Research paper

Correlates of avoidance coping in trauma-exposed U.S. military veterans: Results from the National Health and Resilience in Veterans Study

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ABSTRACT

Avoidant coping strategies, which involve cognitions and behaviors aimed to avoid dealing with stressful experiences, are associated with adverse long-term mental and physical health outcomes. In response to traumatic events, these strategies can be maladaptive as they may interfere with the adaptive integration of traumatic events into consolidated memories. Using data from a nationally representative sample of more than 3000 trauma-exposed U.S. military veterans (mean time since trauma 30.9 years, SD = 19.9), we employed a network analytic approach to examine pairwise associations between key sociodemographic, personality, and psychosocial risk factors in relation to the endorsement of avoidant coping strategies. Results revealed that negative affect symptoms of posttraumatic stress disorder (PTSD) and adverse childhood experiences were positively associated with engagement in avoidance coping, and that greater emotional stability and conscientiousness were negatively associated with this measure. Secondary network analysis of individual negative affect symptoms of PTSD suggested that blaming oneself and/or others for the traumatic event, emotional neglect, and sexual abuse were most strongly linked to avoidance coping. Collectively, these results suggest that strong feelings of blame related to trauma, emotional neglect, and sexual abuse are associated with greater likelihood of engaging in avoidance coping, while emotional stability and conscientiousness are associated with a lower likelihood of engaging in such strategies.

1. Introduction

Coping is defined as cognitive and behavioral processes of dealing with stress (Lazarus and Folkman, 1984). While coping strategies can be adaptive or maladaptive, depending on the situation, in general, some coping strategies tend to be more adaptive than others. Specifically, **approach**-oriented coping strategies, which are characterized by the tendency to process and express emotions (both positive and negative), are associated with improved long-term mental and physical health outcomes (Carver and Connor-Smith, 2010; Juth et al., 2015). In contrast, **avoidance**-oriented coping strategies are characterized by

cognitive and behavioral efforts oriented toward denying, minimizing, or otherwise avoiding dealing directly with stressful experiences (Holahan et al., 2005). While avoidance coping often has short-term benefits (Suls and Fletcher, 1985), in the long-run, overreliance on this coping strategy is linked to worse overall mental and physical health (Arble et al., 2018; Woodhead et al., 2014). This includes increased depressive and anxiety symptoms (Major et al., 2002; Rehr and Nguyen, 2022), greater levels of stress (Agha, 2021), increased risk for relapse of major depression (Cronkite et al., 1998; Sherbourne et al., 1995) and alcohol use disorder (AUD) (Chung et al., 2001).

Avoidant coping in response to trauma is specifically maladaptive

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(Folkman and Moskowitz, 2004), as it interferes with the effective integration of the traumatic event into a consolidated memory (Hetzel-Riggin and Meads, 2016). This hypothesis was supported by Pineles et al. (2011) who showed that greater use of avoidant coping strategies during the first month post-trauma (e.g., assault survivors) were associated with more severe posttraumatic stress disorder (PTSD) symptoms. Further research has revealed that different PTSD symptoms may interact differently with coping. For example, during the postpartum period, symptoms of hypervigilance, loss of interest, and feelings of detachment, rather than avoidance symptoms, were found to be significantly predictive of avoidant coping (Cleveland et al., 2022). More recently, using a 7-factor model of PTSD symptoms (re-experiencing, avoidance, negative affect, emotional numbing, externalizing behaviors, dysphoric arousal, and anxious arousal) (Armour et al., 2015), only negative affect symptoms were positively associated with avoidance coping in trauma-exposed veterans (Palmisano et al., 2022). Recently, an 8-factor model of PTSD symptoms was shown to be superior to the 7-factor model (Duek et al., 2022). The 8-factor model divides the intrusive symptoms cluster into internally (e.g., dreams) and externally (e.g., places) generated memories. To date, however, no study has examined how this more nuanced phenotypic model of PTSD (i.e., the 8-factor model) symptom clusters may be linked to avoidance coping in trauma survivors.

There is currently ample evidence of the adverse effects of avoidance coping strategies raising the need to further investigate potential risk factors for engagement in these strategies. Among the potential risk factors are social support (Arble et al., 2018), male gender (Urbieta et al., 2017), financial adversities (Fluharty and Fancourt, 2021), adverse childhood events (e.g., sexual abuse) (Batchelder et al., 2021), and personality traits (e.g., neuroticism/emotional stability) (O'Brien and DeLongis, 1996), and severity of PTSD symptom (Badour et al., 2012). However, to date, all of these risk factors have been studied in isolation and have not been examined in response to a specific traumatic event. With the continued evolution of phenotypic models of PTSD symptoms (Duek et al., 2022), examining the unique association of PTSD symptom clusters in relation to avoidance coping may help inform specific intervention targets for PTSD treatment.

Network analysis is one approach that can be used to examine factors associated with avoidant coping in a single model. This approach is designed to analyze interrelationships among psychological constructs and, as such, has gained traction in the field of mental disorders in general, and specifically in the field of PTSD (Duek et al., 2021). The network approach assesses underlying associations between observable variables using a combination of mixed graphical models and graph theory (Epskamp et al., 2018a). Using this approach, all linear relation and multicollinearity are entered simultaneously into the single model, allowing for insight into predictive mediation (Epskamp and Fried, 2018). Thus, this approach can be utilized to investigate the complex interaction between various symptoms from different domains (Korem et al., 2022). Plotting the variable network enables visualization and quantification of abstract complex systems and insights into the relational patterns within them (Haslbeck and Waldorp, 2020).

The aim of the current study was to examine the association between key sociodemographic, personality, and psychosocial traits, and endorsement of avoidance coping strategies in trauma-exposed individuals. To do so, we employed network analysis methodology in a nationally representative sample of (n = 3121) trauma-exposed military veterans. We specified a comprehensive network combining demographics, mental health indices, personality traits, and trauma-related symptoms, and tested their influence on endorsement of avoidance coping strategies. We further specified a more detailed network of individual negative affect symptoms (e.g., blame, shame, guilt) and specific adverse childhood experiences (e.g., emotional abuse, physical abuse) to test the unique contribution of these items to endorsement of avoidance coping.

2. Methods

2.1. Participants

Data were drawn from the National Health and Resilience in Veterans Study (NHRVS; recruited between 11/18/19–3/8/20), which surveyed a nationally representative sample of U.S. military veterans. Participants completed an anonymous web-based survey. The NHRVS sample was ascertained from Ipsos, a survey research firm that maintains the KnowledgePanel research panel, the oldest and largest probability-based online panel in the U.S. Of 7860 veterans who were invited to participate in the NHRVS, 4069 completed the survey (51.7 % completion rate). Panel members are recruited through national random samples. To allow for generalizability of the results to the US veterans population, post-stratification weights were calculated by Ipsos based on benchmarks from the latest (August 2019) Current Veteran Population Supplemental Survey of the U.S. Census Bureau's American Community Survey: age, sex, race/ethnicity, Census region, metropolitan status, education, annual household income, branch of military service, and years of military service. All participants provided informed consent and the study was approved by the Human Subjects Committee of the VA Connecticut Healthcare System. The current study analyzed data from 3121 lifetime trauma-exposed veterans (mean age = 61.3 years; SD = 15.6 years; 86 % male; time since index trauma mean = 30.9 years, SD = 19.9; see Supplementary Fig. S1 for histogram) who had complete data for all study variables.

2.2. Measures

2.2.1. Demographics and trauma characteristics

data regarding age, sex, education, marital/partnered status, and annual household income were collected using a sociodemographic questionnaire. The number of adverse childhood experiences (ACES) was assessed using 10 items regarding adverse experiences (e.g., verbal and physical abuse, neglect, and deprivation) before turning 18 (Felitti et al., 1998). The number of lifetime traumatic events was assessed using the Life Events Checklist for DSM-5 (LEC-5) (Weathers et al., 2013), a self-report measure that assesses direct, witnessed, learned about, and part of job exposures to 16 potentially traumatic events.

2.2.2. Mental health

Symptoms of major depressive disorder (MDD) and general anxiety disorder (GAD) were assessed using the PHQ-4 (Kroenke et al., 2009). Current use of psychiatric medication, and current psychotherapy were based on self-report. Internal consistencies in this sample ranged between 0.87 (depression) and 0.83 (anxiety).

2.2.3. Personality

Participants completed the Ten-Item Personality Inventory (TIPI) (Gosling et al., 2003) to assess the big 5 personality traits (agreeableness, extraversion, conscientiousness, openness, and emotional stability). Items were rated from 1 (strongly disagree) to 5 (strongly agree) and averaged for each scale.

2.2.4. PTSD symptoms severity

Completed the 20-item PTSD Checklist for DSM-5 (PCL-5) which was clustered by the newly suggested 8-clusters (Duek et al., 2022). Internal consistencies in this sample ranged between 0.89 (avoidance) and 0.68 (externalizing behaviors), total PCL-5 consistency 0.95. Participants completed the PCL-5 in response to their 'worst' potentially traumatic event endorsed on the LEC-5 (i.e., index trauma).

2.2.5. Coping strategies

Coping strategies were assessed using a modified version of the Brief COPE (Carver, 1997). Participants were presented with a list of 16 statements describing specific strategies (e.g., acceptance, active

coping) that they most commonly used to deal with their PTSD symptoms related to their worst stressful event endorsed on the LEC-5. Five of the items are considered avoidance coping strategies (self-distraction: "Turning to work or other activities to get mind off things;" substance use: "using alcohol, nicotine, or drugs to help get through it;" behavioral disengagement: Giving up in trying to deal with it; denial: "refusing to believe that it happened;" and self-blame: "blaming or criticizing myself for what happened"). Participants were divided into 3 groups based on the number of avoidance coping strategies that they reported: no avoidance coping strategy (0 items endorsed; n = 2375, 76.1 %), low avoidance coping (1 item endorsed; n = 580, 18.6 %), or mid-high coping (2–3 items endorsed; n = 166, 5.3 %). Scores were analyzed as a Poisson distributed variable.

2.3. Data analyses

Data analyses proceeded in two phases. In the first phase, we aimed to gain an overview of the associations between avoidant coping groups and independent variables. In the second phase, we took a deeper look at which items were associated with avoidant coping and how much of the variance could be explained by the included variables. First, we used network analysis to map the associations between the included variables (Epskamp and Fried, 2018). In the resulting network, nodes represent the included variables, and edges (i.e., links) represent the pairwise association of two variables adjusted for the effect of all other variables included in the network. The width of the edge corresponds to the strength of the association, and different colors indicate whether the association is positive or negative (green or red edges respectively) (Epskamp et al., 2018a). We estimated the network using a regularization technique based on the least absolute shrinkage and selection operator (LASSO; a L1 penalized regularization) using a 10-fold cross-validation. The regularization reduces the false positive rate by setting small edges to zero (Haslbeck and Waldorp, 2020). Because the variables included in the network included gaussian, ordered, and categorical variables, each network was estimated as a mixed graphical model (MGM) (Haslbeck and Waldorp, 2020). The network estimation, as well as the stability and reliability assessment, were conducted using the package bootnet (Epskamp et al., 2018b). In the second phase, based on the results from the first network analysis (see results) and following prior work (Palmisano et al., 2022), we repeated the above analysis with the negative affect cluster broken down into its items. Internal consistency was calculated using the Spearman-Brown for scales with 2 items (Eisinga et al., 2013), and Cronbach alpha for scales with 3 or more items. All analyses were performed using R version 4.2.2 (Team, 2022).

3. Results

Sample descriptive characteristics and index traumas by avoidant coping groups are presented in Tables 1 and 2, respectively. Results showed several factors linked to greater endorsement of avoidance coping including younger age, lower income (less than $60 K/year), living alone, lower education level (no college degree), and greater severity of PTSD symptoms (see Table 1). Further, veterans who reported engaging in one or more avoidance coping strategies were more likely to report sexual assault as their index trauma than those who did not use any avoidance coping strategies. Veterans who reported engaging in two or more avoidance coping strategies were more likely than those who report one or no avoidance coping strategies to endorse captivity or other unwanted or uncomfortable sexual experience as their index trauma. Conversely, veterans who reported not engaging in any avoidance coping strategies were more likely to report life-threatening illness or injury as their index trauma than those who used one or more avoidance coping strategies, and more likely to report natural disasters as their index trauma relative to those who reported using one avoidance coping strategy. Given the long duration of time since index trauma, we conducted a two-way analysis of variance (ANOVA) to

Table 1
Sample descriptive characteristics by frequency of use of avoidant coping strategies.

	No avoidant coping N = 2375 (weighted 73.4 %)	One avoidant coping strategy N = 580 (weighted 19.9 %)	2–3 avoidant coping strategies N = 166 (weighted 6.7 %)
Weighted age[1]	66 (54, 74)[x]	57 (42, 69)[y]	56 (43, 67)[y]
Male sex (weighted %)[2]	2086 (90.7 %)[a]	471 (82.6 %)[b]	135 (86.4 %)[ab]
Household Income $60 K/year+ (weighted %)[2]	1692 (60.6 %)[a]	400 (53.0 %)[b]	83 (50.2 %)[b]
Married/partnered (weighted %)[2]	1692 (72.9 %)[a]	400 (67.2 %)[b]	99 (59.7 %)[b]
College graduate or higher (weighted %)[2]	1121 (36.6 %)[a]	244 (30.1 %)[b]	58 (23.2 %)[b]
Weighted PCL-5 score[1]	2 (0, 8)[x]	11 (3, 24)[y]	22 (7, 36)[z]

[a]/[b]Difference between group based on Chi square test with Bonferroni corrections.

[x],[y],[z]Difference between groups based on Tukey HSD.

[1] Median (IQR).

[2] n (%).

evaluate whether time since trauma moderated the association between index trauma and avoidance coping. The results indicated no significant effect of time since trauma ($F_{(1,3038)} = 0.62$, p = .43) or interaction of index trauma x time since trauma ($F_{(1,3038)} = 0.03$, p = .86); however, index trauma ($F_{(1,3038)} = 11.20$, p < .001) was significantly associated with avoidance coping.

As shown in Fig. 1, greater endorsement of avoidant coping strategies (item 25) was positively linked to the negative affect symptom cluster of the PCL-5 ($w_{adj} = 0.179$; item 20) and ACEs ($w_{adj} = 0.175$; item 6); and negatively linked to emotional stability ($w_{adj} = -0.138$; item 14), and conscientiousness ($w_{adj} = -0.134$; item 15). A sensitivity analysis was performed to examine whether the network was susceptible to effects driven by proximity to trauma (i.e., fewer years since index trauma). A similar network was constructed using only participants who had a time since index trauma greater than 2 years (n = 2864). The results revealed a high degree of stability in the network. For further details, please refer to Supplementary S2.

As shown in Fig. 2, when analyzing individual negative affect PTSD symptoms (PCL items 8–11; items 13–16 in Fig. 2), PCL-5 item 10 (item 14 in Fig. 2; blaming yourself or someone else) had the strongest edge to avoidance coping ($w_{adj} = 0.388$), with PCL-9 (item 13; strong negative beliefs about yourself, other people, or the world; $w_{adj} = 0.124$) and PCL-11 (item 15; strong negative feelings such as fear, horror, anger, guilt, or shame; $w_{adj} = 0.109$) showing weaker edges.

As shown in Fig. 3, looking at individual ACEs, emotional neglect ("Did you often or very often feel that no one in your family loved you or thought you were important or special?"; wadj = 0.298) had the strongest edge to avoidance coping, with sexual abuse ($w_{adj} = 0.142$) showing a weaker edge.

Network stability analysis for all three networks indicate good fit with both edge and strength = 0.75. See Supplementary figures.

4. Discussion

Results of the current study provide a comprehensive assessment of key correlates of avoidance coping strategies in a large sample of trauma-exposed veterans. Using a network-analysis approach, we visualized the complex interactions among multi-domain constructs and their unique contribution to engagement in avoidant coping (Epskamp et al., 2012; Costantini et al., 2015). Our results suggested that endorsement of avoidance coping strategies is positively associated with the PTSD negative affect cluster and to adverse childhood experiences,

Table 2
Index traumas by frequency of use of avoidant coping strategies.

	Time since index trauma in years Mean (SD)	No avoidant coping N = 2375 (weighted 73.4 %)	One avoidant coping strategy N = 580 (weighted 19.9 %)	2–3 avoidant coping strategies N = 166 (weighted 6.7 %)	Total
Combat or exposure to a war-zone (in the military or as a civilian)	42.8 (15.6)	253 (11.2 %)[a]	80 (14.6 %)[a]	24 (15.0 %)[a]	362 (12.1 %)
Sexual assault (rape, attempted rape, made to perform any type of sexual act through force or threat of harm)	40.1 (14.0)	66 (2.3 %)[a]	52 (8.7 %)[b]	21 (11.3 %)[b]	143 (4.2 %)
Transportation accident (for example, car accident, boat accident, train wreck, plane crash)	34.4 (18.7)	334 (14.3 %)[a]	58 (12.3 %)[a]	18 (9.6 %)[a]	412 (13.6 %)
Physical assault (for example, being attacked, hit, slapped, kicked, beaten up)	43.0 (18.7)	102 (4.5 %)[a]	32 (5.8 %)[a]	15 (8.4 %)[a]	153 (5.0 %)
Sudden violent death (for example, homicide, suicide)	26.5 (16.6)	147 (7.1 %)[a]	39 (7.4 %)[a]	13 (6.7 %)[a]	199 (7.2 %)
Any other very stressful event or experience	25.8 (20.2)	161 (6.5 %)[a]	52 (8.0 %)[a]	12 (6.5 %)[a]	228 (6.8 %)
Sudden accidental death	31.5 (20.5)	195 (8.6 %)[a]	44 (7.7 %)[a]	12 (8.3 %)[a]	252 (8.4 %)
Natural disaster (for example, flood, hurricane, tornado, earthquake)	35.2 (20.6)	262 (10.5 %)[a]	42 (6.4 %)[b]	11 (7.2 %)[a, b]	321 (9.4 %)
Other unwanted or uncomfortable sexual experience	41.7 (17.8)	32 (1.4 %)[a]	16 (2.6 %)[a]	10 (10.9 %)[b]	59 (2.2 %)
Life-threatening illness or injury	21.5 (19.1)	328 (12.7 %)[a]	55 (8.5 %)[b]	8 (5.3 %)[b]	396 (11.3 %)
Serious accident at work, home, or during recreational activity	28.8 (18.6)	146 (5.8 %)[a]	23 (3.3 %)[a]	4 (1.6 %)[a]	174 (5.0 %)
Severe human suffering	34.1 (20.3)	68 (2.4 %)[a]	16 (3.2 %)[a]	4 (1.5 %)[a]	90 (2.5 %)
Serious injury, harm, or death you caused to someone else	41.0 (16.4)	15 (0.6 %)[a]	11 (1.2 %)[a]	4 (2.0 %)[a]	30 (0.8 %)
Exposure to toxic substance (for example, dangerous chemicals, radiation)	40.8 (16.3)	60 (2.4 %)[a]	9 (1.9 %)[a]	4 (1.5 %)[a]	75 (2.2 %)
Assault with a weapon (for example, being shot, stabbed, threatened with a knife, gun, bomb)	40.1 (16.9)	75 (3.7 %)[a]	16 (2.6 %)[a]	3 (2.1 %)[a]	94 (3.4 %)
Homelessness	23.4 (16.4)	31 (1.6 %)[a]	16 (2.7 %)[a]	1 (0.8 %)[a]	50 (1.7 %)
Captivity (for example, being kidnapped, abducted, held hostage, prisoner of war)	37.0 (11.0)	3 (0.1 %)[a]	1 (0.1 %)[a]	1 (0.8 %)[b]	5 (0.1 %)
Fire or explosion	38.8 (20.3)	94 (4.1 %)[a]	18 (3.2 %)[a]	0 (0 %)[a]	114 (3.7 %)
Refused	30.0 (15.0)	3 (0.1 %)[a]	0 (0.0 %)[a]	1 (0.7 %)[a]	4 (0.1 %)

N (Weighted %).
Superscript letters denote subsets of veterans whose index trauma proportions are not significantly different at the 0.05 level.
$F = 3.86$, $p = 3.98e^{-13}$.

and negatively with emotional stability and conscientiousness personality traits. Moreover, we found that the negative affect symptom of blaming oneself and others for a traumatic event (item 10 on the PCL-5), and ACEs items of emotional neglect and sexual abuse were most strongly linked to avoidance coping. Notably, our network analysis indicated that the demographic characteristics, depressive and anxiety symptoms, and mental health treatment status did not directly influence endorsement of avoidance coping strategies. With respect to index trauma, we found that sexual assault or other unwanted or uncomfortable sexual experience, and captivity were associated with an increased likelihood of using avoidance coping mechanisms, while life-threatening illness and natural disaster was associated with decreased likelihood of using these strategies. While no interaction was observed between index trauma and time since trauma, it is important to note that our sample was composed predominantly of veterans whose index trauma occurred an average of 3 decades earlier. Overall, our results suggest that emotional neglect and sexual abuse, rather than the number of traumatic events, together with strong feelings of blame, are associated with avoidance coping. In contrast, increased emotional stability and conscientiousness are linked to lower likelihood of engaging in avoidance-oriented coping strategies.

Results of this study are in line with previous findings singling out the role of negative affect symptoms of PTSD in relation to avoidance coping (Palmisano et al., 2022; Weiss et al., 2019), while supporting the lack of direct association between avoidance symptoms of PTSD and avoidance coping strategies (Cleveland et al., 2022; Palmisano et al., 2022). It was previously shown that the negative affect cluster mediates the association between avoidance coping and AUD in individuals diagnosed with PTSD. However, the link between negative affect and
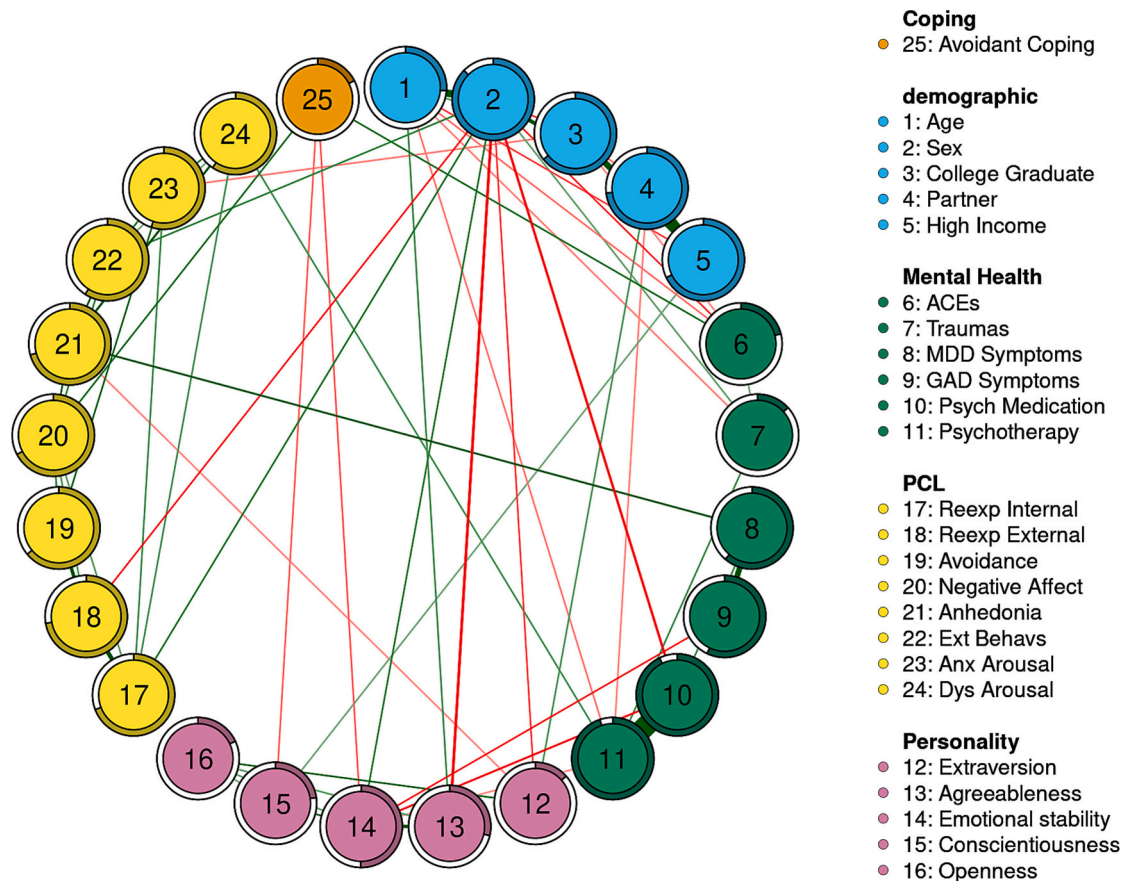
Fig. 1. Results of network analyses of correlates of avoidance coping.
Partial correlation (LASSO) Network of demographics, mental health, PCL-5 items, and personality. Bolder lines represent stronger correlations. Green lines represent positive correlations while red represent negative correlations. The filled part of the circle around each node represents the variance of the nodes explained by the model. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

avoidance coping seems to be bi-directional, and is not limited to more negative affect leading to more avoidance coping (or vice versa) (Ullman et al., 2007). The current study adds to this body of knowledge by providing evidence of a unique association between negative affect and engagement in avoidance coping. By incorporating all PTSD symptom clusters, as well as other relevant factors suggested by previous literature, into a single model, we found that negative affect symptoms were most strongly linked to avoidant coping.

Secondary analysis of individual negative affect symptoms indicated that blame had the strongest edge linked to avoidance coping. This finding is consistent with previous literature linking self-blame with both PTSD symptoms severity and avoidance coping (Alix et al., 2020; Hamrick and Owens, 2019). While previous studies used blame as a single predictors, the current study is the first, to our knowledge, to look at blame together with all other PTSD symptom clusters, as well other items comprising the negative affect cluster in a single model. Notably, sexual assault and unwanted sexual experience were associated with an increased likelihood of engaging in avoidance coping. Prior work has found associations between sexual abuse and self-blame (Bhuptani and Messman-Moore, 2019; Jouriles et al., 2022), which suggests that blame-related PTSD symptoms may be linked to greater engagement in avoidance coping. Given that the PCL-5 does not differentiate the locus of blame, i.e., self-blame, other blame, and dual blame, which were previously shown to have different effects on coping and recovery (Weinberg, 1994), further research is needed to examine how the locus of blame may be differentially linked to avoidant coping. Nevertheless, the strong magnitude of this association underscores the importance of interventions targeting blame reduction, such as cognitive processing

therapy (CPT) and prolonged exposure (PE), in mitigating avoidance coping behaviors in veterans and other trauma survivors (Holliday et al., 2018; Dillon et al., 2020).

The finding that ACEs were linked to engagement in avoidance coping aligns with prior work suggesting that ACES are a major risk factor for the development of mental disorders such as PTSD (Heim et al., 1997; Xue et al., 2015). Looking closely at the different items, emotional neglect and sexual abuse evidenced the strongest edge to avoidance coping. Emotional neglect is associated with feelings of insecurity, low self esteem, and a lack of trust in others (Miralles et al., 2021; Rees, 2008). These feelings can in turn lead to greater engagement in avoidance coping mechanisms (Littleton and Breitkopf, 2006; Utsey et al., 2000). Moreover, greater emotional neglect have been linked to increased dependency and self-blame (Swannell et al., 2012). Our results also corroborate studies showing that emotional neglect is associated with engagement in substance abuse (Miralles et al., 2021), self-harm (Swannell et al., 2012), and other activities that can be categorized as maladaptive coping strategies (Rees, 2008). In addition, research also suggests that those who experience emotional neglect may have difficulties in forming healthy attachments and trusting others in adulthood (Briere and Jordan, 2009), which can lead to difficulties in forming and maintaining healthy and trusting relationships needed for more adaptive coping that rely on approach-oriented strategies. Emotional neglect had also been linked to difficulties in emotion regulation and tendency to avoid or suppress emotions, instead of processing and understanding them (Rudenstine et al., 2019). Similarly, sexual abuse was also associated with avoidance coping. Prior research has shown that individuals who have experienced sexual abuse are more
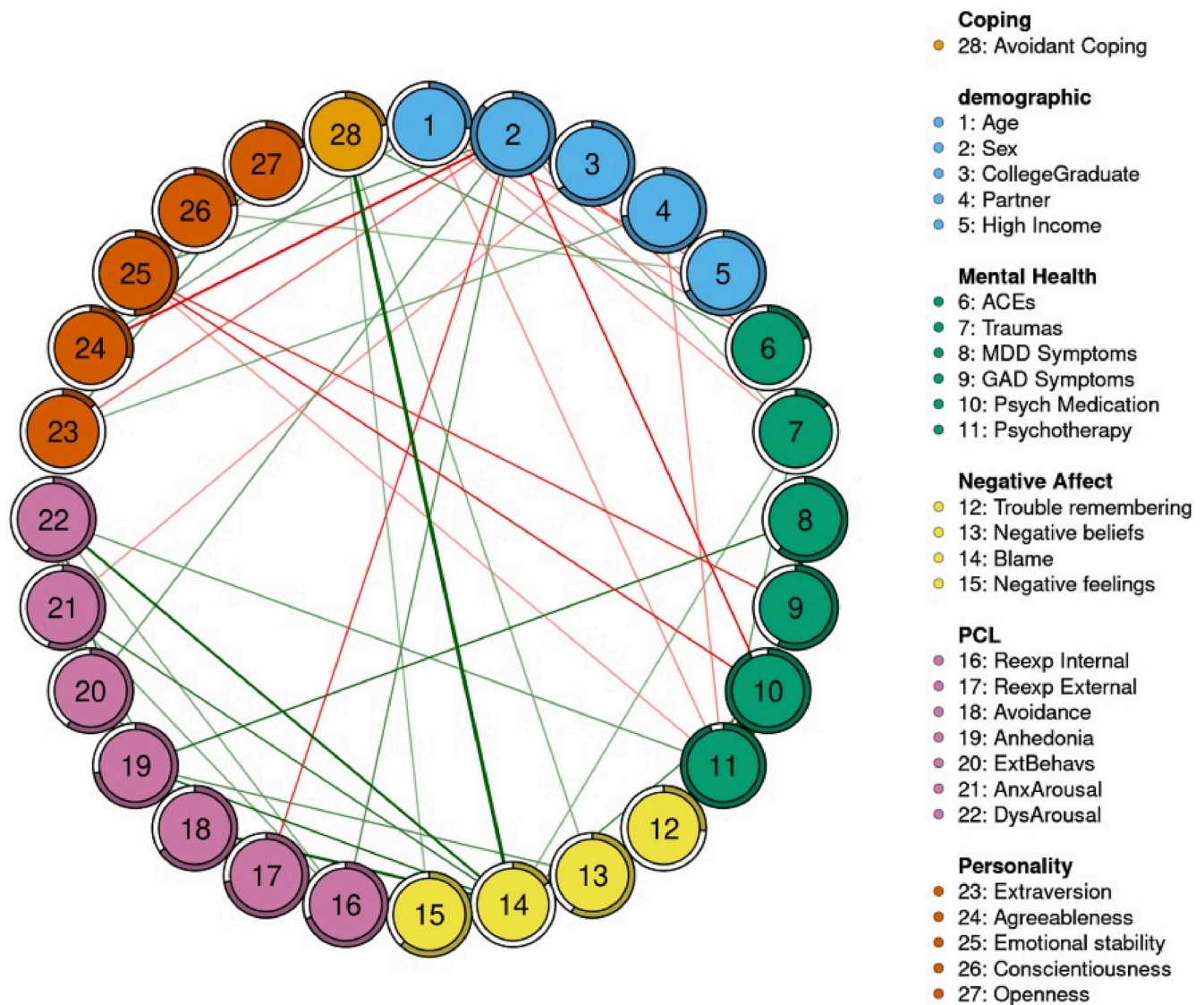
Fig. 2. Results of network analyses of individual negative affect symptom correlates of avoidance coping.
Partial correlation (LASSO) Network of demographics, mental health, personality and PCL-5 items with the negative affect symptom cluster broken down to its constituent items.

prone to substance use and other forms of avoidance coping (Simpson and Miller, 2002), using these strategies to avoid memories, thoughts, or feelings associated with a traumatic event. This can be problematic as it can lead to increased feelings of isolation, depression, and anxiety (Sigurdardottir and Halldorsdottir, 2013; Olafson, 2011). Moreover, sexual abuse was found to be a leading risk factor for adult PTSD (Schoedl et al., 2010). Taken together, ACEs lead to isolation and mistrust in others, and give rise to greater likelihood of engaging in avoidance coping as adults. Collectively, these results underscore the importance of assessing ACEs and therapeutic promotion of the engagement of more adaptive coping mechanisms among those with such experiences.

Emotional stability and consciousness were found to be negatively related to engagement in avoidance coping strategies. Previous studies observed that people with lower emotional stability show higher levels of avoidance coping (O'Brien and DeLongis, 1996; Watson and Hubbard, 1996; Prentice et al., 2020). This negative association might stem from the fact that individuals who score highly on emotional stability tend to be less reactive to stressors and are better able to regulate their emotions. They may also be more likely to use adaptive coping strategies such as problem-solving or seeking social support when facing stressors.

Thus, emotional stability may act as a protective factor against avoidance coping strategies (van Berkel, 2009). Given that several therapies have been found to increase emotional stability (i.e., reduce neuroticism), such as mindfulness and rational emotive behavior therapy (Jorm, 1989), further research should evaluate whether increasing emotional stability may help reduce endorsement of avoidance coping strategies in trauma-exposed individuals. Similarly, individuals who score highly on conscientiousness tend to be more proactive and goal-oriented, and thus are more likely to take direct action to solve problems or address stressors rather than avoiding them (Connor-Smith and Flachsbart, 2007). Several therapies such as cognitive-behavioral therapy (CBT), mental contrasting (MC), and cognitive remediation therapy (CRT), have shown promising results in increasing conscientiousness (Javaras et al., 2019). Future studies should evaluate the effectiveness of these interventions in increasing conscientiousness and reducing engagement in avoidance coping strategies in trauma survivors.

Three limitations of this study should be noted. First, avoidant coping was examined as a single construct. While some studies have attempted to distinguish between different forms of avoidant coping such as the inability to deal with emotions and the avoidance of emotions, other studies have found different distinctions (Hetzel-Riggin and
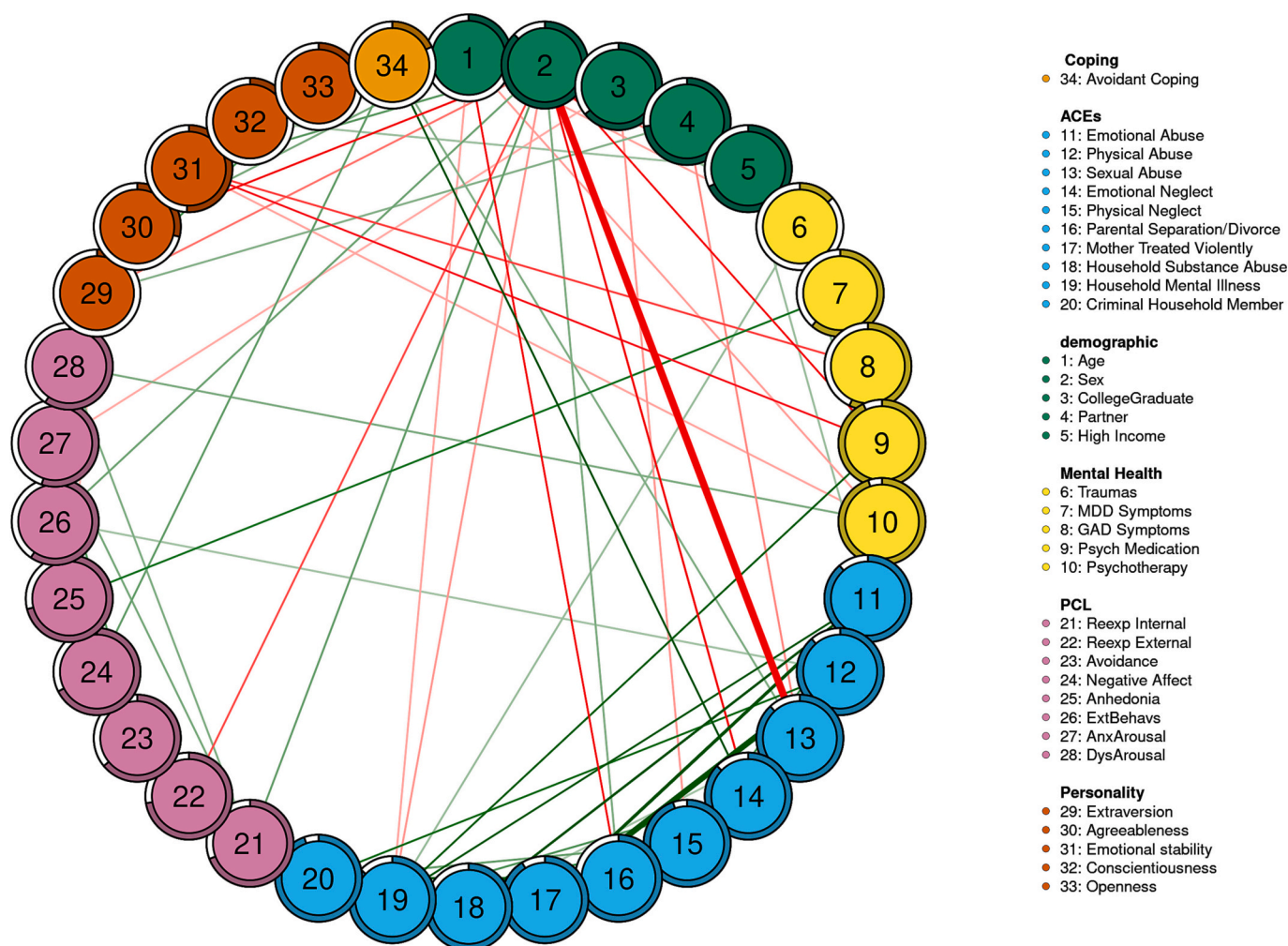
Fig. 3. Results of network analyses of individual adverse childhood experiences correlates of avoidance coping.
Partial correlation (LASSO) Network of demographics, mental health, personality and PCL-5 items with ACEs broken down to constituent items.

Meads, 2016). Second, the study sample was primarily composed of older, male, and white veterans whose index trauma occurred an average of 3 decades earlier. As such, further research involving more diverse samples, as well as those who have experienced more recent index traumas is needed to evaluate the generalizability of these findings. Therefore, future research should investigate the differences between networks that employ different subtypes of avoidant coping. Third, the lack of edges between nodes in the mental health treatment may be due in part to the fact that this general measure did not differentiate between the types of psychotherapy or medications participants were currently using or had used in the past. Lastly, the cross-sectional study design limits our ability to establish directional/causal relationships among variables of interest. Future studies using longitudinal designs may be better suited to determine the directionality of these associations.

Notwithstanding these limitations, results of this study suggest that negative affect symptoms of PTSD and ACEs are strongly associated with engagement in avoidance coping, while emotional stability and conscientiousness may serve as protective factors. They further revealed that blame and emotional neglect were most strongly linked to avoidance coping. Further research is needed to replicate these results in different samples; examine differential associations between aspects of blame and engagement in avoidance coping; and evaluate whether interventions targeting blame, emotional stability, and conscientiousness may help mitigate engagement in avoidant coping in military veterans and other trauma survivors.

CRediT authorship contribution statement

NK: Conceptualization, Formal analysis, Methodology, Visualization, Writing-original draft. **ZBZ:** Conceptualization, Writing-original draft. **TS & OD:** Formal analysis, Methodology, Visualization. **IHR:** Conceptualization, Supervision. **RHP:** Conceptualization, Writing-original draft, Data curation, Resources. All authors have approved the final article.

Declaration of competing interest

All authors declare that they have no conflicts of interest.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jad.2023.07.036.

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