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Alcohol Use in First Responders in South Africa: Psychological Distress Factors Related to Harmful Drinking and Alcohol Dependence

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Main Points

- Higher levels of alcohol use were associated with higher levels of psychological distress.
- Anxiety, depersonalization, fatigue, and insomnia were significant predictors of alcohol use.
- Participants who were classified as being at risk for harmful alcohol use reported higher levels of psychological distress than those who were not.
- Participants classified as having alcohol dependence reported higher levels of distress than those who were not.

Abstract

First responders are frequently exposed to traumatic events and highly stressful situations due to the nature of their work. This enhances their vulnerability to psychological distress and the use of maladaptive strategies to cope. In South Africa, few studies have explored the relationship between alcohol use and mental health indicators among first responders. This study investigated the association between harmful drinking behaviors and post-traumatic stress disorder, depression, anxiety, emotional exhaustion, depersonalization, fatigue, and insomnia. A cross-sectional study was conducted with 429 first responders. The participants completed the Alcohol Use Identification Test, Patient Health Questionnaire-9, Generalized Anxiety Disorder Scale-7, Post-traumatic Stress Disorder Checklist for DSM-5, Maslach Burnout Inventory, Life Events Checklist, Chalder Fatigue Questionnaire, and Insomnia Severity Index. Higher levels of alcohol use were associated with higher levels of psychological distress. Specifically, anxiety, depersonalization, fatigue, and insomnia emerged as significant predictors of alcohol consumption. Participants classified as at risk for harmful alcohol use reported higher levels of psychological distress than those not at risk. Additionally, participants identified as having alcohol dependence reported higher levels of distress across all indicators than did those without alcohol dependence. These results underscore the need for integrated interventions that address both psychological distress and harmful drinking behaviors.

Keywords: Addictions to alcohol, harmful alcohol use, psychological distress

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Introduction

The term *first responder* refers to members of professional organizations who respond to emergency situations, such as police officers, paramedics, firefighters, and search and rescue personnel. Owing to the nature of their work, first responders are routinely exposed to highly stressful and potentially traumatic situations at a frequency that far exceeds that of other occupational groups (Bonumwezi et al., 2022). First responders often face critical incidents that involve directly experiencing or witnessing severe injuries, being threatened with or encountering weapons, and frequently witnessing death, sometimes in violent or tragic circumstances (Gryshchuk et al., 2022). The cumulative impact of such exposure can compromise their mental well-being, placing them at a greater risk of long-term psychological difficulties than those in other professions (Irizar et al., 2021).

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Burnout is a consequence of exposure to chronic stress in the workplace and it is characterized by emotional exhaustion, increased detachment or cynicism toward one's work, and a reduced sense of professional efficacy (Maslach and Jackson, 1981). Burnout tends to manifest as a constant state of anxiety and worry, with feelings of tension and hypervigilance (Reardon et al., 2020). Depressive symptoms often arise as a consequence of reduced feelings of personal accomplishment, persistent fatigue, and feelings of hopelessness. Jones and colleagues investigated the prevalence and correlates of psychiatric symptoms among first responders in the United States and reported that anxiety, depression, post-traumatic stress symptomology, harmful/hazardous alcohol use, sleep disturbances, and suicidality were salient concerns (Jones et al., 2018).

In their meta-analytic study of first responder mental health, Huang and colleagues identified significant levels of anxiety, depression, and stress among this population group (Huang et al., 2022). Paramedics and emergency medical service personnel demonstrated heightened levels of depression and anxiety compared to police officers, potentially because of their increased exposure to COVID-19 patients. In a study investigating suicidality among first responders in the United States, Bond and Anestis (2023) reported more lifetime suicidal ideation and dispositional capacity among this population than among those in other occupations.

Previous research suggests that stressors specific to work-related duties and tasks of first responders can lead to moral injury, defined as learning about, bearing witness to, or perceiving a failure to prevent acts that transgress moral beliefs, which can result in intense feelings of guilt, shame, anger, or contempt (Knobloch and Owens, 2024). This can increase vulnerability to suicidal ideation and behavior, depression, post-traumatic stress disorder (PTSD), and substance and alcohol use disorders (Lentz et al., 2021; Norman et al., 2022). Using a nationally representative sample of combat veterans in the United States, Norman and colleagues found that exposure to potentially morally injurious events (i.e., perpetration or witnessing of these events) was associated with increased vulnerability to substance use and alcohol use disorders (Norman et al., 2022).

In the literature, harmful alcohol use among first responders has been identified as a common mental health concern (Karnick et al., 2022; Kaufman et al., 2024; Levitt et al., 2024). First responders have higher levels of hazardous alcohol use compared to high-risk professions (Bartlett et al., 2019; Irizar et al., 2021). Hazardous alcohol use refers to alcohol consumption that is likely to increase the risk of adverse health outcomes in the future, whereas harmful alcohol use entails alcohol intake, which causes more immediate health problems (Irizar et al., 2021). Existing studies have ascribed the hazardous and harmful consumption of alcohol among first responders to the psychological distress that arises from consistent and repeated exposure to traumatic events in the context of their work (Bartlett et al., 2019; Kaufman et al., 2024; Zegel et al., 2019). This can lead to increased levels of anxiety, depression, PTSD, and burnout (Castillo-Carniglia et al., 2019).

The self-medication hypothesis and approach/avoidance bifurcation model are empirically established conceptual frameworks that have been used to understand alcohol use among first responders (Arble and Arnetz, 2017; Khantzian, 1997). Both models propose that alcohol use represents an avoidant coping strategy. Alcohol can dampen intense emotions that arise from exposure to occupational stressors and provide temporary relief from post-traumatic stress symptomology, anxiety, and feelings arising from moral injury (e.g., shame, guilt, and regret). This negative reinforcement can increase alcohol use for coping and lead to dependency (Hawn et al., 2020; Khantzian, 1997). The approach/avoidance bifurcation model also proposes that the pleasurable effects of alcohol reinforce its use. Hence, this model highlights both the approach (desiring the pleasurable effects of alcohol) and avoidance components underlying alcohol use (Arble and Arnetz, 2017).

The current study was undertaken in South Africa, and previous research on this population group has been limited by small sample sizes, qualitative approaches, or assessment of only a narrow range of indicators. Some studies have focused solely on protective factors, such as coping styles, resilience, and mindset, without examining indices of psychological distress. For example, Wassermann and colleagues assessed coping styles among police officers (n = 120) in response to occupational stress and reported that these first responders predominantly used problem-solving, positive reappraisal, and confrontive coping to deal with their daily stress (Wassermann et al., 2019). A cross-sectional study of ambulance personnel (n = 388) identified PTSD as a salient mental health concern and found that a significant proportion of the sample exhibited symptoms consistent with this disorder. Those with PTSD are also significantly more likely to engage in smoking, illicit drug use, and problematic drinking (Ntatamala and Adams, 2022). A qualitative study involving eight homicide detectives from the South African Police Services identified exposure to homicide scenes involving women or children as a significant source of occupational stress. This exposure precipitated emotional distress among the first responders, which reportedly manifested as flashbacks, insomnia, irritability, and a lower threshold for aggressive behavior (Sibisi et al., 2022).

This study expands the existing knowledge base by investigating alcohol use among a sample of South African first responders. The current study examines the association of PTSD, depression, anxiety, burnout (measured through the subscales of emotional exhaustion and depersonalization), fatigue, and insomnia with harmful drinking behaviors. To the best of our knowledge, this is the first study to investigate alcohol use and its association with various indices of distress among South African first responders, specifically, police officers and paramedics.

Material and Methods

Participants and Procedure

This study used a cross-sectional survey design and convenience sampling. Police officers and paramedics actively employed in the Western Cape Province were invited to participate in the study. No exclusion criteria were applied. To capture a broad spectrum of experiences, participants were recruited from multiple police stations and healthcare facilities across urban and peri-urban areas.

The sample comprised of 429 first responders from the Western Cape Province of South Africa, including 309 police officers and 120 paramedics. Power analysis with G*Power indicated that n = 160 was sufficient to detect a medium effect size (α = 0.05, 1−β = 0.95) in a multiple regression with eight predictors. Most participants were men (55%) and the majority worked in an urban setting (92.3%). The average age of the participants was 39 (SD = 9.93) years. The average duration of service as a first responder was 13.24 years (SD = 9.65). The questionnaires were converted into an electronic format using Google Forms. First responders were recruited through three methods: the survey link was emailed to police stations and local hospitals; research assistants visited these locations in person to invite participation; and, with permission from administrators, the survey link and invitation were posted on Facebook groups dedicated to first responders. The online survey was designed to allow only one submission per participant. Data was collected from June 2023 to August 2024.

Instruments

Participants completed a demographic survey that included items pertaining to age, gender, duration of service, and work setting (e.g., urban or rural). In addition, participants completed the Alcohol Use Disorders Identification Test (AUDIT; Saunders et al., 1993), Patient Health Questionnaire-9 (PHQ-9; Kroenke et al., 2001), Generalized Anxiety Disorder-7 (GAD-7; Spitzer et al., 2006), Post-traumatic Stress Disorder Checklist for DSM-5 (PCL-5; Blevins et al., 2015), Maslach Burnout Inventory (MBI; Maslach & Jackson, 1981), Life Events Checklist (LEC; Blevins et al., 2015), Chalder Fatigue Questionnaire (CFQ; Jackson, 2015), and Insomnia Severity Index (ISI; Morin, 1993). Respondents took approximately 20 – 30 minutes to complete the survey.

The AUDIT is a 10-item self-report questionnaire developed by the World Health Organization to screen for hazardous and harmful patterns of alcohol consumption and potential alcohol dependence. Each item is scored on a scale of 0 – 4, with a total score ranging from 0 to 40. Higher scores indicate a greater risk of harmful alcohol use. A sample item from the AUDIT is "How often do you have six or more drinks on one occasion?", with response options ranging from *never* to *daily or almost daily*. The AUDIT has been used in South Africa and has been demonstrated to have satisfactory reliability among a sample of HIV test seekers (α = 0.89) (Saal et al., 2020) and a sample of university students (α = 0.75; Pengpid et al., 2013).

The PHQ-9 is a 9-item instrument used to screen, diagnose, and measure the severity of depression. Responses to the nine items are made on a 4-point scale ranging from 0 (*not at all*) to 3 (*nearly every day*). An example of an item of the PHQ-9 is, "Over the last two weeks, how often have you been bothered by feeling down, depressed, or hopeless?" The authors of the PHQ-9 reported satisfactory reliability coefficients for a sample of primary care (α = 0.89) and gynecology patients (α = 0.89; Kroenke et al., 2001). The PHQ-9 has been extensively used in South Africa, with one study reporting a reliability coefficient of 0.76 for the PHQ-9 in a sample of primary healthcare patients (Bhana et al., 2015).

The GAD-7 is a 7-item scale used to screen for anxiety or measure its severity. It is scored on a 4-point scale that ranges from 0 (*not at all*) to 3 (*nearly every day*). An example of an item of the GAD-7 is, "Over the last two weeks, how often have you been bothered by feeling afraid, as if something awful might happen?" Spitzer and colleagues (2006) reported a Cronbach's α coefficient of 0.92 for the GAD-7 in a sample of primary care patients and provided evidence of criterion, construct, and factorial validity. In South Africa, Henn and Morgan (2019) reported reliability coefficients of 0.91 and 0.93 in different nonclinical samples.

The PCL-5 is a 20-item instrument that assesses DSM-5 symptoms of PTSD. Responses to the 20 items are made on a 5-point scale ranging from 0 (*not at all*) to 4 (*extremely*). An example of an item of the PCL-5 is "How much were you bothered by having strong negative feelings such as fear, horror, anger, guilt, or shame?" The developer of the instrument reported reliability coefficients of 0.94 and 0.95 for two different student samples (Blevins et al., 2015). In South Africa, Padmanabhanunni and Pretorius (2024) reported similar reliability coefficients (α and ω = 0.94) for a sample of university students.

The MBI assesses three components of burnout: emotional exhaustion, depersonalization, and personal accomplishment. Only emotional exhaustion (nine items) and depersonalization (five items) were used in the current study. Emotional exhaustion refers to feelings of being emotionally worn out and drained as a result of stress in one's personal or work life. An example item of emotional exhaustion is "I feel used up at the end of the workday." Depersonalization refers to feelings of indifference toward members of the public and colleagues and can also include a sense of cynicism. An example of an item from the depersonalization scale is "I don't really care what happens to some of the people I serve." The MBI is scored on a 7-point scale that ranges from 0 (*never*) to 6 (*every day*). In the original development study, the authors of the MBI provided estimates of internal consistency of 0.89 for emotional exhaustion and 0.77 for depersonalization (Maslach and Jackson, 1981). In South Africa, the MBI was used with a sample of schoolteachers, and reliability coefficients (α and ω) of 0.94 and 0.86 were reported for emotional exhaustion and depersonalization, respectively (Padmanabhanunni and Pretorius, 2023).

The LEC-5 is a 16-item self-report measure designed to screen for potentially traumatic events that a person might have experienced, witnessed, or learned about happening to someone else. An example of an item of the LEC-5 is "Assault with a weapon." One way to score the LEC-5 is to code it as "happened to me" (i.e., experienced) and "did not happen to me," which would lead to an LEC-5 score ranging between 0 and 17. A weighted score was developed based on the potential greater traumatization from experienced events while still considering all exposures (Weis et al., 2022). Events experienced directly were weighted by three, events witnessed or that were part of their job were weighted by two, and events learned about were weighted by one. The total weighted scores range from 0 to 51, with higher scores indicating exposure to more traumatic events. Using the weighted scoring method, Weis and colleagues (2022) reported a reliability coefficient of 0.83 for the LEC-5. In South Africa, a study on university students reported a reliability coefficient of 0.93 for the LEC-5 (Padmanabhanunni and Wiid, 2022).

The CFQ is an 11-item measure of the extent and severity of fatigue in both clinical and nonclinical populations. The CFQ uses a 4-point scale ranging from 0 (*less than usual*) to 3 (*much*

more than usual). An example of an item of the CFQ is, "Do you need to rest more?" Scores on the CFQ range from 0 to 33, with higher scores indicating higher levels of fatigue. Chalder and colleagues reported a Cronbach's α of 0.89 for the scale. A South African study reported a reliability coefficient of 0.83 for a sample of HIV-infected adolescents (Coetzee et al., 2018).

The ISI is a 7-item brief self-report measure of insomnia. Insomnia is a sleep disorder characterized by difficulty falling or staying asleep (Morin, 1993). Participants respond on a 5-point scale ranging from 0 (*none* or *not at all*) to 4 (*very* or *very much*). A sample item of the ISI is "How worried/distressed are you about your current sleep problems?" Scores on the ISI range from 0 to 28, with higher scores indicating more acute insomnia symptoms. The authors of the scale reported a reliability coefficient of 0.74 and 0.78 in two different samples of insomnia patients (Bastien et al., 2001). The ISI has also been used in South Africa (e.g., Lewis et al., 2021; Rossouw et al., 2024), but there are no reports on its reliability when used with South African samples.

Ethics

The study was conducted in accordance with the guidelines of the Declaration of Helsinki and approved by the Humanities and Social Sciences Research Ethics Committee of the University of the Western Cape (ethics reference: HS23/2/4, May 23, 2023) and the South African Police Services (ethics reference: 3/34/2, 27 June 2023). Additionally, the authors received approval to access hospitals from the Western Cape Department of Health (reference:WC_202307_041, 15 September 2023) and a private ambulance company to approach their employees (reference: December 12, 2023). No incentives were offered for participation.

Participants provided informed consent on the first page of the electronic questionnaire. No identifying particulars were collected, and participants were informed that they could withdraw at any time.

Data Analysis

All analyses were conducted using IBM SPSS for Windows, version 29 (IBM SPSS Corp.; Armonk, NY, USA). There were no missing values, as participants could not proceed to the next page of the questionnaire unless all items on the current page had been responded to. The analysis included the intercorrelations between study variables (Pearson's *r*) and descriptive statistics (means, standard deviations, and estimates of internal consistency [α and ω] for all scales). For correlation analyses using Pearson's *r*, the strength of relationships was classified as small for values around 0.10, medium for values around 0.30, and large for values around 0.50 (Lovakov and Agadullina, 2021).

Linear regression was used to identify significant predictors of alcohol use, with alcohol use as the dependent variable and indices of psychological distress as independent variables. Multivariate analysis of variance (MANOVA) was used to compare participants who were at risk of harmful drinking with those who were not at risk, as well as those who might be classified as alcohol dependent with those who were not classified as such. For MANOVA, effect sizes were classified as small for values around 0.01, medium for values around 0.06, and large for values around 0.14. These thresholds provide a framework for understanding the proportion of variance in the dependent variables explained by the independent variables (Dobler et al., 2020).

A score of ≥ 8 on the AUDIT inventory is associated with harmful drinking, while a score of ≥ 13 in women and ≥ 15 in men is indicative of alcohol dependence (Saunders et al., 1993). In the MANOVA, the overall difference between the two groups was assessed using Hotelling's T^2 and the difference in terms of individual variables was assessed using the *F* test. The effect size used in the MANOVA was partial eta squared (η_p^2).

Results

Table 1 presents the intercorrelations between the variables, descriptive statistics, and internal consistency estimates.

Table 1 shows that all the instruments demonstrated satisfactory reliability (α and ω = 0.87 to 0.95). Alcohol use, as measured by AUDIT, was significantly positively related to all distress variables. Except for the relationship between alcohol use and traumatic events (LEC-5) and fatigue (CFQ), which may be regarded as having a small effect size, all other observed relationships can be described as having a medium effect size. These positive relationships indicate that higher levels of alcohol use are associated with higher levels of psychological distress.

The results of the linear regression are reported in Table 2.

Table 2 indicates that, while the zero-order correlations between alcohol use and indices of psychological distress were significant in all instances, only anxiety, depersonalization, fatigue, and insomnia emerged as significant predictors in the linear regression when all indices of psychological distress were examined together as predictors of alcohol use.

The results of the MANOVA comparing harmful and nonharmful alcohol use are reported in Table 3.

Table 3 indicates that there were significant differences between participants who were at risk of alcohol abuse and those who were not in terms of all the indices. In all instances, those at risk of harmful alcohol use reported higher levels of distress than those who were not classified as such. The partial eta squared indicated that most variables had a medium effect size, but exposure to traumatic events and fatigue had a small effect size.

The results of MANOVA comparing alcohol dependence and non-alcohol dependence are presented in Table 4.

Table 4 indicates that there were significant differences between participants who might be classified as having alcohol dependence and those who were not classified as such in terms of all indices, except exposure to traumatic events. In all instances, those classified as alcohol dependent reported higher levels of distress than those who were not classified as alcohol dependent. The effect sizes for most of the variables may be considered medium; however, in the case of fatigue, they can be considered small.

Discussion

This study investigated the association between indices of psychological distress and harmful drinking behaviors in a sample of South African first responders. There were several significant

Table 1.
Intercorrelations Between Variables, Descriptive Statistics, and Reliabilities

Scale	1	2	3	4	5	6	7	8	9
1. AUDIT									
2. PHQ-9	0.30**								
3. GAD-7	0.35**	0.73**							
4. PCL-5	0.35**	0.59**	0.66**						
5. EE	0.34**	0.56**	0.55**	0.63**					
6. DP	0.35**	0.46**	0.49**	0.56**	0.80**				
7. LEC-5	0.13*	0.21**	0.24**	0.23**	0.16*	0.16*			
8. CFQ	0.20**	0.49**	0.50**	0.49**	0.57**	0.50**	0.20**		
9. ISI	0.30**	0.52**	0.49**	0.51**	0.55**	0.47**	0.15*	0.61**	
Mean	9.5	7.7	31.2	24.9	12.5	23.8	14.4	8.90	10.9
SD	6.4	5.9	17.0	12.6	7.9	9.3	6.8	10.0	5.8
Alpha	0.94	0.89	0.92	0.95	0.90	0.84	0.88	0.89	0.87
Omega	0.94	0.89	0.92	0.94	0.90	0.84	0.88	0.89	0.87

Note: AUDIT = Alcohol use disorders identification test; CFQ = Chalder fatigue scale; DP = Depersonalization; EE = Emotional exhaustion; GAD-7 = Generalized anxiety disorder scale-7; ISI = Insomnia severity index; LEC-5 = Life events checklist for DSM-5; PCL-5 = Post-traumatic stress disorder checklist for DSM-5; ; PHQ-9 = Patient health questionnaire.
*$p < .01$, **$p < .001$.

findings. First, PTSD was not a significant predictor of alcohol consumption, while anxiety, depersonalization, fatigue, and insomnia were significantly associated with alcohol consumption. The finding with regard to PTSD is in contrast to existing research. Bonumwezi and colleagues, for example, investigated substance use among first responders (emergency medical tecnicians, paramedics, and firefighters) and concluded that PTSD symptomology was significantly associated with alcohol and drug consumption (Bonumwezi et al., 2022). Similarly, Zegel and colleagues found that PTSD symptom severity was associated with alcohol use severity among a sample of firefighters (Zegel et al., 2019). Brunault and colleagues reported that PTSD was a significant predictor of the severity of alcohol use disorder among police officers (Brunault et al., 2019; Zegel et al., 2019).

Second, first responders who were at risk for harmful alcohol use had higher levels of distress compared to those not at risk.

Table 2.
Alcohol Use Predictors Among First Responders

Predictor	*B*	*SE*	95% CI	β	*p*
Depression	−0.01	0.11	−0.22, 20	−0.01	.94
Anxiety	0.28	0.12	0.04, 0.52	0.16	.02
PTSD	0.07	0.04	−0.01, 14	0.11	.10
Emotional exhaustion	0.04	0.07	−0.09, 0.17	0.05	.59
Depersonalization	0.22	0.09	0.04, 41	0.18	.02
Traumatic events	0.04	0.05	−0.06, 0.14	0.04	.40
Fatigue	−0.19	0.09	−0.37, −0.02	−0.13	.03
Insomnia	0.22	0.11	0.02, 0.43	0.13	.03

Note: PTSD = Post-traumatic stress disorder.

Notably, the prevalence of harmful alcohol use among first responders was 42.9% (n = 184), and 25.9% (n = 111) met the criteria for alcohol dependence. These rates exceed the 22% prevalence reported by Irizar and colleagues (2021) in their meta-analysis of hazardous and harmful alcohol use across trauma-exposed occupations (Irizar et al., 2021). Studies utilizing the AUDIT scale to measure alcohol use have reported prevalence rates among first responders ranging from 22.1% to 31% (Bonumwezi et al., 2022; Jones et al., 2018; Lebeaut et al., 2020). First responders who were at risk for harmful alcohol use reported elevated anxiety, depersonalization, depression, emotional exhaustion, insomnia and PTSD.

Third, first responders classified as alcohol dependent reported higher levels of psychological distress on all indicators compared to those who were not classified as alcohol dependent. This is in line with some of the findings in the existing literature and could be accounted for by the self-medication hypothesis (Bartlett et al., 2019; Jones et al., 2018; Zegel et al., 2019). In their meta-analysis of the self-medication hypothesis, Luciano and colleagues reported that coping-related alcohol consumption was a strong mediator of the relationship between PTSD and harmful alcohol use (Luciano et al., 2022). Similarly, emotional dysregulation, which underlies insomnia, PTSD, and mood and anxiety disorders, has been associated with alcohol dependence (Wołyńczyk-Gmaj et al., 2022). It is probable that individuals experiencing heightened distress may use alcohol as a form of self-medication to alleviate feelings of sadness or hopelessness, heightened anxiety, distressing PTSD symptomology and sleep disturbances. The temporary relief provided by alcohol may reinforce its use. Subsequent attempts to limit alcohol consumption may lead to intensive symptoms of withdrawal. This can create a cycle that perpetuates distress and reliance on alcohol for coping (Castillo-Carniglia et al., 2019; He et al., 2019; Wołyńczyk-Gmaj et al., 2022).

Table 3.
Results of Multivariate Analyses of Variance for Differences Between Harmful and Nonharmful Alcohol Use

Independent Variable	Nonharmful Use (n = 245)		Harmful Use (n = 184)		F (1, 428)	p	η_p^2
	M	*SD*	*M*	*SD*			
Depression	8.1	6.4	11.4	5.9	29.05	<.001	0.06
Anxiety	6.2	5.8	9.8	5.4	42.34	<.001	0.09
PTSD	27.0	16.6	36.7	15.9	37.24	<.001	0.08
Emotional exhaustion	22.5	12.8	28.2	11.7	22.44	<.001	0.05
Depersonalization	10.8	7.7	14.6	7.7	25.00	<.001	0.06
Traumatic events	22.6	9.9	25.3	8.3	8.79	.003	0.02
Fatigue	13.7	7.1	15.4	6.3	6.61	.010	0.02
Insomnia	9.6	6.0	12.6	5.0	31.17	<.001	0.07

Note: Hotelling's T^2 = 8.42, p < .001.

In terms of the association between burnout and alcohol use, there are conflicting findings in the existing literature. In their systematic review, Ryan and colleagues found no significant association between burnout and alcohol abuse (Ryan et al., 2023). However, in an earlier study, Petersen and colleagues reported a strong association between depersonalization and alcohol use among physicians (Pedersen et al., 2016). This suggests that specific dimensions of burnout may be associated with increased vulnerability to harmful alcohol use.

The findings of the current study highlight the urgent need to implement interventions to improve first responder mental health in South Africa. Critical incident debriefing, mindfulness training, and cognitive behavioral therapy have been well-established as effective interventions in enhancing mental health among this population group. These interventions could be implemented at an organizational level to inhibit the use of alcohol to regulate emotional distress among South African first responders (Alden et al., 2021; Winders et al., 2021). Furthermore, addressing barriers to help-seeking (e.g., mental health stigma) through educational campaigns and the development of peer support networks can promote the well-being of first responders (Jones et al., 2020). Future research should assess the effectiveness of targeted interventions aimed at reducing harmful alcohol use and enhancing resilience among first responders in the South African context.

To the best of our knowledge, this is the first study to investigate the association between harmful alcohol use and various indicators of psychological distress among South African first responders, specifically, police officers and paramedics. Although PTSD did not emerge as a significant predictor of harmful alcohol consumption, the findings underscore the association between mental health challenges and alcohol use among this population. These results emphasize the need for integrated interventions that address both psychological distress and harmful drinking behaviors.

This study had several limitations that should be acknowledged when interpreting the findings. The cross-sectional design of this study limited the ability to establish causal relationships between psychological distress and harmful alcohol use among first

Table 4.
Results of Multivariate Analyses of Variance for Differences Between Alcohol Dependence and Nonalcohol Dependence

Independent Variable	Nonalcohol Dependence (n = 318)		Alcohol Dependence (n = 111)		F (1, 428)	p	η_p^2
	M	*SD*	*M*	*SD*			
Depression	8.5	6.4	12.3	5.5	30.64	<.001	0.07
Anxiety	6.7	5.7	10.8	5.2	44.07	<.001	0.09
PTSD	28.5	16.8	38.8	15.1	32.38	<.001	0.07
Emotional exhaustion	22.6	12.5	31.5	10.8	44.96	<.001	0.10
Depersonalization	11.1	7.6	16.3	7.4	39.68	<.001	0.09
Traumatic events	23.3	9.5	25.2	8.6	3.44	.06	0.01
Fatigue	13.8	7.0	16.1	6.0	9.00	.003	0.02
Insomnia	10.1	5.9	13.2	4.7	25.28	<.001	0.06

Note: Hotelling's T^2 = 8.42, p < .001.

responders. To better understand the causal relationships between harmful alcohol use, indices of psychological distress, and protective factors, longitudinal studies are needed. The study was conducted in one province of South Africa and among two categories of first responders, which may limit the generalizability of the findings to other regions within the country or to first responders in different cultural or socioeconomic contexts. Expanding the sample to include other first responder groups (e.g., firefighters) would provide a more comprehensive understanding of these issues. Self-reported data are subject to several biases, including social desirability bias, in which participants may under-report mental health symptoms or behaviors perceived as negative or stigmatizing, such as harmful alcohol use. While this study aimed to investigate a range of psychological factors, other unmeasured variables may have influenced the relationship between mental health and alcohol use among first responders. Factors such as personality traits, coping styles, social support systems, and organizational culture were not assessed but could play significant roles. Finally, this study did not assess psychiatric history, current treatment status, or use of medications. Hence, it is unclear how prior or ongoing mental health conditions and treatments may have influenced the findings. This underscores the need for future research to incorporate these factors to better understand their potential impact on alcohol use.

Data Availability Statement: The data that support the findings of this study are available on request from the corresponding author.

Ethics Committee Approval: Ethics committee approval was received for this study from the Humanities and Social Sciences Research Ethics Committee of the University of the Western Cape (ethics reference: HS23/2/4, May 23, 2023).

Informed Consent: Written informed consent was obtained from the participants who participated in this study.

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