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Posttraumatic stress symptoms in response to COVID-19-related adverse events in Hispanic individuals

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Abstract

The current study examined the effects of COVID-19 death and infection stressors on posttraumatic stress symptoms (PTSS) and the moderating role of resilience and coping in the association between the COVID-19 stressors and PTSS in Hispanic young adults. On average COVID-19 death led to higher PTSS than COVID-19 infection. Among participants with relatively high resilience, higher engagement coping, or lower disengagement coping, the magnitudes of the impacts of COVID-19 death and infection on PTSS were similar, suggesting the buffering role of resilience and coping. Resilience and engagement coping may protect Hispanic individuals from elevated PTSS in response to traumatic experiences.

Keywords: COVID-19 infection, death, posttraumatic stress, coping, resilience, Hispanics

Introduction

The pandemic of SARS-CoV-2 (COVID-19) has resulted in a global mental health crisis. Several international review studies document elevated posttraumatic stress symptoms (PTSS) as one of the mental health consequences in the general population globally during the pandemic (e.g., Bourmistrova et al., 2022; Xiong et al., 2020). These studies revealed that 7% to 19% or more of individuals reported high levels of PTSS, indicating the presence of probable PTSD, during the pandemic. However, whether this elevated PTSS was due specifically to pandemic stressors, and if so, which stressors and to what extent, is not clear.

Only a handful of studies have investigated PTSS and Posttraumatic Stress Disorder (PTSD) in response to specific COVID-19 stressors, such as one's own or a family member's COVID-19 infection or a family member's death due to COVID-19, among the general population (e.g., Fan et al., 2021; Kira, 2021; Samuelson et al., 2022). For example, in their study conducted in Wuhan, Fan et al. (2021) found that 47% of individuals with COVID-19 infection and 48% of individuals who had experienced the death of family members or relatives due to COVID-19 had probable PTSD due to these events. Samuelson et al. (2022) examined PTSS in a US adult sample and report that an aggregated COVID-19 stressor variable (inclusive of death, infection of a loved one, one's own infection) was associated with PTSS, with 22.5% of the sample reporting scores above the cutoff for probable PTSD.

Although the above results generally seem to suggest that COVID-19 stressors (infection, death) may trigger elevated PTSS, there is still much to learn about the relationship of these stressors with PTSS for the US general population, particularly for minority groups such as Hispanic individuals. Data reveal that the Hispanic community has been severely impacted by the pandemic (CDC, 2022). Given that younger adults and students were particularly at risk for

developing psychological distress due to the COVID-19 pandemic in other samples (Xiong et al., 2020), it is particularly crucial to understand PTSS as a consequence of severe COVID-19 stressors for this vulnerable young adult Hispanic subgroup. To offer more informative models of pandemic stressors and responses among Hispanic young adults, it is important to examine the relative magnitudes of the effects of specific COVID-19 stressors (for example, whether a COVID-19 death in the family causes more severe PTSS than a COVID-19 infection in the family). Expanded models identifying the relative effects of specific COVID-19 stressors for Hispanics can contribute to the development of more targeted preventive actions and interventions against PTSS caused by the prolonged threats and hardships of situations such as the pandemic while offering information about what personal resources may be protective.

Some theoretical and empirical evidence suggest that personal resources, such as resilience and coping, have stress-buffering effects that moderate the association of stressors and stress responses. According to Carver's (1998) model of resilience, individuals with resilience bounce back to prior physical and psychological functioning after experiencing a downturn due to a stressful experience. Applying this model to the pandemic, resilience would be expected to moderate the association between COVID-19 stressors and PTSS to these stressors. Limited empirical studies, while not targeting PTSS, provide preliminary, albeit mixed, support for the possible buffering role of resilience during the pandemic. Among adults in the US, Chan et al. (2021) found that higher levels of resilience weakened the association between number of COVID-19 stressors and depression but did not find such buffering effects for anxiety or stress. Traunmuller et al. (2021) reported resilience showing a buffering effect against anxiety in response to early pandemic psychological impacts in Australia.

A buffering role is also expected for coping. According to the stress buffering model of

coping (Aldwin & Revenson, 1987), effective coping weakens the association between a stressful experience and its potential negative outcomes. Tobin et al. (1989) organized coping into a hierarchical structure with the two highest dimensions being engagement (e.g., active problem solving, emotion expression) and disengagement (e.g., avoidance, self-criticism). These dimensions, including emotion-related coping elements, may be relevant particularly to Hispanic individuals as past research has found that expressing emotions was an effective coping and therapeutic strategy for Hispanic individuals (e.g., Gloria et al., 2009; Hirai et al., 2020). To date no research has examined whether these types of coping buffer against PTSS in response to specific, severe COVID-19 stressors. Yet, limited COVID-19 research has reported the buffering role of engagement and disengagement coping in the association between psychological and behavioral outcomes and COVID-19-related variables. For example, Litam et al. (2020) found both engagement and disengagement coping weakened the association between depression in response to discrimination due to COVID-19 and low life satisfaction in a Chinese American sample.

Overall, the theoretical frameworks and some empirical findings the recent COVID-19 studies reported suggest the potential utility of studying resilience and coping as moderators for the magnitudes of the pathway from specific, severe COVID-19 experiences to PTSS.

The current study examined theorized buffering roles of resilience and coping in the association between specific COVID-19 stressors (family member's death due to COVID-19, COVID-19 infection) and PTSS in a Hispanic college student sample. This cultural subgroup is an understudied, high-risk group. The study examined the following hypotheses: 1) The experience of a family member's death due to COVID-19 (DTH) would produce greater levels of PTSS than the experience of a COVID-19 infection (self or family) (INF); and 2) resilience and

coping would moderate the magnitudes of the associations between the COVID-19 stressor type (DTH, INF) and levels of PTSS, such that higher engagement coping, lower disengagement coping, and higher resilience would weaken the association.

Methods

Participants

Participants were recruited from the subject pool of a psychology department at a state university in Texas. A total of 557 Hispanic individuals who reported at least one COVID-19 related death in the family (DTH) or at least one COVID-19 infection case (self or family) completed the current study. There were 431 females (77.4%), 121 males (21.7%), and 5 gender-unspecified individuals (<1%). The mean age of participants was 20.5 (*SD* = 4.27).

Measures

Demographic questions. Participants provided their age, sex, and ethnicity.

COVID-19 stressors. Respondents were asked to select COVID-19 stressors they had experienced from a stressor list. The list included one's own infection, infection in the family, and the death of a family member due to COVID-19.

Posttraumatic Stress. The PTSD Checklist–DSM-5 version (PCL-5; Weathers et al., 2013) is a 20-item self-report questionnaire that assesses PTSD symptom severity, corresponding to DSM-5 criteria. Participants were instructed to answer the PCL-5 items in response to the traumatic events they had selected from the COVID-19 stressors list. The respondents rated each item based on a 5-point Likert scale from 0 (not at all) to 4 (extremely). A total score between 31 and 33 may suggest a probable PTSD diagnosis (Blevins et al., 2015; Weathers et al., 2013). A strong reliability estimate for the total scale (alpha = .94) has been reported (Blevins et al., 2015). For the current sample Cronbach's alphas for the total scale were .94.

Resilience. The Connor-Davidson Resilience Scale-10 (CD-RISC 10; Campbell-Sills & Stein, 2007) is a 10-item self-report questionnaire that assesses resilience. The respondent rates each item based on a 5-point Likert scale from 0 (not true at all) to 4 (true nearly all the time). Sample items include: *I am able to adapt when changes occur; I tend to bounce back after illness, injury, or other hardship*. Good internal consistency (alpha = .85) has been reported (Campbell-Sills & Stein, 2007). The Cronbach's alpha for the current sample was .86.

Coping. The Coping Strategy Inventory- Short Form (Addison et al., 2007) is a 15-item self-report questionnaire that asks participants to rate the frequency of their use of specific coping responses. Each item is rated on a 5-point Likert scale from 1 (never) to 5 (almost always). The current study used the total engagement (CSI-ENG) and disengagement (CSI-DSE) scales. Sample items include: *I let my feelings out to reduce the stress* (CSI-ENG); *I tend to criticize myself* (CSI-DSE). Internal consistency reliability estimates typically range from .70 to .75 for the engagement scale and from .59 to .76 for the disengagement scale (Addison et al., 2007; Liam et al., 2020). The Cronbach's alphas for the current sample were .71 for engagement and .62 for disengagement.

Procedure

The current study was approved by the institutional review board of the university. Participants were recruited via an online sign-up system hosted by the psychology department. Individuals first read the online consent form. Those who agreed to participate anonymously completed the online questionnaires hosted on Qualtrics (Qualtrics, Provo, UT). Participants received course points as compensation for their time.

Analysis Plan

Individuals who reported at least one COVID-19 infection case within their family (self,

family) but reported no family member's death due to COVID-19 formed the INF group. Individuals who reported at least one family member's death due to COVID-19 formed the DTH group. The two stressor groups were coded as follows: INF(0) and DTH(1). A series of moderation analyses were performed using PROCESS (Hayes, 2022) for SPSS. The group was the predictor and PTSS was the criterion. Resilience, engagement coping, and disengagement coping were examined separately as a moderator. To obtain 95% bias-corrected confidence intervals for the mediation models, 5,000 bootstrap estimates were used.

Results

Descriptive statistics and Correlations

Among the 557 participants, 386 were in the INF group and 171 in the DTH group. [1] Proportions of participants who met the cutoff scores for a probable diagnosis of PTSD (PCL-5) were calculated: 119 individuals (30.8%) in the INF group and 77 (45.0%) in the DTH group reported symptom levels on the PCL-5 equal to or exceeding the cutoff score of 33 for a probable PTSD diagnosis. A Chi square analysis of the potential clinical cut point found a significant group difference, with a larger proportion of participants in the DTH group scoring 33 or higher ($\chi^2(1) = 10.48$, $p < .01$) than in the INF group.

The stressor variable (INF=0; DTH=1) was significantly positively correlated with PTSS ($r = .20$, $p < .01$). DTH was associated with higher PTSS. PTSS was significantly negatively correlated with resilience ($r = -30$, $p < .01$) and engagement coping ($r = -.15$, $p < .01$) and significantly positively correlated with disengagement coping ($r = .48$, $p < .01$). The stressor variable had no significant correlation with any of the moderator variables.

Moderation models

A series of moderation analyses were performed to examine the moderating roles of

resilience and coping in the association between the stressor variable (INF=0; DTH=1) and PTSS. Results of the moderation effects are illustrated in Figure 1. The moderation model results are shown in Table 1.

Resilience: Resilience moderated the path between the stressor variable and PTSS. Among individuals with relatively lower resilience and those with average resilience, the DTH group predicted significantly higher levels of PTSS than the INF group. Among individuals with relatively higher resilience, the DTH and INF groups predicted similar levels of PTSS.

Engagement and Disengagement Coping: Engagement coping also moderated the path between the stressor variable and PTSS. Among individuals with relatively low or average use of engagement coping, the DTH group predicted significantly higher levels of PTSS than the INF group. Among individuals with relatively high use of engagement coping, both groups predicted similarly lower levels of PTSS. Disengagement coping had a marginal moderating effect for the path between the stressor variable and PTSS. Among individuals with average or relatively high use of disengagement coping strategies, the DTH group predicted significantly higher levels of PTSS than the INF group. Among individuals with relatively lower use of disengagement coping, the DTH and INF groups similarly predicted relatively lower levels of PTSS.

Discussion

The present study is the first to examine the associations between COVID-19 stressors (death and infection) and COVID-19-related PTSS and the moderating role of resilience and engagement and disengagement coping among Hispanic young adults.

Overall, elevated PTSS was found for both COVID-19 death and infection groups. As expected, the COVID-19 death group reported significantly higher levels of PTSS than the COVID-19 infection group. The proportions of probable PTSD were higher for the COVID-19

death group (45%) than the infection group (31%). These proportions differed significantly, further supporting the conclusion that a family member's death due to COVID-19 is a stronger stressor than a COVID-19 infection and are worth discriminating between in COVID-19 and future health research. At the same time, the proportions of the current Hispanic participants with probable PTSD (45%, 31%) were higher than the prevalence of probable PTSD determined by the PCL-5 and its variants reported in recent reviews for global samples (Bourmistrova et al., 2022; Xiong et al., 2020) and that of 22.5% in a US study (Samuelson et al., 2022), suggesting that these COVID-19 stressors may have had a more dramatic traumatic impact on Hispanic young adults as compared to the adult populations included in the review studies. The current results of the prevalence and severity of PTSS in this Hispanic sample highlight the importance of planning preventive and intervention efforts against severe PTSS, particularly for those who have experienced a family member's infection or death due to COVID-19.

The hypothesized buffering roles of resilience, engagement coping, and disengagement coping were largely supported by the current data. Specifically, greater resilience and greater engagement coping played moderating roles in the association between COVID-19 stressors and PTSS (Table 1, Figure 1). Lower disengagement coping marginally buffered against the effects of the COVID stressors on PTSS. It should be noted that the disengagement coping subscale had a relatively low reliability estimate, which may have influenced the finding. Generally, however, among people who reported relatively high resilience, used more engagement coping, or used less disengagement coping, the magnitudes of the impacts of COVID-19 death and COVID-19 infection on PTSS were similar and associated PTSS scores were relatively low. Thus, resilience and engagement coping appear to be beneficial for those reporting COVID-19 stressors, but particularly so for those experiencing the more severe COVID-19 stressor of a family death. It is

remarkable that resilience and engagement coping attenuated the effect of a family member's death to the extent that it was similar to that of an infection. By contrast, among people who reported relatively low to average resilience, used low to average levels of engagement coping, or used relatively high levels of disengagement coping, COVID-19 death was associated with significantly elevated PTSS compared to COVID-19 infection. These results confirm the significant buffering role of resilience and coping, consistent with the protective models of resilience (e.g., Carver, 1998) and coping (Aldwin & Revenson, 1987), respectively, when comparing effects of COVID-19 death and COVID-19 infection. Regarding coping, during the pandemic, using some engagement coping (e.g., asking for help, talking with a family member) may have been challenging in general due to social isolation, quarantine, or family members' death or infection. It may be important that individuals engage in varied types of engagement coping, including problem-focused and less interpersonal-focused coping, in response to the worst COVID-19 stressor, a family member's death, to experience less severe PTSS.

The current results are also consistent with past COVID-19 studies of psychopathology other than PTSS (e.g., Litam et al., 2020; Traunmuller et al., 2021), strengthening the argument that resilience and coping play protective roles in the associations between broader negative COVID-19 experiences and psychological consequences. Both resilience and coping may be important personal resources for maintaining psychological well-being in response to traumatic stressors (e.g.,COVID-19 death or infection) and to adverse experiences more broadly. Interestingly, resilience during the pandemic might also be part of a larger psychological, emotional, and behavioral virtuous cycle. Kuhn et al. (2021) found that US university students with higher resilience reported taking increased COVID-19 preventive measures (e.g., wearing masks, social distancing) when feeling general distress, whereas those with low resilience did not

engage in preventative behaviors when distressed. Thus, resilience may help individuals avoid these COVID-19 stressor experiences to begin with, in addition to helping them successfully navigate them if they do occur.

In clinical settings, implementing routine assessments of resilience and coping when treating psychological symptoms in response to COVID-19 stressors may be important. Efforts to foster or at least maintain resilience and engagement coping and reduce disengagement coping may help protect Hispanic individuals from elevated PTSS in response to traumatic experiences. Such efforts may be particularly important for Hispanic young adults, given findings of the severe impacts of COVID-19 for Hispanic individuals (CDC, 2022), of the greater negative impacts of trauma on youth and young adults (Xiong et al., 2020), and the current finding that a relatively larger proportion of this Hispanic young adult sample reported PTSS in the probable PTSD range relative to other global adult samples (Bourmistrova et al., 2022; Xiong et al., 2020) and a US adult sample (Samuelson et al., 2022).

The current results should be interpreted in light of several strengths and limitations of the study. First, although targeting an underrepresented vulnerable Hispanic young adult group is an important strength of the study, the generalizability of the results to other cultural, ethnic, or age groups is likely limited. It is hoped that continuing research with underrepresented populations will allow the current findings to be placed in a broader context and compared with older and younger Hispanic samples and with other ethnic, cultural, and racial groups. Second, the current coping measure is relatively short and thus there are unmeasured domains of coping (e.g., religious coping), which might also have a buffering role and should be explored in future research. Lastly, the current study did not assess who had been lost in the family (e.g., a parent, sibling, grandparent). Thus, relative magnitudes of the impacts of different family member's

death due to COVID-19 are unknown. Replication and extension efforts are warranted.

Overall, this study was the first to examine the effects of two specific COVID-19 stressors as traumatic events (infection, death) influencing COVID-19-related PTSS in Hispanic young adults, who are an understudied and underserved cultural group significantly impacted by the COVID-19 pandemic. A family member's death due to COVID-19 was found to be a significant risk factor for developing severe PTSS relative to a COVID-19 infection in the family. The differential buffering roles of resilience and two types of coping in the association between the two specific COVID-19 stressors and PTSS were newly modeled in a theoretically and empirically sound manner. The results suggest significant clinical implications, particularly for those experiencing a COVID-19 death in the family. In order to improve mental health in Hispanics in response to the prolonged COVID-19 pandemic and other ongoing adverse circumstances, efforts to continue investigations into the relative effects of various COVID-19 stressors on PTSS and identifications of potential buffering factors against PTSS and other negative consequences are essential. These efforts can lead to more effective and targeted preventive actions and interventions to promote the psychological well-being of vulnerable groups including Hispanic young adults.

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Footnote

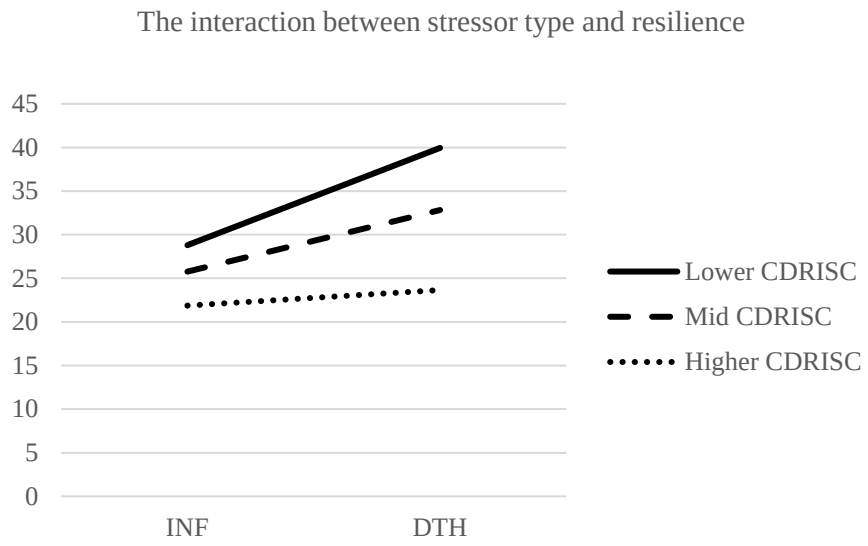
1. Within the INF group, 25 participants reported their own infection only, 231 reported family infection only, and 130 reported both their own and family infections. Within the DTH group, 53 participants reported a death in the family and neither family nor their own infection, 3 reported a death in the family, their own infection, but no other family member infection, 70 reported a death in the family, other family member infection(s), but not their own infection, and 45 reported a death in the family and both their own and other family member infections. A series of ANOVA's and post-hoc analyses revealed that within the INF group, there was no subgroup difference for PTSS, coping, or resilience scores (*p's* > .12). Within the DTH group, there was no subgroup difference for PTSS or coping scores (*p's* > .11). The tiny subgroup (*n*=3) reporting a death in the family, their own infection, but no other family infection had significantly lower resilience than the other three subgroups (*p's* < .05), although this is difficult to interpret given the small sample size. Mean scores of the PCL-5 (PTSS) were 25.4 (*SD*=16.3) for the INF group and 32.7 (*SD*=17.7) for the DTH group, those of the CDRISC10 (resilience) were 24.7 (*SD*=6.8) for the INF group and 24.1 (*SD*=7.1) for the DTH group, those of the CSI-ENG (engagement coping) were 18.2 (*SD*=6.4) for the INF group and 17.8 (*SD*=5.8) for the DTH group, and those of the CSI-DSE (disengagement coping) were 16.4 (*SD*=6.4) for the INF group and 17.2 (*SD*=6.3) for the DTH group.

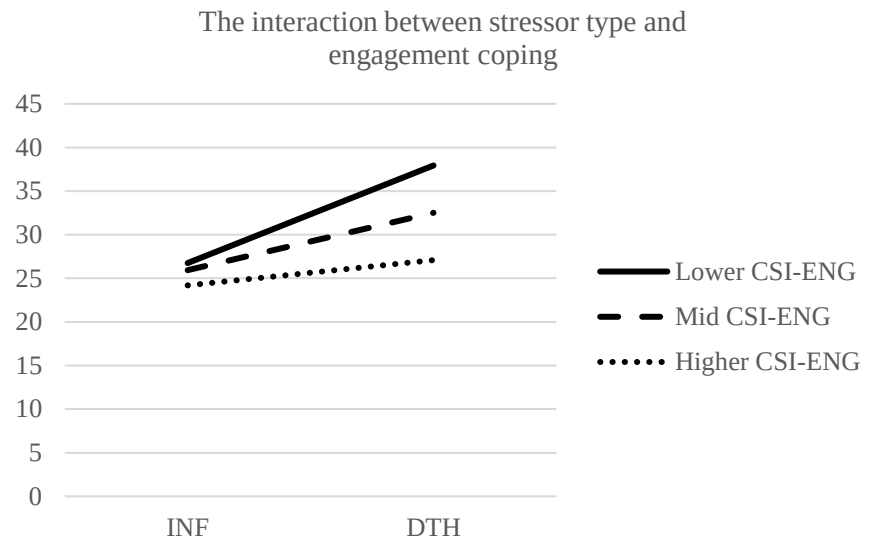
Table 1. Moderation model results

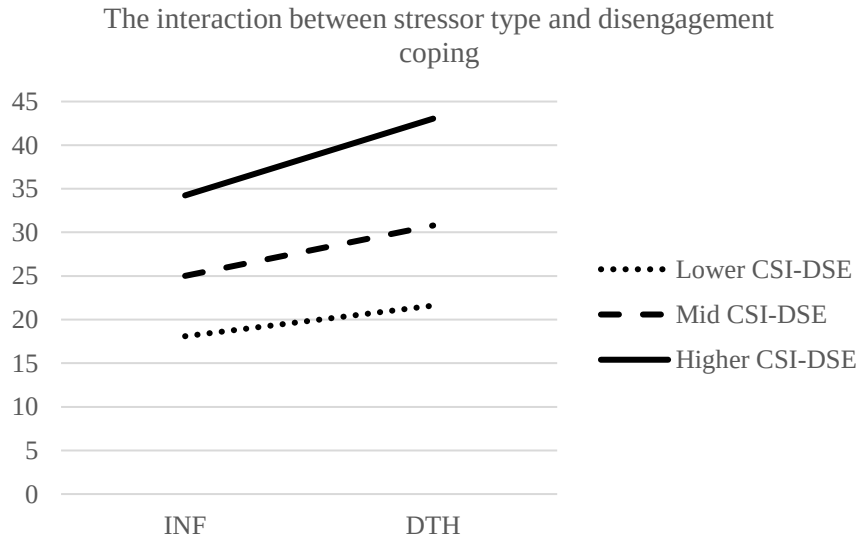
Moderator			95% CL	
Resilience (CDRISC10)	*β*	SE	LL	UL
Constant	-0.126**	0.047	-0.218	-0.033
Stressor	0.394**	0.394	0.226	0.561
Resilience	-0.205**	0.048	-0.299	-0.111
Stressor x Resilience	-0.277**	0.084	-0.442	-0.111
Resilience level	Conditional effect	SE	LL	UL
Low (16th percentile)	0.655**	0.112	0.429	0.881
Mid (50th percentile)	0.414**	0.086	0.246	0.582
High (84th percentile)	0.105	0.125	-0.140	0.349
Moderator			95% CL	
Engagement coping (CSI-ENG)	*B*	SE	LL	UL
Constant	-0.129**	0.049	-0.226	-0.032
Stressor	0.410**	0.089	0.235	0.584
Engagement coping	-0.078	0.048	-0.182	0.015
Stressor x Engagement coping	-0.251**	0.093	-0.434	-0.069
Engagement coping level	Conditional effect	SE	LL	UL
Low (16th percentile)	0.657**	0.126	0.410	0.904
Mid (50th percentile)	0.413**	0.089	0.239	0.588
High (84th percentile)	0.170	0.128	-0.080	0.420
Moderator			95% CL	
Disengagement coping (CSI-DSE)	*B*	SE	LL	UL
Constant	-0.112*	0.044	-0.198	-0.026
Stressor	0.353**	0.079	0.197	0.508
Disengagement coping	0.461**	0.044	0.345	0.516
Stressor x disengagement coping	0.141+	0.080	-0.015	0.297
Disengagement coping level	Conditional effect	SE	LL	UL
Low (16th percentile)	0.206+	0.118	-0.025	0.437
Mid (50th percentile)	0.339**	0.080	0.182	0.496
High (84th percentile)	0.517**	0.118	0.284	0.749

Note. The stressor group variable was coded as follows: death = 1; infection = 0; Criterion = PTSD Checklist–DSM-5 version; CI = Confidence Interval; LL=lower limit; UL=upper limit.
** $p < .01$, * $p < .05$, +$p = .071$.

Figure 1 : Effects of the moderators on PCL-5 scores







Note: CDRISC= Connor–Davidson Resilience Scale-10; CSI-ENG= Coping Strategy Inventory Short Form Engagement Coping; CSI-DSE= Coping Strategy Inventory Short Form Disengagement Coping; PCL-5= PTSD Checklist–DSM-5 version; INF=Infection; DTH=Death