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Combat Experience and Problem Drinking in Veterans: Exploring the roles of PTSD, coping motives, and perceived stigma

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Abstract

Purpose—The current investigation sought to illustrate the etiology of adverse alcohol consequences in young adult veterans using a path analytic framework.

Methods—A total of 312 veterans aged 19–34 were enrolled in a larger intervention study on alcohol use. At baseline, participants completed measures of combat severity, PTSD symptom severity, and drinking motives to cope. At one month follow-up, participants completed measures of perceived stigma of behavioral health treatment seeking and past 30-day alcohol consequences.

Results—After entering the covariates of age, gender, race/ethnicity, and past year behavioral health treatment utilization, a path analytic model demonstrated a good fit to the data predicting alcohol consequences in this population. Further, a separate exploratory analysis confirmed that both drinking motives to cope and perceived stigma of behavioral health treatment seeking mediated the link between PTSD symptom severity and alcohol consequences.

Conclusions—The current model expands upon prior research showing the relationship between combat severity and alcohol use behavior in young adult veterans. Results support the notion that veterans with PTSD symptoms may drink to cope and that perceived stigma surrounding help seeking may further contribute to alcohol related problems.

Keywords

Veterans; PTSD; Coping Motives; Alcohol Consequences; Path Analysis; Mediation

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Contributors

SM conceptualized the model, conducted the statistical analysis, and wrote the first draft of the manuscript. EP and GM designed the original study, obtained funding, and directed data collection procedures. All authors provided edits to the paper and approved of the final manuscript.

Declaration of Interest

All authors declare they have no conflicts of interest to report.

1. Introduction

1.1 Problem Drinking Among Young Adult Veterans

American veterans returning home after service face a number of challenges as they attempt to reintegrate into civilian life, not the least of which involves coping with any combat related trauma they may have endured. The literature on returning veterans suggests that between 5% and 22% of returning veterans report symptoms that would effectually screen them positive for posttraumatic stress disorder (PTSD) (Bray et al., 2010; Schumm & Chard, 2012; Wisco et al., 2014). Further, there is a growing body of evidence that links PTSD with heavy drinking and related alcohol use disorder (AUD) in younger veterans of the conflicts in Iraq and Afghanistan (Jacobson et al., 2008; Larson, Wooten, Adams, & Merrick, 2012; Seal et al., 2011). Several environmental and psychosocial variables in addition to PTSD have been posited to explain the prevalence of heavy drinking in young adult veterans including (but not limited to): combat exposure, drinking motives, and perceived stigma (Dixon, Leen-Feldner, Ham, Feldner, & Lewis, 2009; Wright, Foran, Wood, Eckford, & McGurk, 2012). The current investigation begins with an overview of common factors linked to heavy alcohol use in veterans then expands on the existing literature by illustrating how the link between combat exposure and PTSD symptoms can lead to alcohol problems via the dual pathways of coping drinking motives and perceived stigma of treatment seeking.

1.2 Combat Exposure and PTSD

A nationally representative survey of recent US veterans found that combat related trauma was linked to PTSD in this population (Wisco et al., 2014). A meta-analytic review of risk factors for combat-related PTSD found that increased combat exposure and other severity indicators (e.g. witnessing a death) led to a greater likelihood of developing PTSD (Xue et al., 2015). Although some studies have found that potential genetic factors combine with the level of combat exposure to predict PTSD manifestation in veterans (e.g. Kimbrel et al., 2015), a longitudinal twin study of Vietnam era veterans found that the majority of PTSD related symptoms reported by combat veterans are most likely attributable solely to their combat experience (Gilbertson et al., 2010). In addition to the evidence linking combat exposure to PTSD, there is also strong evidence to suggest that combat exposure and PTSD are both linked to higher rates of alcohol use and problems in veterans (e.g., Godfrey et al., 2015; Hahn, Tirabassi, Simons, & Simons, 2015). Moreover, although US female veterans are not typically assigned combat roles, some are nonetheless exposed to combat and therefore are just as likely to evince the same link between heavy alcohol use and PTSD (Creech, Swift, Zlotnick, Taft, & Street, 2016).

1.3 Coping Drinking Motives

The connection between PTSD and drinking behavior has been explained in part by research on drinking motives, specifically “drinking to cope” (Lehavot, Stappenbeck, Luterek, Kaysen, & Simpson, 2014). Research on drinking motives has shown that individuals use alcohol as a means to regulate their emotions (Cooper, Frone, Russell, & Mudar, 1995) and that for some, drinking to regulate negative affect serves as a means to cope in lieu of more adaptive emotional strategies, such as engaging in goal-directed behavior (Veilleux, Skinner, Reese, & Shaver, 2014). Research, particularly in college students, supports the assertion

that some young adults drink to regulate their mood. For example, researchers found that daytime negative affect predicted subsequent drinking later that night (Dvorak, Pearson, & Day, 2014), while others found that more frequent changes in mood, specifically negative moods, predicted higher general levels of drinking to cope (Gottfredson & Hussong, 2013). Drinking to cope may reinforce the belief that alcohol is effective for regulating negative affect which can further contribute to the development of an AUD (Rousseau, Irons, & Correia, 2011).

Coping motives for drinking (e.g., drinking to reduce tension, drinking to deal with problems) appear to be qualitatively different from other drinking motives, such as social motives related to drinking with friends or during celebrations, or conformity motives related to wanting to fit in with others who are drinking. Specifically, drinking to cope has been consistently linked to alcohol related problems among young people (Carey & Correia, 1997; Merrill & Read, 2010; Rafnsson, Jonsson, & Windle, 2006). Further, longitudinal work has linked drinking to cope with the subsequent development of an AUD (Carpenter & Hasin, 1998). Evidence for the complete pathway between negative affect, coping drinking motives, and alcohol related problems is strong for college students (Martens et al., 2008), adults in the community (Carpenter & Hasin, 1999), and heavy drinking veterans with and without diagnosed PTSD (McDevitt-Murphy, Fields, Monahan, & Bracken, 2015).

1.4 Help Seeking Stigma

Concurrently with the relationship between PTSD symptomatology and drinking motives to cope, there is the added concern of stigmatization of help seeking which is particularly prevalent in military populations (Gorman, Blow, Ames, & Reed; 2011; Kulesza, Pedersen, Corrigan, & Marshall, 2015). Exacerbating this problem is the evidence which shows that those combat veterans suffering from PTSD (i.e. those likely in need of treatment) are the most likely to perceive stigma for seeking help, such as the belief others would view them as weak if they sought care (Hoge et al., 2004), and are therefore less likely to seek help (Kim, Thomas, Wilk, Castro, & Hoge, 2010). Further, there is recent evidence to suggest that not only is the presence of a mental health or substance use disorder predictive of stigmatizing beliefs, but that such beliefs are in turn related to alcohol problems (Jones, Keeling, Thandi, & Greenberg, 2015). This corresponds with research showing that people with comorbid AUD and mood disorders (e.g., depression) perceived greater stigma towards people who have an AUD (Glass, Williams, Bucholz, 2014). Further, in a sample of active duty military personnel, researchers found a dynamic interplay between PTSD, perceived stress, AUD, and help seeking stigma such that perceived stigma moderated the relationship between stress (strongly correlated with PTSD) and AUD (De La Rosa, Delaney, Webb-Murphy, & Johnston, 2015). Perceived stigma of help seeking is particularly complicated for young military populations; for example, by choosing to seek help, Army soldiers reported this could not only be seen by peers as a sign of weakness, but there is a perception that by choosing care, one is voluntarily leaving their unit, which could harm the unit in terms of readiness and productivity (Gibbs, Rae Olmsted, Brown, & Clinton-Sherrod, 2011).

1.6 Current Study

The current investigation builds off of previous research on the relationship between PTSD and problem drinking in military veterans. The primary aim of the current study is to test the hypothesis that adverse alcohol consequences in young adult veterans can be predicted using a path analytic framework incorporating combat exposure, PTSD symptomatology, drinking motives to cope, and perceived stigma of treatment seeking. A secondary aim is to test the dual hypotheses that both drinking motives to cope and perceived stigma of treatment seeking mediate the relationship between evinced PTSD symptoms and adverse alcohol consequences.

2. Methods

2.1 Participants and Procedures

Participants were recruited as part of a larger longitudinal study to test an online alcohol intervention for young adult veterans (Pedersen, Marshall, Schell, & Neighbors, 2016; Pedersen, Parast, Marshall, Schell, & Neighbors, 2016). The intervention group received feedback to correct their misperceptions of veteran peers' drinking behavior. An attention control group received feedback about the video game playing behavior of their veteran peers. Participants were recruited using a novel framework employing Facebook to reach veterans that might otherwise be missed by traditional outreach efforts. Initially, 2312 individuals clicked on Facebook links advertising the study, of which 1177 completed a screening questionnaire and signed a consent form. Participants were eligible if they were aged 18–34, a veteran from the Air Force, Army, Marine Corps, or Navy, and screened on the AUDIT (Saunders, Aasland, Babor, de la Fuente, & Grant, 1993) a minimum threshold score of “4” or greater for men and “3” or greater for women. The study utilized a screening protocol designed to validate participants' status as a veteran, such as use of validation checks to ensure items on time of service, rank, pay grade, and branch of service matched for consistency (see Pedersen, Naranjo, & Marshall, 2016). After screening, the total sample for the larger study was 783. The analytic sample for the current investigation only included the participants who did not receive the intervention in the larger study (N =312).

2.2 Measures

Time 1 Measurement

Combat Exposure Scale: Combat exposure was assessed using an 11-item scale (Schell & Marshall, 2008) with items on whether or not participants experienced combat events (Yes/No). Example items included, “Having a friend who was seriously wounded or killed,” and “Being injured, requiring hospitalization.” Scores ranged from 0 to 11, with higher scores indicated a greater degree of combat severity. Scores of “0” on the scale were imputed for 35 participants who indicated they were not deployed during their service.

Posttraumatic Stress Disorder (PCL-5): PTSD symptoms were assessed using the 20-item PCL-5 checklist (PCL-5; Botvin et al., 2015; Weathers et al., 2013). The PCL-5 asks participants to indicate the degree to which they were bothered by each of the DSM-5 PTSD symptoms in the past month using a 5-point scale ranging from “Not at all” to “Extremely.”

Drinking Motives Questionnaire: Coping drinking motives were assessed using 5-item coping subscale from the Drinking Motives Questionnaire (DMQ; Cooper, 1994). Asked to think of all the times they drink, participants indicate the frequency with which they drink for the coping reasons (e.g. “To forget about your problems”) on a 5-point scale from 1-”Almost never/never” to 5-”Almost always/always.” The “coping” subscale has been shown to be a statistically valid and reliable component of the DMQ (Kuntsche, Knibbe, Gmel, Engels, 2006).

Covariates: Demographics and Treatment Receipt: We assessed each participant with regard to their age, gender, and race/ethnicity. In addition, we asked participants to indicate whether or not they had received behavioral health treatment in the past year (i.e., attended an appointment for a mental health concern, an alcohol use concern, or a substance use concern). A “yes” answer to care for any of the three concerns constituted having received behavioral health services in the past year.

Time 2 One Month Follow-Up Measurement

Perceived Stigma of Behavioral Health Treatment Seeking: Perceived public stigma of seeking behavioral health treatment was assessed using a 6-item scale developed by Britt and colleagues (Britt, 2000; Britt et al., 2008). The scale asks participants to indicate the extent to which various stigma concerns might influence their decision to seek treatment for a psychological problem (i.e., a stress or emotional problem such as depression, anxiety attacks, or substance use concerns). Answers were provided on a 4-point scale ranging from “strongly disagree” to “strongly agree” (e.g., “I would be seen as weak”). This scale has been used in active duty military and veteran samples and has shown a high degree of reliability and validity (e.g. Hoge et al., 2004; Kulesza et al., 2015).

Brief Young Adult Alcohol Consequences Questionnaire (B-YAACQ): The B-YAACQ (Kahler, Strong, & Read, 2005) was used to assess past month drinking consequences. The B-YAACQ is a 24-item measure that asks (Yes/No) how many adverse consequences participants attributed to their drinking in the past 30 days, e.g., “I often have ended up drinking on nights when I had planned not to drink.” The B-YAACQ has shown good psychometric validity as a measure of problem drinking (Kahler, Hustad, Barnett, Strong, & Borsari, 2008), a behavior of particular concern among young adult veterans.

2.3 Data Analysis

Data were analyzed using SPSS v.24. Descriptive statistics were calculated for the covariates of age, gender, race/ethnicity, and behavioral health treatment seeking in the past year. Descriptive statistics were also calculated for the five core variables of the path analysis model: Combat severity, PTSD symptom severity, coping drinking motives, perceived public stigma of treatment seeking, and alcohol consequences. Bivariate correlations were also calculated for all of the variables (including covariates). The path analysis model was tested using AMOS v.24. In addition to the unidirectional paths seen in Figure 1, all covariates were regressed onto all of the endogenous variables and correlated with combat severity and each other as was coping drinking motives with perceived public stigma. A maximum likelihood model estimating means and intercepts was used to test model fit. Standardized

estimates for all paths were calculated and are reported with fit indices for the default model. Finally, an exploratory mediation analysis was conducted using the PROCESS package for SPSS v.2.15 (Hayes, 2013).

3. Results

3.1 Demographics and Bivariate Correlations

Table 1 contains demographic information about the sample. Each of the measures used to assess combat severity ($\alpha = .78$), PTSD ($\alpha = .97$), drinking motives: coping ($\alpha = .90$), perceived treatment seeking stigma ($\alpha = .91$), and alcohol consequences ($\alpha = .95$) demonstrated good to excellent internal consistency. Preliminary analyses revealed significant correlations among all five of the proposed model variables. In addition, significant correlations were observed for some of the proposed covariates (see Table 1). In the subsequent test of the proposed model, all of the covariates were included in the final analysis.

3.2 Path Analysis

A path analysis was conducted to test the hypothesized linkages between combat severity, PTSD symptom severity, coping drinking motives, perceived public stigma of treatment seeking, and alcohol consequences. The hypothesized measurement model fit the data well in accordance with recommended fit indices in the literature (Barrett, 2007; Hu & Bentler, 1999). Fit indices for the default model were as follows: $\chi^2 = 11.952$, $df = 4$; $p = .018$; CMIN/df = 2.988; CFI = .981; RMSEA = .080, C.I. [.03 – .13]; SRMR = .025. The standardized estimates for each path in the model are reported in Figure 1. Further, this model controlled for the covariates of age, gender, ethnicity, and any use of behavioral health treatment services in the past year. Standardized estimates for use of any behavioral health treatment services in the past year were significant for PTSD symptoms ($\beta = .37$, $p < .001$) and perceived public stigma ($\beta = -.12$, $p = .046$), such that those who had received any treatment reported both greater PTSD symptom severity and less stigma about seeking care. In addition, standardized estimates for gender were significant for PTSD symptom severity ($\beta = .12$, $p < .05$) and alcohol consequences ($\beta = -.11$, $p < .05$), such that men reported greater PTSD symptom severity at Time 1 but fewer alcohol consequences at Time 2. Neither age nor ethnicity yielded significant standardized estimates for any of the endogenous variables. Of note in the model was the relatively strong relationship between PTSD and drinking to cope at baseline. Also, PTSD symptom severity at baseline was predictive of perceived stigma one month later, while drinking to cope was also significantly predictive of alcohol consequences at follow-up.

3.3 Mediation

Mediation analyses tested the hypotheses that drinking motives coping and perceived stigma of treatment seeking mediate the relationship between PTSD symptoms and alcohol consequences. A multiple mediation model with a 1,000 iteration bootstrap procedure, provided support for both hypotheses. That is, both drinking to cope (Point Estimate = .0677, S.E. = .0145, C.I. [.0412–.0989]) and perceived public stigma (Point Estimate = .0105, S.E. = .0050, C.I. [.0030–.0241]) mediated the relationship between PTSD symptoms

and alcohol consequences. This finding indicates that veterans with greater PTSD symptom severity were both more likely to drink alcohol to cope with negative affect and to view stigma as interfering with the likelihood of seeking treatment. Further, both perceived stigma and drinking to cope were predictive of experiencing a higher number of alcohol consequences for veterans with greater PTSD symptom severity.

4. Discussion

This study examined the associations of combat severity and PTSD symptoms with adverse alcohol consequences, and tested hypotheses regarding the roles of drinking to cope and perceived stigma regarding help-seeking as mediators of said relationship. Overall, this model provided a good explanation of the data. Specifically, main effects were found for the relationship between combat severity and PTSD symptom severity, between PTSD symptom severity and both drinking motives to cope and perceived stigma of treatment seeking, and for drinking motives to cope and perceived stigma of treatment seeking on adverse alcohol consequences. Additionally, indirect effects via mediating pathways were found from PTSD symptom severity to alcohol consequences through drinking motives to cope and perceived stigma of treatment seeking. Taken as a whole, these findings suggest that both drinking to cope and perceived stigma serve to explain the well-established link (see Larson et al., 2012) between PTSD and alcohol consequences in this population.

Although various studies have established a connection between combat severity, PTSD, and alcohol use (e.g. Ramchand et al., 2011; Seal et al., 2011), few have explored the mediating role of coping motives to deal with PTSD symptoms (e.g. McDevitt-Murphy et al., 2015). The results of the current study reveal that the link between PTSD symptoms and coping motives for drinking was by far the strongest relationship, suggesting that veterans suffering from PTSD may use alcohol to cope with their PTSD symptoms. Coping motives, therefore, are a likely candidate for explaining why some young adult veterans are more likely than others to experience adverse alcohol consequences from their heavy drinking. Future studies could continue to examine the role of drinking motives in problem drinking behavior in young adult veterans. Although there is ample research on this construct in college students, the unique nature of military service warrants additional studies in young veterans. These results highlight the important role that perceived stigma may play in the etiology of alcohol use behavior among young adult veterans. A robust pattern of findings in the literature suggest that veterans who experience PTSD symptoms are more likely to perceive stigma associated with treatment seeking (Hoge et al., 2004; Jones et al., 2015), and although other studies have examined how stigma influences treatment seeking (Kim et al., 2010), the current study took a different approach informed by the literature linking stigma to alcohol use (De La Rosa et al., 2015; Glass et al., 2013). As perceived stigma itself can be conceptualized as a negative drive state (Livingston & Boyd, 2010), it could serve to exacerbate the effects of PTSD on drinking behavior as shown in the present model. In sum, perceived stigma is a very real phenomenon that most likely contributes to the frequency with which young adult veterans with PTSD symptoms experience adverse alcohol consequences.

The mediators examined within the context of the hypothesized model under investigation are perhaps two of the most likely reasons why so many young adult veterans with PTSD develop an AUD. It is reasonable to assume that anyone experiencing strong negative drive states such as PTSD and stigma are going to deal with them one way or another. Unfortunately for some this may mean eschewing healthier treatment options and instead managing their symptoms with alcohol. As discussed in previous research (Rousseau et al., 2011), this becomes problematic when this reinforcing pattern of alcohol use leads to adverse alcohol consequences and possibly an AUD. This can be compounded by the perceived stigma that one who seeks care is weak or that one's peers would view them differently if they were to seek care (Fox, Meyer, & Vogt, 2015; Hoge et al., 2004). Thus, the individual now uses alcohol heavily, which can exacerbate PTSD symptoms (Brady, Back, & Coffey, 2004; Jakupcak et al., 2010; Kehle et al., 2012), and is unwilling to go to care for either problem due to perceived stigma. This makes stigma-reduction programs and outreach efforts in the military context (Acosta et al., 2014) so important in the effort to bring veterans into behavioral care settings.

4.1 Limitations

Limitations should be noted. While the current investigation was longitudinal in nature, the study design only allowed for a one-month follow-up of outcome measures. Future studies should expand the timeframe of measurement points to allow for a more comprehensive assessment of the hypothesized model. The coping and stigma measures related generally to negative affect and behavioral health respectively and not to PTSD specifically. Finally, although the self-report measure of PTSD conformed to the DSM-V criteria for a diagnosis, a clinically administered measure could prove more informative for future studies.

4.2 Conclusion

Our model helped to identify two areas that should be targeted to help veterans suffering from PTSD symptoms. The first concerns coping with PTSD and how veterans understand their symptoms and treatment options. Resources should be provided that help develop coping skills, identify support groups, and present relevant information on the nature of PTSD (DoD, 2010; Veilleux et al., 2014) to help veterans manage PTSD symptoms without the use of alcohol to cope. Given the current stigma associated with mental health disorders and the culture of the military that seeking help may be a sign of weakness, young adult veterans suffering from PTSD will often not seek help from a professional counselor. Thus, the second area for targeting should focus on combating the stigma associated with behavioral health treatment seeking among the military population. Mental health professionals in conjunction with military personnel should work to combat the notion that seeking help for a mental condition is somehow incompatible with the "Warrior Ethos" of service and duty. On the contrary, the military should communicate loudly and clearly that the credo "Leave no one behind" applies long after service has ended and that they will do whatever it takes for as long as it takes to ensure their veterans thrive in civilian life.

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Highlights

- We proposed a path model of the relationship between combat severity, PTSD, and alcohol consequences.
- Greater combat severity and PTSD placed young adult veterans at increased risk of alcohol consequences.
- Coping motives and treatment seeking stigma mediate the link between PTSD and alcohol consequences.

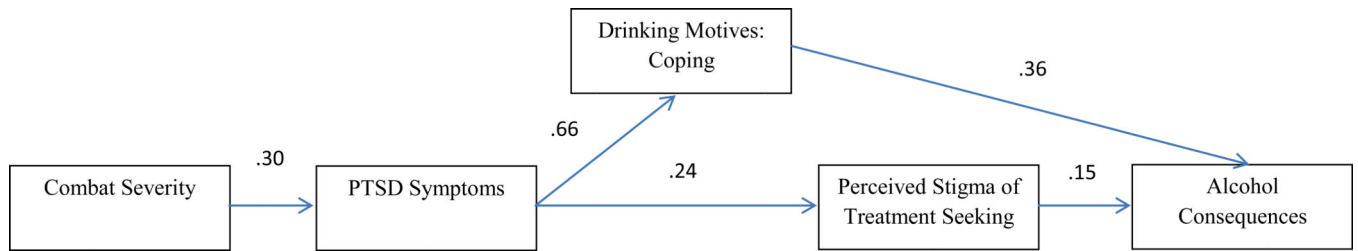


Figure 1. Path analysis with standardized estimates of the hypothesized link between combat severity and alcohol consequences.

Table 1

Bivariate correlations among model variables and covariates.

	Mean	S.D.	Age	Gender	Ethnicity	Past Year Behavioral Health Treatment	Combat Severity	PTSD Symptoms	DMQ: Coping	Perceived Stigma of Treatment Seeking	Alcohol Consequences
Age	28.87	3.42	-	.00	-.11*	.06	.23**	.05	-.03	.00	-.05
Gender	Male (80%) Female (20%)			-	.22**	.04	-.29**	.04	-.01	.08	-.09
Race/ethnicity	White (84%) Non-White (16%)				-	.01	-.03	-.01	-.02	.04	.04
Past Year Behavioral Health Treatment	Yes (43%) No (57%)					-	.19**	.43**	.25**	.02	.14*
Combat Severity	15.01	3.12					-	.32**	.20**	.19**	.16**
PTSD Symptoms	29.68	23.17						-	.64**	.19**	.26**
DMQ: Coping	2.56	1.20							-	.21**	.41**
Perceived Stigma of Treatment Seeking	2.29	1.14								-	.22**
Alcohol Consequences	5.28	6.31									-

Note: All variables were measured at T1, except for Perceived Stigma of Treatment Seeking and Alcohol Consequences which were measured at T2. Gender was coded 0 = "Male" and 1 = "Female." Race was coded 0 = "White", 1 = "Non-White." Past Year Behavioral Health Treatment was coded 0 = "No treatment" and 1 = "Any treatment." DMQ=Drinking Motives Questionnaire, PTSD=Posttraumatic Stress Disorder.

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 $p < .01$