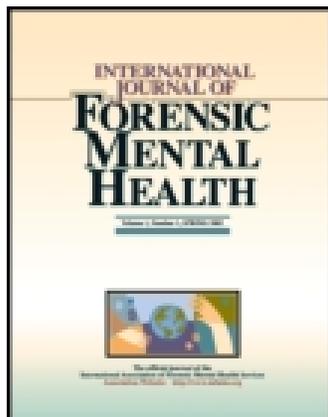


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### Treating Comorbid Substance Use and Traumatic Stress among Male Prisoners: A Pilot Study of the Acceptability, Feasibility, and Preliminary Efficacy of Seeking Safety

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# Treating Comorbid Substance Use and Traumatic Stress among Male Prisoners: A Pilot Study of the Acceptability, Feasibility, and Preliminary Efficacy of Seeking Safety

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Co-occurring substance use disorder and posttraumatic stress disorder is prevalent among prisoners, however there are few evidence-based treatment options available for this population. This pilot study investigated the acceptability, feasibility and preliminary efficacy of implementing partial-dose (eight-session) Seeking Safety among 30 Australian male prisoners. Findings demonstrate that Seeking Safety is desirable, acceptable, and feasible among male prisoners with a history of substance use and trauma. In addition, the study indicated promising results for substance use and mental health outcomes, which is particularly notable given the overall severity of the sample. The study also had significant Aboriginal and/or Torres Strait Islander representation. A full scale trial of this intervention is required to further evaluate efficacy and inform practice to improve the mental health of this vulnerable population.

**Keywords:** substance use, PTSD, trauma, criminal justice, Seeking Safety

Prisoners are a marginalized and stigmatized population characterized by social and psychological disadvantage. Rates of mental health disorders are markedly higher in prison populations compared to the general community (Butler et al., 2006; Fazel & Seewald, 2012; Johnson, 2006; Ruiz et al., 2012). The two most commonly occurring Axis I mental health disorders among prisoners internationally are substance use disorder (SUD) and posttraumatic stress disorder (PTSD) (Brinded et al., 2001; Butler et al., 2005; Butler et al., 2006; Proctor, 2012; Proctor & Hoffmann, 2012; Teplin, Abram, & McClelland, 1996). Two-thirds of Australian prisoners have a current SUD, and one-quarter suffer current PTSD (Butler et al., 2005; Butler et al., 2006). In comparison, the prevalence of current SUD and PTSD among the Australian community is only 6% and 1%, respectively (Mills, Teesson, Ross, & Peters, 2006).

SUD and PTSD are remarkably persistent and disabling disorders that frequently co-occur (SUD/PTSD) (Brady, Back, & Coffey, 2004; Dore, Mills, Murray, Teesson, & Farrugia, 2012; Mills et al., 2006; Najavits et al., 1998). A recent study conducted in the United States revealed that among incarcerated men with SUD, PTSD was the most common co-occurring mental health condition (55%) (Proctor & Hoffmann, 2012). Conversely, among prisoners who met criteria for current or lifetime PTSD, 91% report a history of SUD (Zlotnick, 1997). A substantial proportion of these comorbid cases may be explained in terms of self-medication (Chilcoat & Breslau, 1998). Many individuals with SUD/PTSD report that increases in PTSD symptoms lead to increased substance use and that substance use helps manage intrusive PTSD symptoms (Brown, Stout, & Gannon-Rowley, 1998; Simpson, 2003; Stewart, Mitchell, Wright, & Loba, 2004).

The high prevalence of SUD/PTSD is of considerable concern due to the significant harms associated with this comorbidity. A substantial literature documents the severe clinical profile of those with this SUD/PTSD and the association with poorer outcomes in terms of substance use, mental health and psychosocial functioning (Barrett, Mills, & Teesson, 2011; Mills et al., 2005; Mills, Teesson, Ross, & Darke, 2007; Najavits et al., 2003; Ouimette, Brown, & Najavits, 1998; Ruiz et al., 2012). Among prison samples, the presence of co-occurring disorders has frequently been linked to relapse to substance use and criminal recidivism post-release (Kubiak, 2004; Messina, Burdon, Hagopian, & Prendergast, 2004; Smith & Trimboli, 2010). Prisoners with comorbidity are significantly more likely to re-offend within two years of release compared to those with a substance use or mental disorder alone (Smith & Trimboli, 2010). In relation to comorbid SUD/PTSD specifically, the combination of SUD-related symptoms such as impulsivity, aggression and reduced inhibitions, with PTSD symptoms of hypervigilance, irritability, and anger, can increase an individual's susceptibility to perpetrate violence (Barrett,

Teesson, & Mills, 2014). Within prisons, where individuals are often exposed to further trauma and are less likely to access substances to self-medicate, such patterns of impulsive, unpredictable, and sometimes erratic behavior make individuals difficult to manage. It is therefore not surprising that prisoners with co-occurring disorders are considered to be one of the most challenging groups encountered in the criminal justice system (Chandler, Peters, Field, & Juliano-Bult, 2004).

Clearly there is an emerging need to identify effective integrated treatments for prisoners with SUD/PTSD (Peters & Petrila, 2004). Indeed, inmate mental health has been identified as a priority area for research (Australian Institute of Health and Welfare, 2012). There is however, a dearth of research as to how to best treat this population. Due to the interrelatedness of SUD and PTSD there is consensus in the literature that both disorders should be treated concurrently (Ouimette, Moos, & Brown, 2003). Furthermore, people with comorbid SUD/PTSD prefer to receive simultaneous treatment for both disorders (Back, Brady, Jaanimagi, & Jackson, 2006). Existing treatments for SUD/PTSD comorbidity have been categorized as either past- or present-centered therapies (Najavits, 2006; van Dam, Vedel, Ehring, & Emmelkamp, 2012). Past-focused therapies (also referred to as exposure therapies) involve the patient confronting his or her traumatic memories. Exposure techniques in prison populations is considered by some to be inappropriate given the significant distress that is evoked as part of the treatment which may be difficult to manage within the prison setting (Miller & Najavits, 2012). Exposure therapy is also contraindicated when there is the current threat of trauma; a characteristic of prison environments (Jones & Pratt, 2008; Lahm, 2008).

Present-centered therapies, on the other hand, do not require patients to confront traumatic memories. Rather, they focus on providing the patient with coping skills to manage the trauma symptoms in the present without revisiting the traumatic memory. To date, only one integrated present-focused treatment for SUD/PTSD has been developed and extensively evaluated: Seeking Safety (Najavits, 2002). Based on cognitive behavioral therapy (CBT), the manualized Seeking Safety treatment focuses on coping with SUD and PTSD symptoms in the present; patients are not required to confront traumatic memories (as in exposure-based techniques). Seeking Safety is the only model for treating SUD/PTSD that is established as effective, based on criteria for empirically supported treatments (Chambless & Hollon, 1998; Najavits & Hien, 2013) and endorsed as an evidence-based treatment by the International Society for Traumatic Stress Studies (ISTSS) (Foa, Keane, Friedman, & Cohen, 2009).

To date, Seeking Safety has been tested among prisoners in three pilot studies (Lynch, Heath, Mathews, & Cepeda, 2012; Zlotnick, Johnson, & Najavits, 2009; Zlotnick, Najavits, Rohsenow, & Johnson, 2003). These investigations

found Seeking Safety to be effective in reducing drug and alcohol use and PTSD symptoms from pre-treatment to post-treatment and subsequent follow-up. In addition, measures of client satisfaction and treatment retention were high (Lynch et al., 2012; Zlotnick et al., 2009; Zlotnick et al., 2003). These encouraging findings provide evidence that Seeking Safety is acceptable and can feasibly be delivered to incarcerated populations. This research, however, has been restricted to female prisoners in the United States. It is therefore unclear whether the treatment is feasible, acceptable, and efficacious among male prison populations in Australia. This is particularly important, given that the majority of Australian prisoners are male (92%) (Australian Bureau of Statistics, 2013).

The present study sought to address this gap by examining the acceptability, feasibility, and preliminary efficacy of Seeking Safety among male Australian prisoners. To our knowledge, this is the first study among male prisoners to examine an integrated treatment for SUD/PTSD, the two most commonly occurring mental disorders in this population. The findings will provide guidance on appropriate treatment approaches, and may help to improve the substance use and mental health outcomes of this disadvantaged group.

## METHOD

### Design

A pilot randomized controlled trial was conducted in which male prisoners were allocated to receive either Seeking Safety plus treatment-as-usual (TAU) or TAU alone (defined below). Randomization was stratified by correctional center and was performed face-to-face via an envelope selection task, and occurred prior to the baseline assessment (1:1). Ethical approval was granted by the Justice Health Human Ethics Research Committee and the Corrective Services NSW Ethics Committee and ratified by the University of New South Wales Ethics Committee.

### Participants and Eligibility Criteria

Participants were recruited from two male correctional centers in Sydney, Australia, between February and November 2011. Information flyers were distributed and referrals were made by nursing staff. Sixty individuals were invited to participate in the study and the purpose of the study was explained. All individuals who were approached agreed to be assessed for eligibility. Participants were eligible for inclusion in the study if they were 18 years or older, had more than 9 months left on their sentence (to ensure that adequate time was available to complete the treatment), reported a history of problematic substance use, and screened positive for current PTSD on the PTSD checklist – Civilian version (PCL-C) (Weathers, Litz, Huska, &

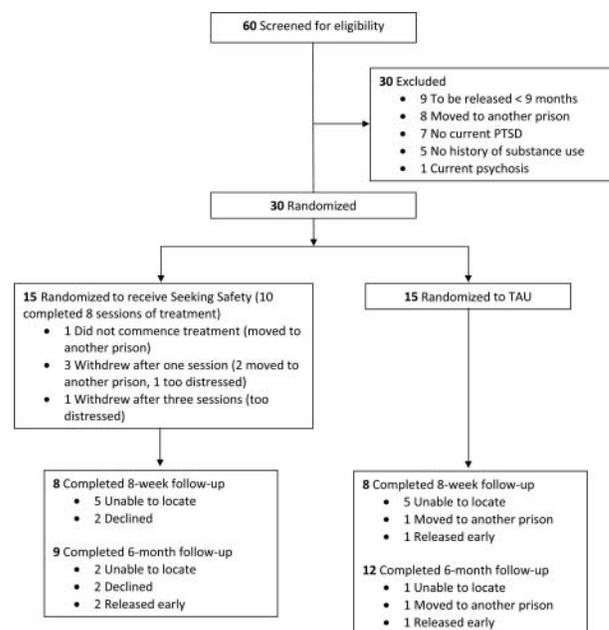


FIGURE 1. Participant recruitment and randomization.

Keane, 1994). Those who were currently suicidal (defined as any recent attempts or current plan or intent) or self-harming (defined as any recent attempts or current intent to self-harm) were excluded. Similarly, those who were displaying acute psychosis (as assessed by the Mini-International Neuropsychiatric Interview-Plus; MINI-Plus) (Sheehan et al., 1998) were excluded. Of the 60 people assessed for inclusion in the study, 30 (50.0%) were eligible to participate. Reasons for exclusion are provided in Figure 1. All individuals who were eligible agreed to participate and written informed consent was obtained. Fifteen participants were randomized to receive Seeking Safety, and 15 randomized to receive TAU.

## INTERVENTIONS

### Seeking Safety

Seeking Safety is a present-focused, cognitive-behavioral model that provides psychoeducation and coping skills to help clients reduce trauma- and substance-related problems. Its core theme is safety. It offers 25 treatment topics to address cognitive, behavioral, interpersonal, and case management domains. Topics can be conducted in any order, using as few or as many as are possible within the clients' length of stay, and by a wide variety of counsellors (no particular professional degree is required). Seeking Safety was designed for flexible use: group or individual format; males and females; all levels of care (e.g., outpatient, inpatient); and all types of trauma and substances (Najavits, 2002). The material and concepts are presented in simple, easily understood terms and do not require high literacy levels;

these characteristics are essential in treating this population which is characterized by low levels of education and poor literacy (Indig et al., 2010).

For the purposes of the present study, eight modules were chosen by expert consensus and in collaboration with the treatment developer, based on what was considered the participants' most pressing needs. Eight sessions were chosen as being feasible for the prison setting where length of treatment is restricted by considerable movement between prisons. We refer to this usage of Seeking Safety as *partial-dose* to indicate that only some of the Seeking Safety topics were conducted. This is in keeping with other partial-dose studies of Seeking Safety (Najavits & Hien, 2013). The selected modules were: (1) PTSD: Taking back your power; (2) Detaching from emotional pain: Grounding; (3) When substances control you; (4) Asking for help and Taking good care of yourself; (5) Compassion; (6) Recovery thinking; (7) Coping with triggers; and (8) Healing from anger. The eight individual, 90-minute sessions were delivered weekly by a trained clinical psychologist who had completed a Master's degree in clinical psychology. The study therapist received fortnightly supervision from a clinical psychologist for the duration of the study. Treatment sessions were run according to the procedures described in the Seeking Safety manual and the therapist made clinical notes of each session.

### Treatment-as-Usual (TAU)

All participants were able to engage in TAU for substance use and for PTSD. TAU comprised the model of care provided in accordance with standard practice at each prison and was delivered by NSW Justice & Forensic Mental Health Network and Corrective Services staff. Just over half ( $n = 8$ , 53.3%) of the participants in the Seeking Safety group were accessing substance use treatment at baseline compared to one-third ( $n = 5$ , 33.3%) of those in TAU. Types of substance use treatment included opioid substitution treatment (Seeking Safety  $n = 5$ ; TAU  $n = 2$ ), followed by SMART Recovery sessions (Seeking Safety  $n = 3$ ; TAU  $n = 1$ ) and Narcotics Anonymous (TAU  $n = 1$ ). Those in treatment for substance use remained in their respective treatments through to six-month follow-up.

Twenty percent of the Seeking Safety group ( $n = 3$ ) were accessing mental health treatment compared to 13.3% ( $n = 2$ ) of the TAU group. Only two individuals who happened to be in the Seeking Safety group reported they were currently accessing treatment specifically for PTSD. Equal proportions of each study group ( $n = 7$ , 46.7%) had been prescribed antidepressants during their current custodial sentence. At the eight-week follow-up one individual in TAU had commenced mental health treatment (counseling) and by the six-month follow-up two individuals (one in TAU and one in the Seeking Safety group) were prescribed antidepressants.

## Outcome Measures

### *Feasibility*

Follow-up assessment rates were recorded at eight weeks (post-treatment) and six months post-baseline to measure study retention. The number of sessions attended and completed by those randomized to the Seeking Safety group were recorded as a measure of treatment compliance.

### *Acceptability*

The self-report Client Satisfaction Questionnaire (CSQ-8) (Attkisson & Zwick, 1982) was completed by the participants who completed the Seeking Safety treatment. CSQ-8 scores range from 8–32 with higher scores indicative of higher levels of satisfaction. Participants were also given the opportunity to respond to two open-ended questions that asked for any comments on the treatment program and if they had any suggestions on how to improve the treatment provided.

### *Preliminary Efficacy*

Structured face-to-face assessments were conducted at baseline, eight weeks (post-treatment) and six months post-baseline by a trained, master's-level research assistant independent of the correctional centers. All participants received AU\$10 for completing each assessment.

The baseline assessment included measures of demographics, criminal history, substance use and dependence, self-efficacy to resist substance use, trauma exposure, PTSD symptoms and cognitions, and SUD and PTSD treatment history. The assessment took between 60 and 120 minutes to complete. Demographic characteristics included age, place of birth, ethnicity, education, and employment (six months prior to incarceration). The date of incarceration for current offense was obtained from the Offender Integrated Management System (OIMS) to determine length of time participants had been incarcerated for their current offense.

Lifetime substance use was assessed using items based on those included in the 2009 NSW Inmate Health Survey (Indig et al., 2010). Age of first use, type of substance used, injecting history, and primary drug of concern was assessed for alcohol, heroin, amphetamines, cannabis, cocaine, benzodiazepines, ecstasy, hallucinogens, and inhalants. The World Mental Health Composite International Diagnostic Interview version 3.0 (WMH-CIDI 3.0) (Kessler & Ustun, 2004) was used to determine whether participants met DSM-IV criteria for substance dependence in their lifetime. The brief version of the Drug-Taking Confidence Questionnaire (DTCQ-8) (Sklar & Turner, 1999) was used to assess self-efficacy to resist substance use in eight future situations: unpleasant emotions, physical discomfort, pleasant emotions, testing personal control, urges and temptation to use, conflict with others, social pressure to use, and pleasant

times with others. Participants respond how confident they are that they can resist the urge to use substances in eight situations on a six-point scale ranging from 0 (not at all confident) to 100 (very confident). Higher scores on this measure indicate higher levels of confidence in resisting the urge to use substances in the future. The DTCQ-8 has shown to be a reliable and valid indicator of self-efficacy and useful in evaluating treatment outcome (Kokkevi, 2001; Sklar & Turner, 1999).

The Composite Diagnostic Interview version 2.1 (CIDI 2.1) (World Health Organisation, 1997) was used to assess trauma exposure. Participants were asked if they had ever experienced any of the traumatic events reported in Table 1 and, if they had, they were asked at what age they first experienced the trauma. Participants were then asked to indicate which traumatic event they found most stressful or upsetting. The Clinician Administered PTSD Scale (CAPS) (Blake et al., 1995) was administered with reference to this trauma in order to determine current (past month) DSM-IV PTSD diagnoses (i.e., the presence of one or more re-experiencing symptoms, three or more avoidance symptoms, and two or more hyperarousal symptoms) and PTSD symptom severity (CAPS total score, range 0–136). Symptom severity is categorized as ‘extreme PTSD’ (80 or above), ‘severe PTSD’ (60–79), ‘moderate PTSD’ (40–59), mild PTSD (20–39), and ‘asymptomatic/few symptoms’ (0–19). The CAPS is considered the “gold standard” PTSD diagnostic assessment tool (Harrington & Newman, 2007).

In addition, the Posttraumatic Cognitions Inventory (PTCI) (Foa et al., 1999) was used to measure PTSD-related cognitions. The PTCI is a self-report measure comprising 36 statements that are grouped into three subscales: Negative Cognitions about Self (e.g., “My reactions since the event show that I am a lousy coper”), Negative Cognitions about the World (e.g., “The world is a dangerous place”) and Self-Blame (e.g., “There is something about me that made the event happen”). Each item is rated using a seven-point Likert scale ranging from ‘totally disagree’ (1) to ‘totally agree’ (7). All items were summed to provide a total PTCI score. Subscale scores were calculated by summing scores of items in each subscale and then dividing by the number of items in each subscale. Thus higher scores indicate stronger endorsement of negative cognitions (Foa et al., 1999). The PTCI has shown to be a valid and reliable measure of post-traumatic cognitions (Beck et al., 2004). Lastly, participants were asked about any prior experiences of treatment for SUD or for PTSD.

The eight-week and six-month follow-up assessments were abbreviated versions of the baseline interview and took between 40 and 60 minutes to complete. The DTCQ-8, CAPS, and PTCI were re-administered and participants were again asked about any SUD or PTSD treatment they may have engaged in since the previous assessment. The research staff member who conducted outcomes assessment was blind to treatment assignment.

TABLE 1  
Sociodemographic, Substance Use and PTSD Characteristics of the Total Sample (N = 30)

Sociodemographic variables	
Age (median, range)	34.5 years (22–65)
Australian born (%)	93.3 (n=28)
Aboriginal and Torres Strait Islander (%)	23.3 (n=7)
Years of schooling (M, SD)	8.0 years (1.49)
Employed prior to incarceration (%)	36.7 (n=11)
Prior history of juvenile incarceration (%)	43.3 (n=13)
Prior history of adult incarceration (%)	73.3 (n=22)
Months incarcerated for current offense (median, range)	15.5 (1–216)
Substance use variables	
DSM-IV diagnosis of substance dependence (lifetime; %)	90.0 (n = 27)
DTCQ-8 score	73.1 (30.10)
Age of first intoxication (M, SD)	14.7 (3.32)
Number of substance types in lifetime (M, SD)	5.4 (2.25)
History of injecting drug use (%)	50.0 (n = 15)
Primary drug of concern	
Alcohol (%)	36.7 (n = 11)
Heroin (%)	26.7 (n = 8)
Amphetamines (%)	16.7 (n = 5)
Cannabis (%)	13.3 (n = 4)
Cocaine (%)	6.7 (n = 20)
Trauma and PTSD variables	
CAPS DSM-IV PTSD diagnosis (past month; %)	57.0 (n = 17)
CAPS total score (M, SD)	57.5 (21.14)
Extreme severity (%)	10.0 (n = 3)
Severe severity (%)	40.0 (n = 12)
Moderate severity (%)	30.0 (n = 9)
Mild severity (%)	16.7 (n = 5)
Asymptomatic/few symptoms (%)	3.3 (n = 1)
PTCI total score (M, SD)	141.4 (35.59)
Negative cognitions about the world (M, SD)	5.5 (1.11)
Negative cognitions about self (M, SD)	3.5 (1.25)
Self-blame (M, SD)	3.1 (1.35)
Age of first trauma (M, SD)	13.0 (5.82)
Number of types of trauma in lifetime (M, SD)	
Serious physical attack or assault (%)	83.3 (n = n = 25)
Witness a serious injury or death (%)	73.3 (n = 22)
Threatened with a weapon/kidnapped (%)	66.7 (n = 20)
Life threatening accident (%)	53.3 (n = 16)
Raped/sexually assaulted (%)	46.7 (n = 14)
Sexual molestation (%)	23.3 (n = 7)
Witness rape/sexual assault (%)	16.7 (n = 5)
Combat experience in a war (%)	13.3 (n = 4)
Fire, flood or other natural disaster (%)	10.0 (n = 3)
Tortured (%)	3.3 (n = 1)

Note. M = Mean, SD = Standard Deviation, DSM-IV = Diagnostic and Statistical Manual IV, DTCQ-8 = Drug-Taking Confidence Questionnaire (Brief Version), CAPS = Clinician Administered PTSD Scale, PTCI = Posttraumatic Cognitions Inventory.

### Statistical Analysis

The data were analysed using IBM SPSS Statistics Version 22 and descriptive statistics reported for the sample as a whole and treatment outcome data are presented for each group. In view of the pilot nature of this study and the small

sample size, no inferential statistics were carried out to examine treatment outcome. Effect sizes for the treatment group were calculated and are reported as Cohen's *d* (Cohen, 1988). The feedback comments provided by participants at the end of treatment were grouped on thematic analysis.

## RESULTS

### Sample Characteristics

Table 1 displays the characteristics of the total sample ( $N = 30$ ). The sociodemographic characteristics are generally representative of other incarcerated male populations in NSW (Indig et al., 2010), with low levels of education and high rates of previous imprisonment. The sample was 23.3% ( $n = 7$ ) of Aboriginal and/or Torres Strait Islander origin, which is also representative of the NSW Inmate population (Corben, 2012).

Given the eligibility criteria for the current study, all participants reported a history of problematic substance use and trauma exposure, which began during their teenage years (14.7 years and 13.0 years, respectively). Almost all participants ( $n = 27$ , 90.0%) reported a DSM-IV diagnosis of SUD in their lifetime and half the sample had a history of injecting drug use. On average, participants reported using five different types of substances in their lifetime, with alcohol and heroin more commonly endorsed as their current primary drug of concern. A mean score of 73.1 on the DTCQ-8 indicates 73% confidence in ability to resist substance use in specified high-risk situations.

Just over half of the sample ( $n = 17$ , 57.0%) met DSM-IV criteria for current PTSD and 80.0% ( $n = 24$ ) of the total sample reported moderate to extreme PTSD symptom severity in the past month. Participants reported experiencing a number of traumas throughout their lifetime ( $M = 4.1$ ). A large majority had experienced physical attack or assault ( $n = 25$ , 83.3%) or witnessed serious injury or death ( $n = 22$ , 73.0%) and two-thirds ( $n = 20$ , 66.7%) had been threatened with a weapon or held captive. Close to half of the sample were involved in a life-threatening accident and had been raped or sexually assaulted ( $n = 16$ , 53.3% and  $n = 14$ , 46.7%, respectively). The average PTCI subscale scores indicated that the sample were more likely to endorse negative cognitions about the world, followed by negative cognitions about themselves and self-blame.

### Treatment Compliance and Study Retention

Almost all ( $n = 14$ , 93.3%) participants randomized to receive *Seeking Safety* attended at least one session and two-thirds ( $n = 10$ , 66.7%) attended all eight sessions. In relation to study retention at follow-up assessments, two-thirds of the total sample who were recruited into the study

( $n = 20$ , 67.0%) completed at least one follow-up interview. At the eight-week follow-up 53% ( $n = 16$ ) of the original baseline sample were interviewed and 70% ( $n = 21$ ) were interviewed at the six-month follow-up. Reasons for discontinuing the intervention and for attrition at follow-up are described in Figure 1. Three participants did not complete the treatment as they were relocated to another prison and two participants decided to discontinue as they were too distressed by factors unrelated to the study.

### Client Satisfaction

Among participants who completed all eight sessions of the treatment ( $n = 10$ ), the mean CSQ-8 score was 28.6 ( $SD = 4.48$ ) of a maximum score of 32, indicating a very high level of treatment satisfaction. Ninety percent ( $n = 9$ ) of these participants reported that the quality of the service they received was excellent and that they would recommend the treatment to someone in need of similar help. Eighty percent ( $n = 8$ ) reported that they were very satisfied with the service and that they would return to the treatment program if they were to seek help again. Table 2 depicts feedback comments made by the 10 participants who completed the eight sessions of the Seeking Safety treatment.

### Preliminary Efficacy

Table 3 details the substance use and PTSD outcomes for each group over time. No inferential analyses were carried out on the data; however, it appears that the Seeking Safety group increased confidence ratings in their ability to resist substance use in future situations (DTCQ-8), with an increase from 70% at baseline to 91% at six-month follow-up. The confidence rating for the TAU group, on the other hand, remained relatively stable over time (76% at baseline and 79% at six-month follow-up). For the DTCQ-8, the treatment group effect size from baseline to eight weeks was  $-0.62$  (95% CI =  $-1.54$  to  $0.30$ ) and from baseline to six months the effect size was  $-0.85$  (95% CI =  $-1.76$  to  $0.05$ ).

Both study groups appear to show reductions in PTSD diagnosis and PTSD symptom severity, as measured by the CAPS, at eight-week and six-month follow-ups. The effect sizes for the treatment group CAPS severity scores between baseline to eight weeks and baseline to six months were 0.96 (95% CI =  $0.01$  to  $1.91$ ) and 0.94 (95% CI =  $0.03$  to  $1.85$ ), respectively. Similarly, the PTCI scores indicated that both groups evidenced reductions in PTSD-related cognitions over the study period. The PTCI effect sizes for the treatment group from baseline to eight weeks and baseline to six months were 1.4 (95% CI =  $0.43$  to  $2.44$ ) and 1.2 (95% CI =  $0.25$  to  $2.12$ ), respectively.

TABLE 2  
Feedback from Participants Who Completed All 8 Sessions of the Treatment Program (n = 10)

Positive comments	Suggestions for improvement
<p><b>Session components</b> All components of the treatment program were of assistance. All had something to offer that is applicable to my situation, also to others in the prison system. All useful, came at the right time for me. It is a well-structured and achievable level program for inmates.</p> <p><b>Usefulness of the treatment</b> More people should have the opportunity to benefit from it. It's changed my life 100% and given me a major boost, before this I was down. I've already started using things you've told me. It was good to know some of the coping skills I use are current but what was great I have been reminded about taking care of me. Has given me grounding to look at things from a different perspective, to have a go at doing things differently. It was great to have someone to talk with who understands and has a background in the effects of PTSD. Input from [the therapist] gives me a better understanding of some views I hold that are not always good for me. It was great to discuss matters at a level that rarely get discussed here or outside. There is something now to take forward and practice. Good to do it in gaol because if I was out on parole I probably would have not turned up because I often in the past have not followed things through. Doing it in gaol has helped me complete the whole program and I looked forward to it every week.</p>	<p><b>Timing/context of the intervention</b> Better to do towards release, when people are learning to readjust to outside. Better to do when on parole—or start just before you leave. This treatment would be so useful to me outside of gaol. I could go a long way with it but being in gaol I feel I'm too vulnerable in here. Would prefer to do this outside because there are so many worries in here—I can't concentrate.</p> <p><b>Session length</b> Longer sessions in the beginning and more sessions to be included in the treatment. Not enough time to discuss matters in detail. Follow up sessions would be beneficial. Would like it to go longer, maybe 16 weeks. Each session could be a bit longer to be able to go through everything properly.</p> <p><b>Discussing the trauma</b> More time spent talking about the traumatic experience to help vent. I would have liked to talk about it (trauma) more to see from another person's perspective what they thought and what they would have done. Would have liked more discussion on anxiety—PTSD may have caused anxiety and problems in the body.</p>

DISCUSSION

To our knowledge, this is the first study to examine an integrated treatment for comorbid substance use and posttraumatic stress in a male prison population. Comorbid SUD/PTSD is associated with considerable harm to both the individual and to society in relation to substance use, mental health, and criminal behaviors. Recent research has highlighted the common co-occurrence of SUD and PTSD among prisoners and has called for the evaluation of comorbidity treatments for this population (Jaffe, Du, Huang, &

Hser, 2012; Proctor, 2012; Ruiz et al., 2012). For individuals who have been incarcerated, there is a unique opportunity for clinicians to offer mental health treatment to this often hard to reach population and improve the associated harms for the individual and for society. Seeking Safety has been established as an effective, empirically-supported treatment for comorbid traumatic stress and substance use in community samples (Desai, Harpaz-Rotem, Najavits, & Rosenheck, 2008; Hien et al., 2004; Najavits & Hien, 2013; Morrissey et al., 2005), and is an optimal present-focused therapy to be implemented within the prison environment.

TABLE 3  
DTCQ-8, CAPS and PTCI Scores at the Three Assessment Time-Points for Participants Randomized to Seeking Safety and TAU

	Baseline n = 30		8-week follow-up n = 16		6-month follow-up n = 21	
	Treatment (n = 15)	TAU (n = 15)	Treatment (n = 8)	TAU (n = 8)	Treatment (n = 9)	TAU (n = 12)
DTCQ-8 score (M, SD)	69.8 (32.98)	76.3 (27.66)	87.9 (24.77)	61.6 (32.51)	90.8 (11.11)	79.3 (21.80)
CAPS diagnosis of PTSD (%)	53.3 (n = 8)	60.0 (n = 9)	50.0 (n = 4)	50.0 (n = 4)	11.1 (n = 1)	25.0 (n = 3)
CAPS severity total score (M, SD)	56.1 (20.31)	58.9 (22.56)	36.4 (20.69)	44.1 (27.27)	36.9 (20.71)	35.9 (28.52)
PTCI total score (M, SD)	147.7 (35.62)	134.6 (35.60)	107.7 (24.90)	130.8 (31.59)	128.2 (39.06)	117.7 (34.97)

Note. M = Mean, SD = Standard Deviation, DTCQ-8 = Drug-Taking Confidence Questionnaire (Brief Version): A higher score indicates a higher level of confidence in ability to resist substance use in the future, CAPS = Clinician Administered PTSD Scale: A higher score indicates a higher level of PTSD symptom severity, PTCI = Posttraumatic Cognitions Inventory: A higher score indicates a higher level of endorsement of PTSD-related cognitions.

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Overall, the sample presented with a complex and severe clinical profile. The majority reported a history of drug dependence and a large percentage had injected substances. The sample also reported a significant history of trauma exposure, high levels of PTSD symptom severity, and endorsed a number of PTSD-related cognitions consistent with other PTSD samples (Foa et al., 1999; Zlotnick et al., 2009). Interestingly, the sample reported slightly higher levels of confidence in their ability to resist substance use (DTCQ-8 scores) compared to other SUD treatment samples and incarcerated samples (43%-59%) (Long, Hall, Dolley, & Hollin, 2011; Senbanjo, Wolff, Marshall, & Strang, 2009). This may be due to the fact that they had been in prison for an average of 15.5 months and that a number of participants were undergoing TAU for their substance use. In support of this, their DTCQ-8 scores are similar to those reported in abstinent SUD treatment samples (Senbanjo et al., 2009).

Consistent with previous trials among female incarcerated samples, the present study found that Seeking Safety is both desirable and acceptable to male prisoners with history of trauma and substance use. This is evident in the fact that all of those approached to participate agreed to be assessed for inclusion, and over two-thirds of those randomized to receive Seeking Safety attended all the sessions offered. It is also encouraging that treatment satisfaction was high, a finding that is consistent with previous trials of Seeking Safety in incarcerated female populations (Zlotnick et al., 2009; Zlotnick et al., 2003). The majority of participants in the present study reported that the service was excellent and that they would recommend the treatment to someone else in similar need. This finding attests to the significance of this comorbid condition for these individuals and their willingness to access and engage in treatments for their mental health and substance use problems.

The present study also signified a successful collaboration between mental health and drug and alcohol researchers and corrections staff that was integral to running the pilot and implementing the treatment. Participants were screened, assessed, and initiated treatment in a timely fashion and access to private rooms for assessments and treatment sessions was provided. Consistent with previous prison-based research (Quina et al., 2007), there were, however, some difficulties in retaining participants in the study as a result of factors inherent within the prison system. Sudden movements between prisons, unexpected early release dates and prison lockdowns meant that some individuals could no longer participate in the treatment or the follow-up assessments and limited the feasibility of the study. While the research officer successfully located some individuals who had been transferred to another prison, the attrition rates in this pilot study are relatively high, particularly at the eight-week follow-up. For these reasons individuals who dropped out of treatment could not be located to report their treatment satisfaction, therefore limiting data

collection to only those who had completed all sessions and potentially introducing bias to these results.

It is important that issues related to study retention are common to prison-based research and should be taken into account in future intervention studies for this population. Some solutions could include placing a medical hold on the participant to prevent movements between prisons and better coordination with the court system to be notified of upcoming court dates and parole authority review dates. A larger trial with requisite funding, resources, and time could implement a number of strategies recommended for substance abusing and traumatised populations to improve study retention (Scott, Sonis, Creamer, & Dennis, 2006; Striley, Callahan, & Cotter, 2008). This includes the collection of comprehensive contact information and intensive efforts by the research staff to contact participants if they have been moved between prisons or if they have been released. In addition, the option to conduct treatment sessions and follow-up interviews post-release would significantly improve retention rates.

This study was not powered to detect any significant differences in substance use and PTSD outcomes between those who received Seeking Safety and those in TAU so caution should be taken when interpreting the results. The relatively large standard deviations reported in Table 3 and the large confidence intervals associated with effect sizes, are potentially a result of the small sample size and the relatively broad eligibility criteria (i.e., a history of problematic substance use and screen positive for PTSD). The outcome findings, however, do appear promising. Participants who received Seeking Safety increased in the confidence in their ability to resist the urge to use substances, while the confidence ratings among those in TAU remained relatively stable. In relation to PTSD diagnosis and severity, both groups seemed to evidence a reduction in symptoms. This is consistent with previous studies examining female prisoners and comparing Seeking Safety to a TAU group (Lynch et al., 2012; Zlotnick et al., 2009). A possible explanation for this is the potential for contamination of the TAU group due to the intimate setting of the correctional centers. During the trial some participants reported to the therapist that they shared their treatment materials with other prisoners. This was also identified as an issue in the previous trials of Seeking Safety among female prisoners (Lynch et al., 2012; Zlotnick et al., 2009). Future trials among incarcerated samples should therefore be aware of the potential for contamination that could obscure any difference in outcome between the groups. A potential solution could be to employ a cluster randomized controlled trial design and randomize at the prison-level. It is also possible that participants in the control group benefited therapeutically from undergoing comprehensive ongoing assessment of their trauma symptoms in a confidential interaction with the trained research officer. Many indicated that this was the first time they spoke about their trauma history and their

related symptoms, and research has demonstrated that participants describe participating in trauma research as a positive and valuable experience (Ferrier-Auerbach, Erbes, & Polusny, 2009; Griffin, Waldrop, & Mechanic, 2003). This should also be taken into consideration when designing and implementing similar trials in the future.

The feedback from those who received Seeking Safety is also very useful for informing future evaluations of the treatment in prison settings. In particular, some individuals commented on the timing and context of the treatment and suggested that a post-release intervention could also be helpful. The participants indicated that this form of treatment could be useful when they have adjusted to life post-release. However, the strong satisfaction with Seeking Safety in this study as well as the other prison-based Seeking Safety studies (Lynch et al., 2012; Zlotnick et al., 2009) suggest that perhaps both during prison and after release may be a good combination. The time period during prison can be an important “teachable moment” that is protected from the challenges of resettling back to home and to what are sometimes highly triggering environments in their neighborhoods (Miller & Najavits, 2012). Post-release, it can also be challenging to follow through on treatment (Zlotnick et al., 2009). However, post-release may have various advantages too, and could allow for the evaluation of other promising forms of treatment for this comorbidity including exposure-based (past-focused) interventions (Mills et al., 2012). Some participants mentioned that they felt they would have benefitted from discussing their traumas and related symptoms, which occurs during exposure-based interventions.

The limitations of this pilot study should be considered. Firstly, as previously stated, the small sample size and attrition rates at follow-up did not allow for any inferential tests. Therefore no strong conclusions could be made in regards to treatment outcome. Future trials using larger samples could more reliably address the efficacy of Seeking Safety in this population compared to TAU. Larger trials could also allow for lengthier follow-up upon release and address questions relating to criminal recidivism. In addition, the pilot nature of the study meant that we used only a partial dose of Seeking Safety rather than the full 25 modules. The eight sessions provided were selected by expert consensus and based on the expected needs of the prisoners. Based on previous research (Najavits & Hien, 2013), there is evidence that full-dose Seeking Safety produces better outcomes than partial-dose studies. Indeed, a number of participants indicated that they would benefit from more time in treatment. Future research could address this dose-response relationship in Australian male and female prison populations.

## Conclusions

This pilot study provides promising results on the acceptability, feasibility, and preliminary efficacy of an integrated

treatment for posttraumatic stress and substance use among male prisoners. Findings indicate that Seeking Safety is acceptable and is feasible among male prisoners even in the context of factors inherent in prison-based research. This study has important implications for offering SUD/PTSD treatment in prisons. The next step is to conduct a larger randomized controlled trial to reliably examine the efficacy of Seeking Safety and other treatments for this comorbidity. Treating this comorbidity may help to reduce the suffering experienced by a considerable number of prisoners. From a societal perspective, treatment of these disorders during a person’s incarceration may result in improved substance use, mental health and criminogenic outcomes upon their release, thereby reducing the burden of this comorbidity to the individual and to society.

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