Supplementary Materials

for "Freedom under Constraints: Accentuating the Positive in the Time of Corona"

1. Freedom item selection

In order to select freedom items for further analysis, we have run an exploratory factor analysis (EFA). The analyses were run with the *psych* (Revelle, 2020) and *GPArotation* (Bernaards & Jennrich, 2005) packages in *R*. Maximum likelihood estimation was used with direct oblimin rotation. Data were screened for multivariate assumptions (normality, linearity, homogeneity, and homoscedasticity), and all assumptions were met. Eleven multivariate outliers were detected using Mahalanobis distance ($X^2(8) = 26.12$), and they were removed from further analyses. The following EFA analyses were conducted using guidelines outlined in Preacher and MacCallum (2003). Bartlett's test indicated correlation adequacy, $X^2(171) = 4978.281$, $p < .001$, and the KMO (Kaiser-Meyer-Olkin) test indicated sampling adequacy, $MSA = 0.94$.

We first entered all items in EFA. Scree plot examination as well as Keiser criterion of eigenvalue > 0.7 suggested two-factor structure (see Table 1A). It turned, however, that Factor 1 consisted entirely of reverse scored items and Factor 2 of positively framed items. Since we strived for a one-factor solution and did not want to remove Factor 2 (which would leave us with only reverse scored items), we decided to first considerably reduce the number of items and repeat EFA on a smaller set. Therefore, we removed items that sounded very similar to other items (Item 6R, Item 9R, Item 14, Item 18, Item 19, Item 3). We also removed the items with the lowest factor loadings in the first round of EFA (Item 2R, Item 10, Item 13R). We then rerun the analysis. The KMO test suggested one factor this time, therefore we rerun EFA with one factor. Based on the results we eliminated Item 8, which had a factor loading of 0.39. Ultimately, there were 8 items left. The items are bolded in Table 1A and their final factor loadings are presented in the last column. The reliability of the scale was high, Cronbach's $\alpha = .90$. The mean score was $M = 3.57$ ($SD = 1.17$).

Table 1A

Items Measuring Freedom In Study 1 With Respective Factor Loadings. Items In Bold Were Selected For Further Analyses

	Initial structure		Final structure
	Factor 1	Factor 2	Factor 1
I feel free. (1)	0.16	0.67	0.70
There are many things that limit me. (2R)	0.48	0.23	
I can do what I want. (3)	0.02	0.76	
I would like to have more freedom of action. (4R)	0.81	-0.19	0.64
I feel restricted. (5R)	0.71	0.10	0.78
Various limitations and restrictions bother me. (6R)	0.82	-0.11	
I wish I were more free. (7R)	0.84	-0.03	0.78
I feel autonomous. (8)	-0.13	0.61	
I have limited options. (9R)	0.59	0.16	
My actions reflect my goals. (10)	-0.06	0.47	
I feel I have freedom of action. (11)	0.08	0.73	0.67
I feel very limited in my actions. (12R)	0.61	0.28	0.84
I feel compelled to do things I don't want to do. (13R)	0.53	0.00	
I feel free to do things my own way. (14)	0.04	0.73	
I feel like I don’t have a choice. (15R)	0.56	0.24	0.72
The restrictions affect me hard. (16R)	0.66	0.08	0.69
My freedom is limited. (17R)	0.70	0.15	
What I do is what I want to do. (18)	0.04	0.63	
My actions reflect my personal choices. (19R)	-0.04	0.64	

2. Moderation with Autonomy

In Study 1, we additionally measured the importance individuals assign to the satisfaction of the autonomy need (Deci & Ryan, 2000; Ryan & Deci, 2000). In doing so, we asked respondents to rate how important it was to them to feel: 1) free to do things their own way, 2) that their choices express their "true self", and 3) that their choices are based on their true interests and values (Chen et al., 2015; Sheldon et al., 2001). The answers were given on a 1-7 scale from *not at all important* to *extremely important*. Responses to the three items were averaged and the average was used as an autonomy score, the greater the score, the greater the value placed on autonomy (Cronbach's α = .73). We expected that our goal focus manipulation would affect particularly those high (vs. low) on the need for autonomy.

Results

We wanted to test whether autonomy played a role in the way our manipulation affected participants' sense of freedom. Therefore, we ran moderation analysis in which we regressed condition, autonomy, and the product of the two on the sense of freedom. For simplicity, we focused on two most extreme conditions being the commitment condition (coded as 1) and the sacrifice condition (coded as 0). Autonomy scores were standardized before the analyses, *sjPlot* (Ludecke, 2020) and *interactions* (Long, 2019) packages were used.

The results showed a significant effect of condition, b = 0.68, SE = 0.15, t = 4.44, p < .001, a significant effect of autonomy, b = -0.28, SE = 0.11, t = -2.45, p = .014, and marginally significant interaction, b = 0.29, SE = 0.15, t = 1.90, p = .059. Simple slopes analysis revealed that participants with high scores of autonomy (+1 SD) were the ones who were most affected by our manipulation, b = 0.98, SE = 0.22, t = 4.49, p < .001. The effect was weaker for those with mean, b = 0.68, SE = 0.15, t = 4.44, p < .001, and low (-1 SD) scores on autonomy, b = 0.39, SE = 0.22, t = 1.78, p = .08. Johnson-Neyman region of significance analysis indicated that for participants who were more than 0.92 SD below the mean on the autonomy scale, the difference between the two conditions was not significant. Only those who scored higher were affected by our manipulation, with higher scores being associated with a greater difference between the conditions. This, as seen in Figure 1A, was

mainly due to the lowered sense of freedom in the sacrifice (compared to the commitment) condition.

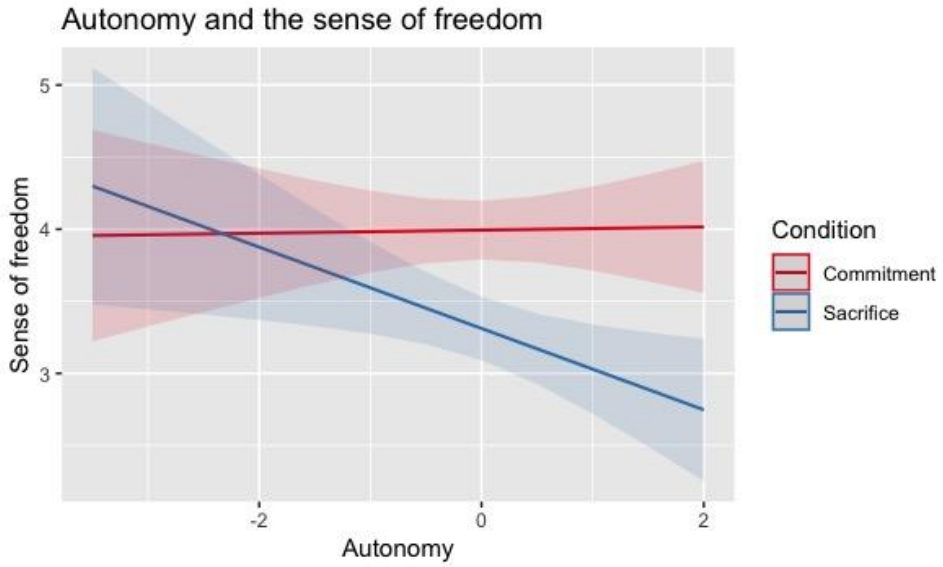

Figure 1A. Relationship between autonomy and the sense of freedom depending on the condition in Study 1.

The results thus show that participants scoring high on the need for autonomy were more affected by our manipulation than those who scored low on this need. That is, high (vs. low) autonomy participants suffered more because of the sacrifices they needed to make because of the pandemic restrictions.

3. Outcome Variables

Table 2A presents all items used to measure outcome variables in Study 2. On each set of items, we have run an exploratory factor analysis (in line with the steps described above). Based on the results of EFA we dropped the items that either loaded on a different factor or had very low factor loadings. These items are marked in italics.

For the sake of study brevity, in Study 3 we used fewer items. The items we used in those studies are marked in an asterisk in the table.

Table 2A

Items Used To Measure Outcome Variables In Studies 2 and 3 With Factor Loadings. Items Used In Study 3 Are Marked With Asterisks

Emotional coping	**Factor loadings**
I handle the pandemic situation rather well.	0.54
I feel like I cannot bear this situation for much longer.	0.64
I try to see as many positive aspects of the situation as I can. (dropped)	*0.26*
I am in a poor mental shape because of the pandemic.*	0.76
This situation is very difficult for me.*	0.86
This situation is emotionally exhausting for me. *	0.87
I experience a lot of stress because of the pandemic.*	0.80
Perception of the pandemic	
I find the pandemic-related restrictions necessary.*	0.93
I find the pandemic-related restrictions justified.*	0.95
I find the pandemic-related restrictions legitimate.	0.95
I start doubting that the decision to impose the restriction was correct. *	0.69
The authorities' reaction to the pandemic is exaggerated.*	0.76
I am afraid that some of the pandemic-related restrictions will be retained even after the disappearance of the virus. (dropped)	*0.44*
I am afraid that the presence of the pandemic-related restrictions, some of which cannot be effectively executed, will diminish the general respect for law. (dropped)	*0.23*
I think that the authorities too readily sacrifice freedom for the sake of (health) security.*	0.56
I am afraid that the increased number of the pandemic-related restrictions may result in not treating them too seriously. (dropped)	*0.08*
I think that the pandemic-related decisions made by the authorities are right.	0.67
Intentions to keep pandemic-related restrictions	
I will self-isolate as long as it is needed.*	0.95
I will keep all restrictions related to the pandemic as long as it is needed. *	0.96

I will comply with all pandemic-related regulations required by the law. *	0.85
At some point, I might not be able to comply with the restrictions any longer.	0.52
Reactance and intentions to counteract the restrictions	
I am tired of the pandemic-related restrictions. (dropped)	*0.39*
The pandemic-related restrictions make me angry.*	0.62
The pandemic-related restrictions limit people's freedom too much.*	0.78
I happen to ignore some of the pandemic-related restrictions.	0.60
I feel like counteracting these restrictions.*	0.79
Something must be done to stop these restrictions. *	0.86
Everyone individually, rather than the authorities, should decide how to best protect themselves from the virus. *	0.80
Respect for the law	
The pandemic-related restrictions diminish my general respect for the law. *	0.63
I am afraid that the presence of the pandemic-related restrictions, some of which cannot be effectively executed, will diminish the general respect for law. *	0.43
I am afraid that the pandemic-related restrictions may be abused to serve other goals than counteracting the pandemic.*	0.83

4. Additional Individual Difference Variables: Exploratory Analyses

Study 3

We measured three variables we found potential candidate moderators: need for cognitive closure (Kruglanski & Webster, 1996), self-regulatory focus (Higgins et al., 2001) and optimism (Scheier & Carver, 1985).

Need for cognitive closure

We used the short version of the Need for Cognitive Closure Scale (Roets & Van Hiel, 2011). The scale consists of 15 items (e.g., "I don't like situations that are uncertain" or "I feel uncomfortable when I don't understand the reason why an event occurred in my life"). Answers are given on 1-6 scale form *definitely disagree* to *definitely agree*. Responses to all items are averaged and a general score of the need for cognitive closure is computed (the higher the score, the greater the need). Reliability of the scale was equal to Cronbach's α = .88.

Self-regulatory focus

Regulatory Focus Questionnaire (Higgins et al., 2001) was used to assess participants' chronic regulatory focus. The questionnaire obtains a subjective history of participants' prevention versus promotion success (Grant & Higgins, 2003; Higgins et al., 2001). The scale consists of 11 items, six quantifying promotion (e.g., "Do you often do well at different things that you try?") and five quantifying prevention (e.g., "Growing up, would you ever "cross the line" by doing things that your parents would not tolerate*?"*). Responses are given on 1-5 Likert scale from *never or seldom* to *very often*. Separate scores for promotion and prevention are calculated by computing respective means. Reliabilities were equal to α = .62 for promotion and α = .76 for prevention.

Optimism

Revised version of the Life Orientation Test (Scheier, Carver, & Bridges, 1994) was used to assess dispositional optimism. The test includes 10 items: three statements on optimism (e.g., "In uncertain times, I usually expect the best"), three on pessimism (e.g., "If something can go wrong for me, it will") and four filler items whose scores are not computed (e.g., "It's easy for me to relax"). Subjects answer on a five-point Likert scale, ranging from *strongly disagree* to *strongly agree*. Responses to the optimism items and responses to inversed pessimism items are averaged and a general score of dispositional optimism is calculated (Cronbach's α = .84).

Results

As seen in Table 3A, there was a significant but rather weak correlation between the sense of freedom and individual difference variables. The correlation was negative for the need for cognitive closure and positive for promotion, prevention and optimism.

Table 3A

Means, Standard Deviations, and Correlations Between Variables in Study 2

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11
1. Sense of freedom	3.84	1.13											
2. Positive affect	2.69	0.87	.27**										
3. Negative affect	2.33	0.93	-.34**	-.29**									
4. Emotional coping (reversed)	3.70	1.68	-.51**	-.37**	.69**								
5. Perception of the restrictions	5.47	1.14	.29**	.06	.03	.02							
6. Intentions to keep the restriction	5.68	1.07	.30**	.06	-.02	-.01	.76**						
7. Reactance	2.57	1.41	-.40**	.08	.18**	.24**	-.61**	-.60**					
8. Law respect (reversed)	2.82	1.37	-.37**	.05	.22**	.23**	-.55**	-.51**	.75**				
9. Need for Cognitve Closure	3.99	0.73	-.12*	.03	.22**	.30**	.12*	.12*	.14**	.09			
10. Promotion	3.41	0.62	.11*	.26**	-.32**	-.21**	.02	.07	-.09	-.11*	-.26**		
11. Prevention	3.31	0.77	.12*	-.02	-.25**	-.19**	.09	.12*	-.20**	-.24**	-.02	.20**	
12. Optimism	2.37	0.73	.16**	.42**	-.33**	-.30**	.01	.01	-.01	-.07	-.22**	.66**	.16**

Note. *M* and *SD* are used to represent mean and standard deviation, respectively.
* indicates $p < .05$. ** indicates $p < .01$.

However, we also wanted to check whether these individual difference variables moderate the extent to which our manipulation affected participants' sense of freedom. Therefore, we run moderation analyses in which the sense of freedom was regressed on condition, a given individual difference variable and the product of the two (separate analysis was run for each individual difference variable, condition was dummy coded in three variables with the sacrifice condition as the reference category). Moderator scores were standardized before the analyses, *sjPlot* (Ludecke, 2020) and *interactions* (Long, 2019) packages were used.

There were no significant effects for the need for cognitive closure and prevention (promotion was controlled for when moderation with prevention was tested and vice versa).

However, there was a significant interaction with promotion. Interaction is graphically presented in Figure 2A. Only promotion × sacrifice vs. control condition was significant, b = 0.33, SE = 0.13, $t = 2.15$, $p = .032$. Other condition comparisons were not significant ($t < 1$). Prevention was a significant predictor as well, b = 0.11, SE = 0.06, $t = 1.97$, $p = .050$. Simple slopes analysis revealed that the difference between sacrifice and control conditions was significant for participants high (+1 SD), b = 0.83, SE = 0.22, $t = 3.71$, $p < .001$, but not low (-1 SD) on promotion, b = 0.14, SE = 0.22, $t = 0.64$, $p = .52$.

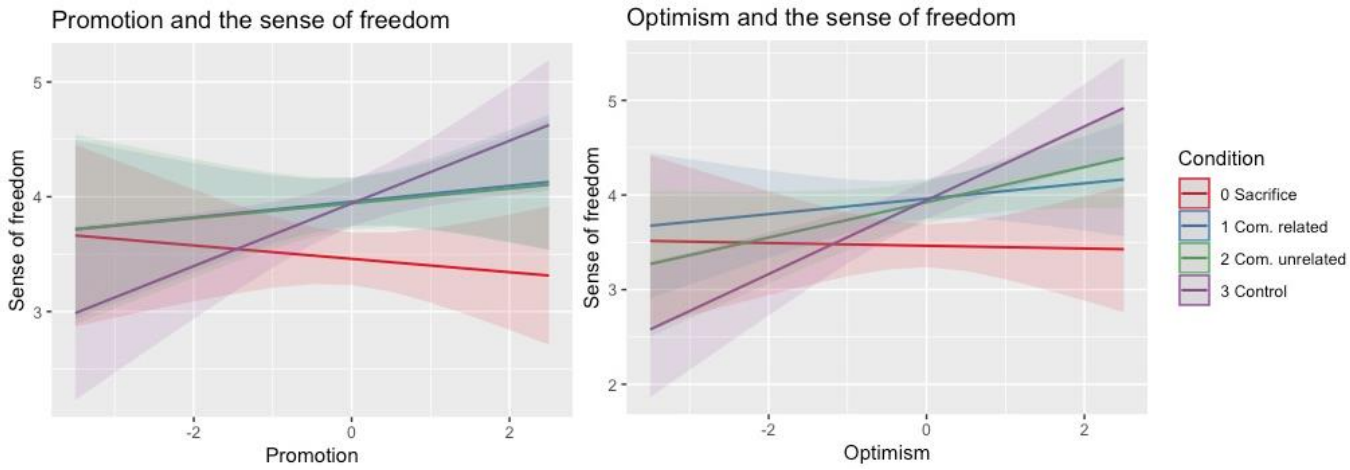

Figure 2A. Moderations with promotion (left panel) and optimism (right panel) in Study 3.

Also, there was a significant interaction effect for dispositional optimism. Similar to the above, only optimism × sacrifice vs. control condition was significant, b = 0.40, SE = 0.16, $t = 2.48$, $p = .013$. Other comparisons were not significant ($t < 1.23$). Simple slopes analysis revealed that the difference between sacrifice and control condition was significant for participants high (+1 SD), b = 0.89, SE = 0.23, $t = 3.93$, $p < .001$, but not low (-1 SD) on optimism, b = 0.08, SE = 0.22, $t = 0.34$, $p = .73$. Interaction is presented in Figure 2A.

Discussion

The results showed weak but significant correlations between the sense of freedom and each of the tested individual difference variable: positive for optimism, promotion and prevention and negative for the need for closure. However, only optimism and promotion significantly moderated the effects of our manipulation. The results showed that only those high (but not low) on optimism had significantly higher sense of freedom in the control compared to the sacrifice condition. Similar was the case for promotion. Also, both variables were positively related to the sense of freedom but only in the control condition (our

manipulation seemed to eliminate the effects of the individual differences on the sense of freedom).

Study 3

Participants' need for cognitive closure (Cronbach's α = .86), promotion (Cronbach's α = .58) and prevention focus (Cronbach's α = .80), and dispositional optimism (Cronbach's α = .87) were measured with the same scales as in the previous experiment. Additionally, participants' growth mindset was measured with the use of the 3-item Growth Mindset Scale (Dweck, 1999; Dweck, Chiu, & Hong, 1995). Example item: "You have a certain amount of intelligence, and you can't really do much to change it." Responses were given on a 1-6 point scale from *strongly agree* to *strongly disagree*. Reponses to the three items were averaged and a score of growth mindset was computed (Cronbach's α = .93).

Results

Like in Study 2, the sense of freedom positively correlated with optimism, promotion and prevention focus and negatively with the need for cognitive closure (see Table 4A).

Table 4A

Means, Standard Deviations, And Correlations Between Variables Measured In Study 4

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Freedom	3.68	1.18													
2. Positive affect	2.73	0.99	.38**												
3. Negative affect	2.32	0.92	-.41**	-.44**											
4. Coping	3.90	1.73	-.50**	-.44**	.64**										
5. Restrictions perception	5.37	1.24	.18**	-.19**	-.01	.01									
6. Intentions	5.73	1.03	.11	-.06	.05	.06	.64**								
7. Reactance	2.54	1.35	-.30**	.20**	.05	.15**	-.76**	-.54**							
8. Diminished law respect	2.78	1.44	-.25**	.05	.14*	.18**	-.60**	-.38**	.72**						
9. Sheltering end	4.15	1.68	.20**	-.03	.02	-.01	.47**	.37**	-.48**	-.35**					
10. NFC	3.97	0.71	-.14*	.07	.20**	.30**	-.06	.03	.20**	.18**	-.11				
11. Promotion	3.26	0.62	.16**	.27**	-.34**	-.21**	-.02	.02	.03	-.06	-.12*	-.12*			
12. Prevention	3.25	0.86	.16**	-.02	-.23**	-.20**	.17**	.08	-.20**	-.17**	.07	-.06	.15**		
13. Optimism	2.22	0.82	.20**	.41**	-.43**	-.34**	-.04	-.00	.08	-.09	-.08	-.15**	.57**	.02	
14. Growth mindset	3.02	1.36	-.02	-.19**	.08	.11	.23**	.16**	-.27**	-.13*	.08	-.15*	.00	.06	-.13*

Note. *M* and *SD* are used to represent mean and standard deviation, respectively.
* indicates $p < .05$. ** indicates $p < .01$.

We also repeated the same moderation analyses as in Study 2. Like in the previous experiment, neither need for cognitive closure nor prevention focus moderated the effects (there was a significant main effect of the need for closure, b = -0.23, SE = 0.11, t = -2.06, p = .041). However, consistent with the findings of Study 2, there were significant interactions with promotion focus and dispositional optimism. However, this time this was the commitment condition that drove the effects (see Figure 3A).

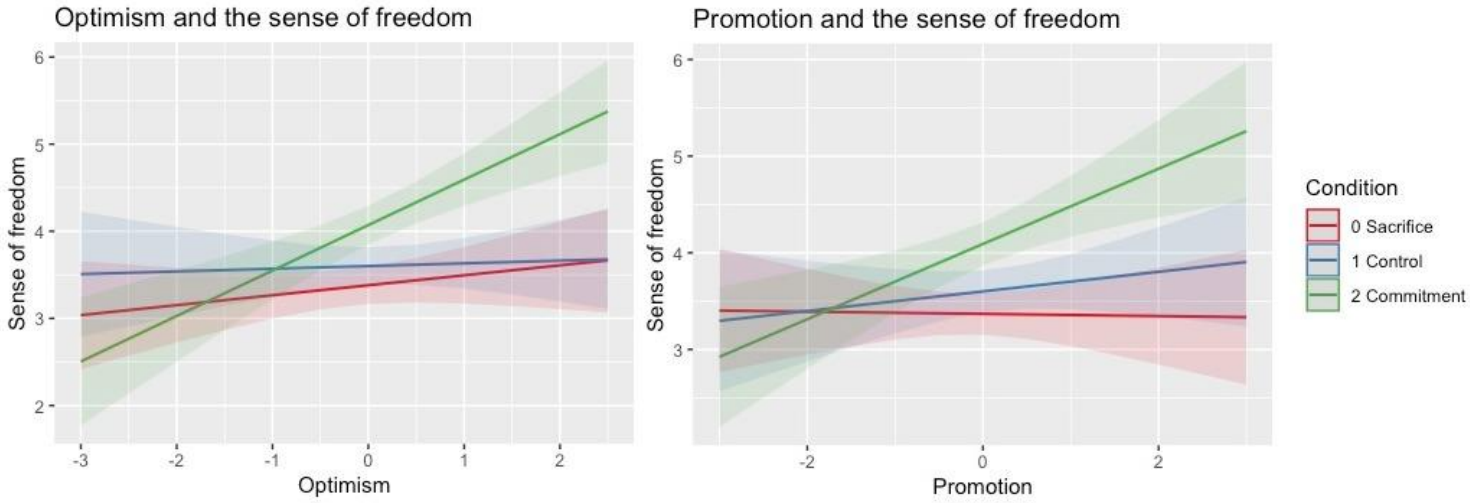

Figure 3A. Moderations with promotion (left panel) and optimism (right panel) in Study 4.

Specifically, in case of promotion, only promotion × sacrifice vs. commitment comparison was significant, b = 0.40, SE = 0.16, t = 2.52, p = .012. Comparison between sacrifice and control was not significant (t < 1). Prevention was a significant predictor as well, b = 0.15, SE = 0.07, t = 2.37, p = .018. Simple slopes analysis revealed that the difference between commitment and sacrifice conditions was significant for participants high (+1 SD), b = 1.12, SE = 0.23, t = 4.81, p < .001, but not low (-1 SD) on promotion, b = 0.39, SE = 0.22, t = 1.79, p = .07. Only slope in the commitment condition was significant, b = 0.39, SE = 0.12, t = 3.34, p < .001.

Similar effects were found for optimism, only promotion × sacrifice vs. commitment comparison was significant, b = 0.41, SE = 0.16, t = 2.60, p = .010. Comparison between sacrifice and control was not significant ($|t|$< 1). Simple slopes analysis revealed that the difference between commitment and sacrifice conditions was significant for participants high (+1 SD), b = 1.10, SE = 0.23, t = 4.85, p < .001, but not low (-1 SD) on optimism, b = 0.28, SE = 0.22, t = 1.29, p = .20. Only slope in the commitment condition is significant, b = 0.52, SE = 0.12, t = 4.52, p < .001.

5. Responses to the Pandemic-Related Questions

Table 5A

Pandemic-Related Sample Characteristics Across Four Studies.

	Study month	Knowing someone who has the virus					Being in the high-risk group		Likelihood of contracting the virus	
		No	*Yes, someone I have heard of*	*Yes, someone I know personally*	*Yes, my family*	*Yes, myself*	*Yes*	*No*	*M*	*SD*
Study 1	April	291 (61%)	90 (19%)	70 (15%)	23 (5%)	4 (0.01%)	336 (70%)	142 (30%)	4.82	2.23
Study 2	June	271 (57%)	77 (16%)	109 (23%)	20 (5%)	2 (<0.01%)	319 (67%)	160 (335)	4.67	2.27
Study 3	September	174 (48%)	71 (20%)	90 (25%)	71 (20%)	4 (0.01%)	220 (61%)	141 (39%)	4.40	2.36

Note: Several participants across the studies did not provide answers to these question, therefore the numbers might slightly differ from the total sample sizes. Percentages are rounded up (the sum might exceed 100).

6. Manipulations Used in Study 4: Socializing And Time-Alone Conditions

Taking the Time to Socialize with Others Enriches Our Lives

The Importance of Socializing with People and Face-to-Face Contact

Posted April 6, 2023

Socializing Enhances Communication and Interpersonal Skills

Socializing with people and having face-to-face contact is crucial for our well-being and overall health. Humans are social creatures, and we have an innate need to interact with others. Socializing helps us develop our communication and interpersonal skills, enhances our emotional intelligence, and builds strong relationships with others. Through socializing, we can share our experiences, ideas, and feelings, and learn from one another.

Face- to- Face Contact Allows for Interpretation of Nonverbal Cues

Face-to-face contact is particularly important because it allows us to read and interpret nonverbal cues, such as facial expressions, body language, and tone of voice. These cues are essential for effective communication and understanding others' emotions, which can be difficult to do in virtual communication. Face-to-face interaction can also increase empathy, build trust, and create a sense of connection that cannot be achieved through online communication.

Socializing in Person Can Have Positive Impacts on Physical Health

In addition to the social and emotional benefits, socializing with people in person can also have positive impacts on our physical health. For example, spending time with others can decrease stress levels and lower the risk of depression and anxiety. It can also promote a healthier lifestyle by encouraging physical activity and better eating habits.

In- Person Interaction Cannot Be Replaced by Online Communication

In conclusion, socializing with people and having face-to-face contact is vital for our overall well-being. While online communication has its benefits, it cannot replace the value of in-person interaction. Whether it's with friends, family, colleagues, or new acquaintances, taking the time to socialize with others can enrich our lives in countless ways.

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Self-Discovery as We Age

Being Alone Helps Us Recharge and Refocus

The Importance of Having Time for Oneself and Spending Time Alone

Posted April 6, 2023

Having time for oneself and spending time alone to reflect on things is an essential part of our well-being. In today's fast-paced world, where we are always connected and always "on," it's easy to become overwhelmed and lose sight of our priorities. Taking time for ourselves and being alone can help us recharge and refocus on what is truly important.

Self-Reflection Enhances Self-Awareness and Emotional Resilience

Spending time alone can be an opportunity to reflect on our thoughts, emotions, and experiences. This self-reflection allows us to understand ourselves better and develop a stronger sense of self-awareness. It can also help us process our emotions and experiences, which can lead to greater emotional resilience and better mental health.

Alone Time Fosters Independence, Accomplishment, and Confidence

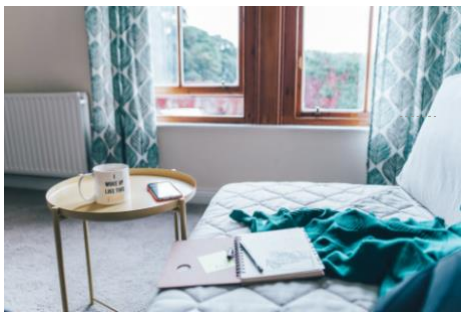
Moreover, being alone can provide us with a sense of independence and self-sufficiency. It can also allow us to pursue our interests, hobbies, and passions without any distractions or interruptions. This alone time can help us discover new talents or skills, and gain a sense of accomplishment and confidence.

Taking Care of Ourselves Improves Relationships with Others

In addition to these personal benefits, having time for oneself can also lead to better relationships with others. When we take care of ourselves, we are better able to show up for the people in our lives. We become more empathetic, compassionate, and understanding of others. Additionally, by taking care of ourselves, we set an example for others and encourage them to do the same.

Prioritizing Alone Time Is Essential for Our Well-Being.

In conclusion, having time for oneself and spending time alone is vital for our well-being. It allows us to reflect on our thoughts and emotions, pursue our interests and passions, and develop a stronger sense of self-awareness. Moreover, it can improve our relationships with others and lead to better mental health. Therefore, it's essential to prioritize and make time for ourselves, even amidst our busy lives.



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References

Bernaards, C. A., & Jennrich, R. I. (2005). Gradient Projection Algorithms and Software for Arbitrary Rotation Criteria in Factor Analysis. *Educational and Psychological Measurement, 65*, 676-696.

Chen, B., Vansteenkiste, M., Beyers, W., Boone, L., Deci, E. L., Van der Kaap-Deeder, J., ... & Ryan, R. M. (2015). Basic psychological need satisfaction, need frustration, and need strength across four cultures. *Motivation & Emotion*, *39*(2), 216-236. https://doi.org/10.1007/s11031-014-9450-1

Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry, 11*, 227–268. https://doi.org/10.1207/S15327965PLI1104_01

Dweck, C. S. (1999). *Self-theories: Their role in motivation, personality, and development.* Philadelphia: Psychology Press.

Dweck, C. S., Chiu, C. Y., & Hong, Y. Y. (1995). Implicit theories and their role in judgments and reactions: A world from two perspectives. *Psychological Inquiry, 6*(4), 267-285. https://doi.org/10.1207/s15327965pli0604_1

Grant, H., & Higgins, E. T. (2003). Optimism, promotion pride, and prevention pride as predictors of quality of life. Personality and Social Psychology Bulletin, 29(12), 1521-1532. https://doi.org/10.1177/0146167203256919

Higgins, E. T., Friedman, R. S., Harlow, R. E., Idson, L. C., Ayduk, O. N., & Taylor, A. (2001). Achievement orientations from subjective histories of success: Promotion pride versus prevention pride. *European Journal of Social Psychology*, *31*(1), 3-23. https://doi.org/10.1002/ejsp.27

Kruglanski, A. W., & Webster, D. M. (1996). Motivated closing of the mind:" Seizing" and" freezing.". *Psychological Review, 103*(2), 263-283. https://doi.org/10.1037/0033-295X.103.2.263.

Long, J.A. (2019). *interactions: Comprehensive, User-Friendly Toolkit for Probing Interactions*. R package version 1.1.0, https://cran.r-project.org/package=interactions.

Ludecke, D. (2020). *sjPlot: Data Visualization for Statistics in Social Science*. R package version 2.8.6, https://CRAN.R-project.org/package=sjPlot.

Preacher, K. J., & MacCallum, R. C. (2003). Repairing Tom Swift's electric factor analysis machine. *Understanding statistics: Statistical issues in psychology, education, and the social sciences*, *2*(1), 13-43.

Ryan, R. M., & Deci, E. L. (2000). The darker and brighter sides of human existence: Basic psychological needs as a unifying concept. *Psychological Inquiry, 11*, 319–338. https://doi.org/10.1207/S15327965PLI1104_03

Revelle, W. (2020). *psych: Procedures for Psychological, Psychometric, and Personality Research*. Northwestern University, Evanston, Illinois. R package version 2.0.9, https://CRAN.R-project.org/package=psych.

Scheier, M. F., & Carver, C. S. (1985). Optimism, coping, and health: assessment and implications of generalized outcome expectancies. *Health Psychology, 4*(3), 219-247. https://doi.org/10.1037/0278-6133.4.3.219

Scheier, M. F., Carver, C. S., & Bridges, M. W. (1994). Distinguishing optimism from neuroticism (and trait anxiety, self-mastery, and self-esteem): a reevaluation of the Life Orientation Test. Journal of personality and social psychology, 67(6), 1063-1078.

Sheldon, K. M., Elliot, A. J., Kim, Y., & Kasser, T. (2001). What is satisfying about satisfying events? Testing 10 candidate psychological needs. *Journal of Personality and Social Psychology, 80*, 325–339. https://doi.org/10.1037/0022-3514.80.2.325

Tingley, D., Yamamoto, T., Hirose, K., Keele, L., & Imai, K. (2014). "mediation: R Package for Causal Mediation Analysis." *Journal of Statistical Software*, 59(5), 1–38. http://hdl.handle.net/1721.1/91154