern by addressing the other (e.g., an intervention could maintain well-being, and mitigate the effects of COVID-19-related threat, by focusing exclusively on maintaining low EI).

CHAPTER II

METHODS

Recruitment and Data Collection

The present thesis made use of existing data, collected by researchers at Cleveland State University and the University of Missouri. Participant recruitment spanned an 11-week period from March 18th through June 1st, 2020. The Qualtrics survey link was posted to MTurk each week (except weeks 8 and 10) listed as a survey about "Health Attitudes and Opinions". CloudResearch settings required that MTurk respondents have completed at least 100 prior HITs, pass a reCAPTCHA test to screen out bots, and were not allowed to complete the survey more than once. Qualifying respondents were compensated with $0.75. The Qualtrics survey was comprised of about 100 items each week. About 60 items were presented every week (thus, administered to every participant) whereas the remaining ~40 items were replaced at various times as the pandemic developed, and new research questions emerged. The attention check, perceived threat, EI, and subjective health items were administered each week; the anxiety measure was included beginning April 10th (weeks 4-11) and the hope measure beginning May 15th (weeks 9-11); thus, those variables were examined as the focus of the present thesis.

Participants

Over the full 11-week period, the survey was administered to a total of 3,011 participants, of which 338 failed the attention check for an acceptable sample of N = 2,673. The sample was middle-aged (M = 37.86, SD = 12.63); it included mostly White (70%) Christians (67%), with nearly equal numbers of males (56%) and females (43%), who had attended some college (13%) or completed an undergraduate (58%) or Master's degree (19%). Participants ranged from the age of 18 to 87 years old. For details, see Appendix A.

Procedure

Participants gave informed consent, completed the online survey materials described below (for detailed materials, see Appendix B-H) then received a debriefing.

Materials

1. Perceived Threat

Perceived COVID-19 related threat was measured using a single face valid item "How much are you worried about dying from coronavirus (also known as COVID-19)?" Participants responded using a 7-point Likert-type scale (1 = *Strongly disagree*; 7 = *Strongly agree*).

2. Existential Isolation

Following previous research (Helm, Lifshin, et al., 2019), participants used a 7-point Likert-type scale (1 = *Strongly disagree*; 7 = *Strongly agree*) to complete the six-item state EI measure (Pinel et al., 2017). The measure demonstrated strong internal reliability (α = .77) and a composite mean score was computed such that higher scores indicated greater feelings of EI.

3. Subjective Health

Participants responded to the item, "How is your health today?" using a 5-point scale (1 = *Very bad*; 5 = *Very good*).

4. Anxiety

Five items from the State-Trait Anxiety Inventory (Spielberger et al., 1983) chosen based on the face validity of the items, asked participants to indicate their anxiety (e.g., "I am worried") using a 4-point Likert-type scale (1 = *Not at all*; 4 = *Very much*). The measure demonstrated strong internal reliability (α = .80); a composite mean was computed such that higher scores indicated greater anxiety.

5. Hope

Adapting items from Cohen-Chen et al. (2014), four items measured COVID-19 related hope (e.g., "I feel hopeful about the COVID-19 situation") using an 8-point Likert-type scale (1 = *Not at all*; 8 = *Very much*). The measure demonstrated strong internal reliability (α = .83) and a composite mean score was computed such that higher scores indicated greater hope. These four items were adapted to focus on a participant's feelings of hope towards the COVID-19 pandemic instead of focusing on hope as a general construct. These items were also chosen based on the researcher's choice of the most face valid items.

Analytic Strategy

The present set of hypotheses was tested by examining the zero-order correlations and by conducting a series of multiple regression analyses of the Threat x EI interactions on each of the target outcomes. For each analysis, Threat and EI scores were each centered about their means, and the interaction term was computed by multiplying them.

Threat and EI were entered in Step 1 and then additionally the interaction term was entered in Step 2. (For clarity, the two independent predictors were also included in step two of the regression.) In the event of an interaction, directional patterns were explored by examining the Threat slope when adjusting the EI scores +/- 1SD and examining the EI slope when adjusting the Threat scores +/- 1SD.

Subjective Health

To test **Hypothesis 1**, zero-order correlations examined the relationship between perceived threat and subjective health. Hypothesis 1 predicted a negative correlation.

To test **Hypothesis 4**, I examined the correlation between EI and subjective health. Hypothesis 4 also predicted a negative correlation.

To examine **Hypothesis 7 and 10**, the Threat x EI regression interaction patterns were examined. Hypothesis 7 predicted a null interaction effect and two main effects such that COVID-19-related threat and EI were each negatively associated with subjective health. Hypothesis 10, however, predicted a significant interaction, with data patterns showing that Threat was negatively related to subjective health but that this effect was reduced or eliminated when EI was low (-1SD; a sense of existential connection).

Anxiety

To test **Hypothesis 2**, zero-order correlations examined the relationship between perceived threat and anxiety. Hypothesis 2 predicted a positive correlation.

To test **Hypothesis 5**, I examined the correlation between EI and anxiety. Hypothesis 5 also predicted a positive correlation.

To examine **Hypothesis 8 and 11**, the Threat x EI regression interaction patterns were examined. Hypothesis 8 predicted a null interaction effect and two main effects such that COVID-19-related threat and EI are each positively associated with anxiety. Hypothesis 11, however, predicted a significant interaction, with data patterns showing that Threat was positively related to anxiety but that this effect is reduced or eliminated when EI was low (-1SD; a sense of existential connection).

Hope

To test **Hypothesis 3**, zero-order correlations were used to examine the relationship between perceived threat and Hope. Hypothesis 3 predicted a negative correlation.

To test **Hypothesis 6**, I examined the correlation between EI and hope. Hypothesis 6 also predicted a negative correlation.

To examine **Hypothesis 9 and 12**, the Threat x EI regression interaction patterns were examined. Hypothesis 9 predicted a null interaction and two main effects such that COVID-19-related threat and EI were both negatively associated with hope. Hypothesis 12, however, predicted a significant interaction, with data patterns showing that Threat was negatively related to hope but that this effect was reduced or eliminated when EI is low (-1SD; a sense of existential connection).

CHAPTER III

RESULTS

Subjective Health

There were 2,615 participants who passed the attention check and completed the Threat, EI, and subjective health measure (weeks 1-11). In Step 1, both perceived threat (β = -.04, t = -2.25, p = .025) and EI (β = -.16, t = -7.96, p < .001) were negatively associated with subjective health. This data shows support for Hypothesis 1 & Hypothesis 4.

In Step 2, the Threat x EI interaction was not significant, ΔF (1, 2611) = 2.73, ΔR^2 = .001, p = .098 (*Figure 1*). Hypothesis 10 is not supported. Coefficients for Step 1 and Step 2 are reported in *Table 1*.

Table 1. Coefficients for EI & Perceived Threat associated with Subjective Health

Predictor	Standardized Beta	t	Sig.	B 95.% CI [LL, UL]
Step 1:				
EI	-.16**	-7.96**	<.001**	[-.14, -.08]
Threat	-.04*	-2.25*	.025*	[-.03, -.002]
Step 2:				
EI:Threat	-.034	-1.65	.098	[-.02, -.002]
				ΔR^2 = .001, p = .098

Note. Dependent Variable: Subjective Health. *LL* and *UL* indicate the lower and upper limits of a confidence interval, respectively.
* indicates p < .05. ** indicates p < .01.

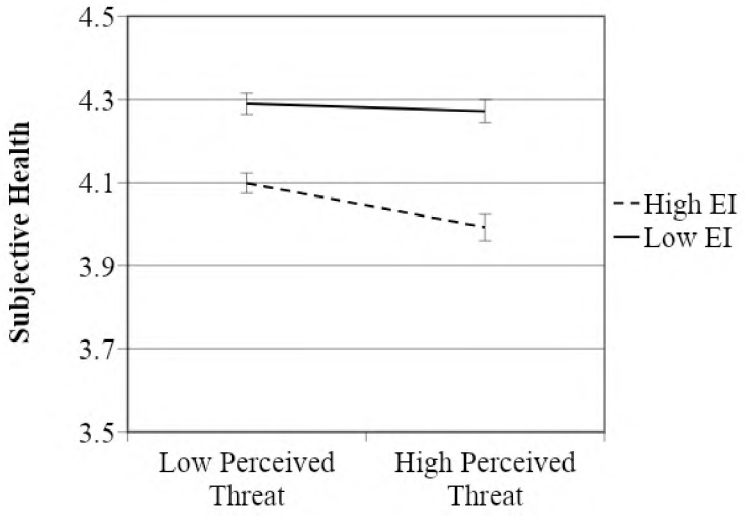

Figure 1. Existential isolation (EI) and perceived threat were associated with lower subjective health.

Anxiety

There were 1,758 participants who passed the attention check and completed the Threat, EI, and anxiety measure (weeks 4-11). In Step 1, both Threat (β = .51, t = 24.76, p < .001) and EI (β = .12, t = 5.70, p < .001) were positively associated with anxiety. This data shows support for Hypothesis 2 & Hypothesis 5.

In Step 2, the Threat x EI interaction was not significant, $\Delta F(1, 1754) = 3.60$, $\Delta R^2 = .002$, $p = .058$ (*Figure* 2). Hypothesis 11 is not supported. Coefficients for Step 1 and Step 2 are reported in Table 2.

Table 2. Coefficients for EI & Perceived Threat associated with Anxiety

Predictor	Standardized Beta	t	Sig.	B 95.% CI [LL, UL]
Step 1:				
EI	.12**	5.70**	<.001**	[.06, .13]
Threat	.51**	24.76**	<.001**	[.18, .21]
Step 2:				
EI:Threat	-.04	-1.96	.058	[-.03, .000]
				$\Delta R^2 = .002$, $p = .058$

Note. Dependent Variable: Anxiety. *LL* and *UL* indicate the lower and upper limits of a confidence interval, respectively.
* indicates p < .05. ** indicates p < .01.

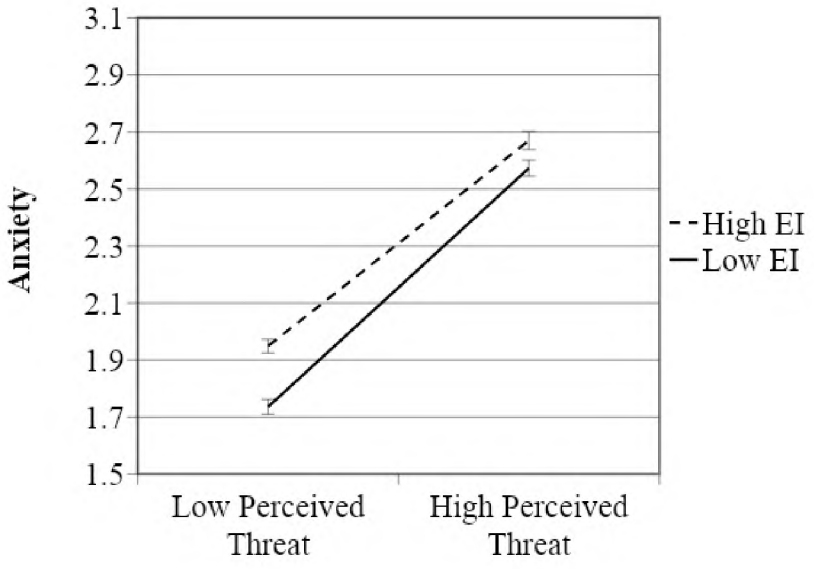

Figure 2. Existential isolation (EI) and perceived threat were each associated with higher anxiety.

Hope (Related to COVID-19)

There were 618 participants who passed the attention check and completed the Threat, EI, and hope measure (weeks 9-11). In Step 1, Threat was not associated with hope (β = .07, t = 1.64, p = .102) whereas EI was negatively associated with it (β = -.25, t = -6.37, $p < .001$). This data does not show support for Hypothesis 3, but it does show support for Hypothesis 6.

However, in Step 2 these associations were qualified by a significant Threat x EI interaction, $\Delta F(1, 614) = 18.95$, $\Delta R^2 = .03$, $p < .001$. Coefficients for Step 1 and Step 2 are reported in *Table 3*.

Among those with lower (-1*SD*) Threat scores, EI was negatively associated with hope (β = -.19, t = -4.68, $p < .001$). Among those with higher (+1*SD*) Threat scores, EI was strongly negatively associated with hope (β = -.51, t = -7.15, $p < .001$). Alternatively: among those with lower (-1*SD*) EI scores, Threat was positively related to hope, β = .23, t = 4.22, $p < .001$, whereas among those with higher (+1*SD*) EI scores the effect reversed,

and Threat was marginally negatively associated with hope, β = -.09, t = -1.77, p = .078 (*Figure* 3).

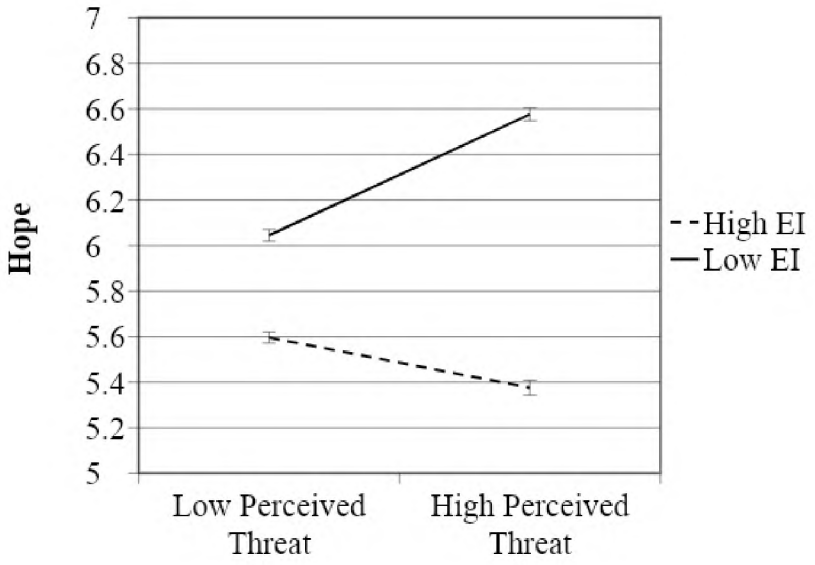

Figure 3. Existential isolation (EI) was associated with lower hope (about COVID-19) at both low and high levels of perceived threat. Perceived threat was associated with greater hope among those with lower EI but reduced hope among those with higher EI.

Table 3. Coefficients for EI & Perceived Threat associated with Hope

Predictor	Standardized Beta	t	Sig.	B 95.% CI [LL, UL]
Step 1:				
EI	-.25**	-6.37**	<.001**	[-.42, -.22]
Threat	.07	1.64	.102	[-.008, .09]
Step 2:				
EI:Threat	-.196**	-4.60**	<.001**	[-.16,-.07]
				ΔR^2 = .03, p < .001**

Note. Dependent Variable: Hope. *LL* and *UL* indicate the lower and upper limits of a confidence interval, respectively.
* indicates p < .05. ** indicates p < .01.

Ancillary Analysis

Additionally, I examined the possibility of age and gender as meaningful covariates; curious readers can find the statistical details in *Appendix I*. The data patterns reported above remained largely unaltered, even while controlling for these variables.

CHAPTER IV

DISCUSSION

A pre-existing data set was used to further examine if greater COVID-19 perceived threat and higher levels of EI were associated with worse ratings of subjective health, higher levels of anxiety, and lower ratings of hope during the COVID-19 pandemic. As predicted, EI was found to be positively correlated with anxiety and negatively correlated with subjective health and hope. Also as predicted, perceived COVID-19-related threat was negatively correlated with subjective health and positively correlated with anxiety. Greater COVID-19 perceived threat was not found to be negatively correlated with feelings of hope as hypothesized. I also explored whether COVID-19 perceived threat and levels of EI were unique predictors or if there were interactive effects. One interactive effect was found, highlighting that perceived COVID-19 threat is negatively associated with hope but not among participants who report having low EI (high existential connection). In the following paragraphs I would like to highlight the overall key findings of this dataset as well as further expand on the implications for these results, limitations, and outline possible future directions.

Existential Isolation, COVID-19 Perceived Threat, & Subjective Health

Both COVID-19 perceived threat and EI were negatively associated with subjective health. The results show support for **Hypothesis 1** & **Hypothesis 4** outlining that people who reported higher COVID-19 perceived threat and/or higher reported EI were more likely to also self-report having lower subjective health. One thing to note is that there was no official measure of a participant's actual health via checkup, nor was there any type of medical examination, instead this reveals how the participants rated their own subjective health. I feel that showing this distinction emphasizes just how much a participant's level of health can be impacted by their perceptions of COVID-19 threat and EI. COVID-19 perceived threat and levels of EI were unique predictors which provides support for **Hypothesis 7** while **Hypothesis 10,** the theory of potential interaction effects, was not supported. These unique predictors imply that while EI and COVID-19 perceived threat both significantly correlate with subjective health, they are separate existential stressors.

Existential Isolation, COVID-19 Perceived Threat, & Anxiety

Levels of COVID-19 perceived threat and EI were both positively associated with anxiety. This data shows support for **Hypothesis 2** & **Hypothesis 5**. Individuals who had a high perceived threat of COVID-19 overall had higher anxiety than individuals who had a lower COVID-19 perceived threat. Individuals who were more existentially isolated (high EI) overall rated as having higher anxiety than those who felt existentially connected (low EI). These findings support the hypotheses that were expected, but an interesting finding is that regardless of what group individuals fell into regarding COVID-19 perceived threat, (high or low threat) the individuals who felt existentially

isolated (high EI) were more anxious than people who felt more existential connected. The main effects of perceived COVID-19-threat and EI on anxiety, existed with no significant interaction, showing support for **Hypothesis 8** and lacking support for **Hypothesis 10**. These unique predictors imply that while EI and COVID-19 perceived threat both significantly correlate with anxiety, they are separate existential stressors.

Existential Isolation, COVID-19 Perceived Threat, & Subjective Health

COVID-19 perceived threat was not significantly correlated with hope, while EI was negatively correlated with hope. This data does not show support for **Hypothesis 3**, but it does show support for **Hypothesis 6**. Overall, the findings show support for the explanation that feeling higher levels of Existential Isolation undermined feelings of hope while there was not a significant relationship between the level of COVID-19 perceived threat and an individual's feeling of hope. Although looking further into the analysis suggests that these two groups of individuals experience hope differently.

In the group of Individuals who felt existentially isolated (high EI) overall the group reported feeling more hopeful if they also fell into the category of low perceived threat. Alternatively, when the existentially isolated individuals were categorized into the high perceived threat category, they felt less hopeful. On the other hand, when looking at the individuals who feel existentially connected (low EI) it's the high perceived threat group that is more hopeful. This interaction supports the view that COVID-19-related threat makes life, or perhaps the pandemic specifically, more hope*less* when people feel alone in their experience (high EI) but more hope*ful* when people feel like "we're all in this together" (low EI). This interaction supports **Hypothesis 12**, highlighting that perceived COVID-19 threat is negatively associated with hope but not among

participants who report having low EI (high existential connection). There was not support found for **Hypothesis 9**.

In summation the results of this study show support for the following hypotheses:

- **Hypothesis 1:** Covid-19 threat will be negatively correlated with subjective health. ✓
- **Hypothesis 2:** Covid-19 threat will be positively correlated with anxiety. ✓
- **Hypothesis 4**: EI will be negatively correlated with subjective health. ✓
- **Hypothesis 5**: EI will be positively correlated with anxiety. ✓
- **Hypothesis 6:** EI will be negatively correlated with hope. ✓
- **Hypothesis 7**: Main effects of perceived COVID-19-threat and EI on subjective health, with no interaction. ✓
- **Hypothesis 8:** Main effects of perceived COVID-19-threat and EI on anxiety, with no interaction. ✓
- **Hypothesis 12:** An interaction will be observed, such that perceived COVID-19 threat would be negatively associated with hope but not among participants who report having low EI (high existential connection). ✓

Meanwhile there was not support found for the following hypotheses:

- **Hypothesis 3**: Covid-19 threat will be negatively correlated with feelings of hope. ✗
- **Hypothesis 9:** Main effects of perceived COVID-19-threat and EI on hope, with no interaction. ✗

- **Hypothesis 10:** An interaction will be observed, such that perceived COVID-19 threat would be negatively associated with subjective health but not among participants who report having low EI (high existential connection). ✗
- **Hypothesis 11:** An interaction will be observed, such that perceived COVID-19 threat would be positively associated with anxiety but not among participants who report having low EI (high existential connection). ✗

Practical Implications

The main effects of EI may help to further the understanding of why some people seem to have coped well during the pandemic whereas others have seemed to have struggled with all the changes that the pandemic brought. When people felt as if they were alone in their experiences (high EI) they also felt more anxious and were more likely to take a negative view of their own health and well-being and began to lose hope for their ability to successfully navigate the world around them. One implication of these findings is that certain digital tools that individuals use to remain connected during the lockdowns could be helpful. For example, prior reports (Helm et al., 2021) found that, during the pandemic, low social media use (or merely passive use) was associated with greater EI which in turn was associated with reduced meaning in life, whereas active social media use was associated with reduced EI (greater existential connection) and buoyed sense of meaning in life. For many individuals during the COVID-19 pandemic, the limited social interactions led people to rely on social media much more to stay connected to other people. By better understanding the different ways we can remain existentially connected, despite being physically separated we might be able to better inspire hope during times of struggle. Perhaps the circulating YouTube videos of

different celebrities singing about how we're all in this together did have a positive impact on society as a whole. On a more serious note, by better understanding how members of society are reacting to such stressors might also be worthwhile for different policymakers to understand when it comes to making informed decisions at both the federal and state level in response to different predicaments.

Limitations

Despite the quickness the researchers demonstrated in gathering data right at the start of the pandemic and how informative this study has been in shedding a light on the relationships between perceived threat, EI, and the outcome variables outlined within the study, this study/dataset did have multiple limitations. The sample of participants used in this study was unevenly distributed across race, class, education, and other demographic categories. The participants were overall middle-aged, predominantly white, and were a majority, Christian. Most of the participants also had some college education or more. This sample lacks diversity, therefore limiting the generalizability of its findings to humanity as a whole.

The study was also limited to participants who lived in America at the time of the study. Considering how different countries handled the pandemic in a multitude of ways, differing public policies, regulations, and even media responses. Not only were there differing political reactions and policies put in place in different countries, but the coverage from the media also differed from country to country. "The media functions as an important interpreter, from the formal spaces of science to the informal spaces of everyday life. Media stories about the pandemic have been found to have substantial effects on peoples' beliefs about its origins, opinions about appropriate policy responses,

and overall politicization of the crisis (Hart et al. 2020). This limit of the sample population again restricts the generalizability of the results and warrants replication with a more diverse sample size. Another variable that could have been covered within the questionnaire could have asked participants where they chose to get a majority of their news about the unfolding pandemic. This variable may have been found to impact the levels of COVID-19-related threat that the participants felt.

Even though the participants were limited to individuals living in the United States, there was still vast variability in how each state handled their response to the COVID-19 pandemic. Much of the policy and technology reaction has been driven by individual state decisions, and even within states at the county level with little guidance from the national government (Bergquist et al., 2020). Even though the data was acquired at the peak of the pandemic stay-at-home-orders, each state seemed to be facing the pandemic on a slightly different timeline due to a multitude of circumstances. Thus, some participants may have been taking the survey during their first week of lockdown, meanwhile another participant may have been answering the questions in week 6 of the lockdown, or even without ever having to stay at home due to being an essential employee. It would be interesting to look at the data state by state or with the knowledge of how long participants had been self-quarantined for and the state specific regulations that were put in place.

Another limitation of this study is the temporal precedence of the results in explaining the direction of the effects. Since the relationships were correlational and cross-sectional, the reverse causal path could also be possible. Poor subjective and mental health outcomes may have been what caused participants to experience higher levels of

COVID-19-related threat and/or caused individuals to feel more existentially isolated. There is clear evidence of the association of these variables, but there might also be confounding variables that were not accounted for in this dataset.

The final limitation of the study that I would like to address is that the variable "hope" was not measured until weeks 9 through 11. The results of this study may have changed if that measure had been included at the start of data collection. Not only was this measure recorded towards the end of the data collection period, but the overall sample size measured was much smaller than the number of participants included in the analysis for subjective well-being and anxiety. Feelings of hope may have changed as the pandemic unfolded.

Future Directions

In addition to replicating this study with a more diverse sample size, it would be worthwhile to replicate this study framing the perception of threat to a multitude of situations that might cause individuals to feel threatened, instead of limiting the understanding of these relationships to COVID-19 perceived threat. Through generalizing these findings to various stressors, that might be alleviated by bolstering feelings of existential connectivity, different therapeutic techniques could be created and tested.

The stay-at-home orders brought on by the pandemic also began a conversation about the impacts of isolation in general, and perhaps gave the average member of society a better understanding of people's experiences in other isolating situations. One isolating situation that might posit interesting results could be looking at the perceived threat & EI levels of the currently incarcerated and how these existential stressors may impact subjective health, anxiety, and feelings of hope in this different type of isolating

setting. Very little research has been conducted on this population of people in general, and virtually no research has been conducted pertaining to how being isolated from the rest of society might impact their feelings of existential isolation. Knowing that feelings of EI have a significant relationship with hope, anxiety, and subjective well-being could mean that bolstering existential connection within this population may have positive influences pertaining to social reform as well as creating a positive impact to the overall well-being of the currently incarcerated.

Conclusion

The information provided by the pre-existing dataset used in this Thesis project found evidence that greater EI and perceived COVID-19-related threat were each associated with greater anxiety, worse subjective health and, and reduced hope. Data analysis found that EI and perceived threat did produce one interaction effect pertaining to hope that may warrant further research to better understand. There were also two unique predictors, suggesting that perceived threat and feelings of existential isolation should pose unique existential concerns that may warrant unique therapeutic measures to address. The findings of this research can be expanded upon in a multitude of ways to better understand the impacts of EI and perceived threat, as a whole. Overall, it may be worth it to better outline tactics that make us feel as though we are going through struggles together, even if we are physically apart.

REFERENCES

Ahmad AR, Murad HR. (2020) The Impact of Social Media on Panic During the COVID-19 Pandemic in Iraqi Kurdistan: Online Questionnaire Study J Med Internet Res 2020;22(5): e19556 doi: 10.2196/19556

AJMC Staff. (2021, January 1). A timeline of covid-19 developments in 2020. AJMC. Retrieved March 2022, from https://www.ajmc.com/view/a-timeline-of-covid19-developments-in-2020

Bergquist, S., Otten, T., & Sarich, N. (2020). COVID-19 pandemic in the United States. Health Policy and Technology, 9(4), 623-638.

Cohen-Chen, S., Halperin, E., Crisp, R. J., & Gross, J. J. (2014). Hope in the Middle East: Malleability Beliefs, Hope, and the Willingness to Compromise for Peace. Social Psychological and Personality Science, 5(1), 67–75. https://doi.org/10.1177/1948550613484499

Constantino, M. J., Sommer, R. K., Goodwin, B. J., Coyne, A. E., & Pinel, E. C. (2019). Existential isolation as a correlate of clinical distress, beliefs about psychotherapy, and experiences with mental health treatment. Journal of Psychotherapy Integration, 29(4), 389–399. https://doi.org/10.1037/int0000172

Costello, A. E., & Long, A. E. (2014, August). Existential isolation and its psychological and physical health correlates. In Poster presentation at the annual meeting of the American Psychological Association, Washington, DC.

Cypryańska, M., & Nezlek, J. B. (2020). Anxiety as a mediator of relationships between perceptions of the threat of COVID-19 and coping behaviors during the onset of

the pandemic in Poland. PLoS ONE, 15(10). https://doi.org/10.1371/journal.pone.0241464

Egargo, Faye Jessa & Kahambing, Jan Gresil Existential hope and humanism in COVID-19 suicide interventions, Journal of Public Health, Volume 43, Issue 2, June 2021, Pages e246–e247, https://doi.org/10.1093/pubmed/fdaa171

Finch, E. C., Iverach, L., Menzies, R. G., & Jones, M. (2016). Terror mismanagement: Evidence that mortality salience exacerbates attentional bias in social anxiety. Cognition and Emotion, 30(7), 1370–1379. https://doi.org/10.1080/02699931.2015.1065794

Hart, P. S., Chinn, S., & Soroka, S. (2020). Politicization and polarization in COVID-19 news coverage. Science Communication, 42(5), 679-697.

Heidenreich, T., Noyon, A., Worrell, M. et al. Existential Approaches and Cognitive Behavior Therapy: Challenges and Potential. J Cogn. Ther. 14, 209–234 (2021). https://doi.org/10.1007/s41811-020-00096-1

Helm et al., 2019a P.J. Helm, J. Greenberg, Y.C. Park, E.C. Pinel Feeling alone in your subjectivity: Introducing the state trait existential isolation model (STEIM) Journal of Theoretical Social Psychology, 3 (2019), pp. 146-157

Helm et al. 2019b Peter J. Helm, Uri Lifshin, Ronald Chau, Jeff Greenberg, Existential isolation and death thought accessibility, Journal of Research in Personality, Volume 82, 2019, 103845, ISSN 0092-6566, https://doi.org/10.1016/j.jrp.2019.103845.

Heanoy, E. Z., Nadler, E. H., Lorrain, D., & Brown, N. R. (2021). Exploring People's Reaction and Perceived Issues of the COVID-19 Pandemic at Its Onset.

International journal of environmental research and public health, 18(20), 10796. https://doi.org/10.3390/ijerph182010796

Iverach, L., Menzies, R. G., & Menzies, R. E. (2014). Death anxiety and its role in psychopathology: Reviewing the status of a transdiagnostic construct. Clinical Psychology Review, 34(7), 580–593. https://doi.org/10.1016/j.cpr.2014.09.002

Karademas, E. C., Bakouli, A., Bastounis, A., Kallergi, F., Tamtami, P., & Theofilou, M. (2008). Illness perceptions, illness-related problems, subjective health and the role of perceived primal threat: Preliminary findings. Journal of Health Psychology, 13(8), 1021–1029. https://doi.org/10.1177/1359105308097967

Kessel, P. van, Baronavski, C., Scheller, A., & Smith, A. (2022, April 7). In their own words, Americans describe the struggles and silver linings of the covid-19 pandemic. Pew Research Center. Retrieved April 11, 2022, from https://www.pewresearch.org/2021/03/05/in-their-own-words-americans-describe-the- struggles-and-silver-linings-of-the-covid-19-pandemic/

Malik, U. R., Atif, N., Hashmi, F. K., Saleem, F., Saeed, H., Islam, M., Jiang, M., Zhao, M., Yang, C., & Fang, Y. (2020). Knowledge, Attitude, and Practices of Healthcare Professionals on COVID-19 and Risk Assessment to Prevent the Epidemic Spread: A Multicenter Cross-Sectional Study from Punjab, Pakistan. International Journal of Environmental Research and Public Health, 17(17), 6395. https://doi.org/10.3390/ijerph17176395.

Menzies, R. E., & Menzies, R. G. (2020). Death anxiety in the time of COVID-19: theoretical explanations and clinical implications. Cognitive behaviour therapist, 13, e19. https://doi.org/10.1017/S1754470X20000215

Menzies, R. E., Sharpe, L., & Dar-Nimrod, I. (2021). The effect of mortality salience on bodily scanning behaviors in anxiety-related disorders. *Journal of Abnormal Psychology, 130*(2), 141–151. https://doi.org/10.1037/abn0000577

Newton-John, T. , Chambers, S. , Menzies, R. E. , & Menzies, R. G. (2020). Psychological distress and COVID-19: estimations of threat and the relationship with death anxiety. [under review]

Paleari, F. G., Pivetti, M., Galati, D., & Fincham, F. D. (2021). Hedonic and eudaimonic well-being during the COVID-19 lockdown in Italy: The role of stigma and appraisals. British Journal of Health Psychology, 26(2), 657–678. https://doi.org/10.1111/bjhp.12508

Paredes, Mario R. Vanessa Apaolaza, Cristóbal Fernandez-Robin, Patrick Hartmann, Diego Yañez-Martinez, (2021) The impact of the COVID-19 pandemic on subjective mental well-being: The interplay of perceived threat, future anxiety and resilience, Personality and Individual Differences, Volume 170, 2021, 110455, ISSN 0191-8869, https://doi.org/10.1016/j.paid.2020.110455.

Pinel, E. C., Long, A. E., Landau, M. J., & Pyszczynski, T. (2004). I-Sharing, the Problem of Existential Isolation, and Their Implications for Interpersonal and Intergroup Phenomena. In J. Greenberg, S. L. Koole, & T. Pyszczynski (Eds.), Handbook of Experimental Existential Psychology. (2004-21900-022; pp. 352–368). Guilford Press.

Pinel, E. C., Long, A. E., Murdoch, E. Q., & Helm, P. J. (2017). A prisoner of one's own mind: Identifying and understanding existential isolation. Personality and Individual Differences, 105, 54–63. https://doi.org/10.1016/j.paid.2016.09.024

Sohrabi, C., Alsafi, Z., O'Neill, N., Khan, M., Kerwan, A., Al-Jabir, A., Iosifidis, C., & Agha, R. (2020). World Health Organization declares global emergency: A review of the 2019 novel coronavirus (COVID-19). International journal of surgery (London, England), 76, 71–76. https://doi.org/10.1016/j.ijsu.2020.02.034

Spielberger, C. D., Gorsuch, R. L., Lushene, R., Vagg, P. R., & Jacobs, G. A. (1983). *Manual for the State-Trait Anxiety Inventory*. Consulting Psychology Press.

Slotnik, D. E. (2021, March 25). Up to a tenth of New York City's coronavirus dead may be buried in a potter's field. The New York Times. Retrieved April 15, 2022, from https://www.nytimes.com/2021/03/25/nyregion/hart-island-mass-graves-coronavirus.html

Trzebiński, J., Cabański, M., & Czarnecka, J. Z. (2020). Reaction to the covid-19 pandemic: The influence of meaning in life, life satisfaction, and assumptions on world orderliness and positivity. Journal of Loss and Trauma. https://doi.org/10.1080/15325024.2020.1765098

World Health Organization (2020). Coronavirus disease (COVID-19): Situation report – 117. Retrieved from: https://www.who.int/docs/default-source/coronaviruse/ situation-reports/20200516- covid-19-sitrep- 117.pdf?sfvrsn=8f562cc_2

Zhao, X., Zhang, W., Su, Y., Song, Y., Si, H. and Zhu, L. (2022), Death anxiety, self-esteem, and health-related quality of life among geriatric caregivers during the COVID-19 pandemic. Psychogeriatrics, 22: 236-242. https://doi.org/10.1111/psyg.12807

APPENDIX A

SURVEY MATERIALS

Descriptive statistics for sample demographics

Variable	*N*	*M/%*	*SD*
Age	2,650	37.86	12.63
Did not respond	23		
Sex			
Male	1,497	56%	
Female	1,148	42.9%	
Other	7	0.3%	
Did not respond	21	0.8%	
Education			
Less than high school degree	7	0.3%	
High school graduate	143	5.3%	
Some college	370	13.4%	
Associates degree	220	8.2%	
Bachelor's degree	1,320	49.4%	
Master's degree	512	19.2%	
Professional degree	35	1.3%	
Doctoral degree	38	1.4%	
Did not respond	28	1%	
Political orientation	2,649	4.20	1.92
Did not respond	24		
Race			
White	1,877	70.2%	
Black	469	17.5%	
Native American	27	1%	
Asian	175	6.5%	
Pacific Islander	11	0.4%	
Mixed or Other	80	3%	
Did not respond	34	1.3%	
Religious affiliation			
Buddhist	40	1.5%	
Hindu	43	1.6%	
Christian	1,795	67.2%	
Jewish	41	1.5%	
Muslim	35	1.3%	
Spiritual but not religious	128	4.8%	
Agnostic	304	11.4%	
Atheist	242	9.1%	
Did not respond	45	1.7%	

APPENDIX B

FULL LIST OF ALL SURVEY MEASURES AND WEEKS OF INCLUSION

Construct	Items	Weekly posting	N
1. Attention check	**1**	**All**	**3,011**
2. Social desirability	4	1	304
3. Introversion-extraversion (big5)	2	1-7	2,261
4. Cultural tightness-looseness	6	2-7	1,957
5. Contingencies of self-worth (job)	7	1	304
6. Likelihood to take time off work	5	1	304
7. Time off work (can get?)	1	All	3,011
8. Job type	1	All	3,011
9. Work from home attitudes	4	All	3,011
10. Staying home?	1	All	3,011
11. Subjective health	**1**	**All**	**3,011**
12. Literacy	1	1-2	622
13. Health insurance?	1	All	3,011
14. Access to healthcare treatments (can get?)	1	All	3,011
15. Existential isolation	**6**	**All**	**3,011**
16. Emotional loneliness	3	All	3,011
17. Social loneliness	3	All	3,011
18. Social media frequency?	1	2	318
19. Social media active user?	1	3-11	2,389
20. Social media passive user?	1	3-11	2,389
21. News media consumption	1	7-11	1080
22. Able to pursue hobbies?	1	3-11	2,389
23. Word-stem completion task	12	All	3,011
24. COVID awareness (heard about it)	1	All	3,011
25. COVID worry (worried)	1	All	3,011
26. COVID threat (fear of dying from COVID)	**1**	**All**	**3,011**
27. COVID association (topic makes me think of death)	1	All	3,011
28. COVID fatalism (it's a death sentence)	1	2-11	2,707
29. COVID employment (worry lose job)	2	All	3,011
30. COVID help (donate to nat'l relief)	1	2-11	2,707
31. COVID help (donate to intl relief)	1	2-11	2,707
32. COVID knowledge (estimated deaths)	1	1	304
33. COVID exposure (contacts diagnosed)	1	9-11	750
34. COVID exposure (diagnosed contacts hospitalized)	1	9-11	750
35. Social distancing support	5	All	3,011
36. Handwashing (can prevent)	1	All	3,011
37. Handwashing (intention)	1	All	3,011
38. COVID testing (intention)	1	All	3,011
39. COVID testing (should available)	1	All	3,011
40. Facemask (wear percentage)	1	11	430
41. Facemask (community risk)	1	11	430
42. Facemask (self risk)	1	11	430

43. Facemask (wear feel valued)	2	11	430
44. Facemask (if had, would wear?)	1	4-11	2,064
45. Facemask (if didn't, would make one?)	1	4-11	2,064
46. COVID related hope	**4**	**9-11**	**750**
47. How many people in household?	1	All	3,011
48. Age	1	All	3,011
49. Gender	1	All	3,011
50. Education	1	All	3,011
51. Income	1	All	3,011
52. Political orientation	1	All	3,011
53. Race	1	All	3,011
54. Relationship + satisfaction	2	3-11	2,389
55. Religious affiliation	1	1-2	622
56. Religious affiliation (revised)	1	3-11	2,389
57. Religious strength (revised)	1	3-11	2,389
58. Religious strength	1	1-2	622
59. Afterlife belief	1	6-11	1,405
60. Do pray?	1	All	3,011
61. COVID make question religious belief?	1	All	3,011
62. Crisis attributions to God	8	2-11	2,707
63. God coping positive	4	9-11	750
64. God coping negative	4	9-11	750
65. Prayer alone can heal COVID	1	5-11	1,737
66. Prayer more effective medical treatment COVID	1	5-11	1,737
67. Would rely on medical 100%	1	5-11	1,737
68. Would accept medical, still pray	1	5-11	1,737
69. Would refuse medical, rely prayer/faith 100%	1	5-11	1,737
70. MIL	5	2-11	2,707
71. Anxiety	**5**	**4-11**	**2,064**
72. Support for universal healthcare?	1	3-11	2,389

COVID-19 perceived threat

How much are you worried about dying from coronavirus (also known as COVID-19)?

1	2	3	4	5	6	7
Not at all						Strongly

Existential isolation

	0 Strongly disagree	1	2	3	4	5	6	7	8	9 Strongly agree
1. I feel like people share my outlook on life. (reverse scored)										
2. I have the same reactions to things that other people around me do. (reverse scored)										
3. People around me react to things in our environment the same way I do. (reverse scored)										
4. People do not share my perspective.										
5. Other people do not understand my experiences.										
6. People have the same "take" or perspective on things that I do. (reverse scored)										

Anxiety

	1 Not at all	2	3	4 Very much
1. I feel tense				
2. I feel at ease (reverse scored)				
3. I feel upset				
4. I am worried				
5. I am presently worrying over possible misfortunes.				

Subjective health

How is your health today?

1	2	3	4	5
Very bad	Bad	Fair	Good	Very good

Hope

	1 Not at all	2	3	4	5	6	7	8 Very much
1. I feel hopeful about the COVID-19 situation.								
2. I feel that humanity will get through this and we will be better on the other side.								
3. I feel that at the end of this I will be okay, regardless of what happens.								
4. I feel that I can still pursue my goals, despite COVID-19.								

APPENDIX C

SURVEY MATERIALS

Weekly survey posting dates, response rates, and inclusion of measures.

Weekly posting	Date	N	Attention check	FOD	EI	Subjective health	Anxiety	Hope
1	March 18	304	X	X	X	X		
2	March 26	318	X	X	X	X		
3	April 02	325	X	X	X	X		
4	April 10	327	X	X	X	X	X	
5	April 16	332	X	X	X	X	X	
6	April 24	325	X	X	X	X	X	
7	May 02	330	X	X	X	X	X	
9	May 15	320	X	X	X	X	X	X
11	June 01	430	X	X	X	X	X	X
Total N		3,011						

APPENDIX D

ADDITIONAL EXPLORATORY ANALYSES

Table 4. Coefficients for EI & Perceived Threat associated with Subjective Health, controlling for Age

Predictor	Standardized Beta	t	Sig.	B 95.% CI [LL, UL]
Step 1:				
Age	-.051	-2.63	.009	[-.005,-.001]
Step 2:				
EI	-.156**	-8.04**	<.001**	[-.14, -.08]
Threat	-.046*	-2.39*	.017*	[-.03, -.003]
Step 3:				
EI:Threat	-.034	-1.664	.096	[-.024, .002]

Note. Dependent Variable: Subjective Health. *LL* and *UL* indicate the lower and upper limits of a confidence interval, respectively.
* indicates $p < .05$. ** indicates $p < .01$.

I first checked (Step 1) to see if age was associated with subjective health, and it was associated such that as people were older, they reported poorer subjective health. Then, Step 2 and Step 3 replicated my primary analyses of main effects and interaction terms while controlling for age. The effects reported in the main body of this Thesis were unaltered when controlling for age. Greater EI and greater covid-related-threat were each associated with reduced subjective health, whereas the interaction term was not significant.

Table 5. Coefficients for EI & Perceived Threat associated with Anxiety, when controlling for Age

Predictor	Standardized Beta	t	Sig.	B 95 % CI [LL, UL]
Step 1:				
Age	-.142**	-5.973**	<.001**	[-.011, -.006]
Step 2:				
EI	.116**	5.61**	<.001**	[.06, .125]
Threat	.509**	24.73**	<.001**	[.179, .210]
Step 3:				
EI: Threat	-.045*	-2.071*	.038*	[-.032, -.001]

Note. Dependent Variable: Anxiety. *LL* and *UL* indicate the lower and upper limits of a confidence interval, respectively.
* indicates p < .05. ** indicates p < .01.

I first checked (Step 1) to see if age was associated with anxiety, and it was associated such that as people were older, they reported lower anxiety. Then, Step 2 replicated my findings of main effects. In Step 3, the Threat x EI interaction was significant.

Among those with lower (-1*SD*) Threat scores, EI was positively associated with anxiety (β = .138, t = 5.87, p < .001). Among those with higher (+1*SD*) Threat scores, EI was positively associated with anxiety (β = .057, t = 1.63, p=.103). Among those with lower (-1*SD*) EI scores, Threat was positively related to anxiety, (β = .550, t = 19.50, p < .001) and among those with higher (+1*SD*) EI, Threat was positively associated with anxiety, (β = .469, t = 16.27, p <.001). This is the exact same data pattern that is featured in *Figure 2*.

Table 6. Coefficients for EI & Perceived Threat associated with Hope, Controlling for Age

Predictor	Standardized Beta	t	Sig.	B 95.% CI [LL, UL]
Step 1:				
Age	.050	1.24	.215	[-.003, .013]
Step 2:				
EI	-.259**	-6.60**	<.001**	[-.429, -.232]
Threat	.065	1.66	.098	[-.007, .086]
Step 3:				
EI: Threat	-.195**	-4.60**	<.001**	[-.161, -.064]

Note. Dependent Variable: Hope. *LL* and *UL* indicate the lower and upper limits of a confidence interval, respectively.
* indicates p < .05. ** indicates p < .01.

I first checked (Step 1) to see if age was associated with Hope, and it was found not to be significantly associated with Hope. Nevertheless, we checked to see if the Step 2 & Step 3 effects emerged while controlling for this variable anyways. In Step 2, EI was significantly associated with Hope, whereas Covid-related threat is not significantly associated with hope when controlling for age. In Step 3, the Threat x EI interaction remained significant.

Among those with lower (-1*SD*) Threat scores, EI was negatively associated with anxiety (β = -.173, t = -4.07, p <.001). Among those with higher (+1*SD*) Threat scores, EI was negatively associated with anxiety (β = -5.13, t = -7.251, p < .001). Among those with lower (-1*SD*) EI scores, Threat was positively related to anxiety, (β = .239, t = 4.304, p < .001) whereas among those with higher (+1*SD*) EI, Threat was negatively associated with anxiety (β = -.103, t = -1.91, p =.057). This is the same data patter than is reported in *Figure 3*.

Table 7. Coefficients for EI & Perceived Threat associated with Subjective Health, Controlling for Gender

Predictor	Standardized Beta	t	Sig.	B 95.% CI [LL, UL]
Step 1:				
Gender	-.069**	-3.53**	<.001**	[-.152, -.044]
Step 2:				
EI	-.159**	-8.16**	<.001**	[-.140, -.086]
Threat	-.052*	-2.65*	.008*	[-.031, -.005]
Step 3:				
EI:Threat	-.033	-1.57	.117	[-.024, .003]

Note. Dependent Variable: Subjective Health. *LL* and *UL* indicate the lower and upper limits of a confidence interval, respectively.
* indicates $p < .05$. ** indicates $p < .01$.

To examine the potential effect of gender, I reanalyzed the data of participants who indicated whether or not they were male/female gender and excluded the data from 7 participants who selected "other". I first checked (Step 1) to see if gender was associated with subjective health, and it was associated such that females (vs males) rated themselves as having poorer subjective health. Then, Step 2 and Step 3 replicated my primary analyses of main effects and interaction terms while controlling for gender. The effects reported in the main body of this Thesis were unaltered when controlling for gender. Greater EI and greater covid-related-threat were each associated with reduced subjective health, whereas the interaction term was not significant.

Table 8. Coefficients for EI & Perceived Threat associated with Anxiety, Controlling for Gender

Predictor	Standardized Beta	t	Sig.	B 95 % CI [LL, UL]
Step 1:				
Gender	.-.121**	-5.08**	<.001**	[-.257, -.114]
Step 2:				
EI	.117**	-5.66**	<.001**	[.061, .126]
Threat	.508**	24.38**	<.001**	[.179, .210]
Step 3:				
EI: Threat	-.041	-1.87	.062	[-.031, .001]

Note. Dependent Variable: Anxiety. *LL* and *UL* indicate the lower and upper limits of a confidence interval, respectively.
* indicates p < .05. ** indicates p < .01.

I first checked (Step 1) to see if gender was associated with anxiety, and it was associated such that females (vs. males) rated themselves as having higher anxiety. Then, Step 2 and Step 3 replicated my primary analyses of main effects and interaction terms while controlling for gender. The effects reported in the main body of this thesis were unaltered when controlling for gender. Greater EI and greater covid-related-threat were each associated with reduced subjective health, whereas the interaction term was not significant.

Table 9. Coefficients for EI & Perceived Threat associated with Hope, Controlling for Gender

Predictor	Standardized Beta	t	Sig.	B 95 % CI [LL, UL]
Step 1:				
Gender	-.090*	-2.25*	.025*	[-.400, -.027]
Step 2:				
EI	-.252**	-6.04**	<.001**	[-.421, -.224]
Threat	.053	1.34	.183	[-.015, .080]
Step 3:				
EI: Threat	-.188	-4.30**	<.001**	[-.155, -.058]

Note. Dependent Variable: Hope. *LL* and *UL* indicate the lower and upper limits of a confidence interval, respectively.
* indicates p < .05. ** indicates p < .01.

I first checked (Step 1) to see if gender was associated with hope, and it was associated such that females (vs. males) reported lower feelings of hope. Then, Step 2 replicated my findings of main effects reported in the main body of the paper. EI is significantly associated with hope, whereas Covid-related threat is not significantly associated with hope when controlling for gender. In Step 3, the Threat x EI interaction remained significant.

When controlling for gender, among those with lower (-1*SD*) Threat scores, EI was negatively associated with hope (β = -.18, t = -4.14, p < .001). Among those with higher (+1*SD*) Threat scores, EI was negatively associated with hope (β = -513, t = -7.25, p < .001). Among those with lower (-1*SD*) EI scores, Threat was positively related to hope, (β = .226, t = 4.03, p < .001), whereas among those with higher (+1*SD*) EI, Threat was negatively associated with hope, (β = -.103, t = -01.91, p = .057). The data patterns remained largely unaltered even while controlling for these variables.