THE UNIVERSITY OF ARIZONA | MEL AND ENID ZUCKERMAN COLLEGE OF PUBLIC HEALTH

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Medical Marijuana for the Treatment of Post Traumatic Stress Disorder:

An Evidence Review

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Introduction

Purpose of evidence review

This review evaluates evidence on cannabis use in adults for the treatment of post-traumatic stress disorder (PTSD). The Arizona Department of Health Services (ADHS), which funded this report, to assist in assessing PTSD as a condition to add to those that qualify for the use of medical marijuana in Arizona.

Background

Pursuant to A.R.S. § 36-2801.01, the public may petition the Arizona Department of Health Services (ADHS) to add debilitating medical conditions to those listed in A.R.S. 36-2801(3). The ADHS established the manner in which it shall consider petitions to add debilitating medical conditions in A.A.C. R9-17-106. A.A.C. R9-17-106(C) states, ADHS "shall accept requests for the addition of a medical condition to the list of debilitating medical conditions in R9-17-201 in January and July of each calendar year starting in January 2012". After receiving requests for adding conditions the ADHS requests a report on the scientific evidence on the use of cannabis for this condition from the University of Arizona College of Public Health. In addition the Department holds a public hearing to hear public testimony on the condition and its treatment with cannabis. The Department Medical Advisory Committee then considers the totality of the evidence in deciding to add a condition to the list, or not.

Scope of evidence review

List of Key Questions

Benefits and harms of cannabis therapy for PTSD

1. What are the benefits (short and long-term benefits) of cannabis use for those with post-traumatic stress disorder?
2. What are the harms (short and long-term harms) of cannabis use for post-traumatic stress disorder patients?
3. What are the benefits and harms of cannabis for treating post traumatic stress disorder in patients with a history of substance abuse or addiction that are undergoing treatment for addiction?

Conflict of Interest

None of the reviewers conducting this review have any conflicts of interest to disclose.

Methods

Dates of Search

March 2012 – June 2012

Population

Adults (≥ 18 years old)

Literature search and strategy

The topics of cannabis use and post-traumatic stress disorder where searched in the following databases: The Cochrane Library, Ovid MEDLINE® and PsycINFO. Bibliographies of articles identified through databases were hand searched for pertinent articles. In addition, there was a gray literature search using Google Scholar to identify electronically published articles and current unpublished studies. A detailed description of each search can be found in Appendix 1.

Inclusion and exclusion criteria

All identified studies were imported into an electronic database (RefWorks) and considered for inclusion. We included studies that met all of the following criteria:

1. Evaluated adults (≥ 18 years old) with post traumatic stress disorder
2. English language
3. Human study
4. Were relevant to one of the Key Questions

Excluded articles included those that were: animal studies, or experiments on biochemical or pathophysiological pathways; case reports or case series; editorials or opinions; not addressing a key question.

Data synthesis

Observational studies were assessed using the main domains described in tools commonly used (Deeks JJ, Dinnes J, D'Amico R, Sowden AJ, Sakarovitch C, Song F, et al. Evaluating non-randomized intervention studies. Health Technology Assessment 2003;**7**(27)). The overall quality of the evidence is ranked using GRADE methodology demonstrated in Appendix 2. (Owens DK, Lohr KN, Atkins D, et al. Grading the strength of a body of evidence when comparing medical interventions. In: Agency for Healthcare Research and Quality. Methods Guide for Comparative Effectiveness Reviews. Rockville, MD. Available at: http://effectivehealthcare.ahrq.gov/healthInfo.cfm?infotype=rr&ProcessID=60.).

Results

Findings

A total of 48 articles were identified through The Cochrane Library, PubMed and PsychINFO and another 6 were discovered from references cited in key articles. No study was found that focused on the treatment effects of cannabis on those with PTSD. The table below lists the 18 article that came the closest to addressing any of the key questions. Those bolded are the highest quality with the most pertinent findings.

The entire list of articles is included in Appendix 3.

Article , Citation and Database	Description and Design of Study	Limitations	Quality
1. Bonn-Miller MO, Vujanovic AA, Boden MT,	The study tested whether the	The study was about the	Very low quality - The study's

Gross JJ. Posttraumatic stress, difficulties in emotion regulation, and coping-oriented marijuana use. Cogn Behav Ther. 2011 Mar;40(1):34-44. Database: PubMed & PsycINFO	association between posttraumatic stress symptom severity and marijuana use coping motives is mediated by difficulties in emotion regulation. Cross-sectional study (n=79) California	association of PTSD and marijuana use coping motives, not benefits or harms of marijuana. All subjects had both PTSD and marijuana use.	limitations include: recall bias and self selected sample. The design does not permit an examination of the temporal relations between PTSD severity, emotion regulation difficulties, and coping-oriented marijuana use. Small number of participants.
2. Bonn-Miller MO, Vujanovic AA, Drescher, Kent D. Cannabis use among military veterans after residential treatment for posttraumatic stress disorder. Psychol Addict Behav. 2011 September;23(3):485-91. **Database: PsychINFO**	**The study prospectively evaluated whether treatment changes in PTSD symptom severity, among Veterans in residential PTSD treatment, were related to cannabis use 4 months after discharge from residential rehabilitation.** **Prospective cohort (4 month, n= 432) Veterans in residential program for PTSD treatment at a VA centre.**	**Found that Veterans who experienced lower levels of change in PTSD symptom severity during the course of residential treatment for PTSD were more likely to use cannabis after discharge from treatment.**	**Low to moderate quality– The sample is self selected and demographically homogenous. There potential for bias (recall).**
3. Bonn-Miller MO, Vujanovic AA, Feldner MT, Bernstein A, Zvolensky MJ. Posttraumatic stress symptom severity predicts marijuana use coping motives among traumatic event-exposed marijuana users. J Trauma Stress. 2007 Aug;20(4):577-86. Database: PubMed & PsycINFO	The study examines the relation between posttraumatic stress symptom severity and motives for marijuana use. Cross-sectional study (n=103 young adults) Vermont	Posttraumatic stress symptom severity was significantly related to coping-oriented marijuana use motives.	Very low quality – The study is not generalizable as the sample was demographically homogenous, age-limited and self-selected. The participants had experienced relatively limited number of traumatic life events. There is large potential for bias (recall).
4. Bonn-Miller MO, Vujanovic AA, Twohig MP, Medina JL, Huggins JL. Posttraumatic stress symptom severity and marijuana use coping motives: A test of the mediating role of non-judgmental acceptance within a trauma-exposed community sample. Mindfulness. 2010 May;(1):98-106. Reference from Cougle, et al.	The study examined the role of non-judgmental acceptance in the relation between posttraumatic stress symptom severity and marijuana use coping motives. Cross-sectional study (n=97)	This study did not address the key questions as it was about the association of PTSD and marijuana use coping motives, not the benefits or harms of marijuana use.	Very low quality – The study had a non-generalizable sample and was limited by the high potential for bias (recall).
5. Bremner JD, Southwick SM, Darnell A, Charney DS. Chronic PTSD in vietnam combat veterans: Course of illness and substance abuse. Am J Psychiatry. 1996 Mar;153(3):369-75. Database: PubMed	The purpose of this study was to measure the longitudinal course of specific symptoms of posttraumatic stress disorder (PTSD) and related symptoms of alcohol and sub-stance abuse and the effects of alcohol and substances on the symptoms of PTSD. Cross-sectional study (n=61) of Vietnam combat veterans , North East U S	This study is not intended to study the effects of marijuana on PTSD. The findings are that substance use of all kinds is associated with increased symptoms of PTSD and those who are using these substances (alcohol, heroine, cocaine and marijuana) report benefit.	Very low quality - The potential for recall bias is large, and the outcomes are not validated.
6. Chilcoat HD, Breslau N. Investigations of causal pathways between PTSD and drug use disorders. Addict Behav. 1998 Nov-Dec;23(6):827-40. Reference from Cougle, et al.	This study addressed the potential causal pathways between PTSD and substance use disorders. Cohort study (n=1007)	The study did not address the key questions.	Low quality – The sample had potential for bias as it was limited to one HMO, there was an underrepresentation of extremes of socioeconomic status, and participants were young adults aged 21-30 years of age.

7. Chilcoat HD, Breslau N. Posttraumatic stress disorder and drug disorders: Testing causal pathways. Arch Gen Psychiatry. 1998 Oct;55(10):913-7. Reference from Cougle, et al.	This article examined existing studies of PTSD and substance use and used epidemiological data from article #6 to demonstrate analytical strategies to best address the causal relationship between these disorders. Cohort study (n=1007 adults in Michigan) two follow ups at 3 and 5 years.	PTSD was a risk for drug abuse (OR 4.5) but was not significant for marijuana use.	Low to moderate quality – The sample had potential for bias as it was limited to one HMO, there was an underrepresentation of extremes of socioeconomic status, and participants were young adults aged 21-30 years of age.
8. Cornelius JR, Kirisci L, Reynolds M, Clark DB, Hayes J, Tarter R. PTSD contributes to teen and young adult cannabis use disorders. Addict Behav. 2010 Feb;35(2):91-4. **Database: PubMed & PsycINFO**	**This study addresses the effect of PTSD on CUD among teenagers transitioning to young adulthood.** **Longitudinal cohort study (n=693, 31 w/ PTSD) Subjects were sons of men with SUD. Recruited at ages 10-12 and seen 5 times up to age 25.**	**The study did not address the key questions (no benefit or harm was studied). Of the 19 participants who met diagnostic criteria for both CUD and PTSD, 9 had PTSD first and CUD second, 9 had CUD first and PTSD second, and 1 had the onset of both diagnoses at the same age.**	**Moderate quality– Very small numbers with PTSD, large potential for bias in the sample selection. Large loss to follow up.**
9. Cougle JR, Bonn-Miller MO, Vujanovic AA, Zvolensky MJ, Hawkins KA. Posttraumatic stress disorder and cannabis use in a nationally representative sample. Psychol Addict Behav. 2011 Sep;25(3):554-8. **Database: PubMed & PsycINFO**	**The study examined the relationship between PTSD and cannabis use in a large representative survey of adults from the United States.** **Cross-sectional study (n=5672)**	**The study found an association between PTSD and marijuana use but could not assess benefits/harms or causation. Lifetime and current (past year) PTSD diagnoses were associated with increased odds of lifetime history of cannabis use as well as past year daily cannabis use. Odds ratios were in the 2-3 range.**	**Moderate to high quality– Quality upgrade because of representative sampling and large odds ratios found. The study controls for multiple other variables that could affect both PTSD and marijuana use.**
10. Johnson SD, Striley C, Cottler LB. The association of substance use disorders with trauma exposure and PTSD among african american drug users. Addict Behav. 2006 Nov;31(11):2063-73. Database: PubMed	This study examines the association of traumatic exposure, PTSD and substance use among 1098 out-of-treatment African American drug users. Cross-sectional design (n=1098)	The study did not address the benefit or harm of using cannabis. There were some associations found between traumatic events and alcohol and marijuana abuse but the odds ratios are small and confidence intervals wide.	Very low quality – Very limited sample (AA female drug abusers). There is also a large potential for bias (recall). The traumatic events were of multiple typew and may not actually be associated with ptsd.
11. Kessler RC, Sonnega A, Bromet E, Hughes M, Nelson CB. Posttraumatic stress disorder in the national comorbidity survey. Arch Gen Psychiatry. 1995 Dec;52(12):1048-60. Reference from Cougle, et al.	The investigation examined general population data from the national comorbidity survey. . Cross-sectional design (n=5877)	This article concluded that PTSD is more prevalent than previously believed. The lifetime prevalence of PTSD was found to be 7.8% (with an SE of 0.5%). The lifetime prevalence of trauma exposure was found to be 60.7% for men and 51.2% for women.	Low to moderate quality - The data came from the NCS, a survey designed to study the distribution, correlates, and consequences of psychiatric disorders in the United States. There is a high potential for recall bias. It does not address marijuana use
12. Potter CM, Vujanovic AA, Marshall-Berenz EC, Bernstein A, Bonn-Miller MO. Posttraumatic stress and marijuana use coping motives: The mediating role of distress	The investigation examined the explanatory role of distress tolerance in the relation between posttraumatic stress symptom	This study focuses on the motives behind marijuana use not the benefit or the harm of	Very low quality – Self selected sample, large potential for bias.

tolerance. J Anxiety Disord. 2011 Apr;25(3):437-43. Database: PsychINFO	severity and marijuana use coping motives. Cross-sectional design (n=142) adults in Vermont recruited in several ways, not well described.	marijuana use among PTSD patients. Found that trauma-exposed marijuana users with greater PTS symptom severity may use marijuana to cope with negative mood states, at least partially because of a lower perceived capacity to withstand emotional distress.	
13. Stewart SH, Conrod PJ, Pihl RO, & Dongier, M. Relations Between Posttraumatic Stress Symptom Dimensions and Substance Dependence in a Community-Recruited Sample of Substance-Abusing Women. Psychology of Addictive Behaviors. 1999. Vol. 13(2):78-88. Reference from Cougle, et al.	This study examined the factor structure of PTSD symptoms, and correlations between PTSD dimensions and substance dependence. Cross-sectional design (N=295) substance abusing women	This study discussed the association of marijuana use and PTSD (no benefit/harm was discussed).	Very low quality –This was a nonrandom sample and there is a large potential for bias.
14. Villagonzalo KA, Dodd S, Ng F, Mihaly S, Langbein A, Berk M. The relationship between substance use and posttraumatic stress disorder in a methadone maintenance treatment program. Compr Psychiatry. 2011 Sep-Oct;52(5):562-6. Database: PubMed	This study explores the relationship between substance abuse and PTSD symptom clusters in a methadone maintenance population in Australia. Cross-sectional (n=80)	This article discusses the self medication hypothesis but does not address whether cannabis use is harmful or beneficial to the PTSD population. Severity of marijuana use was significantly associated with a number of re experiencing and hyperarousal symptoms and with overall severity of PTSD symptoms. Opiate, amphetamine, and benzodiazepine use did not appear to be related to PTSD symptoms.	Very low quality– This is a nonrandom sample with a large non-participation rate and with large potential for bias (recall).
15. Vlahov D, Galea S, Ahern J, Resnick H, Boscarino JA, Gold J, et al. Consumption of cigarettes, alcohol, and marijuana among new york city residents six months after the september 11 terrorist attacks. Am J Drug Alcohol Abuse. 2004 May;30(2):385-407. Database: PubMed	Random-digit phone survey was conducted to estimate the prevalence of increased substance use among residents of New York City six to nine months after the attacks. Cross-sectional design (n=1,570)	This study does not speak to the benefit or harm of cannabis use among PTSD population. Many of those interviewed did not have PTSD. Documents a 2.7% increae in marijuana use following 9-11.	Very low quality – Self reported drug use. Large potential for bias.
16. Vlahov D, Galea S, Resnick H, Ahern J, Boscarino JA, Bucuvalas M, et al. Increased use of cigarettes, alcohol, and marijuana among manhattan, new york, residents after the september 11th terrorist attacks. Am J Epidemiol. 2002 Jun 1;155(11):988-96. Database: PubMed	A random-digit dial telephone survey was conducted to estimate the prevalence of increased cigarette smoking, alcohol consumption, and marijuana use among residents of Manhattan, Ney York City, 5-8 weeks after the attacks. Cross-sectional design (n=988) New York City Following 9-11	This study does not address the benefit or harm of cannabis use among PTSD population. Documents a 3,2 % increase in marijuana use following 9-11	Very low quality– No validation of reported drug use.
17. Xian H, Scherrer JF, Grant JD, Eisen SA, True WR, Jacob T, et al. Genetic and environmental contributions to nicotine, alcohol and cannabis dependence in male	This study aims to compute the common and specific genetic environmental contribution to nicotine dependence, alcohol	This article does not address the benefit or harm cannabis use has on PTSD population. It	Low to moderate quality– This study is not generalizable. The sample included only male twins. The use of cannabis among the

twins. Addiction. 2008 Aug;103(8):1391-8. Database: PubMed	dependence and cannabis dependence. Longitudinal cohort design (n=1498 dyzygotic twins, 1874 monzygotic twins born between 1939-1975 both twins in military service)	demonstrates that both genetic and environmental factors influence cannabis dependency, but the analysis is difficult to follow.	sample was low. The statistical analysis is hard to follow.
18. Kilpatrick DG, Acierno R, Saunders B et al. Risk factors for adolescemt substance abuse and dependence: data from a national sample.	**Cross sectional study. National sample of 4023 adolescents ages 12-17, using telephone survey.**	**PTSD independently increased risk of marijuana and hard drug use disorders but not alcohol abuse/dependence.**	**Low to moderate quality. National sample, recall bias potential, confounders controlled for.**

Summaries

Summary of gray literature

There were no studies identified that researched the benefits or harms of cannabis use among the PTSD population. Many articles recommend further research and evaluation of the co-occurrence of PTSD and cannabis use.

Summary of articles provided with public petition to ADHS

The three articles provided by the public are summarized in the table below.

Article and Database	Description and Design of Study	Exclusion Reasoning	Quality
1. Ashton CH. Pharmacology and effects of cannabis: A brief review. Br J Psychol. 2001;178:101-6.	The aim of the study is to highlight recent knowledge of mechanisms of action, effects on psychomotor and cognitive performance, and health risks associated with cannabis consumption.	This article does not discuss PTSD.	Not quantifiable – This article is a brief review of recent literature on the prevalence of recreational cannabis use, the potency of modern cannabis preparations and the pharmacological actions of cannabis.
2. Crean RD, Crane NA, Mason BJ. An evidence based review of acute and long-term effects of cannabis use on executive cognitive functions. J Addict Med. 2011 Mar;5(1):1-8.	This is a review of the research on the acute, residual, and long-term effects of cannabis use on executive functions and discusses the implications for treatment.	This article does not discuss PTSD.	This study is an evidence-based review but does not address PTSD.
3. Solowij N, Stephens RS, Roffman RA, Babor T, Kadden R, Miller M, et al. Cognitive functioning of long-term heavy cannabis users seeking treatment. JAMA. 2002 Mar 6;287(9):1123-31.	The objective of this study is to examine the effects of duration of cannabis use on specific areas of cognitive functioning among users seeking treatment for cannabis dependence. Cross-sectional Design (n=102)	This article does not discuss PTSD.	Low quality- This study attempted to control for biases but is a cross sectional design.

Conclusion

The studies with the highest quality ratings generally find an association between PTSD and marijuana use but the study designs do not allow for determination if one causes or aggravates the other, or if both are associated with some unknown third factor. We could not find any research that directly addressed the key questions of the benefits and harms of marijuana use for treatment of PTSD. The most relevant literature generally was of low or very low quality and no conclusions can be drawn about the benefits or harms of marijuana use for the treatment of PTSD.

Current Recommended Treatments for PTSD

A search was conducted of the Clinical Guideline Clearinghouse for treatment guidelines for PTSD. Below is a list of the guidelines. See Appendix 4 and Appendix 5.

1. American Psychiatric Association. Practice guideline for the treatment of patients with acute stress disorder and posttraumatic stress disorder. Arlington (VA): American Psychiatric Association; 2004 Nov. 57 p. [463 references]
2. Management of Post-Traumatic Stress Working Group. VA/DoD clinical practice guideline for management of post-traumatic stress. Washington (DC): Veterans Health Administration, Department of Defense; 2010. 251 p.

Appendices

Appendix 1 – Search Strategies

The Cochrane Library Search Description

Includes the following databases: Cochrane Database of Systematic Reviews, Database of Abstracts of Reviews of Effects, Cochrane Central Register of Controlled Trials, Cochrane Methodology Register, Health Technology Assessment Database, NHS Economic Evaluation Database, and About The Cochrane Collaboration (Cochrane Groups).

Date & Time
May 22nd, 2012 at 12pm-1pm
May 23rd, 2012 at 4pm-5pm

Limits
Adulthood (18 yrs & older)
English
Human

Search
1. "Cannabis"[Mesh]
2. "Cannabis Smoking"[Mesh]
3. (#1) OR (#2) (3624)
4. "Stress disorders, post-traumatic"[Mesh] (8925)
5. (#3) AND (#4) (1,0,1,0,0,0,0)

Total articles identified in The Cochrane Library = 2

1. Hetrick SE, Purcell R, Garner B, Parslow R. Combined pharmacotherapy and psychological therapies for post traumatic stress disorder (PTSD). Cochrane Database of Systematic Reviews 2010, Issue 7. Art. No.: CD007316. DOI: 10.1002/14651858.CD007316.pub2.
2. Schiff M, Zweig HH, Benbenishty R, Hasin DS. Exposure to terrorism and israeli youths' cigarette, alcohol, and cannabis use. Am J Public Health. 2007 Oct;97(10):1852-8.

Ovid MEDLINE® Search Description

Date & Time
May 9th, 2012 at 8am-12pm
May 22nd, 2012 at 2:30pm-5pm

Limits
All Adults (19+)
English
Human

Mesh Terms
Note: **automatic explosion (explode)** - In PubMed, MeSH (Medical Subject Headings) terms (as well as any subheading that is the top of a "subheading tree") are "exploded"

automatically to retrieve citations that carry the specified MeSH heading (or subheading) and also retrieve citations that carry any of the more specific MeSH headings (or subheadings) indented beneath it in the Tree structure.

1. Stress Disorders, Post-Traumatic
2. Cannabis
3. Marijuana Abuse
4. Marijuana Smoking
5. Tetrahydrocannabinol
6. Sativex (Supplementary Concept)

Stress Disorders, Post-Traumatic Entry Terms:

- Post-Traumatic Stress Disorder
- Stress Disorder, Post-Traumatic
- Stress Disorders, Post Traumatic
- PTSD
- Stress Disorder, Post Traumatic
- Neuroses, Posttraumatic
- Posttraumatic Neuroses
- Posttraumatic Stress Disorders
- Posttraumatic Stress Disorder
- Stress Disorder, Posttraumatic
- Stress Disorders, Posttraumatic
- Neuroses, Post-Traumatic
- Neuroses, Post Traumatic
- Post-Traumatic Neuroses
- Post-Traumatic Stress Disorders
- Post Traumatic Stress Disorders
- Chronic Post-Traumatic Stress Disorder
- Chronic Post Traumatic Stress Disorder
- Delayed Onset Post-Traumatic Stress Disorder
- Delayed Onset Post Traumatic Stress Disorder
- Acute Post-Traumatic Stress Disorder
- Acute Post Traumatic Stress Disorder

Cannabis Entry Terms:

- Cannabi
- Hemp Plant
- Hemp Plants
- Plant, Hemp
- Plants, Hemp
- Cannabis indica
- Cannabis indicas
- indica, Cannabis
- indicas, Cannabis
- Marihuana

- Marihuanas
- Marijuana
- Marijuanas
- Ganja
- Ganjas
- Hashish
- Hashishs
- Hemp
- Hemps
- Bhang
- Bhangs
- Cannabis sativa
- Cannabis sativas
- sativa, Cannabis
- sativas, Cannabis

Marijuana Abuse Entry Terms:

- Abuse, Marijuana
- Marihuana Abuse
- Abuse, Marihuana
- Hashish Abuse
- Abuse, Hashish
- Cannabis-Related Disorder
- Cannabis Related Disorder
- Disorder, Cannabis-Related
- Cannabis Abuse
- Abuse, Cannabis
- Cannabis Dependence
- Dependence, Cannabis
- Marijuana Dependence
- Dependence, Marijuana

Marijuana Smoking Entry Terms:

- Smoking, Marijuana
- Marihuana Smoking
- Smoking, Marihuana
- Cannabis Smoking
- Smoking, Cannabis
- Hashish Smoking
- Smoking, Hashish

Tetrahydrocannabinol Entry Terms:

- delta(1)-Tetrahydrocannabinol
- THC
- delta(9)-Tetrahydrocannabinol

- delta(9)-THC
- Dronabinol
- 9-ene-Tetrahydrocannabinol
- 9 ene Tetrahydrocannabinol
- delta(1)-THC
- Tetrahydrocannabinol, (6a-trans)-Isomer
- Tetrahydrocannabinol, Trans-Isomer
- Tetrahydrocannabinol, Trans Isomer
- Tetrahydrocannabinol, (6aS-cis)-Isomer
- Tetrahydrocannabinol, Trans-(+-)-Isomer
- Marinol
- Solvay Brand of Tetrahydrocannabinol
- Tetrahydrocannabinol, (6aR-cis)-Isomer

Supplementary Concept
Tetrahydrocannabinol-cannabidiol combination"[Supplementary Concept]

- Sativex

<u>Search 1</u>

1. "Cannabis/therapeutic use"[Majr] (246)
2. "Stress Disorders, Post-Traumatic/therapy"[Majr] (1,562)
3. (#1) AND (#2) (0)
4. "Cannabis"[Majr] (1,024)
5. (#2) AND (#4) (0)
6. "Stress Disorders, Post-Traumatic"[Majr] (7,756)
7. (#4) AND (#6) (0)
8. "Marijuana Smoking"[Majr] (734)
9. (#6) AND (#8) (3)
10. "Marijuana Abuse"[Majr] (1,292)
11. (#6) AND (#10) (4)
12. "Tetrahydrocannabinol"[Majr] (555)
13. (#6) AND (#12) (0)
14. "tetrahydrocannabinol-cannabidiol combination" [Supplementary Concept] (15)
15. (#6) AND (#14) (0)

Total articles identified in Search 1 = 7
Note: All seven articles were saved into RefWorks. I am now going to broaden my search. Instead of restricting my search to major topics [Majr] I am going to use [Mesh] terms.

<u>Search 2</u>

1. "Cannabis/therapeutic use"[Mesh] (348)
2. "Stress Disorders, Post-Traumatic/therapy"[Mesh] (2,366)
3. (#1) and (#2) (1)
4. "Cannabis"[Mesh] (1,563)

5. "Stress Disorders, Post-Traumatic"[Mesh] (9,494)
6. (#4) and (#5) (4)
7. "Marijuana Smoking"[Mesh] (979)
8. (#5) AND (#7) (4)
9. "Marijuana Abuse"[Mesh] (1,932)
10. (#5) AND (#9) (11)
11. "Tetrahydrocannabinol"[Mesh] (827)
12. (#5) AND (#11) (0)
13. "tetrahydrocannabinol-cannabidiol combination" [Supplementary Concept] (15)
14. (#5) AND (#13) (0)

Total articles identified in Search 2 = 20
Note: The 20 newly identified articles were added to the previously identified articles in RefWorks (a total of 27 articles).

Search 3

Note: In order to make sure no articles were missed I searched for "Stress Disorders, Post-Traumatic"[Mesh] AND "cannabis" OR "marijuana." This search is a combination of a mesh search and text word searching.

1. "Cannabis" (3,599)
2. "Marijuana" (4,410)
3. (#1) OR (#2) (6,251)
4. "Stress Disorders, Post-Traumatic"[Mesh] (9,496)
5. (#3) AND (#4) (36)

Total articles identified in Search 3 = 36
These 36 articles were added to the ones already in RefWorks.

Search 4

1. "Cannabis" (3,599)
2. "Marijuana" (4,410)
3. (#1) OR (#2) (6,251)
4. "Post-traumatic stress disorder" (2,102)
5. "PTSD" (6,067)
6. (#4) AND (#5) (6,743)
7. (#3) AND (#6) (34)

Total articles identified in Search 4 = 34
These 34 articles were added to RefWorks.

Of the 97 articles identified in Search 1, 2, 3 and 4, 50 were exact duplicates. Below are the 47 unique articles that will be analyzed and included in the evidence review.

1. Apfel BA, Ross J, Hlavin J, Meyerhoff DJ, Metzler TJ, Marmar CR, et al. Hippocampal volume differences in gulf war veterans with current versus lifetime posttraumatic stress disorder symptoms. Biol Psychiatry. 2011 Mar 15;69(6):541-8.
2. Barrett EL, Mills KL, Teesson M. Hurt people who hurt people: Violence amongst individuals with comorbid substance use disorder and post traumatic stress disorder. Addict Behav. 2011 Jul;36(7):721-8.
3. Bonn-Miller MO, Vujanovic AA, Boden MT, Gross JJ. Posttraumatic stress, difficulties in emotion regulation, and coping-oriented marijuana use. Cogn Behav Ther. 2011 Mar;40(1):34-44.
4. Bonn-Miller MO, Vujanovic AA, Feldner MT, Bernstein A, Zvolensky MJ. Posttraumatic stress symptom severity predicts marijuana use coping motives among traumatic event-exposed marijuana users. J Trauma Stress. 2007 Aug;20(4):577-86.
5. Brady K, Casto S, Lydiard RB, Malcolm R, Arana G. Substance abuse in an inpatient psychiatric sample. Am J Drug Alcohol Abuse. 1991;17(4):389-97.
6. Bremner JD, Southwick SM, Darnell A, Charney DS. Chronic PTSD in vietnam combat veterans: Course of illness and substance abuse. Am J Psychiatry. 1996 Mar;153(3):369-75.
7. Calhoun PS, Sampson WS, Bosworth HB, Feldman ME, Kirby AC, Hertzberg MA, et al. Drug use and validity of substance use self-reports in veterans seeking help for posttraumatic stress disorder. J Consult Clin Psychol. 2000 Oct;68(5):923-7.
8. Chen KW, Banducci AN, Guller L, Macatee RJ, Lavelle A, Daughters SB, et al. An examination of psychiatric comorbidities as a function of gender and substance type within an inpatient substance use treatment program. Drug Alcohol Depend. 2011 Nov 1;118(2-3):92-9.
9. Cornelius JR, Kirisci L, Reynolds M, Clark DB, Hayes J, Tarter R. PTSD contributes to teen and young adult cannabis use disorders. Addict Behav. 2010 Feb;35(2):91-4.
10. Corstorphine E, Waller G, Lawson R, Ganis C. Trauma and multi-impulsivity in the eating disorders. Eat Behav. 2007 Jan;8(1):23-30.
11. Cougle JR, Bonn-Miller MO, Vujanovic AA, Zvolensky MJ, Hawkins KA. Posttraumatic stress disorder and cannabis use in a nationally representative sample. Psychol Addict Behav. 2011 Sep;25(3):554-8.
12. Eaton NR, Krueger RF, Keyes KM, Skodol AE, Markon KE, Grant BF, et al. Borderline personality disorder co-morbidity: Relationship to the internalizing-externalizing structure of common mental disorders. Psychol Med. 2011 May;41(5):1041-50.
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14. Foster EM. Deployment and the citizen soldier: Need and resilience. Med Care. 2011 Mar;49(3):301-12.
15. Gil-Rivas V, Fiorentine R, Anglin MD. Sexual abuse, physical abuse, and posttraumatic stress disorder among women participating in outpatient drug abuse treatment. J Psychoactive Drugs. 1996 Jan-Mar;28(1):95-102.
16. Greenfield SF, Back SE, Lawson K, Brady KT. Substance abuse in women. Psychiatr Clin North Am. 2010 Jun;33(2):339-55.
17. Johnson SD, Striley C, Cottler LB. The association of substance use disorders with trauma exposure and PTSD among african american drug users. Addict Behav. 2006 Nov;31(11):2063-73.
18. Khoury L, Tang YL, Bradley B, Cubells JF, Ressler KJ. Substance use, childhood traumatic experience, and posttraumatic stress disorder in an urban civilian population. Depress Anxiety. 2010 Dec;27(12):1077-86.
19. Kidorf M, Disney ER, King VL, Neufeld K, Beilenson PL, Brooner RK. Prevalence of psychiatric and substance use disorders in opioid abusers in a community syringe exchange program. Drug Alcohol Depend. 2004 May 10;74(2):115-22.
20. Koenen KC, Lyons MJ, Goldberg J, Simpson J, Williams WM, Toomey R, et al. Co-twin control study of relationships among combat exposure, combat-related PTSD, and other mental disorders. J Trauma Stress. 2003 Oct;16(5):433-8.
21. Lewis CF. Post-traumatic stress disorder in HIV-positive incarcerated women. J Am Acad Psychiatry Law. 2005;33(4):455-64.
22. Lippert AM, Fendrich M, Johnson TP. Vicarious exposure to terrorist attacks and substance use: Results from an urban household survey. J Urban Health. 2008 May;85(3):411-27.
23. Lipschitz DS, Rasmusson AM, Anyan W, Cromwell P, Southwick SM. Clinical and functional correlates of posttraumatic stress disorder in urban adolescent girls at a primary care clinic. J Am Acad Child Adolesc Psychiatry. 2000 Sep;39(9):1104-11.
24. Lipschitz DS, Rasmusson AM, Anyan W, Gueorguieva R, Billingslea EM, Cromwell PF, et al. Posttraumatic stress disorder and substance use in inner-city adolescent girls. J Nerv Ment Dis. 2003 Nov;191(11):714-21.
25. Magliozzi JR, Kanter SL, Csernansky JG, Hollister LE. Detection of marijuana use in psychiatric patients by determination of urinary delta-9-tetrahydrocannabinol-11-oic acid. J Nerv Ment Dis. 1983 Apr;171(4):246-9.
26. Marshall RD, Galea S. Science for the community: Assessing mental health after 9/11. J Clin Psychiatry. 2004;65 Suppl 1:37-43.

27. Meghani SH, Wiedemer NL, Becker WC, Gracely EJ, Gallagher RM. Predictors of resolution of aberrant drug behavior in chronic pain patients treated in a structured opioid risk management program. Pain Med. 2009 Jul-Aug;10(5):858-65.

28. Moffitt TE, Caspi A, Taylor A, Kokaua J, Milne BJ, Polanczyk G, et al. How common are common mental disorders? evidence that lifetime prevalence rates are doubled by prospective versus retrospective ascertainment. Psychol Med. 2010 Jun;40(6):899-909.

29. Najavits LM, Harned MS, Gallop RJ, Butler SF, Barber JP, Thase ME, et al. Six-month treatment outcomes of cocaine-dependent patients with and without PTSD in a multisite national trial. J Stud Alcohol Drugs. 2007 May;68(3):353-61.

30. Norman SB, Tate SR, Anderson KG, Brown SA. Do trauma history and PTSD symptoms influence addiction relapse context? Drug Alcohol Depend. 2007 Sep 6;90(1):89-96.

31. Okulate GT, Jones OB. Post-traumatic stress disorder, survivor guilt and substance use--a study of hospitalised nigerian army veterans. S Afr Med J. 2006 Feb;96(2):144-6.

32. Peters RJ,Jr, Meshack A, Amos C, Scott-Gurnell K, Savage C, Ford K. The association of drug use and post-traumatic stress reactions due to hurricane ike among fifth ward houstonian youth. J Ethn Subst Abuse. 2010;9(2):143-51.

33. Pierre JM. Psychosis associated with medical marijuana: Risk vs. benefits of medicinal cannabis use. Am J Psychiatry. 2010 May;167(5):598-9.

34. Potter CM, Vujanovic AA, Marshall-Berenz EC, Bernstein A, Bonn-Miller MO. Posttraumatic stress and marijuana use coping motives: The mediating role of distress tolerance. J Anxiety Disord. 2011 Apr;25(3):437-43.

35. Resnick HS, Acierno R, Amstadter AB, Self-Brown S, Kilpatrick DG. An acute post-sexual assault intervention to prevent drug abuse: Updated findings. Addict Behav. 2007 Oct;32(10):2032-45.

36. Rhoades H, Wenzel SL, Golinelli D, Tucker JS, Kennedy DP, Green HD, et al. The social context of homeless men's substance use. Drug Alcohol Depend. 2011 Nov 1;118(2-3):320-5.

37. Rigby E, Reid L, Schipperheijn JA, Weston L, Ikkos G. Clinical librarians: A journey through a clinical question. Health Info Libr J. 2002 Sep;19(3):158-60.

38. Sartor CE, McCutcheon VV, Pommer NE, Nelson EC, Duncan AE, Waldron M, et al. Posttraumatic stress disorder and alcohol dependence in young women. J Stud Alcohol Drugs. 2010 Nov;71(6):810-8.

39. Shand FL, Degenhardt L, Slade T, Nelson EC. Sex differences amongst dependent heroin users: Histories, clinical characteristics and predictors of other substance dependence. Addict Behav. 2011 Jan-Feb;36(1-2):27-36.

40. Tepe E, Dalrymple K, Zimmerman M. The impact of comorbid cannabis use disorders on the clinical presentation of social anxiety disorder. J Psychiatr Res. 2012 Jan;46(1):50-6.

41. Trafton JA, Minkel J, Humphreys K. Opioid substitution treatment reduces substance use equivalently in patients with and without posttraumatic stress disorder. J Stud Alcohol. 2006 Mar;67(2):228-35.

42. Vetter S, Rossegger A, Rossler W, Bisson JI, Endrass J. Exposure to the tsunami disaster, PTSD symptoms and increased substance use - an internet based survey of male and female residents of switzerland. BMC Public Health. 2008 Mar 19;8:92.

43. Villagonzalo KA, Dodd S, Ng F, Mihaly S, Langbein A, Berk M. The relationship between substance use and posttraumatic stress disorder in a methadone maintenance treatment program. Compr Psychiatry. 2011 Sep-Oct;52(5):562-6.

44. Vlahov D, Galea S, Ahern J, Resnick H, Boscarino JA, Gold J, et al. Consumption of cigarettes, alcohol, and marijuana among new york city residents six months after the september 11 terrorist attacks. Am J Drug Alcohol Abuse. 2004 May;30(2):385-407.

45. Vlahov D, Galea S, Resnick H, Ahern J, Boscarino JA, Bucuvalas M, et al. Increased use of cigarettes, alcohol, and marijuana among manhattan, new york, residents after the september 11th terrorist attacks. Am J Epidemiol. 2002 Jun 1;155(11):988-96.

46. Xian H, Scherrer JF, Grant JD, Eisen SA, True WR, Jacob T, et al. Genetic and environmental contributions to nicotine, alcohol and cannabis dependence in male twins. Addiction. 2008 Aug;103(8):1391-8.

47. Yap MB, Reavley NJ, Jorm AF. Young people's beliefs about the harmfulness of alcohol, cannabis and tobacco for mental disorders: Findings from two australian national youth surveys. Addiction. 2012 Apr;107(4):838-47.

PsycINFO/EBESCO Host Search Description

Date & Time

May 22nd, 2012 at 11am-12pm

Limits

Adulthood (18 yrs & older)

English

Human

Search

1. MJ "cannabis" (923)
2. MJ "marijuana" (2767)
3. S1 OR S2 (3624)
4. MJ "posttraumatic stress disorder" (8925)
5. (S1 or S2) AND (S3 and S4) (7)

Total articles identified in PsychINFO = 7

1. Bonn-Miller MO, Vujanovic AA, Boden MT, Gross JJ. Posttraumatic stress, difficulties in emotion regulation, and coping-oriented marijuana use. Cogn Behav Ther. 2011 Mar;40(1):34-44.
2. Bonn-Miller MO, Vujanovic AA, Drescher, Kent D. Cannabis use among military veterans after residential treatment for posttraumatic stress disorder. Psychol Addict Behav. 2011 September;23(3):485-91.
3. Bonn-Miller MO, Vujanovic AA, Feldner MT, Bernstein A, Zvolensky MJ. Posttraumatic stress symptom severity predicts marijuana use coping motives among traumatic event-exposed marijuana users. J Trauma Stress. 2007 Aug;20(4):577-86.
4. Cornelius JR, Kirisci L, Reynolds M, Clark DB, Hayes J, Tarter R. PTSD contributes to teen and young adult cannabis use disorders. Addict Behav. 2010 Feb;35(2):91-4.
5. Cougle JR, Bonn-Miller MO, Vujanovic AA, Zvolensky MJ, Hawkins KA. Posttraumatic stress disorder and cannabis use in a nationally representative sample. Psychol Addict Behav. 2011 Sep;25(3):554-8.
6. Potter CM, Vujanovic AA, Marshall-Berenz EC, Bernstein A, Bonn-Miller MO. Posttraumatic stress and marijuana use coping motives: The mediating role of distress tolerance. J Anxiety Disord. 2011 Apr;25(3):437-43.
7. Vujanovic AA, Bonn-Miller MO, Marlatt GA. Posttraumatic stress and alcohol use coping motives among a trauma-exposed community sample: The mediating role of non-judgmental acceptance. Addict Behav. 2011 Jul;36(7):707-12.

Articles #2 and #7 were the only articles not previously identified by the PubMed search. The two articles added to the list of articles to be reviewed.

Gray Literature Search

Google Scholar for articles with all of the words "post traumatic stress disorder" AND cannabis = About 8,740 results (0.13 sec). The strategy for the gray literature search was to skim the titles of the articles. If an article seemed to address the benefit or harm of cannabis use among the PTSD population then it would be read and examined. We found only articles that had already been identified through the previous searches.

Appendix 2 – GRADE Methodology

Study Design	Quality of Evidence	Lower if	Higher if
Randomized trial →	High	Risk of bias -1 Serious -2 Very serious Inconsistency -1 Serious -2 Very serious Indirectness -1 Serious -2 Very serious Imprecision -1 Serious -2 Very serious Publication bias -1 Likely -2 Very likely	Large effect +1 Large +2 Very Large Dose response +1 Evidence of a gradient All plausible confounding +1 Would reduce a demonstrated effect or +1 Would suggest a spurious effect when results show no effect
	Moderate		
Observational study →	Low		
	Very Low		

Reference: Guyatt G, Oxman AD, Akl EA, Kunz R, Vist G, Brozek J, et al. GRADE guidelines: 1. introduction-GRADE evidence profiles and summary of findings tables. J Clin Epidemiol. 2011 Apr;64(4):383-94.

Appendix 3 – Exclusion reasoning

The studies below are numbered using the search findings in Appendix 2.

Database	Study	Exclusion reasoning
The Cochrane Library	1. Hetrick SE, Purcell R, Garner B, Parslow R. Combined pharmacotherapy and psychological therapies for post traumatic stress disorder (PTSD). Cochrane Database of Systematic Reviews 2010, Issue 7. Art. No.: CD007316. DOI: 10.1002/14651858.CD007316.pub2.	This study did not address the key questions.
The Cochrane Library	2. Schiff M, Zweig HH, Benbenishty R, Hasin DS. Exposure to terrorism and israeli youths' cigarette, alcohol, and cannabis use. Am J Public Health. 2007 Oct;97(10):1852-8.	Excluded because the study was about youth not adults.
PubMed	1. Apfel BA, Ross J, Hlavin J, Meyerhoff DJ, Metzler TJ, Marmar CR, et al. Hippocampal volume differences in gulf war veterans with current versus lifetime posttraumatic stress disorder symptoms. Biol Psychiatry. 2011 Mar 15;69(6):541-8.	This study did not address the key questions.
PubMed	2. Barrett EL, Mills KL, Teesson M. Hurt people who hurt people: Violence amongst individuals with comorbid substance use disorder and post traumatic stress disorder. Addict Behav. 2011 Jul;36(7):721-8.	This study did not address the key questions.
PubMed	5. Brady K, Casto S, Lydiard RB, Malcolm R, Arana G. Substance abuse in an inpatient psychiatric sample. Am J Drug Alcohol Abuse. 1991;17(4):389-97.	This study did not address the key questions.
PubMed	7. Calhoun PS, Sampson WS, Bosworth HB, Feldman ME, Kirby AC, Hertzberg MA, et al. Drug use and validity of substance use self-reports in veterans seeking help for posttraumatic stress disorder. J Consult Clin Psychol. 2000 Oct;68(5):923-7.	This study did not address the key questions.
PubMed	8. Chen KW, Banducci AN, Guller L, Macatee RJ, Lavelle A, Daughters SB, et al. An examination of psychiatric comorbidities as a function of gender and substance type within an inpatient substance use treatment program. Drug Alcohol Depend. 2011 Nov 1;118(2-3):92-9.	This study did not address the key questions.
PubMed	10. Corstorphine E, Waller G, Lawson R, Ganis C. Trauma and multi-impulsivity in the eating disorders. Eat Behav. 2007 Jan;8(1):23-30.	This study did not address the key questions.
PubMed	12. Eaton NR, Krueger RF, Keyes KM, Skodol AE, Markon KE, Grant BF, et al. Borderline personality disorder co-morbidity: Relationship to the internalizing-externalizing structure of common mental disorders. Psychol Med. 2011 May;41(5):1041-50.	This study did not address the key questions.

PubMed	13. Falck RS, Wang J, Siegal HA, Carlson RG. The prevalence of psychiatric disorder among a community sample of crack cocaine users: An exploratory study with practical implications. J Nerv Ment Dis. 2004 Jul;192(7):503-7.	Excluded because study addressed crack cocaine use and not marijuana use.
PubMed	14. Foster EM. Deployment and the citizen soldier: Need and resilience. Med Care. 2011 Mar;49(3):301-12.	This study did not address the key questions.
PubMed	15. Gil-Rivas V, Fiorentine R, Anglin MD. Sexual abuse, physical abuse, and posttraumatic stress disorder among women participating in outpatient drug abuse treatment. J Psychoactive Drugs. 1996 Jan-Mar;28(1):95-102.	This study did not address the key questions.
PubMed	16. Greenfield SF, Back SE, Lawson K, Brady KT. Substance abuse in women. Psychiatr Clin North Am. 2010 Jun;33(2):339-55.	This study did not address the key questions.
PubMed	18. Khoury L, Tang YL, Bradley B, Cubells JF, Ressler KJ. Substance use, childhood traumatic experience, and posttraumatic stress disorder in an urban civilian population. Depress Anxiety. 2010 Dec;27(12):1077-86.	This study did not address the key questions.
PubMed	19. Kidorf M, Disney ER, King VL, Neufeld K, Beilenson PL, Brooner RK. Prevalence of psychiatric and substance use disorders in opioid abusers in a community syringe exchange program. Drug Alcohol Depend. 2004 May 10;74(2):115-22.	This study did not address the key questions.
PubMed	20. Koenen KC, Lyons MJ, Goldberg J, Simpson J, Williams WM, Toomey R, et al. Co-twin control study of relationships among combat exposure, combat-related PTSD, and other mental disorders. J Trauma Stress. 2003 Oct;16(5):433-8.	This study did not address the key questions.
PubMed	21. Lewis CF. Post-traumatic stress disorder in HIV-positive incarcerated women. J Am Acad Psychiatry Law. 2005;33(4):455-64.	This study did not address the key questions.
PubMed	22. Lippert AM, Fendrich M, Johnson TP. Vicarious exposure to terrorist attacks and substance use: Results from an urban household survey. J Urban Health. 2008 May;85(3):411-27.	This study did not address the key questions.
PubMed	23. Lipschitz DS, Rasmusson AM, Anyan W, Cromwell P, Southwick SM. Clinical and functional correlates of posttraumatic stress disorder in urban adolescent girls at a primary care clinic. J Am Acad Child Adolesc Psychiatry. 2000 Sep;39(9):1104-11.	This study did not address the key questions.
PubMed	24. Lipschitz DS, Rasmusson AM, Anyan W, Gueorguieva R, Billingslea EM, Cromwell PF, et al. Posttraumatic stress disorder and substance use in inner-city adolescent girls. J Nerv Ment Dis. 2003 Nov;191(11):714-21.	This study did not address the key questions.
PubMed	25. Magliozzi JR, Kanter SL, Csernansky JG, Hollister LE. Detection of marijuana use in psychiatric patients by determination of urinary delta-9-tetrahydrocannabinol-11-oic acid. J Nerv Ment Dis. 1983 Apr;171(4):246-9.	This study did not address the key questions.

PubMed	26. Marshall RD, Galea S. Science for the community: Assessing mental health after 9/11. J Clin Psychiatry. 2004;65 Suppl 1:37-43.	This study did not address the key questions.
PubMed	27. Meghani SH, Wiedemer NL, Becker WC, Gracely EJ, Gallagher RM. Predictors of resolution of aberrant drug behavior in chronic pain patients treated in a structured opioid risk management program. Pain Med. 2009 Jul-Aug;10(5):858-65.	This study did not address the key questions.
PubMed	28. Moffitt TE, Caspi A, Taylor A, Kokaua J, Milne BJ, Polanczyk G, et al. How common are common mental disorders? evidence that lifetime prevalence rates are doubled by prospective versus retrospective ascertainment. Psychol Med. 2010 Jun;40(6):899-909.	This study did not address the key questions.
PubMed	29. Najavits LM, Harned MS, Gallop RJ, Butler SF, Barber JP, Thase ME, et al. Six-month treatment outcomes of cocaine-dependent patients with and without PTSD in a multisite national trial. J Stud Alcohol Drugs. 2007 May;68(3):353-61.	This study did not address the key questions.
PubMed	30. Norman SB, Tate SR, Anderson KG, Brown SA. Do trauma history and PTSD symptoms influence addiction relapse context? Drug Alcohol Depend. 2007 Sep 6;90(1):89-96.	This study did not address the key questions.
PubMed	31. Okulate GT, Jones OB. Post-traumatic stress disorder, survivor guilt and substance use--a study of hospitalised nigerian army veterans. S Afr Med J. 2006 Feb;96(2):144-6.	This study did not address the key questions.
PubMed	32. Peters RJ,Jr, Meshack A, Amos C, Scott-Gurnell K, Savage C, Ford K. The association of drug use and post-traumatic stress reactions due to hurricane ike among fifth ward houstonian youth. J Ethn Subst Abuse. 2010;9(2):143-51.	This study did not address the key questions.
PubMed	33. Pierre JM. Psychosis associated with medical marijuana: Risk vs. benefits of medicinal cannabis use. Am J Psychiatry. 2010 May;167(5):598-9.	This study did not address the key questions.
PubMed	35. Resnick HS, Acierno R, Amstadter AB, Self-Brown S, Kilpatrick DG. An acute post-sexual assault intervention to prevent drug abuse: Updated findings. Addict Behav. 2007 Oct;32(10):2032-45.	This study did not address the key questions.
PubMed	36. Rhoades H, Wenzel SL, Golinelli D, Tucker JS, Kennedy DP, Green HD, et al. The social context of homeless men's substance use. Drug Alcohol Depend. 2011 Nov 1;118(2-3):320-5.	This study did not address the key questions.
PubMed	37. Rigby E, Reid L, Schipperheijn JA, Weston L, Ikkos G. Clinical librarians: A journey through a clinical question. Health Info Libr J. 2002 Sep;19(3):158-60.	This study did not address the key questions.
PubMed	38. Sartor CE, McCutcheon VV, Pommer NE, Nelson EC, Duncan AE, Waldron M, et al. Posttraumatic stress disorder and alcohol dependence in young women. J Stud Alcohol Drugs. 2010 Nov;71(6):810-8.	Excluded because study addressed alcohol use and not marijuana use.
PubMed	39. Shand FL, Degenhardt L, Slade T, Nelson EC. Sex differences amongst dependent heroin users: Histories, clinical characteristics and predictors of other substance dependence. Addict Behav. 2011 Jan-Feb;36(1-2):27-36.	This study did not address the key questions.

PubMed	40. Tepe E, Dalrymple K, Zimmerman M. The impact of comorbid cannabis use disorders on the clinical presentation of social anxiety disorder. J Psychiatr Res. 2012 Jan;46(1):50-6.	This study did not address the key questions.
PubMed	41. Trafton JA, Minkel J, Humphreys K. Opioid substitution treatment reduces substance use equivalently in patients with and without posttraumatic stress disorder. J Stud Alcohol. 2006 Mar;67(2):228-35.	This study did not address the key questions.
PubMed	42. Vetter S, Rossegger A, Rossler W, Bisson JI, Endrass J. Exposure to the tsunami disaster, PTSD symptoms and increased substance use - an internet based survey of male and female residents of switzerland. BMC Public Health. 2008 Mar 19;8:92.	This study did not address the key questions.
PubMed	47. Yap MB, Reavley NJ, Jorm AF. Young people's beliefs about the harmfulness of alcohol, cannabis and tobacco for mental disorders: Findings from two australian national youth surveys. Addiction. 2012 Apr;107(4):838-47.	This study did not address the key questions.
PsycINFO	7. Vujanovic AA, Bonn-Miller MO, Marlatt GA. Posttraumatic stress and alcohol use coping motives among a trauma-exposed community sample: The mediating role of non-judgmental acceptance. Addict Behav. 2011 Jul;36(7):707-12.	Excluded because study addressed alcohol use and not marijuana use.

Appendix 4 – APA Specific Treatment Strategies

SPECIFIC TREATMENT STRATEGIES

Reference: American Psychiatric Association. Practice guideline for the treatment of patients with acute stress disorder and posttraumatic stress disorder. Arlington (VA): American Psychiatric Association; 2004 Nov. 57 p. [463 references]

1. Psychopharmacology

a) SSRIs. Evidence from several large randomized, double- blind controlled trials suggests that SSRIs are first-line medication treatment for both men and women with PTSD (123, 141–147). There are four reasons that SSRIs are the current medications of choice for PTSD: 1) they ameliorate all three PTSD symptom clusters (i.e., re-experiencing, avoidance/numbing, and hyperarousal), 2) they are effective treatments for psychiatric disorders that are frequently comorbid with PTSD (e.g., depression, panic disorder, social phobia, and obsessive-compulsive disorder), 3) they may reduce clinical symptoms (such as suicidal, impulsive, and aggressive behaviors) that often complicate management of PTSD, and 4) they have relatively few side effects.

Reductions in the severity of core PTSD symptoms have been shown with fluoxetine, sertraline, and paroxetine in studies that were of relatively short duration (8–12 weeks) and included predominantly women with chronic PTSD resulting from rape or assault (123, 141–146, 148). While symptom reduction was generally observed within 2–4 weeks of treatment, symptoms of anger and irritability were reduced within the first week (149). In studies of fluoxetine, improvement in arousal, numbing, and avoidance (but not re-experiencing) and overall response were greater in women than in men. Other studies have demonstrated efficacy for these agents in intrusive, avoidance/ numbing, and arousal symptoms. Smaller open-label studies of fluvoxamine have shown efficacy in sleep-related symptoms (including nightmares) in combat veterans (147, 150). Head-to-head comparisons between any of the SSRIs for ASD or PTSD symptoms have not been published; however, clinical consensus holds that these agents differ primarily in their pharmacokinetics, metabolic effects on other medications, and side effects rather than in their efficacy in treating ASD or PTSD.

b) Tricyclic antidepressants and MAOIs. Studies of tri- cyclic antidepressants demonstrated efficacy for amitriptyline and imipramine (151, 152) but not desipramine (153). With the MAOIs, limited data suggest the efficacy of phenelzine and brofaromine (an MAOI available in Europe) (154, 155). In all of the trials, subjects were primarily male combat veterans, which limits the generalizability of findings. There do not appear to be studies of the effects of either MAOIs or tricyclic antidepressants specifically in women with PTSD or ASD.

c) Benzodiazepines. While benzodiazepines can reduce anxiety and improve sleep, their efficacy in preventing PTSD or treating the core symptoms of PTSD has been neither established nor adequately evaluated (156, 157). Concerns about addictive potential in individuals with comorbid substance use disorders may prompt additional caution regarding the use of benzodiazepines. Worsening of symptoms with benzodiazepine discontinuation has also been reported (158). However, in a naturalistic study of more than 300 veterans with PTSD and comorbid sub- stance abuse, treatment with benzodiazepines was not associated with adverse effects on outcome (159).

d) Anticonvulsants. Open-label studies of divalproex, carbamazepine, and topiramate have demonstrated mixed or limited efficacy with regard to specific symptom clusters of PTSD (160–162), but these studies, as well as a single controlled trial of lamotrigine (163), have indicated benefit with regard to the re-experiencing symptoms.

e) Antipsychotics. Psychotic symptoms are not included in the diagnostic criteria for either ASD or PTSD. Nonetheless, patients with these illnesses may also experience psychotic symptoms as part of a comorbid disorder. Before initiating antipsychotic treatment, careful diagnostic evaluation is required to appropriately address the potential contributions of delirium, dementia, primary thought dis- orders, brief psychotic reactions, delusional disorder, sub- stance abuse, closed head injury, or other comorbid general medical conditions. Preliminary studies of the second- generation antipsychotic agents olanzapine (164–166), quetiapine (167), and risperidone (168) in patients with PTSD suggest a potential role for these medications in pharmacological treatment, particularly when concomitant psychotic symptoms are present or when first-line approaches have been ineffective in controlling symptoms.

f) Adrenergic inhibitors. The □□□□adrenergic agonists decrease central adrenergic activity and have been proposed for the treatment of PTSD. Preliminary evidence from small open-label studies has shown possible benefits with prazosin (169) and with clonidine in combination with imipramine (170). However, there have been no published controlled studies of these agents to date.

While □□adrenergic blockers are at times prescribed for PTSD (171) and have been used in the treatment of performance anxiety, there have been no controlled studies of these agents for PTSD. Preliminary results suggest that acute administration of propranolol after trauma may reduce some later symptoms of PTSD (137, 172). Further controlled studies are necessary to evaluate this practice before it can be considered a part of the therapeutic armamentarium.

2. Psychotherapeutic interventions

a) Cognitive and behavior therapies. Cognitive behavior therapy in ASD or PTSD targets the distorted threat appraisal process (in some instances through repeated exposure and in others through techniques focusing on in- formation processing without repeated exposure) in an effort to desensitize the patient to trauma-related triggers.

Distinctions may be drawn between psychotherapies that focus principally on aspects of cognitive processing and those that emphasize behavioral techniques. However, aspects of both are frequently combined, and studies that identify the effective components of these therapies or that distinguish one from another are not available. A course of cognitive behavior therapy generally begins with education about the symptoms of the disorder, as well as a rationale for asking the patient to recall painful experiences and relaxation training. After the therapist assesses the patient's ability to tolerate within-session anxiety and temporary exacerbations of symptoms, the patient is led through a series of sessions in which the traumatic event and its aftermath are imagined and described, and the patient is asked to focus on the negative affect and arousal until they subside. Reassurance and relaxation exercises aid the patient in progressing through these sessions, and homework assignments allow the patient to practice out- side the sessions or while confronting triggers of anxiety (specific places or activities) in vivo (125, 173, 174). A limited number of well-designed studies demonstrate some success not only in speeding recovery but also in preventing PTSD when cognitive behavior therapy is given over a few sessions beginning 2–3 weeks after trauma exposure (135, 173, 175–178). Both stress inoculation and prolonged exposure techniques have demonstrated efficacy in women with PTSD resulting from assault or rape (179–181). Prolonged exposure (through imaginal and in vivo expo- sure to avoided situations associated with previous trauma) has been shown to be effective, particularly in the PTSD-associated symptoms of anxiety and avoidance (179, 182). However, several studies have noted that expo- sure may increase rather than decrease symptoms in some individuals (178, 183). Stress inoculation training involving breathing exercises, relaxation training, thought stopping, role playing, and cognitive restructuring has also proven effective alone and in combination with prolonged exposure in reducing PTSD symptoms (179). Survivors of rape, crime victims, and combat veterans have demonstrated improvement in overall PTSD symptoms and nightmares in response to imagery rehearsal (i.e., imaginal prolonged expo- sure) (184, 185). Clinical improvement (but not recovery) was also demonstrated in a group of PTSD patients with di- verse trauma exposures who received either imaginal exposure or cognitive behavior therapy (186, 187). In group settings, cognitive processing therapy designed to correct distortions related to threat appraisal and safety through a facilitated study of the patient's written narrative of his or her traumatic experience has shown promise (188). Most of these trials have been short-term, and the extent to which improvement is maintained over time has not been assessed through follow-up study.

b) Eye movement desensitization and reprocessing (EMDR). EMDR is a form of psychotherapy that includes an exposure-based therapy (with multiple brief, interrupted exposures to traumatic material), eye movement, and recall and verbalization of traumatic memories of an event or events. It therefore combines multiple theoretical perspectives and techniques, including cognitive behavior therapy. Some point to the use of directed eye movements as a feature markedly distinguishing this form of therapy from other cognitive behavior approaches. Others point to the fact that traumatic material need not be verbalized; instead, patients are directed to think about their traumatic experiences without having to discuss them. Like many of the studies of other cognitive behavior and exposure therapies, most of the well-designed EMDR studies have been small, but several meta-analyses have demonstrated efficacy similar to that of other forms of cognitive and behavior therapy (189–192). Studies also suggest that the eye movements are neither necessary nor sufficient to the out- come (193–195), but these findings remain controversial (196, 197). Although it appears that efficacy may be related to the components of the technique common to other exposure based cognitive therapies, as in the previously de- scribed cognitive behavior therapies, further study is necessary to clearly identify the effective subcomponents of combined techniques. Follow-up studies are also needed to determine whether observed improvements are maintained over time.

c) Psychodynamic psychotherapy. Psychodynamic therapy has, from its beginnings, been concerned with responses to traumatic events (198–200). There is an extensive body of research that includes descriptive designs, process-to-outcome correlational studies, and case studies. However, randomized, controlled research on psycho- dynamic psychotherapy in patients with ASD or PTSD is extremely limited. One controlled trial of psychodynamic therapy versus hypnotherapy or desensitization versus no therapy showed all interventions were superior to the control condition (no treatment) in decreasing avoidance and intrusive symptoms (201). Other controlled trials of hypnotherapy for ASD or PTSD have not been published, but descriptive studies and clinical consensus support its use—by appropriately trained individuals—in reducing symptoms of anxiety associated with acute distress and traumatic event cues and as a nonpharmacological adjunctive approach to anxiety reduction (202). A meta-analysis of controlled psychotherapy trials (including the study by Brom et al. [201]) also suggested the efficacy of hypnosis—particularly at the end of therapy (203).

The clinical research and narrative-based literatures on psychodynamic psychotherapy outline two major approaches to the treatment of traumatic stress disorders. The first views an individual's defenses and coping skills as a product of his or her biopsychosocial development and focuses on the meaning of the trauma for the individual in terms of prior psychological conflicts and developmental experience and relationships, as well as the particular developmental time of the traumatic occurrence(s). This approach examines the person's overall capacity to cope with memories of traumatic event(s) and their triggers and the coping style he or she uses to manage these memories (204, 205). The second approach focuses on the effect of traumatic experience on the individual's prior self-object experiences, overwhelmed self-esteem, altered experience of safety, and loss of self-cohesiveness and self-observing functions and helps the person identify and maintain a functional sense of self in the face of trauma (206, 207). Both approaches appear to be useful in addressing the subjective and interpersonal sustaining factors of the ill- ness (e.g., shattered assumptions about attachments, is- sues of trust), as well as the changes in beliefs and world view and the widely altered threat perceptions often seen in chronic PTSD (21, 208, 209). Psychodynamic

psycho- therapists employ a mixture of supportive and insight-oriented interventions based on an assessment of the individual patient's symptoms, developmental history, personality, and available social supports as well as an ongoing assessment of the patient's ability to tolerate exploration of the trauma (210, 211). In chronic PTSD, issues of transference are often explored to help the patient understand conscious and unconscious concerns surrounding the meaning of re- cent and more remote traumatic events in his or her life as they appear in the treatment (212). Awareness of counter- transference is a central component of treatment of traumatic experience in psychodynamic psychotherapy and in other therapies. The therapist's emotional response on hearing the patient describe the traumatic events can either facilitate or disrupt the therapeutic alliance, making ongoing attention to countertransference of particular importance in treating patients with ASD and PTSD.

d) Psychological debriefing. Psychological debriefing was developed as an intervention aimed at preventing the development of the negative emotional sequelae of traumatic events, including ASD and PTSD. This staged, semi- structured group (or, as often administered, individual) interview and educational process includes education about trauma experiences in general and about the chronological facts of the recently experienced traumatic event and exploration of the emotions associated with the event. Since debriefing has received considerable publicity, it may be expected (or specifically requested) by leaders or managers when a group confronts disaster. In the military, for example, group debriefings have been used as a means for describing normative responses to trauma exposures and educating individuals about pursuing further assistance if symptoms persist or cause significant dysfunction or distress. However, well-controlled studies of debriefing that have used single-session, individual, and group de- briefing have not demonstrated efficacy (128, 129, 213– 216). Although some trauma survivors have reported that they experienced such debriefings as helpful, there is no evidence at present that establishes psychological debrief- ing as effective in preventing PTSD or improving social and occupational functioning. In some settings, it has been shown to increase symptoms (217–219). Its use may be most problematic with groups of unknown individuals who have widely varying trauma exposures or when it is administered early after trauma exposure, before safety and decreased arousal are established. Immediately after exposure, persons may not be able to listen attentively, absorb new information, or appreciate the nuances of the demands ahead in a manner that promotes recovery (220, 221). Also, in heterogeneous groups, some individuals will be increasing their exposure through group participation and obtain no added support after the group session, thereby potentially increasing their likelihood of later distress (19).

3. Psychoeducation and support

Supportive interventions are often used as the control intervention in studies of more specific treatments. How- ever, clinical experience indicates that both support and psychoeducation appear to be helpful as early interventions to reduce the psychological sequelae of exposure to mass violence or disaster. When access to expert care is limited by environmental conditions or reduced availability of medical resources, rapid dissemination of educational materials may help many persons to deal effectively with subsyndromal manifestations of trauma exposure. Such educational materials often focus on 1) the expected physiological and emotional response to traumatic events, 2) strategies for decreasing secondary or continuous expo- sure to the traumatic event, 3) stress-reduction techniques such as breathing exercises and physical exercise, 4) the importance of remaining mentally active, 5) the need to concentrate on self-care tasks in the aftermath of trauma, and 6) recommendations for early referral if symptoms persist. Encouraging persons who are acutely traumatized to first rely on their inherent strengths, their existing support net- works, and their own judgment may reduce the need for further intervention. Although the efficacy of these measures alone in prevention of ASD or PTSD is unproven, emphasis on self-reliance and self-care should augment other strategies when and if they become necessary.

Appendix 5 – VA/DoD Clinical Practice Guideline for Management of PTSD

Reference: Management of Post-Traumatic Stress Working Group. VA/DoD clinical practice guideline for management of post-traumatic stress. Washington (DC): Veterans Health Administration, Department of Defense; 2010. 251 p.

Major Recommendations

Note from the Department of Veterans Affairs and the Department of Defense (VA/DoD) and the National Guideline Clearinghouse (NGC): The recommendations for the management of post-traumatic stress are organized into 4 modules with 3 algorithms. The modules with accompanying recommendations are provided below. See the original guideline document for the algorithms and evidence tables associated with selected recommendations, including level and quality of evidence, strength of recommendation, and supporting evidence citations.

The strength of recommendation grading (A, B, C, D, I) is defined at the end of the "Major Recommendations" field.

Core Module: Post-traumatic Stress, Screening

1. **Primary Prevention**
   - A. **Education and Training to Foster Resilience**

     Objective

     Prepare individuals and groups for exposure to potentially traumatic experiences in ways that minimize the likelihood of development of post-traumatic stress disorder (PTSD) and other trauma-related problems.

     Recommendations

     1. In high-risk occupations, for which the probability of trauma exposure is moderate or high, efforts should be undertaken to increase the psychological resilience of workers to the negative effects of trauma exposure.
2. **Populations At-Risk for Developing PTSD**
   - B. **Person Exposed to Trauma**

     Objective

     Assess the nature of the traumatic event and other potential stressors.

     Recommendations

     1. Persons exposed to trauma should be assessed for the type, frequency, nature, and severity of the trauma. **[B]**
        a. Assessment should include a broad range of potential trauma exposures in addition to the index trauma.
        b. Trauma Exposure Assessment Instruments may assist in evaluating the nature and severity of the exposure.
        c. Assessment of existing social supports and ongoing stressors is important.
3. **Secondary Prevention**
   - C. **Screen for PTSD Symptoms**

     Objective

     Identify possible cases of post-traumatic stress.

     Recommendations

     1. All new patients should be screened for symptoms of PTSD initially and then on an annual basis or more frequently if clinically indicated due to clinical suspicion, recent trauma exposure (e.g., major disaster), or history of PTSD. **[B]**
     2. Patients should be screened for symptoms of PTSD using paper-and-pencil or computer-based screening tools. **[B]**
     3. There is insufficient evidence to recommend one PTSD screening tool versus another. However, the following screening tools have been validated and should be considered for use. For example (see Appendix C in the original guideline document):
        - Primary Care PTSD Screen (PC-PTSD)
        - PTSD Brief Screen
        - Short Screening Scale for *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (DSM IV) PTSD
        - PTSD Checklist (PCL)
     4. There is insufficient evidence to recommend special screening for members of any cultural or racial group or gender. **[I]**
   - D. **Are Trauma-Related Symptoms Present?**

     Objective

     Identify people exposed to trauma who are at risk for developing acute stress reactions (ASR), acute stress disorder (ASD), or PTSD.

     Recommendations

     0. Individuals who are presumed to have symptoms of PTSD or who are positive for PTSD on the initial screening should receive a more detailed assessment of their symptoms.
     1. Useful symptom-related information may include details, such as time of onset, frequency, course, severity, level of distress, and degree of functional impairment.
     2. The elapsed time since the exposure to trauma should be considered when assessing the risk of developing PTSD and determining the diagnosis and appropriate intervention.

     See the original guideline document for definitions that will help providers select the appropriate treatment algorithm.
   - E. **Educate About Additional Care If Needed; Provide Contact Information**

     Objective

     Provide normalization for survivors and responders whose reactions are not clinically significant.

     Recommendations

     0. Pre- and post-trauma education should include helping the asymptomatic trauma survivor or responder understand that the acute stress reactions of other people are common and probably transient and do not indicate personal failure or weakness, mental illness, or health problems.
     1. Education should include sufficient review of the many ways that post-traumatic problems can present, including symptoms in the ASD/PTSD spectrum, behavioral problems with family and friends, occupational problems, and the potential impact of alcohol or other substance misuse/abuse.

2. Education should also include positive messages by identifying and encouraging positive ways of coping, describing simple strategies to resolve or cope with developing symptoms and problems, and setting expectations for mastery and/or recovery.
3. Provide contact information, should post-traumatic symptoms emerge later.
4. Routine debriefing or formal psychotherapy is not beneficial for asymptomatic individuals and may be harmful. **[D]**

Module A: Management of ASR and Prevention of PTSD

1. **Assessment and Triage**

A. **Trauma Exposure (within the past 30 days)**

Acute Stress Reaction (ASR) is a transient condition that often develops in response to a traumatic event. Traumatic events are events that cause a person to fear that he/she may die or be seriously injured or harmed. These events also can be traumatic when the person witnesses them happening to others. Such events often create feelings of intense fear, helplessness, or horror for those who experience them. The traumatic events that can lead to an acute stress reaction are of similar severity to those involved in PTSD.

Combat or Operational Stress Reaction (COSR) is an acute stress reaction of service members during Ongoing Military Operations. COSR specifically refers to a reaction to high-stress events and potentially traumatic event exposure. This reaction is not attributed to an identified medical/surgical condition that requires other urgent treatment (a service member can have COSR concurrent with minor wounds/illnesses).

B. **Assess Briefly Based on General Appearance and Behavior**

Objective

Identify individuals who may be at risk for endangering themselves or others due to emotional distress or functional incapacity.

Recommendations

1. Identification of a patient with ASR symptoms is based on observation of behavior and function; there is insufficient evidence to recommend a specific screening tool.
2. Individuals exhibiting the following responses to trauma should be screened for ASR:
   a. Physical: exhaustion, hyperarousal, somatic complaints (gastrointestinal [GI], genitourinary [GU], musculoskeletal [MS], cardiovascular [CV], respiratory, nervous system [NS]), or symptoms of conversion disorder
   b. Emotional: anxiety, depression, guilt/hopelessness
   c. Cognitive/mental: amnestic or dissociative symptoms, hypervigilance, paranoia, intrusive re-experiencing
   d. Behavioral: avoidance, problematic substance use.
3. Individuals who experience ASR should receive a comprehensive assessment of their symptoms to include details about the time of onset, frequency, course, severity, level of distress, functional impairment, and other relevant information.
4. Assess for capability to perform routine functions.

Assessment Specific to COSR

5. Assess service member's functional status, to include:
   a. Any changes in productivity
   b. Co-worker or supervisor reports of recent changes in appearance, quality of work, or relationships
   c. Any tardiness/unreliability, loss of motivation, or loss of interest
   d. Forgetful or easily distracted
   e. Screening for substance use
6. Document symptoms of COSR and obtain collateral information from unit leaders, coworkers, or peers about stressors, function, medical history, and absence or impairment in operation or mission.
7. Consider the service member's role and functional capabilities and the complexity and importance of his/her job.

C. **Unstable, Dangerous to Self or Others, or Need for Urgent Medical Attention**

Objective

Protect individuals who may be at risk for endangering themselves or others due to emotional distress or functional incapacity.

Recommendations

0. Address acute medical/behavioral issues to preserve life and avoid further harm by:
   a. Providing appropriate medical/surgical care or referring to stabilize
   b. Evaluating the use of prescribed medications
   c. Preventing possible biological or chemical agent exposure
   d. Managing substance intoxication or withdrawal
   e. Stopping self-injury or mutilation
   f. Addressing inability to care for oneself.
2. Arrange a safe, private, and comfortable environment for continuation of the evaluation:
   a. Assess danger to self or others (e.g., suicidal or homicidal behavior)
   b. Establish a working treatment alliance with the patient
   c. Maintain a supportive, non-blaming, non-judgmental stance throughout the evaluation
   d. Assist with the removal of any ongoing exposure to stimuli associated with the traumatic event
   e. Minimize further traumas that may arise from the initial traumatic event
   f. Assess and optimize social supports
   g. Secure any weapons and explosives
3. Legal mandates should be followed:
   a. Reporting of violence, assault
   b. Confidentiality for the patient
   c. Mandatory testing
   d. Attending to chain of evidence in criminal cases (e.g., rape, evaluation)
   e. Involuntary commitment procedures if needed
4. Carefully consider the following potential interventions to secure safety:
   a. Find safe accommodation and protect against further trauma
   b. Voluntary admission if suicidal

c. Restraint/seclusion only if less restrictive measures are ineffective
d. Provide medications managing specific symptoms as needed (e.g., sleep, pain)

5. Educate and "normalize" observed psychological reactions to the chain of command.
6. Evacuate to next level of care if unmanageable, if existing resources are unavailable, or if reaction is outside of the scope of expertise of the care provider.

D. **Ensure Basic Physical Needs Are Met**

Objective

Ensure that trauma-exposed persons with acute stress symptoms have their basic needs met.

Recommendations

0. Acute intervention should ensure that the following needs are met:
   a. Safety/security/survival
   b. Food, hydration, clothing, hygiene, and shelter
   c. Sleep
   d. Medications (i.e., replace medications destroyed/lost)
   e. Education as to current status
   f. Communication with family, friends, and community
   g. Protection from ongoing threats/toxins/harm. If indicated, reduce use of alcohol, tobacco, caffeine, and illicit psychoactive substances.
1. Provide Psychological First Aid to:
   a. Protect survivors from further harm
   b. Reduce physiological arousal
   c. Mobilize support for those who are most distressed
   d. Keep families together and facilitate reunion with loved ones
   e. Provide information and foster communication and education
   f. Use effective risk communication techniques

<u>Interventions Specific for Members of Pre-existing Group (e.g., COSR)</u>

2. Treat according to member's prior role and not as a "patient."
3. Assure or provide the following, as needed:
   a. Reunion or ongoing contact with group/unit
   b. Promote continuity with established relationships (e.g., primary group)
   c. Respite from intense stress
   d. Comfortable environment (e.g., thermal comfort)
   e. Consider psychoeducation and discussion in a group format
   f. Assign job tasks and recreational activities that will restore focus and confidence and reinforce teamwork (limited duty).

E. **Person Has Trauma-Related Symptoms, Significant Impaired Function, or Diagnosis of ASD**

Objective

Identify patients who have excessive post-traumatic stress symptoms or significant distress impaired function, or are diagnosed with ASD.

Recommendations

0. Acutely traumatized people, who meet the criteria for diagnosis of ASD, and those with significant levels of post-trauma symptoms after at least two weeks post-trauma, as well as those who are incapacitated by acute psychological or physical symptoms, should receive further assessment and early intervention to prevent PTSD.
1. Trauma survivors, who present with symptoms that do not meet the diagnostic threshold for ASD, or those who have recovered from the trauma and currently show no symptoms, should be monitored and may benefit from follow-up and provision of ongoing counseling or symptomatic treatment.
2. Service members with COSR who do not respond to initial supportive interventions may warrant referral or evacuation.

F. **Assess Medical and Functional Status**

Objectives

Obtain complete history, physical examination, relevant laboratory tests, and assessment of functioning to determine course of treatment.

Recommendations

0. Medical status should be obtained for all persons presenting with symptoms to include:
   a. History, physical examination, and a neurological examination
   b. Use of prescribed medications, mood or mind-altering substances, and possible biological or chemical agent exposure
   c. A mini-mental status examination (MMSE) to assess cognitive function if indicated.
1. The history and physical examination findings should lead the provider to other assessments as clinically indicated. Based on the clinical presentation, assessment may include:
   a. Screen for toxicology if the symptom presentation indicates
   b. Radiological assessment of patients with focal neurological findings or possible head injury
   c. Appropriate laboratory studies to rule out medical disorders that may cause symptoms of acute stress reactions (e.g., complete blood count [CBC], chemistry profile, thyroid studies, human chorionic gonadotropin [HCG], electrocardiogram [EKG], electroencephalogram [EEG])
2. A focused psychosocial assessment should be performed to include assessment of active stressors, losses, current social supports, and basic needs (e.g., housing, food, and financial resources).
3. A brief assessment of function should be completed to evaluate: 1) objectively impaired function based on general appearance and behavior; 2) subjectively impaired function; 3) baseline level of function (LOF) vs. current LOF; and 4) family and relationship functioning.

G. **Assess Pre-Existing Psychiatric and Medical Conditions**

Objective

Identify patients at risk for complications.

Recommendations

0. Assess patients for pre-existing psychiatric conditions to identify high-risk individuals and groups.
1. Assure access and adherence to medications that the patient is currently taking.
2. Refer patients with pre-existing psychiatric conditions to mental health specialty when indicated or emergency hospitalization if needed.

H. **Assess Risk Factors for Developing ASD/PTSD**

Recommendations

0. Trauma survivors who exhibit symptoms or functional impairment should be screened for the following risk factors for developing ASD/PTSD:

Pre-traumatic Factors

1. Ongoing life stress
2. Lack of social support
3. Young age at time of trauma
4. Pre-existing psychiatric disorders, or substance misuse
5. History of traumatic events (e.g., motor vehicle accident [MVA])
6. History of PTSD
7. Other pre-traumatic factors, including: female gender, low socioeconomic status, lower level of education, lower level of intelligence, race (Hispanic, African-American, American Indian, and Pacific Islander), reported abuse in childhood, report of other previous traumatization, report of other adverse childhood factors, family history of psychiatric disorders, and poor training or preparation for the traumatic event.

Peri-traumatic or Trauma-related Factors

8. Severe trauma
9. Physical injury to self or others
10. Type of trauma (combat, interpersonal traumas such as killing another person, torture, rape, or assault convey high risk of PTSD)
11. High perceived threat to life of self or others
12. Community (mass) trauma
13. Other peri-traumatic factors, including: history of peri-traumatic dissociation.

Post-traumatic Factors

14. Ongoing life stress
15. Lack of positive social support
16. Bereavement or traumatic grief
17. Major loss of resources
18. Negative social support (shaming or blaming environment)
19. Poor coping skills
20. Other post-traumatic factors, including: children at home and a distressed spouse.

2. **Treatment**

I. **Provide Education and Normalization/Expectancy of Recovery**

Objective

Help trauma survivors cope with ASR/COSR by providing information that may help them manage their symptoms and benefit from treatment.

Recommendations

1. All survivors should be given educational information to help normalize common reactions to trauma, improve coping, enhance self-care, facilitate recognition of significant problems, and increase knowledge of and access to services. Such information can be delivered in many ways, including public media, community education activities, and written materials.

J. **Initiate Brief Intervention**

Objective

To lessen the physical, psychological, and behavioral morbidity associated with acute stress reaction (ASR), hasten the return to full function (duty), and reduce the risk for development of ASD or PTSD following a traumatic event.

Recommendations

The following treatment recommendations should apply for all acutely traumatized people who meet the criteria for diagnosis of ASD, and for those with significant levels of acute stress symptoms that last for more than two weeks post-trauma, as well as those who are incapacitated by acute psychological or physical symptoms.

1. Continue providing psychoeducation and normalization.
2. Treatment should be initiated after education, normalization, and Psychological First Aid has been provided and after basic needs following the trauma have been made available.
3. There is insufficient evidence to recommend for or against the use of Psychological First Aid to address symptoms beyond 4 days following trauma. **[I]**
4. Survivors who present symptoms that do not meet the diagnostic threshold of ASD or PTSD should be monitored and may benefit from follow-up and provision of ongoing counseling or symptomatic treatment.
5. Recommend monitoring for development of PTSD using validated symptom measures (e.g., PTSD Checklist, other screening tools for ASD/PTSD).
6. **Psychotherapy**:
   a. Consider early brief intervention (4 to 5 sessions) of cognitive-based therapy (CBT) that includes exposure-based therapy, alone or combined with a component of cognitive re-structuring therapy for patients with significant early symptom levels, especially those meeting diagnostic criteria for ASD. **[A]**
   b. Routine formal psychotherapy intervention for asymptomatic individuals is not beneficial and may be harmful. **[D]**

c. Strongly recommend **against** individual Psychological Debriefing as a viable means of reducing ASD or progression to PTSD. **[D]**
d. The evidence does not support a single session group Psychological Debriefing as a viable means of reducing ASD or progression to PTSD, but there is no evidence of harm (Note: this is not a recommendation pertaining to Operational Debriefing). **[D]**
e. Groups may be effective vehicles for providing trauma-related education, training in coping skills, and increasing social support, especially in the context of multiple group sessions. **[I]**
f. Group participation should be voluntary.

7. **Pharmacotherapy**:
a. There is no evidence to support a recommendation for use of a pharmacological agent to prevent the development of ASD or PTSD. **[I]**
b. Strongly recommend **against** the use of benzodiazepines to prevent the development of ASD or PTSD **[D]**

K. **Acute Symptom Management**

Recommendations

0. Symptom-specific treatment should be provided after education, normalization, and basic needs are met.
1. Consider a short course of medication (less than 6 days), targeted for specific symptoms in patients post-trauma
a. Sleep disturbance/insomnia
b. Management of pain
c. Irritation/excessive arousal/anger
3. Provide non-pharmacological intervention to address specific symptoms (e.g., relaxation, breathing techniques, avoiding caffeine) to address both general recovery and specific symptoms (sleep disturbance, pain, hyperarousal, or anger).

L1. **Facilitate Spiritual Support**

Recommendations

9. Ensure patient access to spiritual care when sought.
10. Assess for spiritual needs.
11. Provide opportunities for grieving for losses (providing space and opportunities for prayers, mantras, rites, and rituals and end-of-life care, as determined important by the patient).

L2. **Facilitate Social Support**

12. Immediately after trauma exposure, preserve an interpersonal safety zone protecting basic personal space (e.g., privacy, quiet, personal effects).
13. As part of Psychological First Aid, reconnect trauma survivors with previously supportive relationships (e.g., family, friends, unit members) and link with additional sources of interpersonal support.
14. Assess for impact of PTSD on social functioning.
15. Facilitate access to social support and provide assistance in improving social functioning, as indicated.

3. **Re-assessment**

M. **Reassess Symptoms and Function**

Objective

Identify patients with persistent traumatic stress symptoms, related dysfunction, or additional treatment needs.

Recommendations

1. Assessment of the response to the acute intervention should include an evaluation for the following risk factors:
a. Persistent or worsening traumatic stress symptoms (e.g., dissociation, panic, autonomic arousal, cognitive impairment)
b. Significant functional impairments (e.g., role/work, relationships)
c. Dangerousness (suicidal or violent ideation, plan, and/or intent)
d. Severe psychiatric co-morbidity (e.g., psychotic spectrum disorder, substance use disorder or abuse)
e. Maladaptive coping strategies (e.g., pattern of impulsivity, social withdrawal, or other reactions under stress)
f. New or evolving psychosocial stressors
g. Poor social supports
2. Follow-up after acute intervention to determine patient status should include the following:
a. Patient does not improve or status worsens – continue management of PTSD (see Module B below) in consultation or referral to PTSD specialty care or mental health provider. Recommend involvement of the primary care provider in the treatment. Patients with multiple problems may benefit from a multi-disciplinary approach to include occupational therapy, spiritual counseling, recreation therapy, social work, psychology, and/or psychiatry.
b. Patient demonstrates partial improvement (e.g., less arousal, but no improvement in sleep) – consider augmentation or adjustment of the acute intervention and follow up within 2 weeks.
c. Patient recovers from acute symptoms – provide education about acute stress reaction and contact information with instructions for available follow-up if needed.

4. **Follow-up**

N. **Persistent (>1 Month) or Worsening Symptoms, Significant Functional Impairment, or High Risk for Development of PTSD**

Objective

Identify patients with PTSD or high risk for developing PTSD who may benefit from PTSD treatment.

Recommendations

1. Individuals who fail to respond to early interventions should be referred for PTSD treatment when they have:
a. Worsening of stress-related symptoms
b. High potential or new-onset potential for dangerousness
c. Development of ASD/PTSD
d. Maladaptive coping with stress (e.g., social withdrawal, alcohol use)
e. Exacerbation of pre-existing psychiatric conditions
f. Deterioration in function
g. New onset stressors

h. Poor social supports.

2. Primary Care provider should consider initiating therapy pending referral or if the patient is reluctant or unable to obtain specialty services.
3. Primary Care provider should continue evaluating and treating co-morbid physical illnesses and addressing any other health concerns, as well as educating and validating the patient regarding his/her illness.

O. **Monitor and Follow-Up**

Recommendations

0. Follow-up should be offered to individuals who request it or to those at high risk of developing adjustment difficulties following exposure to major incidents and disasters, including individuals who:
   a. Have ASD or other clinically significant symptoms stemming from the trauma
   b. Are bereaved
   c. Have a pre-existing psychiatric disorder
   d. Require medical or surgical attention
   e. Were exposed to a major incident or disaster that was particularly intense and of long duration
2. Primary Care providers should follow-up with patients about issues related to trauma in an ongoing way. Patients with initial sub-threshold presentation are at increased risk of developing PTSD and may need symptom-specific management.

Module B: Management of PTSD

1. **Assessment**

A. **Assessment of Stress Related Symptoms**

Recommendations

1. Patients who are presumed to have symptoms of PTSD or who are positive for PTSD on the initial screening should receive a thorough assessment of their symptoms that includes details such as time of onset, frequency, course, severity, level of distress, functional impairment, and other relevant information to guide accurate diagnosis and appropriate clinical decision-making.
2. Consider use of a validated, self-administered checklist to ensure systematic, standardized, and efficient review of the patient's symptoms and history of trauma exposure. Routine ongoing use of these checklists may allow assessment of treatment response and patient progress (see Appendix C in the original guideline document).
3. Diagnosis of PTSD should be obtained based on a comprehensive clinical interview that assesses all the symptoms that characterize PTSD. Structured diagnostic interviews, such as the Clinician-Administered PTSD scale (CAPS), may be considered.

B. **Assessment of Trauma Exposure**

1. Assessment of the trauma exposure experience should include:
   a. History of exposure to traumatic event(s)
   b. Nature of the trauma
   c. Severity of the trauma
   d. Duration and frequency of the trauma
   e. Age at time of trauma
   f. Patient's reactions during and immediately following trauma exposure (e.g., helplessness, horror, and fear)
   g. Existence of multiple traumas
2. If trauma exposure is recent (<1 month), particular attention should be given to the following:
   a. Exposure to/environment of trauma
   b. Ongoing traumatic event exposure
   c. Exposure, perhaps ongoing, to environmental toxins
   d. Ongoing perceived threat
3. When assessing trauma exposure, the clinician must consider the patient's ability to tolerate the recounting of traumatic material, since it may increase distress and/or exacerbate PTSD symptoms.

C. **Assessment of Dangerousness to Self or Others**

0. All patients with PTSD should be assessed for safety and dangerousness, including current risk to self or others, as well as historical patterns of risk:
   a. Suicidal or homicidal ideation, intent (plan), means (e.g., weapon, excess medications), history (e.g., violence or suicide attempts), behaviors (e.g., aggression, impulsivity), co-morbidities (substance abuse, medical conditions) **[B]**
   b. Family and social environment – including domestic or family violence, risks to the family **[B]**
   c. Ongoing health risks or risk-taking behavior **[B]**
   d. Medical/psychiatric co-morbidities or unstable medical conditions **[B]**
   e. Potential to jeopardize mission in an operational environment. **[I]**

D. **Obtain Medical History, Physical Examination, Laboratory Tests and Psychosocial Assessment**

Objective

Obtain comprehensive patient data in order to reach a working diagnosis.

Recommendations

0. All patients should have a thorough assessment of medical and psychiatric history, with particular attention paid to the following:
   a. Baseline functional status
   b. Baseline mental status
   c. Medical history: to include any injury (e.g., mild traumatic brain injury [mTBI])
   d. Medications: to include medication allergies and sensitivities; prescription medications; herbal or nutritional supplements; and over-the-counter (OTC) medications (caffeine, energy drinks, or use of other substances)
   e. Past psychiatric history: to include prior treatment for mental health and substance use disorder, and past hospitalization for depression or suicidality
   f. Current life stressors

1. All patients should have a thorough physical examination. On physical examination, particular attention should be paid to the neurological exam and stigmata of physical/sexual abuse, self-mutilation, or medical illness. Note distress caused by, or avoidance of, diagnostic tests/examination procedures.
2. All patients, particularly the elderly, should have a Mental Status Examination (MSE) to include assessment of the following:
   a. Appearance and behavior
   b. Language/speech
   c. Thought process (loose associations, ruminations, obsessions) and content (delusions, illusions, and hallucinations)
   d. Mood (subjective)
   e. Affect (to include intensity, range, and appropriateness to situation and ideation)
   f. Level of consciousness (LOC)
   g. Cognitive function
   h. All patients should have routine laboratory tests as clinically indicated, such as thyroid stimulating hormone (TSH), complete metabolic panel, hepatitis, human immunodeficiency virus (HIV), and HCG (for females). Also consider CBC, urinalysis (UA), Tox (toxicology)/EtoH (ethanol) panel, and other tests
   i. Other assessments may be considered (radiology studies, ECG, and EEG), as clinically indicated
   j. All patients should have a narrative summary of psychosocial assessments to include work/school, family, relationships, housing, legal, financial, unit/community involvement, and recreation, as clinically appropriate.

E. **Assessment of Function, Duty/Work Responsibilities and Patient's Fitness (In Relation to Military Operations)**

Recommendations

0. Assessment of function should be obtained through a comprehensive narrative assessment (see Table B-2 in the original guideline document), and the use of standardized, targeted, and validated instruments designed to assess family/relationship, work/school, and/or social functioning.
1. The determination of when to return to work/duty should take into consideration the complexity and importance of the patient's job role and functional capabilities.
2. The continuing presence of symptoms of PTSD should not be considered in itself as sufficient justification for preventing a return to work/duty.

F. **Assessment of Risk/Protective Factors**

Recommendations

0. Patients should be assessed for risk factors for developing PTSD. Special attention should be given to post-traumatic factors (i.e., social support, ongoing stressors, and functional incapacity) that may be modified by intervention.
1. When evaluating risk factors for PTSD, the clinician should keep in mind that PTSD is defined as occurring only after four weeks have elapsed following a traumatic event. PTSD symptoms, however, may not appear until a considerable time has passed—sometimes surfacing years later.

See the original guideline document for a listing of risk factors.

2. **Triage**

G. **Diagnosis of PTSD or Clinical Significant Symptoms Suggestive of PTSD?**

Recommendations

1. A diagnosis of stress-related disorder consistent with the DSM IV criteria for PTSD should be formulated before initiating treatment.
2. Diagnosis of PTSD should be obtained based on a comprehensive clinical interview that assesses all the symptoms that characterize PTSD. Structured diagnostic interviews, such as the Clinician-Administered PTSD scale (CAPS), may be considered.
3. When a diagnostic work-up cannot be completed, primary care providers should consider initiating treatment or referral based on a working diagnosis of stress-related disorder.
4. Patients with difficult or complicated presentation of the psychiatric component should be referred to PTSD specialty care for diagnosis and treatment.
5. Patients with partial or sub-threshold PTSD should be carefully monitored for deterioration of symptoms.

H. **Assess for Co-Occurring Disorders**

Objective

Improve management of PTSD symptoms when they are complicated by the presence of a medical or psychiatric co-morbidity.

Recommendations

1. Providers should recognize that medical disorders/symptoms, mental health disorders, and psychosocial problems commonly coexist with PTSD and should screen for them during the evaluation and treatment of PTSD.
2. Because of the high prevalence of psychiatric co-morbidities in the PTSD population, screening for depression and other psychiatric disorders is warranted (see the NGC summaries, VA/DoD Clinical Practice Guideline for Management of Major Depressive Disorder [MDD] and VA/DoD Clinical Practice Guideline for Management of Bipolar Disorder in Adults).
3. Patterns of current and past use of substance by persons with trauma histories or PTSD should be routinely assessed to identify substance misuse or dependency (alcohol, nicotine, prescribed drugs, and illicit drugs) (see the NGC summary, VA/DoD Clinical Practice Guideline for Management of Substance Use Disorders [SUD]).
4. Pain (acute and chronic) and sleep disturbances should be assessed in all patients with PTSD.
5. Generalized physical and cognitive health symptoms - also attributed to concussion/mTBI and many other causes – should be assessed and managed in patients with PTSD and co-occurring diagnosis of mTBI (see the NGC summary, VA/DoD Clinical Practice Guideline for Management of Concussion/Mild Traumatic Brain Injury and to the VA/DoD Clinical Practice Guideline for Post-Deployment Health Evaluation and Management).
6. Associated high-risk behaviors (e.g., smoking, alcohol/drug abuse, unsafe weapon storage, dangerous driving, and HIV and hepatitis risks) should be assessed in patients with PTSD.
7. Providers should consider the existence of co-morbid conditions when deciding whether to treat patients in the primary care setting or refer them for specialty mental healthcare (See Annotation J).
8. Patients with complicated co-morbidity may be referred to mental health or PTSD specialty care for evaluation and diagnosis (see Annotation J).

I. **Educate Patient and Family**

Objective

Help trauma survivors cope with ASD/PTSD by providing information that may help them manage their symptoms and benefit from treatment.

Recommendations

1. Trauma survivors and their families should be educated about PTSD symptoms, other potential consequences of exposure to traumatic stress, practical ways of coping with traumatic stress symptoms, co-morbidity with other medical health concerns, processes of recovery from PTSD, and the nature of treatments. **[C]**
2. Providers should explain to all patients with PTSD the range of available and effective options for PTSD treatment.
3. Patient preferences along with provider recommendations should drive the selection of treatment interventions in a shared and informed decision-making process.

J. **Determine Optimal Setting for Management of PTSD and Co-Occurring Disorders**

J1. **Management of PTSD with Co-morbidity**

Recommendations

Consultation/Referral

1. PTSD and co-morbid mental health conditions should be treated concurrently for all conditions through an integrated treatment approach, which considers patient preferences, provider experience, severity of the conditions, and the availability of resources.
2. Patients with PTSD and severe co-morbid mental health conditions should be treated either through referral or in consultation with a provider that is experienced in treating the co-morbid conditions.
3. Because of the profound social impairment of PTSD (caused, for example, by the patient's anger and avoidance symptoms), close friends and family members in the patient's immediate daily environment (e.g., parents, spouse, or children) should be provided with education and advised to consider assistance from specialty care, both for individual treatment and couples/family treatment.
4. Factors to consider when determining the optimal setting for treatment include:
   a. Severity of the PTSD or co-occurring disorders
   b. Local availability of service options (specialized PTSD programs, evidence-based treatments, behavioral health specialty care, primary care, integrated care for co-occurring disorders, Veterans Centers, other)
   c. Level of provider comfort and experience in treating psychiatric co-morbidities
   d. Patient preferences
   e. The need to maintain a coordinated continuum of care for chronic co-morbidities
   f. Availability of resources and time to offer treatment
5. Considerations related to possible referral:

   Complicated severe PTSD: Some patients with PTSD have complicated, challenging presentations. These patients warrant referral to specialty PTSD care that includes access to cognitive-behavioral evidence-based treatments (see Module I-2: Treatment for PTSD).

   Co-occurring major depressive disorder (MDD) in the absence of significant suicidality, panic, or generalized anxiety often shows reduction in intensity when the PTSD is treated. Depression of mild severity may not require referral to specialty care or additional treatments outside those targeting PTSD. Patients should be carefully monitored for changes in symptoms. A reduction of PTSD symptoms that is not accompanied by reduction of symptoms in depression or anxiety would justify a more formally targeted treatment (see the NGC summary, VA/DoD Clinical Practice Guideline for Management of Major Depressive Disorder [MDD]).

   Co-occurring mild to moderate disorders, such as substance use, pain disorders, and sleep problems, can frequently be effectively treated in the context of PTSD treatment and do not require a referral to specialty care. Consultation, to integrate adjunctive interventions, may be considered (see the NGC summary, VA/DoD Clinical Practice Guideline for Management of Substance Use Disorders [SUD]).

   Co-occurring severe psychiatric disorders, while not precluding concurrent PTSD treatment, typically justify referral to specialty care for evaluation and treatment. These disorders may include: severe major depression or major depression with suicidality, unstable bipolar disorder, severe personality disorders, psychotic disorders, significant TBI, and severe substance use disorder (SUD) or substance abuse of such intensity that PTSD treatment components are likely to be difficult to implement.

   Persistent post-concussion symptoms in patients who present with PTSD and a history of concussion/mTBI may be best managed within either primary care or polytrauma rehab settings that utilize a multidisciplinary team approach. Providers should recognize that mTBI/concussion is one of numerous possible etiologies of co-morbid post-deployment symptoms occurring in veterans and service members with PTSD, and it is often difficult to precisely attribute symptoms to concussive events that occurred months or years earlier. From a treatment standpoint, physical or cognitive symptoms, such as headaches or memory problems, or other persistent post-concussive symptoms should be treated symptomatically whether or not concussion/mTBI is thought to be one of the causal factors. Clinicians should not get caught up in debating causation but maintain focus on identifying and treating the symptoms that are contributing to the most impairment. There is no evidence to support withholding PTSD treatments while addressing post-concussive symptoms.

J2. **Management of Concurrent PTSD and SUD**

Objective

Improve management of PTSD symptoms when they are complicated by a concurrent substance abuse problem.

Recommendations

6. All patients diagnosed with PTSD should receive comprehensive assessment for SUD, including nicotine dependence (see the NGC summary, VA/DoD Clinical Practice Guideline for Management of Substance Use Disorders [SUD]).
7. Recommend and offer cessation treatment to patients with nicotine dependence. **[A]**
8. Patients with SUD and PTSD should be educated about the relationships between PTSD and substance abuse. The patient's prior treatment experience and preference should be considered since no single intervention approach for the co-morbidity has yet emerged as the treatment of choice.

9. Treat other concurrent substance use disorders consistent with VA/DoD Clinical Practice Guideline for Management of Substance Use Disorders [SUD] (see the NGC summary of the VA/DoD guideline) including concurrent pharmacotherapy:
   a. Addiction-focused pharmacotherapy should be discussed, considered, available and offered, if indicated, for all patients with alcohol dependence and/or opioid dependence.
   b. Once initiated, addiction-focused pharmacotherapy should be monitored for adherence and treatment response.
10. Provide multiple services in the most accessible setting to promote engagement and coordination of care for both conditions. **[I]**
11. Reassess response to treatment for SUD periodically and systematically, using standardized and valid self-report instrument(s) and laboratory tests. Indicators of SUD treatment response include ongoing substance use, craving, side effects of medication, emerging symptoms, etc.
12. There is insufficient evidence to recommend for or against any specific psychosocial approach to addressing PTSD that is co-morbid with SUD. **[I]**

J3. **The Role of the Primary Care Practitioner**

Recommendations

13. Primary care providers should routinely provide the following services for all patients with trauma-related disorders, especially those who are reluctant to seek specialty mental healthcare:
    - Education about the disorder and importance of not letting stigma and barriers to care interfere with specialty treatment if needed
    - Provision of evidence-based treatment within the primary care or through referral
    - Regular follow-up and monitoring of symptoms
    - Regular follow-up and monitoring of co-morbid health concerns.

    Primary care providers should consider consultation with mental health providers for patients with PTSD who warrant a mental health referral but refuse it or seem reluctant to talk to a mental health provider.

    Primary care providers should take leadership in providing a collaborative multi-disciplinary treatment approach. Team members may include the primary care providers, mental health specialists, other medical specialists (e.g., neurology, pain management), chaplains, pastors, social workers, occupational or recreational therapists, Veterans Center staff members, staff of family support centers, exceptional family member programs, VA benefits counselors, vocational rehabilitation specialists, peer counselors, and others.

    When an integrated behavioral health clinician is available (e.g., collaborative care model, or Post-Deployment Care clinics) evidence-based treatment should be provided.

    Primary care providers should continue to be involved in the treatment of patients with acute or chronic stress disorders. All patients with PTSD should have a specific primary care provider assigned to coordinate their overall healthcare.

3. **Treatment**

K. **Initiate Treatment Using Effective Interventions for PTSD**

For Specific Treatment Modalities: See Module I-2 Treatment Interventions for PTSD below:

- Psychotherapy
- Pharmacotherapy
- Adjunctive treatments
- Somatic therapy
- Complementary alternative therapy (CAM)

Recommendations

6. A supportive and collaborative treatment relationship or therapeutic alliance should be developed and maintained with patients with PTSD.
7. Evidence-based psychotherapy and/or evidence-based pharmacotherapy are recommended as first-line treatment options.
8. Specialized PTSD psychotherapies may be augmented by additional problem-specific methods/services and pharmacotherapy.
9. Consider referral for alternative care modalities (complementary alternative medicine) for patient symptoms, consistent with available resources and resonant with patient belief systems (see Module I-2 below).
10. Patients with PTSD who are experiencing clinically significant symptoms, including chronic pain, insomnia, anxiety, should receive symptom-specific management interventions (see Module I-3 below).
11. Management of PTSD or related symptoms may be initiated based on a presumptive diagnosis of PTSD. Long-term pharmacotherapy will be coordinated with other intervention.

    Facilitate Spiritual Support (see Module I-2: D2 - Spiritual Support below)

    Facilitate Social Support (see Module A: L2 - Facilitate Social Support above)

4. **Re-assessment and Follow-up**

N. **Assess Response to Treatment**

Objective

Re-assess patient status following therapeutic intervention to determine response to treatment, inform treatment decisions, and identify need for additional services. Re-assessment should address PTSD symptoms, diagnostic status, functional status, quality of life, additional treatment needs, and patient preferences.

Recommendations

1. At a minimum, providers should perform a brief PTSD symptom assessment at each treatment visit. The use of a validated PTSD symptom measure, such as the PTSD Checklist, should be considered (see Appendix C in the original guideline document).
2. Comprehensive re-assessment and evaluation of treatment progress should be conducted at least every 90 days, perhaps with greater frequency for those in active treatment, and should include a measure of PTSD symptomatology (e.g., PTSD checklist) and strongly consider a measure of depression symptomatology (e.g., Patient Health Questionnaire [PHQ]9).
3. Other specific areas of treatment focus (e.g., substance abuse) should also be reevaluated and measured by standardized measures of outcome.

4. Assessment of functional impairment should also be made, at a minimum, by asking patients to rate to what extent their symptoms make it difficult to engage in vocational, parental, spousal, familial, or other roles.
5. Consider continued assessment of:
    - Patient preferences
    - Treatment adherence
    - Adverse treatment effects.

0. **Follow-up**

Recommendations

1. If patient does not improve or status worsens, consider one of the following treatment modification options:
    a. Continue application of the same modality at intensified dose and/or frequency
    b. Change to a different treatment modality
    c. Apply adjunctive therapies
    d. Consider a referral to adjunctive services for treatment of co-morbid disorders or behavioral abnormalities (e.g., homelessness, domestic violence, or aggressive behavior)
    e. For patient with severe symptoms or coexisting psychiatric problems consider referrals to:
        - Specialized PTSD programs
        - Specialized programs for coexisting problems and conditions
        - Partial psychiatric hospitalization or "day treatment" programs
        - Inpatient psychiatric hospitalization

    If patient demonstrates partial (insufficient) remission, consider one of the following treatment modification options:

. Before making any therapeutic change, ensure that "treatment non-response" is not due to one or more of the following: not keeping psychotherapy appointments, not doing prescribed homework, not taking prescribed medications, still using alcohol or illicit substances, still suffering from ongoing insomnia or chronic pain, not experiencing any new psychosocial stressors, the original assessment did not overlook a co-morbid medical or psychiatric condition
    a. Continue the present treatment modality to allow sufficient time for full response
    b. Continue application of the same modality at intensified dose and/or frequency
    c. Change to a different treatment modality
    d. Apply adjunctive therapies
    e. Increase level of care (e.g., referral facility, partial hospitalization, inpatient hospitalization, residential care)
    f. Consider a referral to adjunctive services for treatment of co-morbid disorders or behavioral abnormalities (e.g., homelessness or domestic violence).

    If patient demonstrates improved symptoms and functioning but requires maintenance treatment:

. Continue current course of treatment
    a. Consider stepping down the type, frequency, or dose of therapy
    b. Consider:
        - Transition from intensive psychotherapy to case management contacts
        - Transition from individual to group treatment modalities
        - Transition to as-needed treatment
    - Discuss patient status and need for monitoring with the primary care provider
    - Consider a referral to adjunctive services for treatment of co-morbid disorders or behavioral abnormalities (e.g., homelessness or domestic violence).
4. If patient demonstrates remission from symptoms and there are no indications for further therapy:
    . Discontinue treatment
    a. Educate the patient about indications for and route of future care access
    b. Monitor by primary care for relapse/exacerbation.

    Evaluate psychosocial function and refer for psychosocial rehabilitation, as indicated. Available resources include, but are not limited to: chaplains, pastors, Family Support Centers, Exceptional Family Member Programs, VA benefits counselors, occupational or recreational therapists, Veterans Centers, and peer-support groups (see Module I-2: D - Psychosocial Rehabilitation below).

    Provide case management, as indicated, to address high utilization of medical resources.

Module I: Treatment Interventions for Post-traumatic Stress

Module I-1. Early Interventions to Prevent PTSD

Recommendations

The following treatment recommendations should apply for all acutely traumatized people who meet the criteria for diagnosis of ASD, and for those with significant levels of acute stress symptoms that last for more than two weeks post-trauma, as well as those who are incapacitated by acute psychological or physical symptoms.

1. Continue providing psychoeducation and normalization
2. Treatment should be initiated after education, normalization, and Psychological First Aid has been provided and after basic needs following the trauma have been made available.
3. There is insufficient evidence to recommend for or against the use of Psychological First Aid to address symptoms beyond 4 days following trauma. **[I]**
4. Survivors who present with symptoms that do not meet the diagnostic threshold of ASD or PTSD should be monitored and may benefit from follow-up and provision of ongoing counseling or symptomatic treatment.
5. Recommend monitoring for development of PTSD using validated symptom measures (e.g., PTSD Checklist, other screening tools for ASD/PTSD).

6. **Psychotherapy**:
   a. Consider early brief intervention (4 to 5 sessions) of CBT that includes exposure-based therapy, alone or combined with a component of cognitive re-structuring therapy for patients with significant early symptom levels, especially those meeting diagnostic criteria for ASD. **[A]**
   b. Routine formal psychotherapy intervention for asymptomatic individuals is not beneficial and may be harmful. **[D]**
   c. Strongly recommend **against** individual Psychological Debriefing as a viable means of reducing ASD or progression to PTSD. **[D]**
   d. The evidence does not support a single session group Psychological Debriefing as a viable means of reducing ASD or progression to PTSD, but there is no evidence of harm (Note: this is not a recommendation pertaining to Operational Debriefing). **[D]**
   e. Groups may be effective vehicles for providing trauma-related education, training in coping skills, and increasing social support, especially in the context of multiple group sessions. **[I]**
   f. Group participation should be voluntary.
7. **Pharmacotherapy**:
   a. There is no evidence to support a recommendation for use of a pharmacological agent to prevent the development of ASD or PTSD. **[I]**
   b. Strongly recommend **against** the use of benzodiazepines to prevent the development of ASD or PTSD. **[D]**

A. **Psychotherapy**

See the original guideline document for information on specific types of psychotherapy including:

- Psychological debriefing
- Brief early cognitive-behavioral intervention
- Other early interventions

B. **Early Pharmacotherapy Interventions to Prevent PTSD**

See the original guideline document for an explanation of early pharmacotherapy interventions.

Module I-2. Treatment for PTSD

A. **Selection of Therapy for PTSD**

Recommendations

1. Providers should explain to all patients with PTSD the range of available and effective therapeutic options for PTSD.
2. Patient education is recommended as an element of treatment of PTSD for all patients and the family members. **[C]**
3. Patient and provider preferences should drive the selection of evidence-based psychotherapy and/or evidence-based pharmacotherapy as the first line treatment.
4. Psychotherapies should be provided by practitioners who have been trained in the particular method of treatment.
5. A collaborative care approach to therapy administration, with care management, may be considered, although supportive evidence is lacking specifically for PTSD.

B. **Psychotherapy Interventions for PTSD**

Recommendations

Treatment Options

1. Strongly recommend that patients who are diagnosed with PTSD should be offered one of the evidence-based trauma-focused psychotherapeutic interventions that include components of exposure and/or cognitive restructuring; or stress inoculation training. **[A]**
   The choice of a specific approach should be based on the severity of the symptoms, clinician expertise in one or more of these treatment methods, and patient preference, and may include an exposure-based therapy (ET) (e.g., prolonged exposure), a CBT (e.g., Cognitive Processing Therapy), stress management therapy (e.g., Stress Inoculation Therapy [SIT]) or Eye Movement Desensitization and Reprocessing (EMDR).
2. Relaxation techniques should be considered as a component of treatment approaches for ASD or PTSD in alleviating symptoms associated with physiological hyper-reactivity. **[C]**
3. Imagery Rehearsal Therapy (IRT) can be considered for treatment of nightmares and sleep disruption. **[C]**
4. Brief psychodynamic therapy can be considered for patients with PTSD. **[C]**
5. Hypnotic techniques can be considered, especially for symptoms associated with PTSD, such as pain, anxiety, dissociation, and nightmares, for which hypnosis has been successfully used. **[C]**
6. There is insufficient evidence to recommend for or against Dialectical Behavioral Therapy (DBT) as first-line treatment for PTSD **[I]**
   - DBT can be considered for patients with a borderline personality disorder typified by parasuicidal behaviors. **[B]**
7. There is insufficient evidence to recommend for or against family or couples therapy as first-line treatment for PTSD; family or couples therapy may be considered in managing PTSD-related family disruption or conflict, increasing support, or improving communication. **[I]**
8. Group therapy may be considered for treatment of PTSD **[C]**
   - There is insufficient evidence to favor any particular type of group therapy over other types.
   - Patients being considered for group therapy should exhibit acceptance for the rationale for trauma work, and willingness to self-disclose in a group.
9. Consider augmenting with other effective evidence-based interventions for patients who do not respond to a single approach.
10. Supportive psychotherapy is not considered to be effective for the treatment of PTSD. However, multiple studies have shown that supportive interventions are significantly more helpful than no treatment, and they may be helpful in preventing relapse in patients who have reasonable control over their symptoms and are not in severe and acute distress.

Note: Approaches may also be beneficial as parts of an effectively integrated approach. Most experienced therapists integrate diverse therapies, which are not mutually exclusive, in a fashion that is designed to be especially beneficial to a given patient.

Delivery of Care

11. Telemedicine interventions that involve person-to-person individual treatment sessions appear to have similar efficacy and satisfaction clinically as a direct face-to-face interaction, though data are much more limited than for face-to-face encounters. **[C]**

a. Telemedicine interventions are recommended when face-to-face interventions are not feasible due to geographic distance between patient and provider or other barriers to patient access (e.g., agoraphobia, physical disability); when the patient would benefit from more frequent contact than is feasible with face-to-face sessions; or when the patient declines more traditional mental health interventions.
b. Providers using telemedicine interventions should endeavor to maintain and strengthen the therapeutic relationship, build patient rapport, stress practice and assignment completion, and ensure adequacy of safety protocols using similar techniques as they do in a face-to-face session.
c. Providers using technology-assisted interventions should take steps to ensure that their work complies with the regulations and procedures of the organization in which they are employed, legal standards, and the ethical standards of their professions. Patient confidentiality and safety should be monitored closely.

There is insufficient evidence to recommend for or against Web-based interventions as a stand-alone intervention or as an alternative to standard mental health treatment for PTSD. **[I]**

If used:

. Clinicians should carefully review the content of any web-based materials to ensure their accuracy and ethical application before recommending use to patients.

a. Web-based approach may be used where face-to-face interventions are not feasible (e.g., geography limits access to other forms of treatment) or when patients decline more traditional mental health interventions. It has also been suggested that web-based interventions may provide more confidentiality than more traditional approaches.
b. Providers should regularly encourage patients to complete the intervention and endeavor to maintain and strengthen the therapeutic relationship, build patient rapport, stress practice and assignment completion, and ensure adequacy of safety protocols. Availability of telephone contact for initial assessment or other reasons (e.g., emergencies, suicidality/homicidality, or follow-up of specific problems) should be considered.
c. Providers using technology-assisted interventions should take steps to ensure that their work complies with the regulations and procedures of the organization in which they are employed, legal standards, and the ethical standards of their professions. Patient confidentiality and safety should be monitored closely.

See the original guideline document for a discussion on the following types of psychotherapy interventions:

- Therapies that More Strongly Emphasize Cognitive Techniques (CT)
- ET
- SIT
- EMDR
- IRT
- Psychodynamic Therapy
- Patient Education
- Group Therapy
- DBT
- Hypnosis
- Behavioral Couples Therapy
- Telemedicine and Web-based Interventions

C. **Pharmacotherapy for PTSD**

Recommendations

General Recommendations

1. Risks and benefits of long-term pharmacotherapy should be discussed prior to starting medication and should be a continued discussion item during treatment.
2. Monotherapy therapeutic trial should be optimized before proceeding to subsequent strategies by monitoring outcomes, maximizing dosage (medication or psychotherapy), and allowing sufficient response time (for at least 8 weeks). **[C]**
3. If there is some response and patient is tolerating the drug, continue for at least another 4 weeks.
4. If the drug is not tolerated, discontinue the current agent and switch to another effective medication.
5. If no improvement is observed at 8 weeks consider:
   a. Increasing the dose of the initial drug to maximum tolerated
   b. Discontinuing the current agent and switching to another effective medication
   c. Augmenting with additional agents
6. Recommend assessment of adherence to medication at each visit.
7. Recommend assessment of side effects and management to minimize or alleviate adverse effects.
8. Assess for treatment burden (e.g., medication adverse effects, attending appointments) after initiating or changing treatment, when the patient is non-adherent to treatment or when the patient is not responding to treatment.
9. Since PTSD is a chronic disorder, responders to pharmacotherapy may need to continue medication indefinitely; however, it is recommended that maintenance treatment should be periodically reassessed.
10. Providers should give simple educational messages regarding antidepressant use (e.g., take daily, understand gradual nature of benefits, continue even when feeling better, medication may cause some transient side effects, along with specific instructions on how to address issues or concerns, and when to contact the provider) in order to increase adherence to treatment in the acute phase. **[B]**

Monotherapy

11. Strongly recommend that patients diagnosed with PTSD should be offered selective serotonin reuptake inhibitors (SSRIs), for which fluoxetine, paroxetine, or sertraline have the strongest support, or serotonin norepinephrine reuptake inhibitors (SNRIs), for which venlafaxine has the strongest support, for the treatment of PTSD. **[A]**

12. Recommend mirtazapine, nefazodone, tricyclic antidepressants (TCAs) (amitriptyline and imipramine), or monoamine oxidase inhibitors (phenelzine) for the treatments for PTSD. **[B]**
13. Recommend against the use of guanfacine, anticonvulsants (tiagabine, topiramate, or valproate) as monotherapy in the management of PTSD. **[D]**
14. The existing evidence does not support the use of bupropion, buspirone, trazodone, anticonvulsants (lamotrigine or gabapentin), or atypical antipsychotics as monotherapy in the management of PTSD. **[I]**
15. There is evidence against the use of benzodiazepines in the management of PTSD. **[D]**
16. There is insufficient evidence to support the use of prazosin as monotherapy in the management of PTSD. **[I]**

Augmented Therapy for PTSD

17. Recommend atypical antipsychotics as adjunctive therapy: risperidone or olanzapine **[B]** or, quetiapine **[C]**.
18. Recommend adjunctive treatment with prazosin for sleep/nightmares. **[B]**
19. There is insufficient evidence to recommend a sympatholytic or an anticonvulsant as an adjunctive therapy for the treatment of PTSD. **[I]**

See the original guideline document for a detailed discussion of pharmacotherapy treatment for PTSD.

D. **Adjunctive Services**

D1. **Psychosocial Rehabilitation**

Recommendations

1. Consider psychosocial rehabilitation techniques once the client and clinician identify the following kinds of problems associated with the diagnosis of PTSD: persistent high-risk behaviors, lack of self-care/independent living skills, homelessness, interactions with a family that does not understand PTSD, socially inactive, unemployed, and encounters with barriers to various forms of treatment/rehabilitation services.
2. Patient and clinician should determine whether such problems are associated with core symptoms of PTSD and, if so, ensure that rehabilitation techniques are used as a contextual vehicle for alleviating PTSD symptoms.
3. Psychosocial rehabilitation should occur concurrently or shortly after a course of treatment for PTSD, since psychosocial rehabilitation is not trauma-focused.

D2. **Spiritual Support**

Recommendation

4. Assess for spiritual needs and facilitate access to spiritual/religious care when sought. **[I]**

E. **Somatic Treatment**

E1. **Biomedical Somatic Therapies**

Objective

Evaluate the evidence for efficacy of biomedical somatic therapies, including electroconvulsive therapy (ECT), cranial electrotherapy stimulation (CES), vagal nerve stimulation (VNS), repetitive transcranial magnetic stimulation (rTMS), and deep brain stimulation (DBS), in the treatment of PTSD.

Recommendations

1. There is insufficient evidence to recommend the use of any of the biomedical somatic therapies for first-line treatment of PTSD. **[D]**
2. ECT and rTMS may be considered as an alternative in chronic, severe, medication- and psychotherapy-resistant PTSD. **[B]**

E2. **Acupuncture**

Objective

Improve management of PTSD symptoms, particularly when accompanied by associated symptoms of chronic pain, depression, insomnia, anxiety, or substance abuse.

Recommendation

3. Acupuncture may be considered as treatment for patients with PTSD. **[B]**

F. **Complementary and Alternative Medicine (CAM)**

Objective

Identify interventions derived from traditional and nontraditional complementary approaches that may provide effective first-line or adjunctive treatment for PTSD.

Recommendations

1. There is insufficient evidence to recommend CAM approaches as first line treatments for PTSD. **[I]**
2. CAM approaches that facilitate a relaxation response (e.g., mindfulness, yoga, acupuncture, massage, and others) may be considered for adjunctive treatment of hyperarousal symptoms, although there is no evidence that these are more effective than standard stress inoculation techniques. **[I]**
3. CAM approaches may be considered as adjunctive approaches to address some co-morbid conditions (e.g., acupuncture for pain). **[C]**
4. CAM may facilitate engagement in medical care and may be considered in some patients who refuse evidence-based treatments. However, providers should discuss the evidence for effectiveness and risk-benefits of different options, and ensure that the patient is appropriately informed.

See the original guideline document for a full list of complementary and alternative medicine modalities.

Module I-3. Management of Specific Symptoms

A. **Sleep Disturbances**

Recommendations (Based on Consensus of the Working Group Clinical Experts)

Sleep Disturbance

1. Encourage patients to practice good sleep hygiene, including:
    - Restricting the night-time sleep period to about eight hours
    - Waking at a regular time
    - Arising from bed at a regular time
    - Avoiding going to bed too early

- Avoiding alcohol
- Avoiding stimulants, caffeinated beverages, power/energy drinks, nicotine, and OTC medications
- Avoiding stimulating activities, light, noise, and temperature extremes before bedtime (e.g., exercise, video games, TV) or in the sleeping area
- Reducing (to less than 30 minutes), or abolishing, daytime naps
- Practicing relaxation techniques
- Engaging in moderate exercise, but not immediately before bedtime

2. Offer CBT for insomnia, which may include:
   - Educating about proper sleep habits and sleep needs
   - Correcting false and unrealistic beliefs/concerns about sleep
   - Identifying and addressing anxious, automatic thoughts which disrupt sleep
3. Consider adjunctive therapy for nightmares using prazosin. **[B]**
4. Any significant change in sleep patterns should trigger clinical reassessment in order to rule out worsening or new onset of co-morbid conditions.

Insomnia

5. Monitor symptoms to assess improvement or deterioration and reassess accordingly.
6. Explore cause(s) for insomnia, including co-morbid conditions.
7. Begin treatment for insomnia with non-pharmacological treatments, including sleep hygiene and cognitive behavioral treatment (see recommendation for sleep disturbances above).
8. The selection of sleep agents for the treatment of insomnia in PTSD patients may be impacted by other treatment decisions (e.g., medications already prescribed for the treatment of PTSD, depression, TBI, pain, or concurrent substance abuse/withdrawal) and social/environmental/logistical concerns associated with deployment.
   a. **Trazodone** may be helpful in management of insomnia and may also supplement the action of other antidepressants.
   b. **Hypnotics** are a second-line approach to the management of insomnia and should only be used for short periods of time. Should hypnotic therapy be indicated, the newer generation of non-benzodiazepines (e.g., zolpidem, eszopiclone, ramelteon) may have a safety advantage by virtue of their shorter half-life and lower risk of dependency. Patients should be warned of and monitored for the possibility of acute confusional states/bizarre sleep behaviors associated with hypnotic use. Benzodiazepines can be effective in chronic insomnia but may have significant adverse effects (confusion, sedation, intoxication) and significant risk of dependency.
   c. **Atypical antipsychotics** should be avoided due to potential adverse effects but may be of value when agitation or other symptoms are severe.
   d. If nightmares remain severe, consider adjunctive treatment with **prazosin**. **[B]**
   e. If symptoms persist or worsen, refer for evaluation and treatment of insomnia.

Additional information of management of insomnia can be found in: VHA Pharmacy Benefit Management (PBM) guideline for Insomnia .

B. **Pain**

Recommendations (Based on Consensus of the Working Group Clinical Experts)

1. Recommend pain assessment using a '0 to 10' scale.
2. Obtain a thorough biopsychosocial history and assess for other medical and psychiatric problems, including risk assessment for suicidal and homicidal ideation and misuse of substances, such as drugs or alcohol and OTC and prescription drugs or narcotics.
3. Assessment should include questions about the nature of the pain and likely etiology (i.e., musculoskeletal and neuropathic), locations, quality, quantity, triggers, intensity, and duration of the pain, as well as aggravating and relieving factors.
4. Assessment should include evaluation of the impact of pain on function and activities, pain-related disability, or interference with daily activities.
5. Assessment should include the identification of avoidance behaviors that contribute to emotional distress and/or impaired functioning.
6. Management of pain should be multidisciplinary, addressing the physical, social, psychological, and spiritual components of pain in an individualized treatment plan that is tailored to the type of pain. **[C]**
7. Selection of treatment options should balance the benefits of pain control with possible adverse effects (especially sedating medications) on the individual's ability to participate in, and benefit from, PTSD treatment. **[I]**
8. Musculoskeletal pain syndromes can respond to correcting the underlying condition and treatment with non-steroidal anti-inflammatory drugs (NSAIDs).
9. When appropriate, recommend use of non-pharmacological modalities for pain control, such as biofeedback, massage, imaging therapy, physical therapy, and complementary alternative modalities (yoga, meditation, acupuncture). **[C]**
10. Centrally acting medications should be used in caution in patients with PTSD, as they may cause confusion and deterioration of cognitive performance and interfere with the recovery process.
    a. If required, lower doses of opioid therapy or other centrally acting analgesics should be used for short duration with transition to the use of NSAIDs. **[C]**
11. Consider offering CBT, which may include:
    a. Encouraging increasing activity by setting goals
    b. Correcting false and unrealistic beliefs/concerns about pain
    c. Teaching cognitive and behavioral coping skills (e.g., activity pacing)
    d. Practicing and consolidation of coping skills and reinforcement of use

C. **Irritability, Severe Agitation, or Anger**

Recommendations (Based on Consensus of the Working Group Clinical Experts)

1. Assess the nature of symptoms, severity, and dangerousness. Consider using standardized Anger Scales, such as Spielberger's State-Trait Anger Expression Inventory, to quantify.
2. Explore for cause of symptoms and follow-up to monitor change.
3. Consider referral to specialty care for counseling or for marital or family counseling as indicated. Offer referral for:
   a. Anger management therapy
   b. Training in exercise and relaxation techniques.
4. Promote participation in enjoyable activities - especially with family/loved ones.
5. Promote sleep and relaxation.
6. Avoid stimulants and other substances (caffeine, alcohol).
7. Address pain (see pain management above).
8. Avoid benzodiazepines.
9. Consider SSRIs/SNRIs
   a. If not responding to SSRIs/SNRIs and other non-pharmacological interventions, consider low-dose anti-adrenergics or low-dose atypical antipsychotics (risperidone, quetiapine).
   b. If not responding or worsening, refer to specialty care.