PTSD, ALCOHOL USE DISORDER, AND TREATMENT, A REVIEW

by

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Abstract

PTSD, ALCOHOL USE DISORDER,

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This systematic review examines the empirical literature for American veterans with a dual diagnosis of PTSD and Alcohol Use Disorder (AUD). Concurrent treatment and treatment targeting one of the disorders was the basis for research question used. Grades of Recommendation, Assessment, Development and Evaluation (GRADE), the PRISMA (Preferred Reporting Items for Systematic reviews and Meta-Analyses) statement, and COPES (Client Oriented Practical; Evidence Search Guides) method of question formation was chosen. Five full reports were extracted from 128 through three electronic databases. Selected quantitative studies were peer-reviewed journals. No randomized clinical trials were located. All five studies included received a low GRADE score. Future studies that use rigorous designs are sorely needed that addresses this population.

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Chapter 1

Introduction

Post-Traumatic Stress Disorder (PTSD) is an ever growing problem facing society. The ongoing warfare that impacts American soldiers and causes trauma in the armed forces is far reaching and becoming more and more prevalent in today's society. A common comorbid condition presenting with PTSD is alcohol use disorder (AUD). The purpose of this thesis is to conduct a systematic review of the literature to discover what has been tested and is known about the treatment of these conditions. In order to be as specific as possible, this thesis seeks to discover which mode of treatment has proven to show the most positive outcomes.

The modes included in the analysis would be studies that cover treating one condition at a time or a study that treats the disorders together. The question posed to be for this thesis is, in veterans presenting with PTSD as well as alcohol use disorder (AUD), who are undergoing psychotherapy for one of these conditions at a time or both simultaneously, which approach shows to have the most positive outcomes?

The first section of this thesis will provide a description of the problem that warrants this study, followed by a preliminary review of pertinent literature covering the topics of PTSD, AUD, and treatments found to show positive outcomes. From there, this thesis will move on to lay out the planned methodology and organization to be used in the thesis. Finally, the results will be presented, followed by a discussion of the findings and implications for the Social Work field.

1.1 Nature of the problem

PTSD is an invasive disorder that comes from the experiencing of a trauma. The trauma can range from being the victim of any number of events, such as: abuse

(physical or emotional), disasters, accidents, violence, or war. There is an ever growing body of evidence and research covering PTSD. Many of these researchers have defined the symptoms of PTSD to cover a wide range of behavioral and psychological changes. Some of these changes include control of emotional regulation (Lanius, Blaum & Frewen, 2011), sleep dysfunction (Staples, Hamilton, & Uddo, 2013), the ability to be properly oriented to time and space (Telles, Singh, & Belkrishna, 2012; & Van Der Kolk, 2006), and excessive anger control problems (Staples, Hamilton, & Uddo, 2013). Libby (2012) attributes PTSD with causing the individual to suffer from hyper-arousal, re-experiencing the event over and over, and avoidance of situations that remind the individual of the event.

PTSD is also commonly accompanied by an assortment of comorbid conditions. Depression and anxiety disorders (Libby, 2012; Tran et al., 2012 & Galatzer-Levy et al., 2013), memory disorders (Wigenfeld & Wolf, 2011), and a rapid heart rate (Descilo and others, 2010) are some of these comorbid conditions. Another comorbid disorder often associated with PTSD, the other primary disorder this proposal approaches, has often been found to be AUD (Brief et al., 2013; Grossbard et al., 2013, & Sannibale et al., 2013).

The link between PTSD and AUD has been found to be a substantial one. Sannibale and others (2013) found that both men and women are many times more likely to develop AUD if they have PTSD compared to those that do not. Grossbard and colleagues (2013) state “Co-occurring AUD and PTSD are associated with suicidal ideation and attempts, chronic health problems, and family/relationship impairment” (p. 410). Sannibale and colleagues (2013) discovered that “compared with AUD only, comorbid AUD–PTSD is associated with greater physical and social impairment, higher

rates of affective, anxiety and personality disorders and increased trauma-related craving" (p. 1397).

AUD does not just exist as a comorbid by product of PTSD but also impacts the individual in its own right. Grossbard and colleagues (2013) found that individuals with AUD were more likely to seek follow up care for alcohol misuse through the Veteran Affairs (VA) system than individuals that are not diagnosed with AUD, regardless of whether or not they suffer from PTSD. Grossbard and others (2013) also posit that AUD might be a determining factor in the development of PTSD as well as impede the recovery from PTSD from treatments. This is a very important finding relating the importance of recognizing both PTSD and AUD in an individual's treatment.

Let us add some percentages that researchers have found pertinent to the comorbidity of PTSD and AUD. Grossbard and others (2013) found,

> "among OEF/OIF patients who screened positive for moderate to severe alcohol misuse … 42% had an AUD diagnosis, 67% had a documented PTSD diagnosis, with 32% having both. Further, 76% of patients with an AUD diagnosis also had a PTSD diagnosis. Moreover, among those who screened positive for severe alcohol misuse … 84% had a documented AUD or PTSD diagnosis" (p. 411).

What do all these percentages mean? There are very high percentages among these new, young veterans that display a comorbid occurrence of PTSD and AUD. It also shows that the more severe cases of individuals suffering from the more intense versions of alcohol misuse, the more likely it is for them to also be diagnosed with PTSD.

These percentages show that veterans coming out of service show high levels of alcohol misuse as well as PTSD. Brief and others (2013) found that the culture of active duty members heightens the risk of developing these conditions. Brief and colleagues (2013) found that investigators report 12 to 36% of military members, may it be active

duty, national guard or reserve, engage in alcohol misuse after a deployment. Brief and others (2013) also discovered that out of the entirety of veterans seeking treatment through the VA, 6% of females and 23% of males were found to misuse alcohol.

These are the most alarming of the statistics thus far presented. These are statistics of the VA as a whole, not just the individuals that are diagnosed with an AUD. Libby (2012) also discusses the alarming rise in PTSD numbers by finding that estimates as high as 20% of new veterans are likely to seek treatment for PTSD through their local VA. This percentage is alarming when compared to the 3% to 4% rate of PTSD found in the generalized US population (Hoge et al., 2004). This is a very alarming set of statistics when the number of military members deployed in the last ten years has reached nearly 2.3 million people (Brief et al., 2013).

This growing number of veterans that are likely to be put at risk of developing PTSD is compounded by the lack of a standardized screening system for these returning combat veterans in our treatment centers (Hoge et al., 2004). Hoge and colleagues (2004) go on to state that this lack of much needed care sorely needs to be addressed. Understanding the need for this suggested treatment seems simple to understand but apparently not, seeing as there remains a lack of this screening.

This lack of standardized screening was found to have another negative impact on the diagnosis and care of returning combat veterans. Thompson, Gottsman & Zalewski (2006) found that drastically different outcomes can come from a screening depending on when the screening is done in relation to the experiencing of the trauma. Different assessment tools were also found to have different results due to what the tools concentrated on in their design; sensitive scores as opposed to specific scores (Thompson, Gottsman & Zalewski, 2006).

Cicchetti, Fonatna & Showalter (2008) discuss the likelihood of reporting and screening error by differences in examiner perception. The growing task of assessing and treating these returning combat veterans is compounded by the vast number of care professionals tasked with this care. The simple solution of using a single case to show how to assess specific symptoms was found by Cicchetti, Fonatna & Showalter (2008) to be viable tool in ensuring that proper and universal screening methods are being employed. Now that a synopsis of the problem of PTSD and AUD has been presented, the literature review will go into what treatments have been found to be useful in treating these disorders.

1.2 Literature Review

There is an ever growing body of knowledge of what happens to the individual who suffers from PTSD. Makinson & Young (2012) point out that PTSD is "arguably one of the best understood mental disorders from a neurological perspective" (p. 132). Why does this benefit PTSD research and care? Being able to develop treatment methods that target specific areas of the brain that are known to influence a specific disorder has been shown to directly influence the behavior of a disorder and an individual's ability to cope. Makinson & Young (2012) argue that the prefrontal cortex (PFC) and the amygdala are two regions of the brain that are particularly involved in the brain processes as it pertains to PTSD. Makinson & Young (2012) relate the PFC to a "gatekeeper" that determines personality and regulates emotionality, judgment, and inhibition. These are all areas of interest for the study of PTSD since much of the life altering changes that take place because of the disorder relate to these areas.

Staples, Hamilton, & Uddo (2013) found that the hyperarousal and stress experienced by individuals with PTSD can be related to the disregulation of the hypothalamic-pituitary adrenal (HPA) axis. Low levels of GAB A serum were also found

by Staples, Hamilton, & Uddo (2013) to be related to the development of PTSD in victims of recent trauma or violence. Staples, Hamilton, & Uddo (2013) also found that raising of these GAB A levels showed a correlated increase in mood and decreased anxiety.

Telles, Singh, & Belkrishna (2012) found these neurologic changes to be associated with the characteristic qualities of symptoms present in individuals with PTSD. Telles and others (2012) posit that these neurologic changes contribute to the individuals having a chronic conditioned response to the trauma and related stimuli.

Dekel and others (2013) found a strong correlation between cortisol levels and the complications associated with PTSD. This finding is similar to the finding discussed earlier that related the HPA axis to the symptomology of PTSD. The cortisol that this axis releases, does so in response to the extreme stressors that have been found to signify the possible development of PTSD (Dekel et al., 2013). Dekel and others (2013) found that there is a relationship between PTSD symptoms but the exact science behind the reason is still unresolved.

One reason for this is the inconclusive results found to exist between the sexes when cortisol and PTSD are concerned. Dekel and colleagues (2013) state that they did find evidence that HPA axis is a factor for men and the development of PTSD, though not for women. The low cortisol levels that were found to be present in men shortly after a trauma are not the case in women who experience the same trauma that develops into PTSD (Dekel et al., 2013). This was interesting to Dekel and colleagues (2013) because the women with the unchanged cortisol levels reported more cases of PTSD at seven months than the men with the lower levels of cortisol at the time of the traumatic event.

Dekel and others (2013) posit that a possible biological factor behind the “differential susceptibility to PTSD” (p. 624). Dekel and others (2013) posit that this might be the result of different noradrenergic system responses to stress between the sexes.

This shows how complicated it is to show a relation between causes of these disorders. With each connection that is found, more ambiguous, unexplained discoveries likely follow. These are examples of neurologic conditions and knowledge that relates directly to the development and maintenance of PTSD as well as possible avenues to be navigated for treatments of the disorder.

PTSD is, of course, not the only force that affects a patient's life that this thesis proposes to research. AUD has also had a growing body of research dedicated to its understanding, specifically, as it relates to and exists comorbidly with PTSD. One theory to the comorbid existence of these two disorders is that AUD develops as the individual's way of coping with and demising the traumatic memories related to the experiences that led to the development of PTSD (Brief et al., 2013). These veterans are, essentially, self-medicating in order to alleviate their symptoms.

Grossbard and others (2013) state that these new soldiers entering settings that likely result in PTSD and AUD's are younger than other veterans, and their service is likely to be filled with more heavy exposure to combat due to multiple tours of duty. This separation from there family and friends, along with the military culture they experience are, arguably, leading causes for the later development of both PTSD and AUD's (Grossbard et al., 2013). The enhanced use of alcohol as a way to cope being part of military culture was mentioned earlier but requires reiteration due to the strong impact on the development of these disorders from this influence.

The VA recognizes the negative impact that an AUD diagnosis brings to the care they are providing and they are coming to realize that the continued repeated care of these individuals continue to rise with those diagnosed with an AUD (Grossbard et al., 2013). The VA is pushing for the early detection of alcohol misuse inside and outside of

active duty service for soldiers and veterans due to the growing understanding that an AUD is associated with both morbidity and mortality (Grossbard et al., 2013).

Now that a brief description of what the available research shows to be the impacts of an individual having PTSD or AUD, this review will move into what has been found in relation to treatment of these disorders. A study conducted by Sannibale and colleagues (2013) set out to discover if exposure-based CBT integrated for both PTSD and AUD was efficient.

What they found was that simply treating the AUD diagnosis had a positive impact on both the PTSD and the AUD (Sannibale et al., 2013). Sannibale and others (2013) posit that "if treating AUD ameliorates PTSD, then targeting AUD first may avoid diluting the impact of the AUD treatment" (p. 1407). Sannibale and others (2013) go on to state, that their findings suggest that treating the PTSD diagnosis immediately after the substance abuse disorder seems to prevent deterioration of either treatment results and that sustained improvements seem to last, i.e. treatment attrition and minimized and gains are optimized. What this finding suggests is that by treating both of these diagnoses congruently, might actually be hurting the patient.

This finding supports the hypothesis that these disorders are related and that one disorder impacts the other. It also shows that the generalized learning attained from the CBT geared towards AUD can be seen to translate over to the comorbid disorders related to trauma and panic (Sannibale et al., 2013). Sannibale and colleagues (2013) go on to posit that combining therapies may reduce the impact of both diagnoses. Their research does lean towards the same end that this thesis means to research; the way in which treatments are employed and which disorder is attended first and the outcome that seems to be the result.

Galatzer and others (2013) also stands behind the use of CBT for the treatment of PTSD as well as depression but makes the qualification that this treatment must take place very soon after then trauma in order to be the most effective. This is a hard goal to attain in the case of veterans due to their deployed status when most of their traumatic events take place. Galatzer and colleagues (2013) support this treatment difficulty by highlighting the fact that this setting often requires these soldiers to suppress their initial symptoms due to their need for survival in the face of the war time experience; in turn, resulting in the delayed emergence of the symptoms of PTSD that is often seen.

Brief and others (2013) came up with a novel treatment method and delivery system that brings treatment to individuals that would otherwise be neglected for reasons we will discuss later. The treatment that Brief and others (2013) researched in their study was one based on the web. Brief and others (2013) found that by using web based programs, they were able to standardize care to remote locations and reach a far greater population than could be possible economically or in person. Much like other research described here, Brief and others (2013) found that with treatment of one of these disorders, PTSD or AUD, the results “spill over” into the symptoms of the other. Brief and others (2013) propose that the combination of CBT and motivational strategies increase the self-efficacy of the clients and promotes their ability to cope with a range of problems, not just the specific problems related to the therapy.

This expanded coping ability demonstrates, yet again, the link between these comorbid disabilities and how the treatment of one impacts the treatment of another. Brief and colleagues (2013) posit that the use of the web to reach an ever growing and ever demanding condition shows that their method can provide an avenue and intervention strategy to provide a positive outcome for a population requiring care that may not have access to or a desire to participate in such care.

A final study that raises an interesting argument and avenue for treatment was conducted by Tran and others (2012). Religion is argued to be a significant predictor of the depressive symptoms associated with PTSD as well as the development of the disorder itself. Tran and colleagues (2013) found a significant association between religion and PTSD. The certain aspect of religion of interest to the researchers was the motivation behind the individual's religiosity and their basic concept of god.

Tran and colleagues (2013) found that the higher extrinsic-social motivation as well as the more positive view of God was a factor in showing a lower level of PTSD and a stronger ability to cope with the outcomes of trauma and violence. Extrinsic-social motivation is described as the motivation to be part of a social organization in order to build one's self concept as the defining reason for the individual's religiosity (Tran et al., 2013). Tran and others (2013) use this research to posit that it can be an important strategy of evaluating a person's symptoms and developing the best possible treatment avenue to take to yield the best results.

The reason this article was included in this review comes from the concentration placed on the emotions and views held by the client that can be seen to be responsible for the development and maintenance of PTSD and the associated depression. Tran and others (2013) found that the clients view of, and relationship with their God and religion had a distinctive relationship to the development of their symptoms. Understanding the cognitions of the client shows to be an invaluable tool in helping them to combat these disorders and regain a healthy life.

Many religious individuals find the actions they take during a wartime conflict are contradictory to the teaching of their specific religion (Tran et al., 2013). This guilt and shame directly impacts the individual's cognitive health which, in turn, affects many other aspects of their life. These individuals can be seen as morally as well as physically and

psychologically wounded (Tran et al., 2013). It is important that these wounds to morality are addressed as well as the more commonly addressed wounds to the psyche and body. Contending with the “mind, body, and soul” can be another way of looking at addressing these issues with the patients seeking care.

Up to this point, the dominant treatment method discussed has been CBT. It is important to note that there are other forms of treatment that are being discovered and researched to combat the symptoms of PTSD. Arguably, the most convincing evidence for these “alternative treatments” is based on Yoga. Many of the symptoms and neurologic changes discussed in this review have been found to be countered by the teaching of yoga.

Libby (2012) found that the breathing practices and mindfulness training that is the focus of yoga directly impacts and counters the hyper-arousal and high heart rates associated with PTSD. Libby (2012) also states that this “present-focused breathing” helps those practicing the exercises reduce states of worry, anxiety, and fearfulness. This was found to come from the exercising affecting the interceptive and sensorimotor neural pathways; thus, calming the individual and helping them regain control of a scattered mind affected by the outcomes of PTSD’s effects on the brain (Libby, 2012).

Breathing isn’t the only aspect of yoga that has been found to be beneficial to those suffering from PTSD. Descilo and others (2010) found that the poses used in yoga also go a long way in alleviating the symptoms associated with the disorder. PTSD is often accompanied by physical ailments and limitations. The poses help the patients regain lost balance, mobility, and with the alleviation of pain (Decilo et al., 2010).

The last section concerned with what can be found in the literature was previously alluded to. Discovering what has been researched and proven about PTSD, AUD, and treatment cannot neglect a discussion of known barriers that exist in patients

receiving the care and treatment they need. Brief and colleagues (2013) as well as Hoge and others (2004) state that a large portion of the veterans that refuse to seek care through the VA for these disorders do so out of fear of being stigmatized as well as the logistical factors of living in geographically remote areas. Galetzer and others (2013) make the observation that the different longitudinal trajectories that individual's symptoms and disabilities are likely to take impedes the treatment, especially since different populations are likely to react different to treatment and impede the helping process.

Grossbard and colleagues (2013) point to the challenging aspect of treating AUD patients with comorbid PTSD due to the less favorable response these individuals have towards treatment, stigmatization and the costs associated with treating them. Grossbard and others (2013) found that individuals with comorbid PTSD and AUD were likely to neglect one or the other in care; most likely in the case of receiving PTSD treatment alone with no addition of the AUD symptoms being addressed. Tran and others (2012) showed that the neglecting of an individual's religiosity and perception of God can be a common road block and is an important aspect of the individual's cognitive health that must be addressed.

There are a few recurring weaknesses in the research that show up in several studies. Sannibale and colleagues (2013) point out the limited amount of research that exists for treatments of coexisting PTSD and AUD. The research that was found had small sample sizes, uncontrolled designs, and drug use (Sannibale et al., 2013). Grossbard and colleagues (2013) state that the VA holds that there is no evidence to support a "best practices" when it comes to addressing a comorbid diagnosis of PTSD and AUD and that they recommend delivering the services concurrently. This is contrary to evidence found in some studies highlighted in this review that show that there does

seem to be some support for treating these disorders, when coexisting, in a particular order.

Grossbard and others (2013) recommend that research is sorely needed to distinguish the impact of PTSD on AUD treatment and vice versa to better understand the relation between the comorbidity of these disorders. Libby (2012) posits the need for more research geared towards the use of alternative treatment methods for individuals suffering from PTSD. Gregg (n. d.) found that the government understands the need to have a more eclectic approach and that a serious push towards these alternative treatments has been underway in recent years.

Chapter 2

Methods

2.1 PRISMA

This thesis intends to complete its task by conducting a systematic review using the PRISMA (Preferred Reporting Items for Systematic reviews and Meta-Analyses) statement (Liberati et al., 2009). The PRISMA statement is “an evidence-based minimum set of items for reporting in systematic reviews and meta-analyses” (Liberati et al., 2009). The PRISMA statement is a 27-item checklist whose purpose is to improve the reporting of systematic reviews (Liberati et al., 2009). It can also be used as a guide for the purposes of this proposal.

The purpose of this thesis, as previously stated, is to conduct a systematic review of research covering evaluations and interventions; an alternative use for the PRISMA format (Liberati et al., 2009). In order to increase the validity of published systematic reviews, the PRISMA statement aims to “ensure clear presentation of what was planned, done, and found in a systematic review” (Liberati et al., 2009, p. 2). According to Liberati and others (2009), a systematic review attempts to gather all the empirical evidence that fits into the pre-determined criteria that pertain to the research question. “It uses explicit, systematic methods that are selected with a view to minimizing bias, thus providing reliable findings for which conclusions can be drawn and decisions made” (Liberati et al., 2009, p. 2). According to Liberati and colleagues (2009), there are four characteristics of a systematic review:

> “a clearly stated set of objectives with an explicit reproducible methodology;…a systematic search that attempts to identify all studies that would meet the eligibility criteria;…an assessment of the validity of the findings of the included

studies…; and systematic presentation and synthesis of the characteristics and findings of the included studies" (p. 2).

2.2 COPES

In order to produce the research questions posed earlier, the COPES (Client Oriented Practical; Evidence Search Guides) method of question formation was chosen. There are four components to a COPES question: client type and problem, what you might do, an alternative course of action, and what you wish to accomplish (Gibbs, 2003). According to the research question, this thesis means to discover what is known about treating PTSD and AUD. This thesis' purpose is to take two courses of action and find which is more supported by the evidence. The COPES format takes two actions and compares their outcomes. That is why the COPES format was chosen.

According to Gibbs (2003), COPES question are directly influenced by practice. There are three basic tenants of a COPES question. First, they are client oriented questions that are derived from practitioner's daily interaction with clients (Gibbs, 2003). The practitioners pose questions in this format as a direct result of what can be seen to really matter when it comes to the client and the client's family's welfare (Gibbs, 2003).

The practical significance of these questions is the second tenant of the COPES method of questioning. The practicality of these types of questions comes from several aspects of everyday practice: their repeated appearance, agency mission, if the answer is arguably possible to attain, and if there is effective use of the answer being sought (Gibbs, 2003). The final, and arguably the most useful part of a question derived from this method, is that questions using this format are specific enough to guide an electronic evidence based search (Gibbs, 2003).

There are specific questions that are asked for each of the four parts of a COPES question. For simplicity sake, they are presented in the following table (Gibbs, 2003).

COPES component	Client type and Problem	What you Might Do	Alternate Course of Action	What You Want to Accomplish
Question to ask	How would I describe a group of clients of similar type. Be specific	Apply a treatment; act to prevent a problem; measure to assess a problem; survey clients; screen client to assess risk	What is the main alternative other than in the box to the left? Do nothing? Apply another intervention? Apply another risk assessment scale?	Outcome of treatment or prevention? Valid measure? Accurate Risk Estimation, Prevented Behavior, Accurate Estimation of Need
Research question	In veterans presenting with PTSD as well as alcohol use disorder	who are undergoing psychotherapy for one of these conditions	or both simultaneously,	which approach shows to have the most positive outcomes?

Figure 2-1 COPES questions template

Now that an explanation of what this thesis means to do and how the structures were chosen has been presented, a move to describe the methods to be used will be presented.

2.3 Inclusion Criteria

This study is interested in US veterans diagnosed with PTSD and AUD. The term of service, mode of service, length of service or specifics pertaining to their service is not reason for exclusion; as long as they are a veteran that served in the US armed forces,

the participants will be considered part of the body of evidence this review means to study. Any viable legitimate study will be included and reasons for inclusion and exclusion will be explained.

Only studies in English, published in peer reviewed science journals, and published between 2008 and the present will be included in the study. The reason for these constraints is due to the basis of this study being American veterans and the rapid advancement of knowledge as it pertains to PTSD that has taken place, particularly due to new neural imaging techniques.

Only studies that specifically target PTSD and AUD will be included in the study. Any kind of treatment will be considered viable if it meets the other criteria laid out in the eligibility criteria. Both positive and negative outcomes will be considered viable studies due to the fact that, if the study meets the other criteria to be included in this review, the information will be beneficial to the knowledge base. The obvious use of either positive or negative information is its use in showing if a mode of treatment has been proven to be beneficial to the realm of evidence based practices.

2.3.1 First Step Strategy

The information for this review will be gathered electronically from the University of Texas at Arlington (UTA) database network. Academic Search Complete, Clinical Evidence, and Military and Government Collection were the databases searched. Academic search complete used the key works PTSD, AUD, and Comorbid/treatment/veteran in three searches. Clinical Evidence was searched using the systematic review category provided. PTSD and alcohol misuse were the two categories used and the references were recovered. The Military and Government Collection was used for two searches including the terms PTSD, alcohol and veteran/treatment.

2.3.2 Study Selection

The selection process was conducted independently by the author by way of searching titles and abstracts. In the event of an ambiguous find, retrieving the entire article for a more thorough scanning of the full text in order to discover adequate adherence to the eligibility criteria described above was conducted.

2.3.3 Data Collection Process

The data was collected independently by the author.

2.3.4 Data items

The information extracted from the included studies and trials on the basis of: participants characteristics (American veteran), the intervention parameters (specifically geared towards PTSD or AUD), and a decipherable outcome that clearly contributes to the knowledge sought by this review. There is no specific treatment being sought, as long as they meet the criteria mentioned above the data obtained from the study will be included.

2.3.5 Risk of Bias in Individual Studies

The Cochrane risk of bias tool will also be used as a standardized tool to ascertain the likelihood of bias in studies that are to be included in the review (Higgins and Altman, 2008 & Cochrane Bias Methods Group, 2013). The Cochrane risk of bias tool contains five criteria for assessing the risk of bias in a study with a sixth “catch all” category referred to as “other bias” (Higgins and Altman, 2008 & Cochrane Bias Methods Group, 2013). The bias’s that are covered by this tool are as follows: selection, performance, detection, attrition, and reporting (Higgins and Altman, 2008 & Cochrane Bias Methods Group, 2013).

The selection bias refers to how the participants were selected (Higgins and Altman, 2008 & Cochrane Bias Methods Group, 2013). Basically, how random was the

selection? The performance bias refers to how much the authors disclosed to the subjects of the study (Higgins and Altman, 2008 v& Cochrane Bias Methods Group, 2013). Were the subjects of the study adequately blind? The detection bias is similar to the performance bias but instead of referring to the subjects, it refers to those assessing the study (Higgins and Altman, 2008 & Cochrane Bias Methods Group, 2013). Were the researchers attaining the findings adequately blind?

Attrition bias refers to whether or not the researchers provide adequate description to reasons for and levels of the attrition (dropout rate or incomplete study parameters) that took place in their study (Higgins and Altman, 2008 & Cochrane Bias Methods Group, 2013). Lastly, the reporting bias refers to the likelihood of the researchers only reporting certain parts of their findings (Higgins and Altman, 2008 & Cochrane Bias Methods Group, 2013). Did the researchers exclude some findings in order to strengthen their argument or make for a more “dramatic” result?

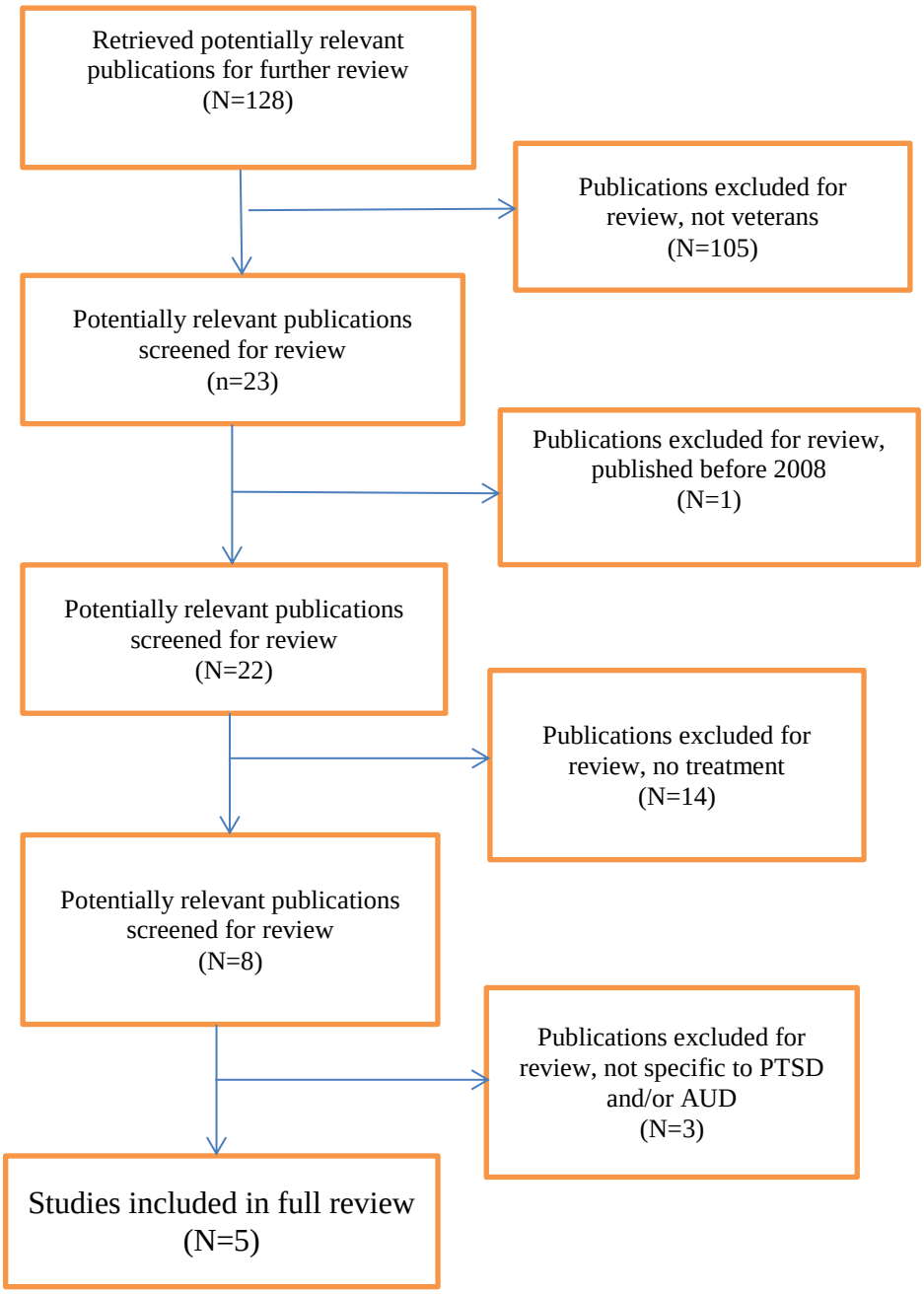

Figure 2-2 Flow chart of literature retrieval process

Table 2-1 Grade Criteria for Included Studies

Type of evidence	Randomized trial = high Observational study = low Any other evidence = very low
Decrease* grade if	• Serious or very serious limitation to study quality • Important inconsistency • Some or major uncertainty about directness • Imprecise or sparse data • High probability of reporting bias
Increase grade if	• Strong evidence of association—significant relative risk of > 2 (< 0.5) based on consistent evidence from two or more observational studies, with no plausible confounders (+1) • Very strong evidence of association—significant relative risk of > 5 (< 0.2) based on direct evidence with no major threats to validity (+2) • Evidence of a dose response gradient (+1) • All plausible confounders would have reduced the effect (+1)
Range	High quality evidence Moderate quality evidence Low quality evidence Very low quality evidence
*	Each quality criterion can reduce the quality by one or, if very serious, by two levels.

GRADE indicates the Grading of Recommendations Assessment, Development and Evaluation (GRADE Working Group, 2011)

Table 2-2 Observational Study

Study	Sample characteristics , sample size	Targeted data	Intervention	Assessment	Outcome
Kaysen et. al. (2014) Case series pre/posttest comparison	PTSD diagnosis with at least 1 CPT outpatient session. 482 males (90%) 54 females (10%), mean age was 44.6 years (SD = 14.5). 82% non-Hispanic Caucasian, 15% African-American, and 3% other race/ethnicity or multiracial.	Treatment attrition/ outcomes related to current or past AUD diagnosis.	12 CPT session, once a week for 60 minutes. *Different clients may have received more or less.	Administered Pre and post 1.Structured Clinical Interview for DSM-IV-TR, Non-Patient Version-I 2.one week version of the Clinician-administered PTSD Scale 3.PTSD checklist — specific (PCL—S; 4.Beck Depression Inventory-II (BDI-II *11% missing data	Past AUD, had higher pre- but not post-treatment PCL scores compared to PTSD only, pre-treatment pooled t (534) = 3.52, p b .001, d = .32, post-treatment pooled t (534) = 1.25, p N .22, d =.11
Grossbard et. al. (2013) Retrospect-ive cross-sectional study	Data: (OABI). (1) alcohol screening with the AUDIT-C (2) review occurred at least 30 days after screening (3) service in (OEF) or (OIF) (4) age ≤ 55 years. 4725 randomly selected	The prevalence of follow-up for alcohol misuse—(BI) or referral to treatment —with and without AUD and/or PTSD.	Brief alcohol interventions (BI). Referral to treatment. telephone counseling, or referral to non-VA service for alcohol treatment .	Alcohol misuse was assessed with AUDIT-C. PTSD determined with Internal Classification of Diseases, Ninth Revision, Clinical Modification codes.	1. misuse-22% (AUDIT-C ≥ 5). 2. moderate-with or without PTSD (20.9 and 31.8% respectively) , PTSD only (16.8%), neither an AUD nor PTSD diagnosis (8.1%). 3. severe alcohol misuse,

Table 2.2 continued

				*no assessment of intervention outcome, just the presence of a referral to an intervention.	those with AUD (43.2%), neither AUD nor PTSD (25.5%). Additionally, severe misuse and AUD, with or without PTSD, (33.1 and 43.2% respectively) PTSD only (19.1%).
Hawkins et. al. (2012) Retrospective cross-sectional study	(1) age 18 or older, and (2) received a primary or secondary diagnosis of posttraumatic stress disorder (PTSD) at ≥1 outpatient visit(s) or inpatient discharge(s) from a VISN 20 facility during 2003–2010 (N = 64,872)	Oral benzodiazepines: Prevalence. (1) annual use (2) long-term benzodiazepine use defined as >90	DOD warns against the use of this drug category as a treatment method for PTSD	Total days' supply: (1) 1–30 days,(2) 31– 90 days, (3) 91–180 days, (4) 181–270 days and (5) > 270 days. mean prescribed dos: (1) 0–10 mg, (2) 11–20 mg, (3) 21–30 mg, (4)31– 40 mg and (5) >40 mg. *no clinical outcome discussed. Focused primarily on the pattern of prescribing use of Benzodiazepine	Nearly 1 in 6 men and 1 in 4 women with PTSD in VISN 20 were prescribed benzodiazepines long-term.
Drapkin et. al. (2011)	167 comorbid PTSD/AD. 105	1. psychosoc	N/A	1. Structured Clinical	Fewer participants

Table 2.2 continued

Secondary data analysis of pooled pretests from 3 rct	PTSD. 240 AD. referrals and advertisements placed in local newspapers. age from 19 to 81.	ial functioning among patients with comorbid PTSD/AD and those who have each disorder alone. 2. four indicators of baseline social adjustment: employment status, education level, income, and living arrangement		Interview for DSM-IV 2. Timeline Follow-Back Interview 3. Drinkers Inventory of Consequences 4. Penn Alcohol Cravings Scale 5. PTSD Symptom Scale, Interview Version 6. Structured Interview for PTSD 7. Beck Depression Inventory II 8. State-Trait Anxiety Inventory *no treatment, only concerned with comparative functional status at pretest.	with PTSD/AD than PTSD or AD alone were employed, had a college education, had less income, and fewer were living with a partner. AD only more likely to earn <$10,000 a yr.
McDevitt-Murphy (2011)	OIF/OEF veterans and Significant others with PTSD and AUD. 2 case examples	Alcohol misuse and PTSD symptomology	cognitive-behavioral skills modules that comprise a menu of options for the therapist, some of	Clinician-Administered PTSD Scale, the PTSD, the Time Line Follow Back for alcohol use, and the Alcohol Use Disorders Identification	26-AUDIT, 112-CAPS, 75-PCL at baseline. 0-AUDIT, 52-CAPS,33-PCL, upon post. 46-CAPS,

Table 2.2 continued

Multiple case study			which are "core" features of the protocol and others of which are "optional" and may be included depending on patients' needs. Modules may be repeated to ensure client mastery.	Test.. At baseline, the Structured Clinical Interview for *DSM*–to assess substance use disorders and comorbid conditions.	59-PCL, 18-AUDIT at baseline. 11-CAPS, 23 -PCL and 4-AUDIT upon post.

*confound/limitation

Chapter 3

Results

3.1 Description of Studies

One hundred and twenty-eight studies were recovered in the search process. One hundred and five were immediately rejected because they did not pertain to veterans. One publication was rejected because it was published before 2008. This left twenty-two studies to be examined more thoroughly. Fourteen studies were then rejected for not consisting of treatment modalities being considered. The final three studies to be rejected did not include both PTSD and AUD in their framework. One article was rejected because it was focused on Australian veterans. This is a high quality study and will be addressed in the discussion section.

Five studies were ultimately chosen for inclusion in this review. There were no true clinical trials found in the search process that met the criteria set forth in the method of this review. All were observational studies; details are displayed in Table 2.2.

Two retrospective cross-sectional studies were included in the review (Hawkins et al., 2012; Grossbard et al., 2013). Kaysen and others (2014) conducted a case series pre/posttest. One study was concerned with level of functioning at initiation of treatment of individuals with and without PTSD and/or AUD through a Secondary data analysis of pooled pretests from 3 rcts (Drapkin et al., 2011). The final study used a multiple case study design, drawing cases from a new pilot clinical trial being conducted by the VA (McDevitt-Murphy, 2011).

3.1.1 Observational Pre/Posttest

Kaysen, Schumm, Pedersen, Seim, Bedard-Gilligan & Chard (2014) conducted a study that is the closest to the optimal format and function this review has set out to find. Kaysen et al. (2014) conducted a study that examined the effectiveness of cognitive

processing therapy (CPT) for veterans with PTSD and AUD. They compared the concurrent treatment for individuals with PTSD and AUD (current or historically) to treatment for just PTSD (Kaysen et al., 2014).

Kaysen and others (2014) included 536 clients who received CPT sessions in their review. The clients also had received pre and post evaluations providing the researchers with a picture of the client's wellbeing before and after treatment. Every individual in the study had a diagnosis and was seeking treatment through the VA for PTSD, 39% had a history of an AUD diagnosis and 11% had a current diagnosis for AUD (Kaysen et al., 2014).. The current diagnosis of an AUD was more common in the OIF and OEF veterans (Kaysen et al., 2014). These veterans were less likely to have a history of AUD; their diagnosis was most commonly a current one (Kaysen et al., 2014).

Kaysen and others (2014) found that even though the individuals with comorbid PTSD and AUD reported more severe PTSD symptoms at pretest, they benefited equally from the CPT as individuals without a comorbid AUD diagnosis. This supports their reporting a result of there being no impact on CPT outcome related to a diagnosis of AUD. Kaysen and others (2014) also found that individuals need not necessarily complete all sessions of the program in order to benefit from the therapy.

Kaysen et al. (2014) thoroughly disclose the shortcomings of their study. The study was not a blind random assignment experimental design. Kaysen and others (2014) conducted an observational study targeting veterans being treated for PTSD that did not have a history or current diagnosis of an AUD compared to veterans being treated for PTSD that did have a history or current AUD diagnosis. There was no random assignment or blind control groups to compare their findings to. This makes the validity and reliability of this study suboptimal. As far as the information this review set out to study, Kaysen and others (2014) also note that their study was "limited in its ability to

address the impact of CPT on alcohol use or cravings" (p. 425). This lack of fully covering half of the criteria for this review is another limitation of this study.

3.1.2 Retrospective Cross-Sectional Study

Grossbard and colleagues (2013) conducted a retrospective cross-sectional study to discover the prevalence of follow up appointments for a brief intervention (BI) which were scheduled in the VA for individuals with AUD and/or PTSD. They randomly selected the records of 4725 patients found in the system. A diagnosis of AUD's was considered from the AUDIT-C scores and PTSD was determined by the presence of an Internal Classification of Diseases, Ninth Revision, Clinical Modification code.

Grossbard et al. (2013) distinguished between levels of AUD severity: misuse, moderate and severe. The researchers then compared the presence of follow up appointments for treatment between these levels of AUD with and without a comorbid PTSD diagnosis (Grossbard and others, 2013). The primary weakness of this study is the lack of any follow up information. The researchers were only concerned with the likelihood of a referral for further treatment after an initial BI.

Surprisingly enough, Grossbard and colleagues (2013) found that individuals with only AUD are more likely to be seen in a follow up appointment than individuals with both or PTSD only. These BIs have been found to be effective with alcohol misuse and efforts to implement these interventions for individuals with AUD and PTSD have been seen in the VA. Grossbard and colleagues (2013) note that it is important to address the comorbid condition of PTSD and AUD due to the fact that these individuals are more likely to seek and use services than individuals with just one of these conditions. This equates to greater long term costs associated with a dual diagnosis.

Grossbard and colleagues (2013) posit that the VA is the perfect setting to administer these BIs to veterans with concurrent AUD and PTSD and this duel treatment

is likely to be very necessary due to the likelihood of individuals with both conditions to seek less treatment due to PTSD being neglected to focus just on the AUD diagnosis. Through their records review of VA outpatient care, Grossbard and colleagues (2013) found that PTSD had no impact on the referral for BIs geared towards an AUD diagnosis. Grossbard and colleagues (2013) cite the 2010 VA guidelines for treating AUD and PTSD stating that there is no empirical evidence to support a preferred sequencing of AUD and PTSD treatments. Through this review we find that not entirely true but there is certainly a huge gap in the literature that addresses this issue.

Hawkins, Imel, Saxon, & Kivlahan (2012) also conducted a retrospective cross-sectional study but instead of therapeutic interventions, they focused more on the pharmacological practices of VA and their prescription disbursement for PTSD and AUD clients. The 64,872 clients included in this review were chosen by age (18+) and had received a primary or secondary diagnosis for PTSD. They distinguished between short and long term use of benzodiazepine use in five categories: 1-30 days, 31-90 days, 91-180 days, 181-270 days, and >500 days (Hawkins et al. 2012). They then categorized "long term use" as any prescription of over ninety days (Hawkins and others, 2012). Like the previous study in this review, the primary weakness of Hawkins and others' (2012) study in relation to this review is the lack of any follow up concerns or treatment other than the prescription of benzodiazepines.

Hawkins et al. (2012) point out that the DOD recommends selective serotonin reuptake inhibitors (SSRIs) for PTSD and "caution against routine use of benzodiazepines" (p. 154). That being said, they were alarmed with the number of clients that were subscribed and provided with long term use of benzodiazepines (Hawkins and others, 2012). A lack of evidence for benzodiazepines as a treatment for PTSD and its symptoms as well as risk of their use for PTSD have been cited (Hawkins et al., 2012).

The repeated prescribing of these medications seem to come from their rapid release and use to counter anxiety and insomnia; symptoms often associated with PTSD (Hawkins et al., 2012).

Even with these results, benzodiazepines have been found to be associated with the development of PTSD and to weaken the results of exposure therapies that are geared towards PTSD symptomology (Hawkins et al., 2012). When you add in the likelihood of AUD or any Substance abuse disorder (SUD), the abuse of benzodiazepine and its dependence as well as withdrawal symptoms, an additional argument against their use is also found in relation to this reviews desired information (Hawkins et al., 2012).

This is an alarming finding when taken with the finding that one in ten long term benzodiazepine users also have a comorbid AUD diagnosis (Hawkins et al., 2012). When you take into consideration the individuals found to be prescribed benzodiazepine that have a PTSD diagnosis (1 in 6 men and 1 in 4 women) another alarming percentage is found (Hawkins et. al., 2012). Hawkins and colleagues (2012) call for a more thorough training and screening system be put in place to educate the practitioners that are repeatedly prescribing this drug.

3.1.3 Secondary Data Analysis of P*ooled Pretests from 3 rct*

Drapkin, Yusko, Yasinski, Oslin, Hembree, & Foa (2011) conducted a clinical study to discover the functioning of individuals with a PTSD and/or AUD diagnosis. The age range of the 512 participants was nineteen to eighty-one (Drapkin et al., 2011). They compared individuals with PTSD alone, AUD alone, and a comorbid AUD/PTSD diagnosis. Drapkin and others (2012) used many tools to gather their statistics: Structural Clinical Interview for DSM-IV, Timeline Follow-Back Interview, Drinkers Inventory of Consequences, Penn Alcohol Cravings Scale, PTSD Symptom Scale, Interview version,

Structure interview for PTSD, Beck Depression Inventory II, and State-Trait Anxiety Inventory. The weakness of this study is the lack of a random trial and the fact that they gathered their participants through referrals and response to newspaper notifications (Drapkin et al., 2011). As far as this review is concerned, another weakness of this study is the lack of any treatment concerns being included.

Drapkin et al. (2011) found that even though individuals with a duel diagnosis of PTSD and AUD have more severe difficulties and limitations than individuals with a single diagnosis, they do not differ in the severity of their symptoms. Drapkin and others (2011) found that individuals who were treated both PTSD and AUD concurrently did not have a higher dropout rate than those treated for AUD first.

Drapkin and others (2011) thus posit that this finding contradicts the long standing belief that "comorbid patients are more impaired at treatment initiation" (p. 186). This is to say, that a comorbid condition impacts the clients ability to be treated. Drapkin and others (2011) use this finding along with the emerging body of evidence on co-treating PTSD and AUD to posit that support is growing for the concurrent treatment of PTSD and AUD/SUD. Drapkin and others (2011) recommend that future research continue along this path of research to better address the issue of treating comorbid PTSD and AUD diagnoses.

3.1.4 Multiple Case Study

McDevitt-Murphy (2011) provides a manuscript describing the protocol for Project VALOR; mentioned earlier in this section. "Project VALOR is an ongoing open trial conducted by the author at a VA Medical Center" (McDevitt-Murphy, p. 43, 2011). This project is geared towards veterans and their significant others (SOs). This report is meant to describe the rationale behind the co-current treatment of PTSD and AUD among OIF and OEF veterans. McDevitt-Murphy (2011) discusses how Project VALOR uses CBT

and focuses on both PTSD and alcohol misuse while involving the clients SOs at certain times throughout the treatment.

The researcher also included two case studies to highlight the process and shown outcomes of this program (McDevitt-Murphy, 2011). OIF and OEF veterans with PTSD and AUD are the targets of the program McDevitty-Murphy (2012) is discussing. The intervention discussed is a hybrid CBT program that targets alcohol and PTSD with cognitive skill building. The methods of assessment used in this program consist of Clinician-Administered PTSD Scale, the Time Line Follow Back for alcohol use, and the Alcohol Use Disorders Identification Test (McDevitt-Murphy, 2011). At baseline, the Structured Clinical Interview for *DSM–IV* was used to assess substance use disorders and comorbid conditions (McDevitt-Murphy, 2011).

The two case examples given showed mark improvement in all three baseline scores: AUDIT, CAPS, and PCL. The cases are highlighted in the following chart. You can see that these examples highlight the outcome of two very different cases in relation to their initial severity of presenting symptoms.

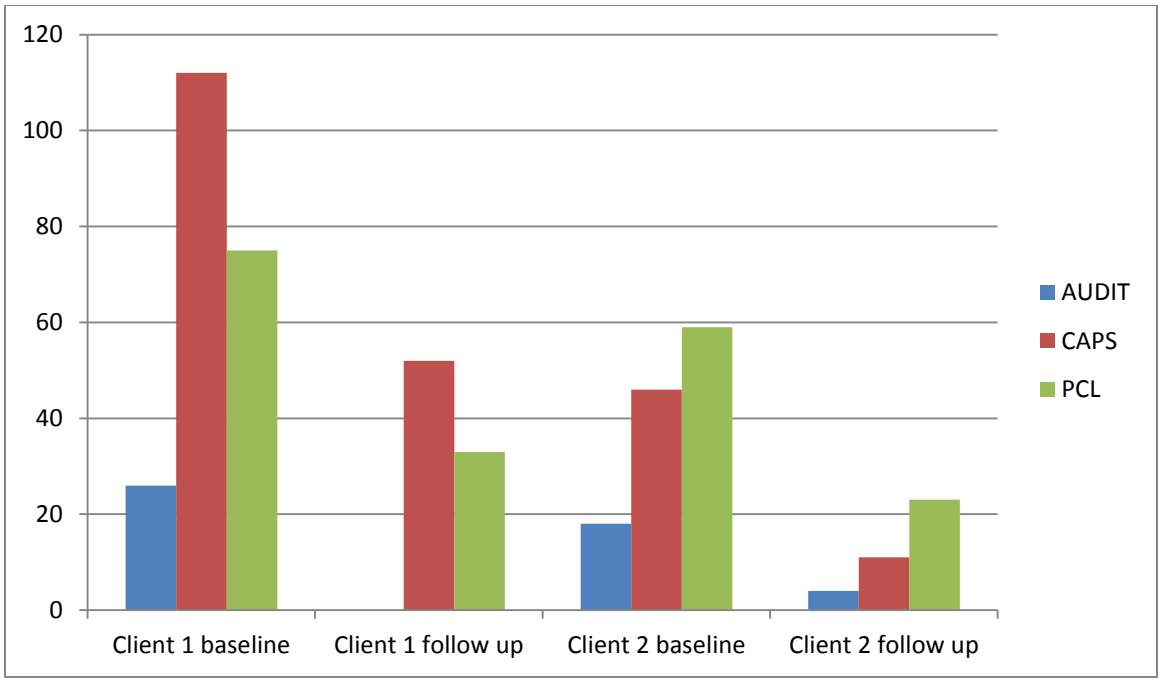

Figure 3-1 Case examples for Project VALOR

McDevitt-Murphy (2011) states that there is a need for future research and study on the topic of treating PTSD and AUD concurrently. The reason given for their development of this program is the link between coping for PTSD and AUD (McDevitt-Murphy, 2011). The techniques taught in one mode of therapy, addressing either PTSD or AUD, are often adopted to address the issues of the other condition. This is to say, that when providers teach a client how to cope with their PTSD symptoms, they often find that the client employs the same techniques in coping with their AUD symptoms or vice versa.

3.2 Synthesis of Results

The studies included in this review approach the question posed for this review from different avenues. Three studies were observational studies that looked at records compiled from the VA health care system (Hawkins et. al., 2012; Grossbard et. al., 2013

& Kaysen et. al., 2014). All studies addressed the comorbid issue of PTSD and AUD but each targeted a very specific component of that relationship and the approaches involved with their treatment.

Hawkins and others (2012) did not as much make an argument for the best treatment available for these conditions as to show the prevalence of what can be considered “maltreatment” that takes place in the VA with the prescribing of a medication that has been found harmful to this specific comorbid diagnosis. Hawkins et al. (2012) point out that the evidence base shows that the use of this form of medication is not appropriate to be used for the treatment of these dual conditions as well as the DOD’s guidelines warning against their prescription in this situation. They show us in a very specific way how training, education and monitoring are sorely lacking in the care of these individuals. Care givers need to be monitored and informed of the evidence supported “best practice” when treating this population.

The remaining four studies in this review all repeat the same argument; that the comorbid condition and influence each of these disorders have on each other’s symptomology warrant a concurrent treatment modality that addresses both diagnosis to be tested more rigorously (Grossbard et. al., 2013 & Kaysen et. al., 2014; McDevitt-Murphy, 2011 & Drapkin et al., 2011). Kaysen and others (2014) found that an AUD diagnosis does not negatively impact the treatment of PTSD. Drapkin and colleagues (2011) found that the initial symptom severity is not statistically more dire in individuals with a dual diagnosis; therefore, they posit that “this contradicts clinical lore that comorbid patients are more impaired at treatment initiation and adds support for concurrent treatment as not only feasible but also possibly ideal for these patients” (p. 186).

McDevitt-Murphy (2011) specifically state that a concurrent treatment modality is critical in the care of these individuals and they highlight this argument with two case

examples from their open trial. Grossbard and others (2013) posit that the treatment attrition for individuals with a dual PTSD and AUD diagnosis can be seen as a result of only addressing the AUD diagnosis and making the client feel as if they are not being adequately helped because of the lack of attention being paid to the PTSD diagnosis.

Overall, this review contained a series of observational studies that address PTSD and AUD. They all approached these conditions from a different avenue and perspective but all came to the same conclusion, that these conditions commonly coexist in today's veteran population and influence each other's symptomology. While it is likely that the treatment of one disorder, because of this similarity in symptoms, will lead to positive results, it is beginning to become agreed upon that these disorders should be approached concurrently. This is by no means concrete and all studies included in this review advise for more studies on these conditions with more rigorous study designs to yield the best possible evidence to base practice and treatments towards these conditions.

3.2.1 Sample

The majority of the studies included in this review were conducted as record reviews (Kaysen et. al., 2014; Grossbard et al., 2013 & Hawkins et al., 2012). Grossbard and others (2013) was the lone study of these three that conducted their review with a randomly selected pool of subjects. No outcomes were discussed in three of the studies (Grossbard et al., 2013; Hawkins et al., 2012 & Drapkin et al., 2011). Only two of the studies showed any comparison of pre and post treatment symptomology (McDevitt-Murphy, 2011 & Kaysen et al., 2014).

3.2.2 GRADE

The results of a GRADE analysis on the studies included in this review can be seen in table 2.3. All the studies in this review received a low GRADE. Nonrandom

assignments were the primary shortfall of many of the studies except Grossbard et al. (2013). Hawkins and others (2012) also did not receive a penalty for nonrandom assignment because they used all the data available for their inclusion criteria. McDevitt-Murphy (2011) had a point deducted for a risk of bias due to them choosing only two examples that support their studies efficacy.

3.2.3 Risk of Bias

The three possible biases that were encountered were location, outcome reporting and attrition (Higgins and Altman, 2008 & Cochrane Bias Methods Group, 2013). Three studies were conducted on records of specific VA regions (Kaysen et. al., 2014; Grossbard et al., 2013 & Hawkins et al., 2012) and one study selected only two cases in which to highlight their studies effectiveness (McDevitt-Murphy, 2011). Kaysen and others (2014) also suffered from attrition with 11 % of their data missing.

Table 3-1 Results for Articles Reviewed: GRADE Criteria

Study	Study Design	Quality of evidence	Directness*	Quality	GRADE	Comment
Kaysen et. al. (2014)	Case series Pre/Posttest comparison	Moderate	0	-1	Low	missing data
Grossbard et. al. (2013)	Retrospective cross-sectional study	Low	0	0	Low	
Hawkins et. al. (2012)	Retrospective cross-sectional study	Low	0	0	Low	
Drapkin et. al. (2011)	Secondary data analysis of pooled pretests from 3 rcts	moderate	0	-1	Low	Non random
McDevitt-Murphy (2011)	Multiple case study	moderate	-1	0	Low	Risk of bias,

GRADE indicates he Grading of Recommendations Assessment, Development and Evaluation (GRADE working group, 2006)
The final GRADE score is derived from deducting or adding from the initial rating. The preset criteria that is evaluated is the directness (generalizability to the population), and quality (methodological rigor).

Chapter 4

Discussion

This review has set out to uncover what current research states about the treatment of PTSD and AUD in US veterans. Results suggest that there is a severe lack of high quality research on this topic. It also shows that over the past few years the treatment focus has begun to change and countered the previous assumptions of “best practices” in dealing with individuals with this dual diagnosis.

The literature that is available shows mixed results. One study included in this review posed the argument that there is no “empirical evidence” to base a concurrent treatment modality for individuals suffering from both PTSD and AUD (Grossbard et. al., 2013). Two years earlier, Drapkin and others (2011) posited that there is no reason for there not to be a concurrent treatment modality for this dual diagnosis. They do argue that there is a need for more research conducted define best practice for the treatment of these often comorbid disorders; a notion reiterated by the other studies found for this review (Grossbard et. al., 2013; Drapkin et. al., 2011; McDevitt-Murphy, 2011 & Kaysen et. al., 2014).

4.1 Comparative International Study

A higher quality international study (therefore not meeting inclusion criteria) that was found during the search process supports much of the information found. Sannibale and colleagues (2013) conducted a randomized controlled trial comparing alcohol disorder treatment with an integrative therapy approach. The clients were treated in twelve once a week sessions with either integrated CBT for PTSD and AUD or CBT for only AUD (Sannibale et al., 2013). Sannibale and colleagues (2013) found that participants had a “two fold greater likelihood of a clinically significant reduction in CAPS-

assessed PTSD severity at follow up" with the integrative therapy; the CAPS being a well-researched clinician administered PTSD scale (p. 1404).

They found that CBT treatments for AUD only had more impact across AUD symptoms and also ameliorated PTSD symptoms, although not as greatly as the integrated treatment (Sannibale and colleagues, 2013). This leads them to posit in their discussion that PTSD and AUD are arguably linked and likely "feed" on each other's symptoms to strengthen their impact on the individual. Sannibale and others (2013) move on to that individuals might benefit from first addressing AUD then PTSD. This argument comes from their comparing their results with previous research. AUD has been found to respond much better to sole treatment over and integrated approach while PTSD symptoms have been shown to become somewhat improved with the same single target treatment for AUD.

The researchers attribute the possibility of treating PTSD immediately after AUD to what was discussed earlier; that the lessons learned for coping with one condition can be employed to counter the other disorder (Sannibale et. al., 2013). This compounding skill attainment that can be seen from treating AUD then PTSD can be argued to avoid "diluting" the treatment of either condition and is likely to support sustained improvements in both the SUD and PTSD (Sannibale et. al., p. 1406, 2013). However, this fails to address the potential neurological effects of AUD treatment for both disorders. Similar areas of the brain, cellular and molecular level processes, and neural circuits are involved in both conditions (Norman et al., 2011). While this sounds like an argument that merits more study, other research has posited that only treating the AUD diagnosis and holding off on treating the PTSD diagnosis may attribute to treatment attrition (Drapkin et al., 2011)

4.2 Treatment Options

Cognitive and behavioral interventions were the primary target therapies for most of the studies found for this review (Drapkin et al., 2011; Sannibale et. al., 2013; McDevitt-Murphy, 2011 & Kaysen et. al., 2014). These studies also went on to recommend a concurrent manner of addressing the comorbid diagnosis of PTSD and AUD. The one study that was excluded from the review posits that even though the best results seem to come from an intervention that targets both sets of symptoms, that the learning from AUD treatments may "roll" over into the individuals PTSD treatment so that the client may benefit from a treatment model that first addresses the AUD diagnosis, then the PTSD (Sannibale et al., 2013). This conclusion differs from those of the other studies in this review (Drapkin et al., 2011; Sannibale et. al., 2013; McDevitt-Murphy, 2011 & Kaysen et. al., 2014)

The argument for a concurrent treatment is furthered by the study included in this review that examined the level of functionality of the individual at baseline across three randomized clinical trials (Drapkin et al., 2011). The idea that individuals with comorbid diagnosis are lower functioning and respond less to concurrent treatment was not suggested. Drapkin and others (2011) found that while the psychosocial level of functioning with a dual diagnosis may be worse, the level of symptom severity was quite close to that of those with a single diagnosis.

This finding suggests the faulty belief that a dual diagnosis complicates treatment and treating both disorders concurrently is counterproductive. This information allots for the argument that while a dual diagnosis might require more broad interventions to address the many psychosocial complications that are present, the impact on treating the behavior and psychological concerns is similar to those with a single diagnosis.

A lone study included in this review covers pharmacological treatments for PTSD. The finding that individuals in the VA are being prescribed a medication that has been warned against and found to be likely to lead to addiction and misuse goes on to support the argument that more research is required on the treatment of concurrent PTSD and AUD and to monitor VA providers adherence to evidence-based treatment guidelines (Hawkins et al., 2012). Not only is research on treatment required, but training and education of the individuals charged with caring for clients with these comorbid conditions is called for.

4.3 Implications on Social Work

What can be discerned from this research for application to the Social Work field is multifaceted. The need for more research is, indeed, a primary concern that can be found from the sparse and weak research that is current. What information is available all speaks to a similar point. The old belief that individuals presenting with both PTSD and AUD should be treated for the substance abuse first is beginning to show an increased need towards more specific “high quality” research to ensure a “best practice” approach for supported evidence-based practice and treatment.

The factor that these disorders seemingly “feed” on each other provides a platform to argue that in order to treat these conditions when they occur in a comorbid fashion, the best modality is a concurrent treatment plan. The research up to this point has been weak but it is becoming stronger and more focused. The finding of Drapkin and others (2011) is one of the older studies included in this review but it provides evidence that the treatment for individuals presenting with both these conditions is complex.

Their findings suggest that treating these comorbid conditions from a clinical stand point may not be markedly different than treating the conditions on a singular basis. This is to say, that individuals presenting with both PTSD and AUD, as opposed to just

PTSD or AUD are likely to have similar symptom severity. The difference in the cases can be seen to be more based in their psychosocial deficits (housing, work, personal relationships, etc.). Their deficit in social function amplifies the case management need of these individuals with a dual diagnosis. The argument that can be supported by this reviews findings is that there is a need for more high level research targeting this population to provide a more appropriate source of evidence for practice.

Drapkin and others' (2011) study leads us to a better understanding of the complex need for case management in these cases with a dual diagnosis. Homelessness among veterans has been gaining attention in recent years with a growing body of research. Winn, Shealy, Krop, Felkins-Dohm, Gonzales-Nolas & Francis (2013) found that a major component of treatment attrition was the time frame between assessment and treatment. Higher levels of psychosocial difficulties were also found to be a major contributor to an individual seeking or not seeking treatment (Winn and others, 2013). Much like what Drapkin and others (2011) discussed, individuals presenting with comorbid PTSD and AUD disorders are much more likely to have compounded psychosocial impairments that impact their ability to seek treatment and maintain contact with the facility during long wait periods.

Edens, Kasprow, Tsai, & Rosenheck (2011) found that AUD is the third greatest predictor of a veteran being homeless; behind illicit drug abuse and pathological gambling. Edens and others also point out that the main obstacle to treating the most at risk populations is identification. A study conducted by Harmon (2012) found that post deployment screenings can greatly increase the efficacy of addressing this "identification" short fall.

The primary finding from this review with implications for Social Work practice is the need for case management with these individuals presenting with comorbid PTSD

and AUD diagnoses. The additive effects these disorders have on the individuals warrant a more intensive treatment modality than psychoeducation alone. Simply treating PTSD and or AUD in the case of a dual diagnosis only addresses one aspect of the client's deficits. A dual diagnosis is likely to be accompanied by a lack of multiple social and personal hardships. Social workers sit in a prime position to address the multiple needs and environmental difficulties that are likely to be seen. The "case management" hat that is part of the social workers repertoire is a tool that can be employed to address the multi-faceted condition that is often present in clients with this pair of conditions.

4.4 Conclusion

Even with the long standing interest in treatment for PTSD and AUD the literature focused on these two conditions in a comorbid presentation is slowly developing. Much of the research available is weak or outdated. Even with this poor quality evidence base, the understanding of the importance of this information is rapidly growing. Future research needs to focus more on generating strong findings that address the treatment of these often comorbid conditions.

This review was concerned with a very specific research question and followed strict guidelines for research inclusion. It did so in order to synthesize what is known about a particular population. What was found shows the increasing need for this research and an increased need for higher "quality" research that addresses treatment of these often comorbid conditions. Clinical trials with high standards that address this concurrent diagnosis are sorely needed to build a stronger evidence base for these two conditions. Future systematic reviews that are inclusive of a wider range of dates may also be beneficial. Changing the inclusion date to be fifteen years instead of the five used for this systematic review will be useful in showing the current evolution of the knowledge that pertains to these dual conditions.

Appendix A

Excluded Studies

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Biographical Information

Anthony Ensey graduated High School and enrolled immediately into a local community college. He did not know what it was he wanted to pursue for a career but knew he had to get started towards “something”. Upon completion of an associate’s degree he decided to join the military and gain some life experience. He served for seven years in the United States Air Force as an assistant dedicated crew chief on the F-15 Eagle fighter jet and teaching aircraft maintenance, receiving a second and third associates degree from the Community College of the Air Force (CCAF). After seven years of service, Anthony separated from the Air Force under Honorable Conditions and enrolled in the Dallas Institute of Funeral Service, receiving another associate’s degree in Funeral Science. From here, he went back to college at the University of Maryland University College in order to obtain a BS degree in social sciences. This led to his enrollment in the University of Texas at Arlington’s master’s program for Social Work. He spent most of his time and effort researching PTSD and its many facets, eventually deciding to concentrate on PTSD as it relates to addiction, particularly alcohol use. This research was the catalyst for his completion of a thesis targeting these conditions. Anthony hopes to continue his research on PTSD and addiction by working with veterans as a clinical social worker.