CLINICIAN'S TRAUMA UPDATE

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TREATMENT

Advantages of integrated treatment for PTSD and substance use disorder

Substance abuse disorders (SUDs) frequently co-occur with PTSD. Although in practice these disorders are often treated sequentially, integrated treatments have been developed to target both conditions simultaneously. However, these treatments are often not utilized, perhaps due to clinicians' concerns that addressing trauma may lead to exacerbation of substance use. To address this question, several recent studies examined the effects of integrated treatments for PTSD and SUD on PTSD symptomatology and substance use.

A study led by investigators from the National Center for PTSD compared the efficacy and tolerability of two integrated treatments for PTSD and alcohol use disorder (AUD) in a randomized clinical trial (RCT). A total of 119 Veterans with PTSD and AUD were randomized to integrated exposure therapy (Concurrent Treatment for PTSD and Substance Use Disorder using Prolonged Exposure; COPE) or integrated coping skills therapy (Seeking Safety; SS). COPE augments PE for PTSD with cognitive behavioral relapse prevention (RP) skills for SUD in each session. Seeking Safety is a present-focused treatment that teaches cognitive-behavioral and interpersonal techniques and uses case management to address PTSD and SUD. Treatment consisted of 12 to 16 90-minute sessions of individual therapy. PTSD symptoms as assessed by the CAPS-5 improved in both conditions, with a greater decrease for those receiving COPE compared to SS (d = .41). COPE also had higher rates of PTSD remission than SS following treatment (p = .047) and at 3-month follow-up (p = .03). Alcohol use (percent heavy drinking days and percentage of days abstinent) improved in both conditions with no difference between treatments. Veterans in the SS condition completed a greater number of sessions than COPE (11.4 vs. 8.4), but satisfaction ratings of both treatments were high and did not differ.

Read the article: http://www.ptsd.va.gov/professional/articles/article-pdf/id52065.pdf

Investigators from the Medical University of South Carolina conducted another RCT evaluating the efficacy of COPE. Eighty-one Veterans with PTSD and SUD were randomized to receive COPE or RP, a SUD treatment that teaches skills to manage cravings and highrisk situations related to substance use. Both treatments were conducted in 12 individual 90-minute sessions. Veterans attended a similar number of sessions in both conditions (M = 8.8 for COPE vs. 7.4 for RP). Findings were very similar to the findings on COPE and SS. PTSD symptom severity improved in both groups, but Veterans in the COPE condition improved more than those receiving RP on both clinician-rated (d = 1.4) and self-reported (d = 1.3) symptoms of PTSD. A higher proportion of Veterans in COPE achieved diagnostic remission for PTSD compared to RP (59.3% vs. 22%). Treatment gains were maintained at 3- and 6-month follow-ups in both groups. Substance use decreased significantly and comparably in both groups, with 42.6% of Veterans receiving COPE and 25.9% in RP reporting three consecutive weeks of abstinence during treatment. At 6-month follow-up, Veterans in COPE reported fewer drinks per drinking day than those in RP (4.5 vs. 8.3).

Read the article: https://doi.org/10.1016/j.addbeh.2018.11.032

Two additional studies by investigators at the Medical University of South Carolina examined data from the COPE versus RP trial to investigate potential symptom exacerbation. One study examined whether craving and distress following imaginal exposure predicted substance use, PTSD severity, or treatment dropout during the following week. During sessions 4-11, a sample of 46 Veterans rated their level of craving for their substance of choice before and after in-session imaginal exposures and their level of distress before, after, and every 5 minutes during the imaginal exposures. Although Veterans reported a relative increase in cravings and distress from pre- to post-imaginal exposure at each session, the prior week's craving and distress ratings were not associated with the following week's substance use or PTSD severity. However, Veterans who showed between-session increases in craving and distress were slightly more likely to drop out of treatment compared to those whose ratings did not increase. Another study used reliable change analyses to examine the exacerbation of PTSD, SUD, and depression symptoms among 74 Veterans receiving COPE versus RP. Symptom exacerbations were minimal and similar across both groups, and there were no group differences in dropout (55% completed COPE; 57% completed RP). In both conditions, experiencing an exacerbation of PTSD symptoms during treatment was not associated with a greater likelihood of PTSD diagnosis after treatment.

Read the articles:

https://doi.org/10.1016/j.addbeh.2018.10.020

https://doi.org/10.1017/s1352465819000304

A third additional study compared symptoms and outcomes of Veterans receiving COPE who had single (n=39) vs. poly-SUD (n=15) diagnoses. Both groups reported similar levels of baseline substance use frequency and PTSD severity, and treatment retention was similar between groups. Veterans in both groups reported decreases in substance use frequency and PTSD severity over the course of treatment. However, Veterans with poly-SUD showed greater reduction in substance use frequency than those with a single SUD, while Veterans with a single SUD had greater reductions in PTSD severity. The authors suggest that PTSD symptoms may remain higher in the poly-SUD group because these Veterans are no longer self-medicating or may be experiencing more significant withdrawal that may mimic or exacerbate PTSD symptoms.

Read the article: https://doi.org/10.1016/j.drugalcdep.2019.04.001

Together these studies demonstrate that an integrated exposure therapy is preferable to integrated treatment without exposure or a SUD-only treatment for Veterans with PTSD and SUD. The treatments do not differ in their effects on SUD outcomes, and integrated exposure therapy is better for PTSD. Addressing both disorders concurrently provides a more efficient mode of treatment and engaging in exposures does not appear to exacerbate substance use. Normalizing the potential for some

symptom exacerbation may help to encourage patients to remain in treatment, particularly since exacerbation was not related to worse PTSD symptom outcomes.

Back, S. E., Killeen, T., Badour, C. L., Flanagan, J. C., Allan, N. P., Santa Ana, E., . . . Brady, K. T. (2019). Concurrent treatment of substance use disorders and PTSD using prolonged exposure: A randomized clinical trial in military veterans. *Addictive Behaviors*, 90, 369-377. PTSDpubs ID: 51384

Jarnecke, A. M., Allan, N. P., Badour, C. L., Flanagan, J. C., Killeen, T. K., & Back, S. E. (2019). Substance use disorders and PTSD: Examining substance use, PTSD symptoms, and dropout following imaginal exposure. *Addictive Behaviors*, 90, 35-39. PTSDpubs ID: 52072

Jeffirs, S. M., Jarnecke, A. M., Flanagan, J. C., Killeen, T. K., Laffey, T. F., & Back, S. E. (2019). Veterans with PTSD and comorbid substance use disorders: Does single versus poly-substance use disorder affect treatment outcomes? *Drug and Alcohol Dependence*, 199, 70-75. PTSDpubs ID: 52073

Lancaster, C. L., Gros, D. F., Mullarkey, M. C., Badour, C. L., Killeen, T. K., Brady, K. T., & Back, S E. (2019). Does trauma-focused exposure therapy exacerbate symptoms among patients with comorbid PTSD and substance use disorders? *Behavioural and Cognitive Psychotherapy*. Advance online publication. PTSDpubs ID: 52077

Norman, S. B., Trim, R., Haller, M., Davis, B. C., Myers, U. S., Colvonen, P. J., . . . Mayes, T. (2019). Efficacy of integrated exposure therapy vs integrated coping skills therapy for comorbid posttraumatic stress disorder and alcohol use disorder: A randomized clinical trial. *JAMA Psychiatry*. Advance online publication. PTSDpubs ID: 52065

PTSD treatment can reduce suicidal ideation among PTSD patients

It is critically important to understand how treatments for PTSD affect suicide risk. Investigators with the STRONG STAR consortium assessed changes in suicidal ideation among PTSD patients receiving one of two forms of PE (a traumafocused treatment) compared to PCT (a non-trauma-focused treatment) and a minimal contact control (MCC) condition, respectively. Active duty personnel with PTSD (N = 335) were randomized to either "spaced" PE (delivered over 8 weeks) versus PCT, or "massed" PE (delivered over two weeks) versus MCC. Degree of suicidal ideation (SI) was assessed at multiple times during treatment and follow-up. Massed PE showed more rapid reductions in SI compared to MCC, demonstrating the effectiveness of PE for reducing SI. Spaced PE and PCT showed reductions in SI over time, but did not differ. Of the 19 participants in PCT who reported any SI at baseline, 14 (74%) had reliable improvement in SI, and of the 27 participants in S-PE who reported any SI at baseline, 15 (56%) had reliable improvement. Importantly, decrease in SI correlated with the decrease in PTSD severity during treatment. These findings add to the growing literature showing that treating PTSD can help reduce SI in PTSD patients and suggest that both trauma-focused and non-traumafocused approaches are effective.

Read the article: http://www.ptsd.va.gov/professional/articles/article-pdf/id52064.pdf

Brown, L. A., McLean, C. P., Zang, Y., Zandberg, L., Mintz, J., Yarvis, J. S., . . . Foa, E. B. (2019). Does prolonged exposure increase suicide risk? Results from an active duty military sample. *Behaviour Research and Therapy*, 118, 87-93. PTSDpubs ID: 52064

There have been a number of systematic reviews and metaanalyses published recently. Hamblen and colleagues updated the "guide to guidelines" for the treatment of PTSD, comparing and contrasting guidelines from the American Psychological Association, International Society for Traumatic Stress Studies, the National Institute for Health and Care Excellence, Phoenix Center for Posttraumatic Mental Health, and VA/Department of Defense.

Read the article: http://www.ptsd.va.gov/professional/articles/article-pdf/id52066.pdf

Hamblen, J. L., Norman, S. B., Sonis, J. H., Phelps, A. J., Bisson, J. L., Nunes, V. D., . . . Schnurr, P. P. (2019). A guide to guidelines for the treatment of posttraumatic stress disorder in adults: An update. *Psychotherapy*, PTSDpubs ID: 52066

Several reviews focused on novel treatments—ketamine, 3,4-methylenedioxymethhamphetamine (MDMA), cannabinoids, and exercise. One specifically focused on the use of cannabinoids for treating sleep problems.

Read the articles:

http://www.ptsd.va.gov/professional/articles/article-pdf/id52071.pdf

Hegberg, N. J., Hayes, J. P., & Hayes, S. M. (2019). Exercise intervention in PTSD: A narrative review and rationale for implementation. *Frontiers in Psychiatry*, 10, 133. PTSDpubs ID: 52071

https://doi.org/10.1037/pha0000285

Kuhathasan, N., Dufort, A., MacKillop, J., Gottschalk, R., Minuzzi, L., & Frey, B. N. (2019). The use of cannabinoids for sleep: A critical review on clinical trials. *Experimental and Clinical Psychopharmacology*, 23, Advance online publication. PTSDpubs ID: 52076

https://doi.org/10.7573/dic.212305

Liriano, F., Hatten, C., & Schwartz, T. L. (2019). Ketamine as treatment for post-traumatic stress disorder: a review. *Drugs in Context*, 8, 212305. PTSDpubs ID: 52079

https://doi.org/10.1016/j.pnpbp.2019.03.017

Ney, L. J., Matthews, A., Bruno, R., & Felmingham, K. L. (2019). Cannabinoid interventions for PTSD: Where to next? *Progress in NeuroPsychopharmacology and Biological Psychiatry*, 93, 124-140. PTSDpubs ID: 52081

https://doi.org/10.3389/fpsyt.2019.00138

Sessa, B., Higbed, L., & Nutt, D. (2019). A review of 3,4 methylenedioxymethamphetamine (MDMA)-assisted psychotherapy. *Frontiers in Psychiatry*, 10, 138. PTSDpubs ID: 52083

Other reviews focused on more established treatments—group psychotherapy and Narrative Exposure Therapy—and one focused on transcranial magnetic stimulation, an established treatment for depression that does not yet have a conclusive evidence base in PTSD.

Read the articles:

https://doi.org/10.1002/brb3.1284

Cirillo, P., Gold, A. K., Nardi, A. E., Ornelas, A. C.,
Nierenberg, A. A., Camprodon, J., & Kinrys, G.
(2019). Transcranial magnetic stimulation in
anxiety and trauma-related disorders: A systematic review and meta-analysis. *Brain and Behavior*, e01284. Advance online publication. PTSDpubs ID: 52069

https://doi.org/10.1080/20008198.2018.1550344

Lely, J. C. G., Smid, G. E., Jongedijk, R. A., Knipscheer, J. W. & Kleber, R. J. (2019). The effectiveness of narrative exposure therapy: A review, meta-analysis and meta-regression analysis. *European Journal of Psychotraumatology*, 10, 1550344. PTSDpubs ID: 52078

https://doi.org/10.1080/10503307.2017.1405168

Schwartze, D., Barkowski, S., Strauss, B., Knaevelsrud, C., & Rosendahl, J. (2019). Efficacy of group psychotherapy for posttraumatic stress disorder: Systematic review and meta-analysis of randomized controlled trials. *Psychotherapy Research*, 29, 415-431. PTSDpubs ID: 49815

Two reviews examined factors associated with the receipt of treatment—one on receipt of trauma-focused cognitive-behavioral therapy, and the other on mental health care utilization in the VA healthcare system.

Read the articles:

https://doi.org/10.1037/tra0000461

Johnson, E. M., & Possemato, K. (2019). Correlates and predictors of mental health care utilization for veterans with PTSD: A systematic review. *Psychological Trauma*. Advance online publication. PTSDpubs ID: 52074

http://www.ptsd.va.gov/professional/articles/article-pdf/id52084.pdf

van den Berk Clark, C., Moore, R., Secrest, S., Tuerk, P., Norman, S., Myers, U., . . . Scherrer, J. F. (2019). Factors associated with receipt of cognitive-behavioral therapy or prolonged exposure therapy among individuals with PTSD. *Psychiatric Services*. Advance online publication. PTSDpubs ID: 52084

Lastly, two reviews focused on specific populations—one on Veterans with dementia, and the other on psychological treatment for complex PTSD defined according to ICD-11.

Read the articles:

http://www.ptsd.va.gov/professional/articles/article-pdf/id52075.pdf

Karatzias, T., Murphy, P., Cloitre, M., Bisson, J., Roberts, N., Shevlin, M., . . . Hutton, P. (2019). Psychological interventions for ICD-11 complex PTSD symptoms: Systematic review and meta-analysis. *Psychological Medicine*. Advance online publication. PTSDpubs ID: 52075

https://doi.org/10.1111/inm.12601

Ritchie, K., Cramm, H., Aiken, A., Donnelly, C., & Goldie, K. (2019). Post-traumatic stress disorder and dementia in veterans: A scoping literature review. International *Journal of Mental Health Nursing*. Advance online publication. PTSDpubs ID: 52082

Cognitive performance combined with neuroimaging may identify PTSD patients unlikely to respond to PE

PTSD can present very differently from one patient to the next. This symptom heterogeneity has not yet been helpful in determining which treatments might be better for specific patients. A group of investigators assessed whether cognitive performance combined with neuroimaging data could define clinically meaningful subgroups of PTSD patients. In two separate studies, PTSD patients showed impairment on a verbal memory task compared to controls. The most impaired PTSD patients also demonstrated lower resting-state functional magnetic resonance imaging connectivity within the Ventral Attention Network (VAN), a network involved in directing attention towards salient stimuli and previously implicated in the neurobiology of PTSD. Patients with both impaired verbal memory and lower VAN connectivity (but neither on its own) were less responsive to PE, although they did not differ from PE responders in terms of PTSD severity or any clinical or demographic factor. A subsequent study showed that a single pulse of TMS delivered to a cortical node of the VAN (but not a control region) led to a unique perturbation of the network as measured by EEG only in those PTSD patients with lower VAN connectivity; this helps validate specific VAN dysfunction in these patients. These findings suggest that combined behavioralbiological markers may be better at predicting PTSD treatment response than specific symptoms or clinically-defined PTSD subtypes. More study is needed to validate these results and potentially extend the research to other types of PTSD treatment.

Read the article: https://doi.org/10.1126/scitranslmed.aal3236

Etkin, A., Maron-Katz, A., Wu, W., Fonzo, G. A., Huemer, J., Vertes, P. E., . . . O'Hara, R. (2019). Using fMRI connectivity to define a treatment-resistant form of post-traumatic stress disorder. *Science Translational Medicine*, 11(486). PTSDpubs ID: 52070

Compassion Meditation as a promising treatment for PTSD

Surveys indicate that many individuals with PTSD engage in alternative treatments such as meditation, which has shown promise in PTSD (see the August 2018 CTU-Online and the August 2015 CTU-Online). A new proof-of-concept pilot study suggests that compassion meditation may be an additional approach for individuals with PTSD. Investigators at the Center of Excellence for Stress and Mental Health randomized 37 Veterans with PTSD to receive compassion meditation or Veteran.calm, which includes psychoeducation, relaxation training, and sleep hygiene. The investigators describe compassion meditation as exploring "to develop a sense of common humanity and generate the heartfelt wish that the self and others be free of suffering." Both treatments were delivered in 10 90-minute group sessions. Among the 28 Veterans who attended at least one treatment session and participated in outcome measurement, there was greater improvement among those who received compassion meditation compared with those who received

Veteran.calm (between-groups *d*=.85 for the CAPS and .43 for the PCL). Although these results do not include all randomized participants, they do demonstrate feasibility and acceptability, and support the rationale for further investigation.

Read the article: https://doi.org/10.1002/jts.22397

Lang, A. J., Malaktaris, A. L., Casmar, P., Baca, S. A., Golshan, S., Harrison, T., & Negi, L. (2019). Compassion meditation for posttraumatic stress disorder in veterans: A randomized proof of concept study. *Journal of Traumatic Stress*, 32, 299-309. PTSDpubs ID: 51896

Academic detailing within the VA leads to lower prescribing of benzodiazepine for PTSD patients

Academic detailing – targeted educational outreach to providers to enhance evidence-based practice - has been implemented within VA to decrease inappropriate prescribing of benzodiazepines. Investigators at the San Diego VA conducted a national quality improvement evaluation of academic detailing targeting benzodiazepine prescribing for PTSD patients within the VA. A retrospective cohort study was conducted using one year of national VA administrative data. The prevalence of Veterans prescribed a benzodiazepine was compared between providers exposed to academic detailing (n = 503) versus providers not exposed (n = 1749). Overall, the percentage of Veterans receiving a benzodiazepine prescription decreased over the one-year study period, but the decrease was greater among prescribers exposed to academic detailing (18.4% among exposed providers compared to 8.7% for unexposed providers). This study supports VA's use of academic detailing to enhance evidence-based prescribing for PTSD patients.

Read the article: https://doi.org/10.1080/08897077.2019.1573777

Bounthavong, M., Lau, M. K., Popish, S. J., Kay, C. L., Wells, D. L., Himstreet, J. E., Christopher, M. L. D. (2019). Impact of academic detailing on benzodiazepine use among veterans with posttraumatic stress disorder. *Substance Abuse*. Advance online publication. PTSDpubs ID: 52068

Therapist effects on patient outcome in Cognitive Processing Therapy

Two recent studies examined aspects of treatment fidelity in delivering CPT. Treatment fidelity (including adherence to key components of the intervention and competence in delivering the treatment) is emphasized in training and implementing evidence-based psychotherapies, yet the impact of fidelity on process and outcomes is not well-documented.

Investigators from Duke University Medical Center examined the effect of therapist concerns about CPT —"stuck points"—on training outcomes. Therapists participating in a CPT Learning Collaborative (N = 57) were asked about stuck points related to CPT after each of 3 in-person learning sessions completed over 8 months. Clinicians rated their belief in each of 37 stuck

points on a scale of 0-100%. Therapist competence was assessed through audio recordings of CPT sessions. There was a significant reduction in therapist stuck points from mid-training to the end of training, but not from beginning to mid-training. Therapists who attended a higher number of consultation calls had a greater reduction in stuck points. Average level of stuck points at the beginning or end of training did not predict competence in delivering CPT, but greater reduction in stuck points over time predicted greater competence. Higher average therapist stuck points at the beginning and end of treatment predicted a lower likelihood of using CPT 12 months later.

Read the article: https://doi.org/10.1037/pro0000224

When delivering EBPs in routine clinical care, clinicians often make modifications to the treatments to address contextual or client-level challenges. Although some purposeful modifications retain the fundamental elements of the intervention, adaptations that are less systematically implemented and not theoretically consistent with the therapy may negatively impact treatment fidelity. A recent study led by investigators at Massachusetts General Hospital examined how fidelity and adaptations were related to patient outcomes in an open trial of CPT implementation in a community setting. The 19 participating clinicians treated 58 patients. Raters assessed therapist adherence, competence, and protocol modifications. Patient-reported PTSD (PCL-S) and depression (PHQ-9) symptoms were tracked weekly. Adherence was associated with greater reductions in patients' depressive symptoms, whereas

competence was associated with greater reductions in PTSD. Fidelity-consistent modifications, which were associated with higher competence, were associated with larger reductions in both PTSD and depression. These findings suggest that implementing modifications to CPT in a manner that preserves essential elements of CPT may improve outcomes in routine care settings.

Read the article: http://www.ptsd.va.gov/professional/articles/article-pdf/id51932.pdf

These studies illustrate the impact of therapist behaviors on patient outcome. The findings on therapist stuck points shows that it is important to address clinicians' concerns about CPT during the training process in order to improve fidelity and increase implementation of CPT. Manualized therapy is sometimes characterized as rigid and insufficiently tailored to patient needs. However, the findings on modifications show that although adherence and competence matter, theoretically consistent modification may be desirable.

LoSavio, S.T., Dillon, K.H., Murphy, R. A. & Resick, P. A. (2019). Therapist stuck points during training in cognitive processing therapy: Changes over time and associations with training outcomes. Professional Psychology: *Research and Practice*. Advance online publication. PTSDpubs ID: 52080

Marques, L., Valentine, S. E., Kaysen, D., Mackintosh, M., Dixon De Silva, L. E., Ahles, E. M., ... Wiltsey-Stirman, S. (2019). Provider fidelity and modifications to cognitive processing therapy in a diverse community health clinic: Associations with clinical change. *Journal of Consulting and Clinical Psychology*, 87, 357-369. PTSDpubs ID: 51932

ASSESSMENT

How to measure therapists' knowledge about Cognitive Processing Therapy

When training therapists to use a new treatment, it is important to assess the knowledge gained in training. Of course, being able to put this knowledge into practice and doing so with fidelity and competence is critical. But the knowledge itself is foundational, so it is necessary to be able to assess what has been learned. The Knowledge Assessment of CPT Critical Skills (KACCS) Scale, and online questionnaire, provides a way to do this for CPT. Investigators at the University of Southern California developed 7 written and 19 video scenarios and 40 multiplechoice questions, and administered these to a sample of 88 participants with varying degrees of CPT knowledge. Using Item Response Theory and expert consensus, they selected 30 items for the final scale, which has 5 subscales: handling avoidance, Socratic questioning, identifying stuck points, challenging questions and beliefs, and differentiating traumas. They then showed that it could discriminate between groups with different levels of CPT knowledge and demonstrated that KACCS scores increased from before to after CPT training in a separate sample of 11 trainees. The increases were statistically significant for only handling avoidance and Socratic questioning, although the lack

of difference for the other subscales may be due to low statistical power. The author suggest that the 45-minute minimum time needed to complete the KACCS—due to the video scenarios—may be a limitation, but the use of video may be a more clinically realistic way of testing knowledge.

Read the article: https://doi.org/10.1093/milmed/usy341

Atuel, H. R., Ursich, L., Schuyler, A., Berg, D., Kintzle, S., & Castro, C. (2019). Implementing the Knowledge Assessment of CPT Critical Skills (KACCS) Scale. *Military Medicine*, 184 (Supp.1), 461-466. PTSDpubs ID: 52067

A new measure of Veterans' well-being

Military service can have multiple and wide-ranging effects on a Veteran's life. Researchers at the National Center for PTSD recently reported on the development of a new questionnaire to assess functioning, status, and satisfaction in Veterans, the Well-Being Inventory (WBI). To develop the items, the investigators first conducted a longitudinal web-based survey, with 221

Veterans completing assessment approximately 3 months apart. In a second study, the investigators used a mailed survey to validate the measure in a sample of 9,566 Veterans, 79% of whom completed a follow-up 6 months later. Sixteen factors were identified by confirmatory factor analysis, and then validated in a series of analyses, including one showing that Veterans with one or more mental health conditions reported lower well-being on all items relative to Veterans who had no mental health conditions. The WBI also showed sensitivity to change. Veterans who reported a new mental health condition at Time 2 had greater decreases on most items at follow-up. The development

of this scale is an important advance because the measure comprehensively assesses multiple domains related to vocation, finances, health, and social relationships in diverse Veteran populations.

Read the article: http://www.ptsd.va.gov/professional/articles/article-pdf/id51985.pdf

Vogt, D., Nillni, Y. I., Taverna, E. C., Tyrell, F. A., Booth, B., Perkins, D. F., . . . Gilman, C. L. (2019). Development and validation of a tool to assess military veterans' status, functioning, and satisfaction with key aspects of their lives. Applied Psychology: Health and Well-Being. *Advance online publication*. PTSDpubs ID: 51985



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