



Interest Consistency Can Buffer the Effect of COVID-19 Fear on Psychological Distress

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Abstract

In the context of a recent outbreak of the coronavirus disease (COVID-19), the present study investigated the buffering effect of grit on the relationship between fear of COVID-19 and psychological distress. The data were collected from 224 Japanese participants (98 females; mean age = 46.56, SD = 13.41) in July 2020. The measures used in this study included the Fear of COVID-19 Scale (FCV-19S), Short Grit Scale, and Depression, Anxiety, and Stress Scale 21 (DASS). The results of mediation analyses revealed significant indirect effects of consistency of interest, a major component of grit, on psychological distress (depression: estimate = .042; 95% CI: [.008, .088], anxiety: estimate = .021; 95% CI: [.001, .050], and stress: estimate = .030; 95% CI: [.004, .066]); we also found non-significant indirect effects of perseverance of effort, another major component of grit, on psychological distress. These results suggest that consistency of interest buffers the psychological distress induced by fear of COVID-19. Based on these results, it can be concluded that individuals with higher consistency of interest are less likely to experience worsening of their mental health, even if they experience fear of COVID-19 during the pandemic.

Keywords COVID-19 · Grit · Depression · Anxiety · Stress

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Background

Since March 2019, the outbreak of the coronavirus disease 2019 (COVID-19) has rapidly emerged as a global challenge. According to the World Health Organization (WHO), as of April 27, 2021, the number of confirmed cases of COVID-19 reached 147 million, while the number of death cases exceeded 3 million (WHO, 2021). Governments have implemented various strategies to prevent the spread of the virus, including promoting remote work, social isolation, and lockdowns. However, the limitations imposed on people's daily lives have led many people to suffer from quarantine-related stress (Mattioli et al., 2020). According to the results reported by Wu et al. (2020), the measures related to the COVID-19 pandemic induced physical and mental health-related problems of sleep, worrying, and fear. Likewise, the results of an online survey of a US population revealed that the mean level of depressive symptoms exceeded the clinical cut-off point, suggesting that many people suffer from depression (Fitzpatrick et al., 2020). It is crucial to investigate the effects of the COVID-19 pandemic on people's psychological aspects and mental health in this context.

One well-known psychological aspect during the current pandemic is the fear of COVID-19. Ever since the development of the Fear of COVID-19 Scale (FCV-19S) by Ahorsu et al. (2020), this scale has been translated into many languages, including Arabic (Alyami et al., 2020), Bangla (Sakib et al., 2020), Hebrew (Bitan et al., 2020), Italian (Soraci et al., 2020), Japanese (Masuyama et al., 2020), Russian (Reznik et al., 2020), Spanish (Huarcaya-Victoria et al., 2020), and Turkish (Satici et al., 2020). Fear of infection in the previous pandemic situation was regarded as the prominent suicide factor (Cheung et al., 2008; Yip et al., 2010). Also, in the current COVID-19 pandemic situation, several studies reported the fear of infection toward COVID-19 as the suicide-related factor (Dsouza et al., 2020; Griffiths & Mamun, 2020; Mamun, 2020; Manzar et al., 2021). Mahmud et al. (2020) revealed that the fear of COVID-19 acts as a mediator to increase psychological impacts like depression and anxiety, which makes individuals psychologically vulnerable to suicidality. Combined with the relationships between fear of COVID-19 and psychological distress such as depression and anxiety (e.g., Ahorsu et al., 2020; Sakib et al., 2020; Satici et al., 2020), further study that explores the psychological mechanism related to both psychological distress and fear of COVID-19 would be needed for current mental health crisis. However, while this pioneering body of research has broadly investigated the influence of fear of COVID-19 on mental health, less is known about the underlying psychological mechanism that explains how the harmful impact of fear of COVID-19 can be eliminated. As many researchers pointed out (Galea et al., 2020; Torales et al., 2020; Van Bavel et al., 2020), it is necessary to explore the process to ease their psychological distress enhanced by their anxiety of getting the virus.

Several researches have already revealed that mental health during the COVID-19 pandemic were related to positive psychological traits such as psychological resilience (Yıldırım et al., 2020; Yıldırım & Solmaz, 2020), hope (Yıldırım & Arslan, 2020), and happiness (Yıldırım & Güler, 2021). Here, we focus on a personality trait, especially in motivation, called "grit." In positive psychology, grit is defined as "perseverance and passion for long-term goals" (Duckworth et al., 2007). In recent years, grit has received much scholarly attention as a psychological trait that can positively affect mental health and social performance (e.g., Hill et al., 2016; Li et al., 2018; Sharkey et al., 2017). Grit is conceptualized as a psychological personality trait related to motivational perseverance. Structurally, grit is assumed to include the following two major components: (1) consistency of interest in long-term goals and (2) persistence of effort in pursuing those long-term goals (Duckworth & Quinn, 2009). Previous research has convincingly demonstrated that grit is associated with various aspects of

psychological well-being, including life satisfaction (Li et al., 2018), quality of life (Sharkey et al., 2017), and positive emotion (Hill et al., 2016).

Furthermore, Kleiman et al. (2013) found that higher grit predicts the absence of suicidal risk and depressive symptoms. Likewise, Musumari et al. (2018) reported a strong negative association between grit and mental health issues, including depression and anxiety. In the context of these findings, grit can be seen as a protective factor against psychological distress and a predictive factor of psychological well-being. Accordingly, grit can be said to be capable of buffering psychological distress. Therefore, in the realities of the current COVID-19 situation, gritty individuals can reasonably be predicted to be better adapted to the pandemic. Indeed, Yıldırım, Arslan, and Özaslan, (2020) revealed the buffering effect of resilience between fear of COVID-19 and psychological distress, suggesting that positive psychological characteristics could play the role of protecting mental health. Yet, to date, none of the previous studies has investigated whether grit would protectively work in the challenging present-day situation.

Summing up, the previous studies showed that the fear of COVID-19 influenced psychological distress during the current pandemic. Even before the pandemic, grit, involved with perseverance and passion for the long-term goal, has been a psychological characteristic that stabilizes mental health and can be expected to recover the current mental health pandemic situation. However, it is not clear whether grit reduces psychological distress resulting from fear of COVID-19. Thus, the present study explores the buffering effect of grit on the relationships between fear of COVID-19 and psychological distress. For this aim, we hypothesized that (a) fear of COVID-19 would directly affect psychological distress, (b) fear of COVID-19 would directly affect grit subscales, (c) grit subscales would affect psychological distress, and (d) grit subscales would indirectly affect the relationships between fear of COVID-19 and psychological distress. In addition to understanding the people's psychological mechanism in the long-lasting COVID-19 pandemic situation, our investigation is expected to provide significant practical help for mental health support in the current pandemic. Furthermore, obtaining evidence from this study would contribute to elaborating different strategies and policies related to mental health.

Method

Participants and Procedure

In the present study, we used the dataset from the primary survey in Japan (PSJ) conducted within the framework of the Resilience to COVID-19 in Each Region (RE-COVER) project launched in June 2020. The RE-COVER project aims to reveal recovery factors that can re-energize mental health during the COVID-19 pandemic, focusing on psychological resilience and positive psychological aspects. The RE-COVER project currently targets four countries: Japan, the USA, China, and Malaysia (Sugawara et al., 2020; <https://osf.io/p56ga/>).

Before proceeding to the broader international arena, the PSJ was initially conducted in Japan. This survey aims to explore the effect of psychological resilience on mental health during the COVID-19 pandemic. The survey was conducted on July 13, 2020, in the form of an online survey hosted by Questant (<https://questant.jp>). Although an emergency declaration

in Japan had been lifted and the substantial restriction had been loosened in July, it is assumed that people were still worried about getting infected. The survey was constructed using various psychological measures (e.g., Fear of COVID-19 Scale, the Depression, Anxiety, Stress Scale, Life Satisfaction, Sense of Control Scale). The data were collected from 224 participants (98 females; mean age = 46.56, $SD = 13.41$). For the present study that aimed to investigate whether grit can buffer the detrimental influence of COVID-related fear on psychological distress, we extracted the participants' responses to the Fear of COVID-19 Scale (FCV-19S), Short Grit Scale, and Depression, Anxiety, and Stress Scale 21 (DASS). The protocol of the PSJ was approved by the author's IRB.

Measures

Fear of COVID-19 Scale

The Fear of COVID-19 Scale (FCV-19S; Ahorsu et al., 2020) measures the fear towards the COVID-19 infection. The Japanese version of the FCV-19S was previously validated in adolescents (Masuyama et al., 2020) and general populations (Sugawara et al., 2020). The Japanese version of the FCV-19S consists of 7 items to be rated on a 5-point Likert scale. According to previous integrative research across countries demonstrating the invariance of the one-dimensional construct of the FCV-19S (Lin et al., 2021), we also used the FCV-19S as a one-dimensional construct in this study. The total score ranges from 7 to 35, with greater scores meaning greater fear of COVID-19. The internal consistency value of FCV-19S in the present study was $\alpha = .83$.

Depression, Anxiety, Stress Scale 21

The Depression, Anxiety, Stress Scale 21 (DASS; Antony et al., 1998) measures participants' psychological distress. The Japanese version of the DASS was previously validated by Adachi and Ueno (2011). The DASS consists of three 7-item subscales: depression, anxiety, and stress. The items are rated on a 4-point Likert scale. The total scores on each subscale range from 1 to 28, with higher scores indicating more symptoms of psychological distress. Internal consistency values obtained in the present study were as follows: depression, $\alpha = .93$; anxiety, $\alpha = .92$; and stress, $\alpha = .92$.

Short Grit Scale

The Short Grit Scale measures grit trait (Duckworth & Quinn, 2009). The Japanese version of the Short Grit Scale was previously validated and confirmed to have excellent reliability and construct validity (Nishikawa et al., 2015). The Grit Scale is a two-factor construct that includes perseverance of effort and consistency of interest. Each of the two factors is measured by 4 items to be rated on a 5-point Likert scale. The total scores of each factor range from 4 to 20, with a higher score suggesting greater grit traits. Internal consistency values of these two factors in the present study were as follows: perseverance of effort, $\alpha = .85$; consistency of interest, $\alpha = .77$. Although grit is regarded as one component measured by total of these two factors, some researchers have claimed that the two subscales should be separately evaluated (e.g., Credé et al., 2017). Following their suggestion, we decided to use two subscales separately, avoiding summing up.

Statistical Analyses

All variables were computed separately for each subscale or factor. Descriptive statistics and correlation were calculated using SPSS, version 26.

To explore whether grit mediates and buffers the relation between fear of COVID-19 and psychological distress (depression, anxiety, and stress), we also conducted mediation analysis. The mediation effect was analyzed by the model 4 setting of the PROCESS macro developed by Hayes (2013). We applied the 95% bias-corrected confidence interval obtained from 5000 bootstrap resampling. As variables in the mediation analyses, we used the total score of FCV-19S, psychological distress score (depression, anxiety, and stress), and traits of grit score (perseverance of effort and consistency of interest). The proposed mediation model is shown in Fig. 1.

Results

Descriptive Statistics and Correlation Analysis

Descriptive statistics and the results of correlation analysis are summarized in Table 1. The results of correlation analysis showed that the total score of FCV-19S had significantly positive correlations with psychological distresses, suggesting the strong association with fear of COVID-19 and worsening mental health during the pandemic. For each factor of grit, the results revealed that the perseverance effort negatively correlated with depressive symptoms ($r = -.202, p < .01$), while the consistency of interest positively correlated with psychological distresses ($r_s < .215, p_s < .01$). These results indicate that the consistency of interest in grit is strongly associated with fear of COVID-19 and psychological distress, while perseverance is related only to depressive symptoms.

Mediation Analyses

Mediation analyses are conducted on the mediated effect of each grit factor (perseverance of effort and consistency of interest) on the relationship between fear of COVID-19 and

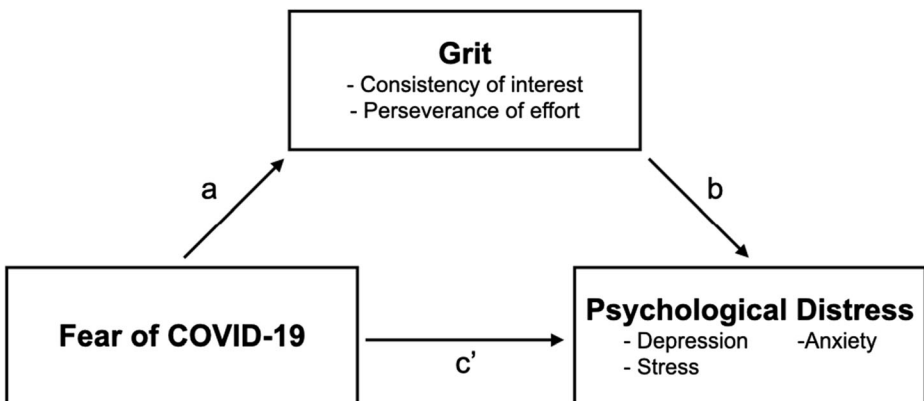


Fig. 1 Proposed mediation model of this study

Table 1 Descriptive statistics and correlations of each valuables

	<i>M</i>	<i>SD</i>	1	2	3	4	5
1 FCV-19S DASS	20.84	5.39	-				
2 Depression	11.08	4.82	.262 *	-			
3 Anxiety	9.20	3.71	.367 *	.761 *	-		
4 Stress Short grit scale	10.78	4.52	.392 *	.843 *	.838 *	-	
5 Perseverance of effort	11.23	3.03	.116	-.202 *	.026	-.053	-
6 Consistency of interest	11.51	2.70	-.205 *	-.270 *	-.215 *	-.243 *	.115

FCV-19S Fear of COVID-19 Scale, *DASS* Depression, Anxiety, and Stress Scale

* $p < .01$

psychological distress (see Fig. 1 and Table 2). The results of the analyses on perseverance of effort reveal significant effects of fear of COVID-19 on all types of psychological distress (β s $> .256$, $p < .05$) and significant effects of perseverance of effort on depression ($\beta = -.375$, $p < .01$, 95% CI: $[-.574, -.176]$). The effect of fear of COVID-19 on perseverance of effort did not reach statistical significance ($\beta = .066$, 95% CI: $[-.009, .140]$). Furthermore, the indirect effects of perseverance of effort were not significant on all variables of psychological distress (estimate = $-.025$ 95% CI: $[-.070, .007]$ for depression, estimate = $-.001$ $[-.017, .008]$ for anxiety, and estimate = $-.001$ $[-.036, .004]$ for distress). Taken together, our results suggest that perseverance of effort does not mediate the relationship between fear of COVID-19 and psychological distress.

Furthermore, the results of mediation analyses on the consistency of interest revealed significant effects of fear of COVID-19 on all types of psychological distress (β s $> .195$, $p < .01$), as well as significant effects of consistency of interest on psychological distress (β s $< -.200$, $p < .01$). The latter results suggest that higher consistency of interest is associated with lower psychological distress (including depression, anxiety, and stress). Furthermore, we also observed significant indirect effects of consistency of interest on the relationships between fear of COVID-19 and depression (estimate = $.042$; 95% CI: $[.008, .088]$), anxiety (estimate = $.021$; 95% CI: $[.001, .050]$), and stress (estimate = $.030$; 95% CI: $[.004, .066]$). Taken together, these results suggest that the consistency of interest decreases the effect of fear of COVID-19 via psychological distress.

Overall, our findings on the mediation effects of grit revealed a significant indirect effect of consistency of interest on the relationship between fear of COVID-19 and psychological distresses; however, perseverance of effort was not found to have a significant indirect effect on this relationship. Based on these findings, we can conclude that only one of the two components of grit—namely, consistency of interest—can buffer psychological distress that results from fear of COVID-19.

Discussion

The present study aimed to investigate the buffering effect of grit on the relationship between fear of COVID-19 and psychological distress during the COVID-19 pandemic. For this point, we hypothesized: (a) fear of COVID-19 would directly affect psychological distress, (b) fear of COVID-19 would directly affect grit subscales, (c) grit subscales would affect psychological

Table 2 Results of mediation analyses

	Depression			Anxiety			Stress		
	β (SE)	<i>t</i>	95% CI	β (SE)	<i>t</i>	95% CI	β (SE)	<i>t</i>	95% CI
Mediator: perseverance of effort									
Variables									
Fear of COVID-19 (c')	.261 (.057)	4.566**	[.148, .374]	.256 (.044)	5.862**	[.170, .342]	.341 (.052)	6.512*	[.238, .444]
Perseverance of effort (b)	-.375 (.101)	3.717**	[-.574, -.176]	-.020 (.077)	0.269	[-.173, .131]	-.148 (.092)	1.603	[-.330, .034]
Indirect effect	-.025 (.020)		[-.070, .007]	-.001 (.006)		[-.017, .008]	-.001 (.010)		[-.036, .004]
Mediator: consistency of interest									
Variables									
Fear of COVID-19 (c')	.195 (.058)	3.343**	[.080, .309]	.240 (.044)	5.341**	[.148, .320]	.302 (.053)	5.741**	[.198, .405]
Consistency of interest (b)	-.404 (.116)	3.502**	[-.632, -.177]	-.200 (.087)	2.304*	[-.371, -.029]	-.285 (.104)	2.736**	[-.491, -.080]
Indirect effect	.042 (.021)		[.008, .088]	.021 (.013)		[.001, .050]	.030 (.016)		[.004, .066]
Perseverance of effort									
β (SE)	.066 (.038)	1.739	95% CI	β (SE)	<i>t</i>	95% CI	β (SE)	<i>t</i>	95% CI
Fear of COVID-19 (a)			[-.009, .140]	-.103 (0.33)	3.120*	[-.169, -.038]			

* $p < .05$, ** $p < .01$

distress, and (d) grit subscales would indirectly affect the relationships between fear of COVID-19 and psychological distress. Fear of COVID-19 was positively correlated to all psychological distress, supporting the hypothesis (a). On the other hand, the other hypotheses were partially supported; results supporting the hypotheses were limited to consistency of interest (one of two aspects of grit). Specifically, the results showed that consistency of interest had direct and indirect effects on all psychological distress: depression, anxiety, and stress, but perseverance of effort did not have any direct and indirect effects with the exception of direct effect on depression. These imply the partial protective effect of grit in that consistency of interest can buffer psychological distress caused by fear of COVID-19.

Although the relationship between grit and mental health has been extensively documented in the literature (Kleiman et al., 2013; Musumari et al., 2018), our results provide novel insights into the relationship between grit and fear COVID-19. Interestingly, on the grit subscale, consistency of interest was significantly correlated with psychological distresses, whereas perseverance of effort was not. These results suggest that individuals with high consistency of interest but not the perseverance of effort experience decreased fear of COVID-19 during the current pandemic situation. In good agreement with our results, Datu et al. (2016) reported that consistency of interest—but not the perseverance of effort—strongly predicted negative-related mental health outcomes. Similarly, Von Culin et al. (2014) also established a stronger relationship between consistency of interest and pleasure feeling than between perseverance of effort and pleasure feeling. Furthermore, previous studies also found that consistency of interest and perseverance of effort are differentially correlated with mental health (Zhang et al., 2018). Based on these findings, it can be concluded that, compared to the perseverance of effort, consistency of interest has a stronger correlation with mental health and other psychological aspects.

We also found that consistency of interest, one of the two major components of grit, has a significant mediation effect on the relationship between fear of COVID-19 and psychological distress. Therefore, consistency of interest can be regarded as a buffer factor against worsening mental health during the COVID-19 pandemic. Similarly, a previous study found the buffering effect of grit on academic stress during the COVID-19 pandemic (Mosanya, 2020). However, in Mosanya (2020), grit was considered whole, i.e., without subdivision into two components. In contrast, in the present study, we focused on two components of grit. We found that the individuals with high consistency of interest (but not the perseverance of effort) showed decreased psychological distress caused by fear of COVID-19. Taken together, the results of previous studies and our findings highlight the utility of differentiating grit into two components (consistency of interest and perseverance of effort) rather than treating grit as a holistic concept. Our results of the buffering effect of consistency of interest imply that people who maintain focus on their projects and pursue their goals, even while facing a worldwide pandemic and its impact on their daily lives, can lessen the harmful effect of fear of COVID-19. It is presumed that consistency of interest can be an essential aspect of psychological resilience, and it takes a role in protecting mental health in the pandemic. Individuals with this trait would not be distracted away from their passions because of the COVID-19 pandemic. For instance, a person who continues to play their instruments and pursue their passion for music would be less likely to become depressed from frightening news reports about COVID-19. Future research is needed to evaluate further how the consistency of interest lessens distress during a pandemic and perhaps even outside a pandemic.

Furthermore, several previous studies highlighted the critical role of positive psychological aspects on mental health and stress induced by the COVID-19 crisis (Barton et al., 2020; Bono

et al., 2020). For instance, Yildirim and Arslan (2020) found that hope and resilience affect people's subjective well-being during the COVID-19 pandemic. Yildirim and Arslan (2020) also observed a strong relationship between resilience and preventive behaviors, suggesting that resilience is essential for preserving and protecting mental health during the pandemic. Therefore, positive psychological characteristics are essential for maintaining well-being, preventing mental health issues, and coping with the challenges of the current crisis. From this perspective, our finding that individuals with high consistency of interest experience decreased psychological distress makes an essential contribution to practice. Based on our results, human service professionals such as psychological counselors and social workers could recommend a person in need that would encourage people to engage in consistent attitudes rather than explore new opportunities (e.g., starting a new job or hobby). Besides, by communicating the importance of consistency of interest in people's daily life such as hobbies and work interests, it would be expected to prevent worsening mental health caused by the social influence of the pandemic. In summary, as already indicated in several previous studies (e.g., Bolier et al., 2013; Sin & Lyubomirsky, 2009), grit-focused programs might become an integral part of positive psychology interventions to improve mental health during the COVID-19 pandemic.

Limitations

The present study has several limitations. First, although we theoretically hypothesized the consequences, including fear of COVID-19, grit, and psychological distress, the data collection in this study was cross-sectional. Therefore, a further longitudinal investigation would be needed to reveal the long-term consequences. Second, since the participants in the present study were recruited from the general population, it remains unclear whether our results can be generalized to specific populations, such as medical workers and patients in need of mental health care. Considering the evidence about the current crisis of mental health among medical workers (Badrfam et al., 2020) and COVID-19 survivors (Mazza et al., 2020), further research on the buffering effect of grit in these specific populations is warranted.

Conclusion

In the present study, we tested the buffering effect of grit, which was assumed to consist of two major components (consistency of interest and perseverance of effort), on the relationship between fear of COVID-19 and psychological distress. The mediation analyses showed that the first of these two components of grit—consistency of interest—has a significant mediation effect on the relationship between fear of COVID-19 and psychological distress. These findings suggest that, while fear of COVID-19 can worsen mental health, this effect can be buffered in individuals with higher consistency of interest.

Declarations

Ethical Approval All the procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Declaration of Helsinki.

Informed Consent All participants provided informed consent.

Conflict of Interest The authors declare no competing interests.

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