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Compliance with COVID-19 prevention guidelines: Active vs. passive risk takers

Ruty Keinan* Tali Idan† Yoella Bereby-Meyer‡

Abstract

In 2020, most countries around the world adopted various measures aimed at combating the coronavirus (i.e., COVID-19), or reducing risky behavior which may spread the virus. In the current study (N = 215), we examined compliance with COVID-19 prevention guidelines using a risk-taking perspective, differentiating active from passive risk taking. In the corona context active risk taking involves actions that may cause disease contraction, such as shaking hands, while passive risk taking involves the acceptance of risk brought on by inaction, as in not using an alco-gel disinfectant. We found that personal tendencies for passive and active risk taking predicted passive and active corona related risk taking, respectively. Furthermore, compliance with COVID-19 prevention measures was also related to differences in self-control, with low Initiation self-control predicting passive corona risk taking and low levels of Inhibition self-control predicting active corona risk taking. Thus, while not complying with Covid-19 prevention measures put people at risk, differentiating between active and passive risks is helpful for accurate prediction of each type of risk behavior.

Keywords: passive risk; compliance; COVID-19; self-control; time perspective

1 Introduction

The Corona virus (COVID-19) pandemic has taken a tremendous toll on countries and communities worldwide, regarding both public health and the economy. With a reliable vaccine limitedly available and increasing types of Covid-19 mutations, preventing the

*School of Economics and Management, Academic College of Tel Aviv-Yaffor, Tel Aviv, Israel. ORCID 0000-0003-0190-3132. Email: Rutykeinan@gmail.com.

†Department of Psychology, Ben-Gurion University of the Negev, Beer-Sheva, Israel. ORCID 0000-0003-10200367.

‡Department of Psychology, Ben-Gurion University of the Negev, Beer-Sheva, Israel. ORCHID 0000-0001-6569-0186.

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spread of the virus in the foreseeable future is reliant mostly on individual and collective efforts. According to the World Health Organization, adhering to instructions and guidelines pertaining to social distancing or personal hygiene can save lives (https://www.who.int/health-topics/coronavirus#tab=tab_2), but not everyone acts accordingly.

Recent studies have focused on identifying individual differences which can predict compliance with COVID-19 regulations. Zajenkowskia, Jonasonb, Leniarskaa and Kozakiewicza (2020) found that individual differences in perceptions of the COVID-19 pandemic situation (the situational eight: Duty, Intellect, Adversity, Mating, Positivity, Negativity, Deception, and Sociality-DIAMONDS framework, (Rauthman & Sherman, 2016), explained more variance in compliance than some personality traits (Big Five traits, Dark Triad traits). More specifically, they found that people who viewed the situation as characterized by Duty and Negativity were more likely to comply with regulations, as well as those who were higher in trait agreeableness. One limitation of the Zajenkowskia et al. study is that compliance was measured with a single general question, asking participants to assess their level of compliance on a scale of 1–100. This yields a general concept of compliance, masking any possible variations or interactions between individual differences and specific regulations.

Gender has also been found to be associated with compliance to COVID-19 preventive measures, as men are less likely than women to wash their hands, wear a mask or employ social distancing (Griffith et al, 2020). This may be related to data indicating men's tendency to downplay the severity of the pandemic (McCarthy, 2020). Other background factors, such as political beliefs (Painter & Qiu, 2020) or poverty (Wright, Sonin, Driscoll & Wilson, 2020) have also been associated with compliance levels.

Emotional responses, such as fear of the pandemic (Harper, Satchell, Fido & Latzman, 2020) or anxiety (Solomou & Constantinidou, 2020) have been found to promote cooperation with preventive measures. Personal expectations regarding the duration of the pandemic have also been found to affect the tendency to comply with instructions (Briscese, Lacetera, Macis & Tonin, 2020), as surprising extensions reduce willingness to practice social distancing.

The aforementioned studies either examine compliance (with any prevention measures) as a general variable, or examine adherence to specific guidelines as indications of general compliance. None of them offer any classifications or differentiations of various guidelines, stemming from a theoretical perspective, offering a deeper understanding of who complies with which regulations. The current study aims to do just that: employ a differentiating risk perspective, in order to better understand variations in compliance. While non-compliance with pandemic containment measures has already been linked to an increased personal tendency for risk taking (Miguel, Machado, Pianowski & Carvalho, 2020) compliance has not been analyzed under a risk taking theoretical framework which differentiates passive from active risk tendency.

Anyone behaving in a way that is known to increase the chance of contracting or spreading COVID-19 is clearly taking a risk, but recent studies have shown that it is

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important to distinguish between two types of risk taking: Active vs. Passive (Keinan & Bereby-Meyer, 2012; Riva, Gorini, Cutica, Mazzocco & Pravettoni,2015; Keinan & Bereby-Meyer, 2017; Hanoch, Rolison & Freund, 2018; Bran & Vaidis, 2020; Konig-Kersting, Lohse & Merkel, 2020). While active risk taking involves taking actions that may cause damage or harm, such as speeding, smoking or gambling, passive risk taking involves the acceptance of risk brought on by inaction, as is the case with neglecting to back up important data or avoiding recommended cancer screenings (Keinan & Bereby-Meyer, 2012). Regarding COVID-19, shaking hands with people means taking active risk, while not washing your hands upon entering your home or not using an alco-gel disinfectant means taking passive risks.

Previous research has shown that these two type of risk are distinct, and linked to very different personal tendencies: while active risk taking is highly correlated with sensation seeking (Zuckerman, 2007), passive risk taking shows no such correlation, but demonstrates ties to procrastination and avoidance-tendencies previously not linked to risk taking (Keinan & Bereby-Meyer, 2012). These findings were obtained using the PRT (Passive Risk Taking) scale and the DOSPERT (Domain Specific Risk Taking) scale (Weber, Blais & Betz, 2002), which measures *active* risk taking. Both scales are self-report measures, and require participants to rate how likely they are to engage in various risky behaviors. Both include domain specific sub-scales, such as financial risks, medical risks (very relevant to COVID-19 prevention) or ethical risks (although not necessarily the same subscales), and the two are slightly correlated (Keinan & Bereby-Meyer, 2012).

Idan, Keinan and Bereby-Meyer (2020) have found that the tendency to take passive compared to active risk is differentially related to self-control and time perspective. They found that *future time perspective* (Gonzales & Zimbardo, 1985), which entails the tendency to base decisions on anticipated outcomes of imagined future scenarios, mediates the correlation between self-control and passive risk taking, while *present-hedonistic time perspective*, oriented towards present enjoyment, mediates the correlation between self-control and active risk taking. People who focus on the future are more likely to act in order to prevent risks, while those who favor the present and its enjoyment are more likely to take active risks. These finding are in line with previous research, which found a relation between *future* orientation and specific choices minimizing passive risks such as getting flu shots (Chapman & Coups, 1999), undergoing tests for breast cancer (Guarino, De Pascalis & Di Chiacchio, 1999), as well as backing up data and installing computer anti-virus (Toplak, West & Stanovich, 2017). Furthermore, minimizing passive risk behavior in the context of cyber security was found to be related to individual differences in passive risk (PRT), but were not linked to self-reported active risk taking tendencies as measured with the DOSPERT scale (Arend, Shabtai, Idan, Keinan & Bereby-Meyer, 2020).

The aforementioned correlation between self-control and passive risk taking behaviors merits further examination, independent from its connection to time perspectives. De Ridder, De Boer, Lugtig, Bakker and van Hooft (2011) proposed an explicit distinction

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between two types of self-control: Initiatory and Inhibitory. Inhibitory self-control involves not behaving in undesired ways despite the impulse to do so, while Initiatory self-control involves behaving in a desired way despite a strong pull toward inaction (Davisson & Hoyle, 2013). The distinction between initiatory and inhibitory self-control may be relevant in differentiating and understanding choices made by passive and active risk takers. While Inhibitory self-control seems necessary to refrain from active risks, initiatory self-control seems necessary to decrease passive risk taking, namely initiating the necessary action. This differentiation is specifically relevant to COVID-19 prevention.

1.1 Current study

In the current study we aim to show that non-compliance with instructions and recommendations aimed at stopping the spread of COVID-19 entails two separate and distinct types of risks: Passive and Active. While passive risk refers to not following certain recommendations, passively, for example: not wearing a mask or not washing hands; active risk refers to actively violating recommendations such as visiting friends at their home or participating in large gatherings. We suggest that individual differences in self-control and time perspective relate differently to these two types of risks in the context of COVID-19.

Regarding self-control, exercising inhibitory self-control may assist in refraining from active risks, while initiatory self-control may decrease passive risk taking, promoting the necessary action. Specifically, we hypothesized that higher levels of inhibitory self-control will predict adherence to regulations aimed at minimizing active corona risk taking, and higher levels of initiatory self-control will predict compliance with regulations aimed at minimizing passive corona risks.

In regards to time perspective, we expect a *future* orientation to curb passive risk taking, and a *present hedonistic* time orientation to correlate with increased active corona risk taking behavior. Predicting which individuals are prone to which type of corona-related risk taking, and understanding the relation between factors like self-control and time perspective in regards to such behavior, can help constructing more affective and better targeted policies, messages and interventions, which will assist the global effort to contain the spread of COVID-19.

In order to examine these hypotheses we constructed a questionnaire comprised of various risk taking behaviors related to the spread of COVID-19. The questionnaire includes passive-risk items, such as: *I wash my hands after anytime I come in contact with something outside my home* (low levels indicate passive risk taking); active-risk items, such as: *I take elevators with other people* (high levels indicate active risk taking); as well as filler items, such as: *I learn new things about myself during this pandemic*. In addition to the COVID behaviors questionnaire, the following established measures are included in the current study.

Passive risk-taking (PRT) scale (Keinan & Bereby-Meyer, 2012), which comprises of 25 items measuring passive risk-taking in various life domains (health/safety, resources, and

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ethical). Items are assessed on a 7-point Likert-like scale, indicating how likely participants are to act in the manner described in each statement (1 = *Very unlikely*, 7 = *Very likely*).

Domain-specific risk-taking (DOSPERT) scale, (Weber, Blais, & Betz, 2002), which measures active risk taking and consists of 30 items, across various domains: financial, ethical, health/safety, social, and recreational. Items are assessed on a 7-point Likert-like scale, to indicate how likely the participants are to engage in the activity described in each statement (1 = *very unlikely*, 7 = *very likely*).

Future (FTP) and present-hedonistic (PHTP) time perspective from the Zimbardo Time Perspective Inventory (ZTPI), (Zimbardo & Boyd, 1999), which consist of 10 items and 9 items, respectively. Items are assessed on a 5-point Likert scale, based on how characteristic each statement is of the respondent. Higher scores indicate a stronger tendency towards a future or present-hedonistic time perspective.

Self-control scale (Davisson & Hoyle, 2013), which consist of 30 items that make up two subscales measuring inhibition self-control (15 items) vs. initiation self-control (15 items). Items are assessed on a 5-point Likert scale according to how often participants felt the described tendencies reflected their own behavior (1 = hardly ever, 5 = nearly always).

Our hypotheses are as follows:[1]

1. A positive correlation between the PRT scale (passive risk taking) and the passive risk items of the corona behavior questionnaire.
2. A positive correlation between the DOSPERT scale (active risk taking) and the active risk items of the corona behavior questionnaire.
3. Active risk corona behaviors will be predicted by the DOSPERT scale, Inhibition self-control and Present Hedonistic time perspective.
4. Passive risk corona behaviors will be predicted by the PRT scale, Initiation self-control and Future time perspective.

2 Method

2.1 Participants

Two hundred and fifteen participants were recruited via Amazon Mechanical Turk (MTurk), 79 Female and 136 male, aged 18-73, M= 36.6 SD= 10.8. Participants performed the experiment in exchange for $2.00. All participant were included in the analysis (none were excluded). The number of participants was determined using the Medpower calculator for mediation analysis (Kenny, 2015). Sample size was determined before any data analysis.

[1]Hypotheses 1 & 2 were pre-registered at *Aspredicted.org*, #40729, along with two other hypotheses which suggested that Present Hedonistic and Future time perspective mediate the correlation between self-control and Active/Passive corona behaviors, respectably. Due to the correlational design of the study, we later decided to forgo causal inferences and focus our data analysis on the contribution of individual differences to the propensity to take active or passive corona related risks.

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2.2 Procedure

All participants filled the self-report battery on-line, in mid May 2020, during the COVID-19 pandemic and lockdown in the United States. Questionnaires were presented in the same order, and took approximately 15–20 minutes to complete.

2.3 Measures

In the current study, we report all measures and manipulations. The self-report battery included the following:

Personal information: gender, age, level of education and medical background (presence/absence of significant background diseases).

Corona behaviors questionnaire: 16 items describing COVID-19 related behaviors, assessed on a 5-point Likert scale (1=*not at all*, 5=*all of the time*), indicating how likely participants were to act in the manner described in each statement. Of the 16 items, 6 described active risk taking behaviors (AR), 6 described passive risk taking behaviors (PR) and 4 were filler items (F).

1. I wash my hands after every time I come in contact with anything outside of my home. [PR*]
2. I follow the news regarding the pandemic. [F]
3. I use an alco-gel disinfectant on my hands every time I come in contact with anything or anyone outside of my home. [PR*]
4. I think about the financial effects this pandemic will have [F].
5. I wear a face mask whenever I leave the house [PR*]
6. I learn new things about myself during this pandemic. [F]
7. I hear about people I know who tested positive for the corona virus.[F]
8. I visit friends at their home [AR]
9. I visit people who are hospitalized these days [AR]
10. I avoid physical contact, including hugs and handshakes [AR**].
11. I use my hands to open doors, press elevator buttons, etc. [AR].
12. I try to avoid touching my face as much as I can [AR**]
13. I disinfect doors knobs [PR*]
14. I take elevators with other people [AR]
15. I exercise daily [PR*]
16. I wash all fresh produce before putting it in the refrigerator [PR*]

*items reversed in order to indicate high levels of passive risk taking

**items reversed in order to indicate high levels of active risk taking.

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Passive risk-taking (PRT) scale: 25 items, (Keinan & Bereby-Meyer, 2012).

Domain-specific risk-taking (DOSPERT) scale: 30 items, (Weber et al., 2002).

Future (FTP) and present-hedonistic (PHTP) time perspective: from the Zimbardo Time Perspective Inventory (ZTPI): 19 items, (Zimbardo & Boyd, 1999).

Self-Control scale: 30 items, (Davisson & Hoyle, 2013).

3 Results

We calculated participants' tendency to adhere to the recommendations regarding COVID-19 by averaging the answers to the passive risk corona behavior items (PRCB) and to the active risk corona behavior items (ARCB). Table 1 presents descriptive statistics and alpha coefficients of all study variables. Table 2 shows the main correlations.

TABLE 1: Means (M), Standard Deviations (SD) and Cronbach's Alphas (α) of study Variables. (PRT: passive risk taking; DOSPERT: domain specific (active) risk taking; PRCB: passive risk corona behaviors; ARCB: active risk corona behaviors; SC: self-control; FTP: future time perspective; PHTP: present hedonistic time perspective.)

	M	SD	α
PRT	2.9	0.6	.76
DOSPERT	4.4	1.5	.97
PRCB	2.4	1.0	.76
ARCB	3.5	1.2	.72
SC-Inhibition	3.2	0.4	.58
SC-Initiation	3.2	0.5	.70
FTP	3.9	0.5	.71
PHTP	3.5	0.8	.92

In line with Hypotheses 1 and 2, we found a significant positive correlation between passive risk corona behaviors (PRCB) and passive risk taking tendencies (PRT scale) (r=0.59, p<.00), as well as a significant positive correlation between active risk corona behaviors (ARCB) and active risk taking tendencies (DOSPERT): r=0.81, p<.00), and a very low correlation between the two scales (r=0.1, NS). Furthermore, we found no correlation between passive risk corona behaviors (PRCB) and the DOSPERT scale, and a negative correlation between active risk corona behaviors (ARCB) and the PRT scale: r= −0.28, p<.00.[2]

[2]We performed a single item correlation analysis for all 12 corona behavior items (6 active, 6 passive), with the DOSPERT and PRT, in order to examine whether they all show the expected pattern of higher correlation with their compatible risk questionnaire than with the other risk questionnaire. Results show that this is the case for all items, with the exception of the passive risk item which asked about physical exercise

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TABLE 2: Pearson correlations-PRT, DOSPERT, time perspective, corona behaviors and self-control. (**P<.01.) (PRT: passive risk taking; DOSPERT: domain specific (active) risk taking; FTP: future time perspective; PHTP: present hedonistic time perspective PRCB: passive risk corona behaviors; ARCB: active risk corona behaviors; SC: self-control.)

	1	2	3	4	5	6	7
1. PRT							
2. DOSPERT	−.24**						
3. FTP	−.53**	.22**					
4. PHTP	−.37**	.74**	.12				
5. PRCB	.59**	−.28**	−.32**	−.42**			
6. ARCB	−.08	.81**	.04	.63**	−.10		
7. SC inhibition	.13	−.43**	.25**	−.52**	.05	−.50**	
8. SC initiation	−.25**	−.37**	.30**	−.37**	−.19**	−.42**	.60**

In order to demonstrate that the correlation between the Corona passive risks and the PRT and the correlation between the Corona active risks and the DOSPERT cannot be explained with a single factor that affects all four variables (Corona active risks, Corona passive risks, DOSPERT, PRT), we conducted a canonical correlation analysis (using the R package yacca). The analysis aims to demonstrate that there is one factor that accounts for the relation between the active variables (Corona active risks and DOSPERT) and another that accounts for the relation between the passive variables (Corona passive risks and PRT). Results support this claim, as we found two significant canonical correlations (c1=.84, F(4, 422)=127.41, p<.001, and c2=.57, F(1,212)=99.91, p<.001). Furthermore, the DOSPERT was highly loaded on one canonical variable, while the PRT was highly loaded on the other canonical variable. Correspondingly, the active corona behaviors subscale was highly loaded on the first canonical variable and the passive corona behaviors sub scale was highly loaded on the second canonical variable. See Table 3 for complete analysis. We ran a similar analysis on the correlations between the corona risk behaviors (active/passive) and the two types of self-control (inhibition/initiation), which also yielded two significant canonical correlations (c3=.53, F(4,422)=24.66, p<.001, and c4=.28, F(1,212)=18.19). See complete analysis in Appendix Table 5.

(not exercising means taking passive risk since exercise is recommended for staying healthy).

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TABLE 3: Canonical correlations of risk tendencies and COVID-19 risk behaviors (n=215). (DOSPERT: domain specific (active) risk taking; PRT: passive risk taking; ARCB: active risk corona behaviors; PRCB: passive risk corona behaviors.

	C1	C2
Canonical Correlations[a]	0.57*	0.84*
Independent variables (loading)		
DOSPERT	−.05	−.99
PRT	−.96	.29
Redundancy coefficient	.14	.37
Dependent variables (loading)		
ARCB	−.28	−.96
PRCB	−.93	.37
Redundancy coefficient	.15	.37

[a]First Canonical Correlation F(4,422)=127.41, p<.001; Second Canonical Correlation F(1,212)=99.91, p<.001.

*p<.001.

Since both the DOSPERT and the PRT contain subscales which focus on different domains of risk taking, including Health — which is especially relevant to the current study, we calculated a complete sub-scale correlation matrix (Appendix, Table 6). Results show that of its 3 subscales, the PRT-Health scale shows the highest correlation with passive corona behaviors (r=0.575, p<.00). Of the five DOSPERT subscales Health & Safety shows the second highest correlation to active corona behaviors (r=0.782, p<.00), close to the Ethics subscale which is the first (r=0.821, p<.00).

In order to predict the tendency not to follow the prevention measures regarding the Corona virus (Hypotheses 3 & 4), we ran two multiple linear regressions with active corona risk behavior (ARCB) and passive corona risk behavior (PRCB) as the dependent variables and DOSPERT, PRT, Initiation self-control (SC-Initiation), Inhibition self-control (SC-inhibition), hedonistic (HTP) and future time perspective (FT) as independent variables. The demographic variables: gender, age and education were also included in the analysis. The results of the analysis are presented in the right column of Table 4 for ARCB and left column for PRCB as dependent variables.

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TABLE 4: Multiple regression standardized coefficients (BETA) for the DOSPERT, PRT, FTP, HPTP, SC-inhibition and SC-initiation as predictors of compliance with the active (ARCB) and passive (PRCB) COVID-19 restrictions. (ARCB: active risk corona behaviors; PRCB: passive risk corona behaviors; DOSPERT: domain specific (active) risk taking; PRT: passive risk taking; FTP: future time perspective; PHTP: present hedonistic time perspective; SC: self-control.)

	PRCB		ARCB	
	P	Beta	P	Beta
DOSPERT	.83	−.02	.00	.75
PRT	.00	.43	.31	.05
FTP	.91	−.01	.25	.-06
HPTP	.00	−.29	.75	.02
SC-inhibition	.14	.11	.02	−.13
SC-initiation	.00	−.26	.57	.-03
Gender	.76	.17	.73	.01
Age	.87	−.01	.69	.02
Education	.72	−.02	.32	−.04
R square	0.44		0.7	

As hypothesized, active corona risk behavior (ARCB) is predicted by DOSPERT (standardized β=.75, p=.00) and Inhibition self-control (β=−.13, p=.015), while passive corona risk behavior (PRCB) is predicted by the PRT (β=.43, p=.00) and Initiation self-control (β=−.26, p=.00). In other words, participants with a higher tendency for active risk taking and lower inhibition type self-control scores were more like to engage in active corona risk behaviors, such as shaking hands with people. Participants with a higher inclination for passive risk taking and lower initiation type self-control were more like to take passive corona risks, like not washing their hands after contact outside the home. Age, gender or education levels did not predict either passive or active corona risk taking.[3]

Differently than hypothesized, *future* time perspective did not predict passive corona risk behaviors, and *present hedonistic* time perspective inversely predicted passive risk corona behaviors. That is, the more people are focused on enjoying the present the less likely they are to take passive corona risks. This may be due to the fact that COVID-19 is occurring in the *present*, rendering future focus less relevant to behavioral choices. Possible explanations for these results are further considered in the discussion section.

[3]This may be due to the fact that our sample was not diverse enough in regards to age or education, with most of participants (86%) being under the age of 50 and having at least some college education (90%).

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4 Discussion

The results of this study suggest that behavior pertaining to the spread of COVID-19 involves two separate risk types: active and passive. Active risk taking refers to not adhering to the recommendations actively, e.g., entering an elevator with other people, while passive refers to not adhering to the recommendations passively, e.g., not washing hands. While both of them put people at risk, these two types of risk behaviors in general and specifically in the context of Corona virus were found to be independent as apparent by the null correlation between them.

Hypotheses 1 & 2 were supported, as *passive* risk corona behavior items show a correlation with the PRT scale, while *active* risk items show a correlation with the DOSPERT scale. The distinction between the two types of risks is also supported by the fact that active corona items show no correlation with the PRT scale, and passive corona items show a *negative* correlation with the DOSPERT scale. The current study demonstrates that, to predict risky behavior in the context of COVID-19, it helps to differentiate between taking risk actively or passively. Accordingly, the personal tendency for passive or active risk taking in general will predict this risky behavior in the context of COVID-19.

These results suggest that compliance with various COVID-19 prevention measures is related to personal tendencies for different kinds of risk taking. People who tend to take passive risks are more likely not to use alco-gel disinfectants, while those who tend to take active risks are more likely to use crowded elevators or attend large gatherings. But is there a way to predict which individuals tend to take active compared to passive risks? A study by Idan, Keinan and Bereby-Meyer (2020), has shown that people who have more self-control also tend to have a future time perspective, namely take future consequences into account when taking risks, and take less passive risks. Yet, when trying to understand COVID-19 risk taking behavior, things are different. The risk from COVID is always present, and one doesn't need to think about the future in order to take into account the possible consequences. This may explain why future time perspective did not predict corona passive risk behaviors in the current context, but self-control did show the expected connection.

When trying to understand risky behavior in the context of COVID-19, we expected as Hypotheses 3 & 4 proposed, that individual differences in the tendency for passive/active risk taking, self-control and time perspective would predict who is more inclined to take passive or active corona-related risks. In regard to self-control, we differentiated between inhibition and initiation type self-control, as proposed by De Ridder et al. (2011). Results mostly support these hypotheses, Regression analysis revealed, as expected, that high DOSPERT scores and low inhibition-type self-control predict *active* corona related risk taking. Analysis also showed that, as hypothesized, high PRT scores and low initiation-type self-control predict *passive* corona related risk taking. These results not only provide further support for the distinction between active and passive risks but also provide an insight into how to influence behavior via levels of self-control.

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Time perspective results did not converge with our hypothesis: present hedonistic time perspective did not predict *active* corona risk taking, and future time perspective did not predict *passive* corona behaviors. However, low levels of present hedonistic time perspective did contribute to the prediction of passive risk corona behaviors; that is, it is those who are focused on the *present* (and not the future) who take less passive risks. Further consideration suggests that this pattern is actually to be expected: since the threat of disease is in the *present*, and constantly high-lighted; it does make sense that those individuals who are inclined to live in the "here and now" will also be willing to act more (i.e., avoid passive risks) in order to avoid getting sick. These findings may also suggest that escapist coping strategies, often adopted as a way of dealing with the stressful times (Leiter, 1991; Lancastle & Boivin, 2005), may hinder efforts to curtail the pandemic. Regarding the lack of correlation we found for future time perspective with corona behaviors, it is plausible that under the current COVID-focused atmosphere, the future is somewhat suspended, and currently has less bearing on decision making, especially regarding pandemic behavior.

Taken together, our results offer evidence that compliance with COVID-19 regulations should not be measured as a single variable, and that a distinction should be made between passive and active corona related risks or behaviors. That being said, there are some limitations to the current study. Since the study was conducted on an American participant pool, and COVID-19 affects numerous countries with different regulations or cultures, any generalization of the current findings requires replications in other countries. Another limitation of the current study is its correlational design, which does not allow for causal inference. Further research may not only increase the generalization of the current findings, but also expand on them, advancing our understandings on compliance during a pandemic, identifying variables such as self-control which influence or interact with such behavior.

Although the current study measured self-control as a personal tendency, there is evidence proposing situational factors which can enhance or reduce self-control. For example, the time of day has been found to influence self-control levels, with mornings associated with higher self-control which declines as the day progresses (Kouchaki & Smith, 2014). COVID-19 restrictions that enforce early closure of pubs and restaurants are in effect minimizing social encounters when self-control is lowered.

Understanding when and why people are less likely to comply with COVID 19 regulations may aid in designing campaigns or even contribute to policy enforcement efforts. The current study identified correlations between types of self-control and COVID related risk taking, but in order to have a clearer understanding of these effects it is important to conduct causal experiments, manipulating self-control levels, and examining their influence on passive and active risk taking.

Looking at compliance with COVID-19 guidelines from a two-domain risk taking perspective enables us to recruit existing knowledge regarding passive vs. active risk taking and use it in the context of the current pandemic. For example, Keinan and Bereby-Meyer (2017) found that passive risks are assessed as less risky (compared to similar active risks),

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due to a reduced perception of accountability for any damages caused by taking passive risks. In line with that, stressing people's accountability for the consequences of their inactions (e.g., by not washing your hands you raise the risk of infection to your household) may promote more cooperation with such guidelines. Also, reframing inactions like 'not wearing a mask' into active form, such as 'spreading the virus', has the potential to raise accountability and lower risky, disease spreading behavior. These ideas can be tested in future research, examining whether instructions which are worded in a manner which stresses personal accountability and consequences actually raise compliance levels.

In conclusion, the current paper offers a new way of understanding public behavior in the context of COVID-19 prevention, by applying a risk framework, and differentiation passive corona risk takers from active corona risk takers. Further research is needed in order to identify more individual differences, which will allow better design and targeting of information aimed at achieving public cooperation.

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Appendix

TABLE 5: Canonical correlations of self-control types and COVID-19 risk behaviors (n=215).

Canonical variate:	C3	C4
Canonical Correlations[a]	0.28*	0.54*
Independent variables (loading)		
Self-control: Inhibition	−.39	.91
Self-control: Initiation	.49	.86
Redundancy coefficient	.04	.23
Dependent variables (loading)		
ARCB	−.12	−.99
PRCBREV	−.93	.37
Redundancy coefficient	.02	.14

[a]First Canonical Correlation F(4,422)=24.66, p<.001;
Second Canonical Correlation F(1,212)=18.8, p<.001.
*p<.001

TABLE 6: Correlations between Active/Passive Corona behaviors and subscales of the DOD-PERT and PRT. (Dospert: social, recreational, financial, ethical, health and safety PRT: resources, health, ethics.)

	Dos soci	Dos rec	Dos finan	Dos ethi	Dos H&S	Prt res	Prt hea	Prt ethi
PRCB	−.16*	−.31**	−.4**	−.26**	−.19**	.43**	.58**	.04
ARCB	.51**	.73**	.71**	.82**	.78**	.14*	−.52**	.51**
Dos soci		.63**	.58**	.62**	.66**	−.14*	−.49**	.75
Dos rec			.86**	.86**	.83**	.02	−.67**	.44**
Dos fin				.85**	.84**	−.06	−.72**	.47**
Dos ethi					.9**	.09	−.64**	.52**
Dos h&S						.13	−.53**	.44**
Prt res							.35**	.38**
Prt hea								−.28**

* $p < .05$; ** $p < .01$.

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