CARDIFF UNIVERSITY
PRIFYSGOL CAERDYDD

ORCA – Online Research @ Cardiff

This is an Open Access document downloaded from ORCA, Cardiff University's institutional repository:https://orca.cardiff.ac.uk/id/eprint/120985/

This is the author's version of a work that was submitted to / accepted for publication.

Citation for final published version:

Bisson, J , Berliner, L, Cloitre, M, Forbes, D, Jensen, T, Lewis, C , Monson, C, Olff, M, Pilling, S, Riggs, D, Roberts, Neil and Shapiro, F 2019. The international society for traumatic stress studies new guidelines for the prevention and treatment of Posttraumatic Stress Disorder: methodology and development process. Journal of Traumatic Stress 32 (4) , pp. 475-483. 10.1002/jts.22421

Publishers page: http://dx.doi.org/10.1002/jts.22421

Please note:
Changes made as a result of publishing processes such as copy-editing, formatting and page numbers may not be reflected in this version. For the definitive version of this publication, please refer to the published source. You are advised to consult the publisher's version if you wish to cite this paper.

This version is being made available in accordance with publisher policies. See http://orca.cf.ac.uk/policies.html for usage policies. Copyright and moral rights for publications made available in ORCA are retained by the copyright holders.

The International Society for Traumatic Stress Studies New Guidelines for the Prevention and Treatment of PTSD: Methodology and Development Process

J.I. Bisson, DM, FRCPsych[1]*, L. Berliner, MSW[2], M. Cloitre, PhD[3], D. Forbes, PhD[4], T.K. Jensen, PhD[5], C. Lewis, PhD[1], C.M. Monson, PhD[6], M. Olff, PhD[7], S. Pilling, PhD[8], D. Riggs, PhD[9], N.P. Roberts, PhD[1,10], & F. Shapiro, PhD[11]

[1]National Centre for Mental Health, Division of Psychological Medicine and Clinical Neurosciences, Cardiff University, UK

[2]Harborview Center for Sexual Assault and Traumatic Stress, Seattle, WA.

[3]National Center for PTSD Dissemination and Training Division, Palo Alto VA Healthcare System, Department of Psychiatry and Behavioral Health Stanford University Palo Alto CA

[4]Phoenix Australia - Centre for Posttraumatic Mental Health, Department of Psychiatry, University of Melbourne, Vic Australia

[5]Department of Psychology, University of Oslo, Norway

[6]Ryerson University, Toronto, Canada

[7]Amsterdam UMC, Department of Psychiatry, Amsterdam Neuroscience, University of Amsterdam, The Netherlands & Arq Psychotrauma Expert Group, Diemen, The Netherlands

[8]Division of Psychology and Language Sciences, University College London, UK

[9]Department of Medical and Clinical Psychology (MPS), Hérbert School of Medicine, Uniformed Services University of the Health Sciences, Bethesda, MD.

[10]Cardiff & Vale University Health Board, UK

[11]Mental Research Institute, Palo Alto. CA. EMDR Institute, Watsonville, CA

***Corresponding author: bissonji@cardiff.ac.uk**

Acknowledgments: The authors would like to recognize the major contribution Dr. Lutz Goldbeck made to this work before he tragically died on 30 October 2017. The authors would like to acknowledge the support they received from Cardiff University's Traumatic Stress Research Group, The Cochrane Collaboration and The UK's National Institute for Health and Care Excellence in undertaking the systematic reviews and meta-analyses required for the Guidelines. The authors would also like to acknowledge the ISTSS for providing some funding to support meetings and contributions from non-ISTSS members to the development of the Guidelines.

Conflicts of interests: Jonathan Bisson, Catrin Lewis, Neil Roberts and Candice Monson have developed web-based guided self-help programs to treat PTSD and may benefit from these financially. Marylene Cloitre developed an intervention of skills plus exposure therapy for the treatment of complex presentations of PTSD and has published a workbook about treatment of the effects of childhood trauma that she receives royalties for. Francine Shapiro developed Eye Movement Desensitization and Reprocessing (EMDR) as a treatment for PTSD and is Executive Director of the EMDR Institute. She has published books about EMDR therapy and the treatment of trauma and received royalties for these.

The International Society for Traumatic Stress Studies New Guidelines for the Prevention and Treatment of PTSD: Methodology and Development Process

Abstract

Over the last two decades, treatment guidelines have become major aids to the delivery of evidence-based care and to improve clinical outcomes. The International Society for Traumatic Stress Studies (ISTSS) produced the first guidelines for the prevention and treatment of posttraumatic stress disorder (PTSD) in 2000 and published its latest recommendations, along with position papers on Complex PTSD, in November 2018. A rigorous methodology was developed and followed; scoping questions were posed, systematic reviews were undertaken and 361 randomized controlled trials were included according to the a priori agreed inclusion criteria. Two hundred and eight meta-analyses were conducted and used to generate 125 recommendations (24 for children and adolescents, and 101 for adults) for specific prevention and treatment interventions, using an agreed definition of clinical importance and recommendation setting algorithm. There were 8 *Strong*, 8 *Standard*, 5 *Low Effect*, 26 *Emerging Evidence*, and 78 *Insufficient Evidence to Recommend* recommendations. Inclusion of separate scoping questions on treatments for complex presentations of PTSD was considered but decided against due to definitional issues and the virtual absence of studies specifically designed to clearly answer possible scoping questions in this area. Narrative reviews were undertaken and position papers prepared (one for children and adolescents, and one for adults) to consider the current issues around Complex PTSD and make recommendations to facilitate further research. This paper describes the methodology and results of the ISTSS Guideline process and considers the interpretation and implementation of the recommendations.

The ISTSS Guidelines for the Prevention and Treatment of PTSD

Keeping on top of the proliferation of evidence regarding the prevention and management of health conditions has become a major challenge. As a result, healthcare professionals, policy makers and service planners along with those seeking or using services, increasingly rely on syntheses of available evidence to inform what should be provided and sought. Guidelines, developed through syntheses of evidence, are now widely advocated and followed. The International Society of Traumatic Stress Studies (ISTSS) produced the first guidelines for the prevention and treatment of posttraumatic stress disorder (PTSD) in 2000 (Foa et al., 2000) and updated these in 2009 (Foa et al., 2009). The goal of this paper is to describe the development and facilitate the interpretation of the third version of the ISTSS Guidelines for the Prevention and Treatment of PTSD (ISTSS, 2018).

Determining how to interpret and implement guidelines in real-life settings can be difficult (Shekelle, 2018) and is made more complicated by different guidelines for the same condition drawing different conclusions. The prevention and treatment of PTSD is a good example of this, with a number of guidelines from reputable sources (e.g. the UK's National Institute for Health and Care Excellence (NICE, 2005), American Psychological Association (APA, 2017), US Veterans Affairs/Department of Defense (VA/DoD, 2017), Phoenix Australia (2013), and the ISTSS providing overlapping but non-identical recommendations in recent years (Forbes et al., 2010; Hamblen et al., 2018). The unavoidable conclusion is that guideline development is an imprecise science, with multiple degrees of freedom in the process, and the subsequent clinical recommendations may vary depending on the methodology used. This situation has resulted in calls for greater standardization of guideline development and a more harmonious approach among guideline developers in the future (IoM, 2011).

It is widely advocated that guideline developers rely on systematic reviews of research evidence with quality and strength of evidence being taken into account before determining how strongly to recommend a particular intervention (IoM, 2011; GRADE, 2018). This has, inevitably, led to the adoption of a hierarchy of evidence. Most such hierarchies consider randomized controlled trials (RCTs) the gold standard to determine what does and does not work (Eccles & Mason, 2001). Critics argue, however, that potentially important evidence generated outside RCTs is ignored and can devalue the recommendations made (Henriques, 2018). This concern echoes the sentiments of the founders of evidence-based practice who said, "Good healthcare professionals use both individual clinical expertise and the best available external evidence, and neither alone is enough." (Sackett et al., 1996).

Taking a more inclusive approach to evidence sources offers the opportunity to include treatment approaches that have not been subjected to randomized controlled trials. However, this approach also comes with costs. The interpretation and comparison of results from different research designs is complicated and risks interventions that lack robust evidence being recommended more strongly than they should be. The inferences that can be drawn from study designs other than a well-controlled RCT may be very biased and, therefore, not yield sufficient information to make evidence-based recommendations. The first two versions of the ISTSS Guidelines took a more inclusive approach to the evidence and recommendations were based on methodologically variable reviews of the literature by individuals with an interest in a particular topic area. Although this reflected common practice at the time, this approach is inconsistent with current standards and can be criticized for not adopting a priori decision rules that are objectively applied. More recent PTSD guidelines have adopted a more standardized methodology (e.g. NICE, 2018; APA, 2017; Phoenix Australia, 2013; VA/DoD, 2017; WHO, 2013) whereby specific questions were

developed and independent systematic reviews undertaken to answer them, with experts following more formal processes to determine final recommendations.

With this backdrop, in 2015, the ISTSS Board of Directors decided to update its prevention and treatment guidelines for PTSD. It sought to generate guidelines through a robust methodological process that would be helpful to the traumatic stress field. The resulting guidelines will provide practitioners, service planners, policy-makers, people with lived experience of PTSD and other relevant stakeholders with accurate information on what works and what does not work to prevent or treat PTSD. This effort resulted in the publication of the ISTSS Guidelines for the Prevention and Treatment of PTSD recommendations and position papers in November 2018 (ISTSS, 2018). These publications will be complemented by the final part of the updated ISTSS Guidelines, the third edition of the "Effective Treatments for PTSD" book, due to be published at the end of 2019, with a primary goal of providing a resource for clinicians to apply the recommendations to clinical practice.

Method

The ISTSS Board appointed an ISTSS Guidelines Committee (the authors of this paper) to develop its guidelines. The committee adopted a methodology that involved three distinct steps: (1) development of scoping questions to guide the review, (2) systematic reviews of the literature to identify RCTs that could answer the a priori scoping questions and (3) meta-analyses of usable data from the included studies to allow the generation of recommendations for prevention and treatment interventions.

Scoping Questions

The Committee agreed on draft scoping questions in a Population, Intervention, Comparator, and Outcomes (PICO; Schardt et al., 2007) format for the prevention and treatment of PTSD in children, adolescents and adults (e.g., "For adults with PTSD, do

psychological treatments, when compared to treatment as usual, waiting list or no treatment, result in a clinically important reduction of symptoms, improved functioning/quality of life, presence of disorder, or adverse effects?"). Separate draft scoping questions were developed to address the prevention or treatment of PTSD (clinically relevant posttraumatic stress symptoms in the case of children and adolescents). The committee consulted on the draft scoping questions with the ISTSS membership and reference groups of practitioners and non-practitioner consumers for feedback before presentation to and approval by the ISTSS Board.

Inclusion of separate scoping questions on treatments for complex presentations of PTSD for children/adolescents and adults was considered but decided against due to issues defining Complex PTSD (CPTSD) and the virtual absence of studies specifically designed to clearly answer possible scoping questions in this area. The Committee decided, therefore, to undertake a narrative review and prepare position papers (one for children and adolescents, and one for adults) to consider the current issues around CPTSD and make recommendations to facilitate further research.

Systematic Reviews and Meta-Analyses

High quality systematic reviews developed by the Cochrane Collaboration, NICE and the WHO were identified that addressed all the scoping questions except those pertaining to non-psychological and non-pharmacological interventions. RCTs included in these reviews were used as the basis of the evidence to be considered for the ISTSS guidelines. Existing reviews (Rose et al., 2005; Roberts et al., 2009; Roberts et al., 2010; Bisson et al., 2013; Hoskins et al., 2015; Sijbrandij et al., 2015; Lewis et al., 2015; NICE, 2018) were supplemented with additional systematic searches for more recent RCTs, and by asking experts in the field as well as the ISTSS membership to identify any studies that might have been omitted. New systematic reviews were undertaken for the non-psychological and non-pharmacological scoping questions. The Cochrane Collaboration Mental Health Disorders

Group completed additional searches using their comprehensive search strategies, to identify RCTs of any intervention designed to prevent or treat PTSD that were published during the period 1 January 2008 to 31 March 2018.

Studies included in existing systematic reviews and newly identified studies were assessed against the inclusion criteria agreed upon for the ISTSS Guidelines, prior to undertaking the additional searches (see Figure 1). Two researchers independently extracted data from included studies. When data were not available in the published article, the study authors were contacted and asked to provide them. Two researchers, using the Cochrane Collaboration's risk of bias rating tool (Higgins & Green, 2011), rated the quality of all included studies for which data were available[1]. All available data addressing specific scoping questions were meta-analyzed using Revman Version 5.3 software (2011).

The evidence for each of the scoping questions was summarized and its quality assessed using the Grading of Recommendations Assessment, Development and Evaluation (GRADE)[2] system. The evidence summaries and quality assessments were then used to generate draft recommendations using the algorithm described below. The draft recommendations were posted on the ISTSS website during August and September 2018 for a period of consultation by ISTSS members. Feedback from ISTSS members was reviewed and incorporated into the final recommendations. Final recommendations were presented to and approved by the ISTSS Board in October 2018, and presented publicly at the annual ISTSS meeting in November 2018.

---

[1] The Cochrane Collaboration's risk of bias criteria[2] determine low, uncertain or high risk ratings for: Random sequence generation (selection bias); Allocation concealment (selection bias); Blinding of participants and personnel (performance bias); Blinding of outcome assessment (detection bias); Incomplete outcome data (attrition bias); Selective reporting (reporting bias); and Other bias.

[2] GRADE Working Group Grades of Evidence[5]
High quality: Further research is very unlikely to change our confidence in the estimate of effect.
Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.
Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
Very low quality: We are very uncertain about the estimate.

Definition of Clinical Importance

In order to generate recommendations from the results of the meta-analyses, the committee developed a definition of clinical importance shown in Figure 2 following consultation with ISTSS members and the ISTSS Board.

Recommendation Setting

An algorithm was developed to allow the systematic and objective agreement of recommendations after scrutiny of the meta-analyses pertaining to individual scoping questions. Consideration was given to magnitude of change, strength/quality of evidence and any other important factors (e.g., adverse effects). Five different levels of recommendation were possible as shown in Figure 3. It was agreed that having five different levels of recommendation would facilitate decision-making with respect to clinical care and also future research. For example, the "emerging evidence" recommendation was included to identify novel interventions, including novel interventions, that require further evaluation and may hold promise for the future.

Results

The searches identified 5,500 potential new studies and scrutiny of these and studies included in existing reviews resulted in 361 RCTs fulfilling the criteria for inclusion in the meta-analyses that were undertaken. Of these studies, 327 (91%) provided data that were included in the meta-analyses and were used to generate evidence summaries. Two hundred and eight meta-analyses were completed and used to generate 125 individual recommendations (24 for children and adolescents, and 101 for adults). There were 8 *Strong*, 8 *Standard*, 5 *Low Effect*, 26 *Emerging Evidence*, and 78 *Insufficient Evidence to Recommend* recommendations. There was only one recommendation against providing a specific intervention ("Individual Psychological Debriefing within the first three months of a

traumatic event has emerging evidence of increasing the risk of clinically relevant post-traumatic stress symptoms in children and adolescents"). Figure 4 provides an example of the recommendations made.

Complex PTSD Position Papers

The position papers on Complex PTSD (CPTSD) for adults and children/adolescents note previous challenges, including lack of clarity in the characterization of complex presentations of PTSD and consequently lack of persuasive evidence regarding the phenomenon of CPTSD, its assessment and its treatment (e.g. Karatzias et al., 2017; Shevlin et al., 2018). The papers introduce the ICD-11 diagnosis of CPTSD, emphasizing that the diagnosis is made on the basis of the symptom profile and not the type of trauma (Cloitre et al., 2013). In children and adolescents, the importance of developmental considerations when assessing symptoms of CPTSD is emphasized.

It is noted that some existing treatments have been shown to reduce the symptoms of CPTSD with some evidence that scores remain higher for individuals likely to have CPTSD than for those with a diagnosis of ICD-11 PTSD (e.g., Sachser et al., 2016). The papers call for further research to determine optimal treatments for CPTSD. Possible approaches include increased dosing and/or adaptation of existing treatments, sequencing of treatment components, booster sessions, the addition of other, as yet, unspecified components and more flexible implementation of problem specific treatment modules using a personalized approach. Innovations in research design and treatment formulation provide the opportunity to continue to improve outcomes for adults and children/adolescents with CPTSD.

The CPTSD position papers have now replaced the ISTSS's previously published expert consensus treatment guidelines for complex PTSD (Cloitre et al, 2012).

Discussion

The ISTSS Guidelines for the Prevention and Treatment of PTSD provide 125 recommendations generated through syntheses of current RCT evidence. These recommendations address 20 carefully selected scoping questions. The method and process adopted for this effort adhere to internationally recommended standards (IoM, 2011) and compare favorably with those used to develop other recent and commonly followed guidelines for the prevention and treatment of PTSD (APA, 2017; VA/DoD, 2018; NICE, 2018; Phoenix Australia, 2013). Notably, as a result of strict adherence to the internationally recommended standards, this version of the guidelines reflects a substantial change in methodology compared to the two earlier guidelines produced by ISTSS. It is hoped that the new ISTSS Guidelines will be widely adopted across the world, shape clinical service provision for those exposed to traumatic events, inform the research agenda, and foster development of the field.

The review revealed a significant growth of RCT evidence in recent years. This has resulted in a strengthening of recommendations relative to earlier guidelines for certain interventions such as CBT-T (child), CBT-T (caregiver and child) and EMDR for the treatment of PTSD in children and adolescents. The additional RCTs also provided the ability to consider different forms of CBT-T separately and, consequently, to recommend some forms (e.g. CPT, CT-PTSD and PE) more strongly than others (e.g. Group CBT-T, NET and BEPP). The emergence of interventions that may not be as effective as the strongest interventions for PTSD but, nevertheless, have the potential to make a real difference to people with PTSD (e.g. facilitated internet-based CBT-T, PCT, and some medications) and allow choice in treatment modalities is a major step forward.

The inclusion of an “emerging evidence” recommendation category allowed recognition of a number of novel and innovative prevention and treatment approaches (e.g.,

neurofeedback and yoga), absent from previous guidelines. It is important to remember that emerging evidence recommendations were usually based on one or two RCTs with very low GRADE ratings. It is likely that some will develop into effective and strongly recommended interventions with robust evidence of effect and that others will not fulfill their initial promise once further research is undertaken. As such, these can be considered as potential priority candidate interventions for further research and should not be considered as front-line approaches for the prevention and treatment of PTSD. Still, the Committee saw value in highlighting this group of interventions above those with insufficient evidence to make any recommendation, notwithstanding the important adage that absence of evidence is not absence of effect.

Strengths, Limitations and Interpretation

Key strengths of the ISTSS Guidelines are the transparency and replicability of the process used. The Committee established a priori agreement of key elements of the review and recommendation processes: scoping questions, inclusion/exclusion criteria for papers, definition of clinical importance, and a recommendation generation algorithm. Using a rigorous methodology across the varied scoping questions reduced the risk of inconsistency and conscious or unconscious bias of committee members impacting the recommendations made. In common with all prevention and treatment guidelines, there are also a number of limitations and it is important that these are taken into account when interpreting and before implementing the recommendations.

The selection of the guideline committee is a potential source of bias (IoM, 2011). All members of the ISTSS Guidelines Committee declared conflicts of interest, primarily as a result of allegiance to different psychological interventions. These were transparently declared but may have influenced outcomes. It has been argued that including members with conflicts of interest should be avoided or minimized (Shekelle, 2018; IoM, 2011). Having a

committee with no conflict of interest risks having a committee without sufficient knowledge and expertise. The ISTSS Board was keen to include individuals with expertise (and, consequently, potential conflicts of interest) in various approaches to the prevention and treatment of PTSD in adults, children and adolescents and also expertise in guideline development, systematic reviews and meta-analysis.

Only including RCTs can be seen as a strength but also a limitation as it risks relying too heavily on, at times, low quality RCTs whilst ignoring other possible sources of evidence (Bothwell et al., 2016; Sackett et al., 1996). Incorporating evidence from other sources such as large observational cohort studies, non-randomized controlled studies such as effectiveness studies and "evidence from practice" could, potentially, contribute to a more accurate overall assessment of the effectiveness of a particular intervention and would allow consideration of effect from different perspectives. Unfortunately, this approach could also risk diluting higher quality sources of evidence with weaker ones and drawing inferences without sufficient information to do so. Guideline developers are increasingly acknowledging this dilemma and recognize that RCT evidence is not the only source of helpful knowledge (NICE, 2018b). Irrespective of the sources of evidence used, recognition of the importance of other, real-world factors that may influence the adoption and implementation of recommendations is very important to understanding the real world success of these treatments. The practice implications of the ISTSS Guidelines' recommendations will be the primary focus of the third edition of the *Effective Treatments for PTSD* book.

Another limitation is that only 20 scoping questions were addressed by the present reviews. This number reflected the Committee's effort to balance the breadth of pertinent topics, the time and resources available to conduct the reviews, and the availability of published RCTs to address the questions. There are many other important questions concerning the prevention and treatment of PTSD that were not answered by the ISTSS

Guidelines. These include preventative interventions for high risk occupations such as military and first responders delivered prior to exposure, comorbidity with other conditions, especially when PTSD is not the primary diagnosis, prevention beyond 3 months after traumatic events (e.g., there has been a lot of work from schools in traumatized populations trying to prevent the development of PTSD months and years after traumatic events occurred), the long term effects of interventions, relative efficacy of pharmacological and psychological treatments, sequencing of treatment, augmentation treatment and drug-assisted psychological treatment.

Another issue encountered was that several high-quality RCTs were designed in a way that did not allow them to be included in the meta-analyses. For example, in the case of CPT, several methodologically strong studies did not compare CPT against usual treatment or waitlist control but compared different modes of delivery of CPT against each other (Morland et al., 2015) or used a novel RCT methodology that precluded inclusion in our meta-analyses (Galovski & Blain, 2012). Additionally, the significant number of CPT effectiveness studies demonstrating its applicability to a broad and diverse range of clinical populations and settings, while providing potentially very important information for clinicians, service planners and policy makers, were not included due to failure to meet the RCT specifications. This may account for CPT having less evidence of efficacy against waitlist/usual care than other established treatments of PTSD that received a strong recommendation (e.g. EMDR and PE). Our algorithm did, however, allow a strong recommendation to be made for CPT, on the basis of equivalence in head to head RCTs versus another strongly recommended treatment. The experience of the Committee with CPT supports the need for more innovative methodological approaches to the development of guidelines to include other sources of high quality evidence.

Even among the RCTs included in the analyses, differences in the methodology employed varied between studies and may have impacted meta-analytic results and their interpretation. Issues encountered included the use of different measures of PTSD symptomatology, different treatment populations, different approaches to calculating means, and different ways of dealing with missing data. The Committee made an a priori decision to use data in meta-analyses from as many eligible studies as possible. This meant including self-report data in the absence of clinician-reported data and completer-only data in the absence of intention-to-treat data. The inclusion of completer-only data may have contributed to bias and it is important to note this when interpreting the results. Metaphorically, we compared apples of different varieties in individual meta-analyses but did not compare apples with pears.

Before meta-analyses were performed, the Committee considered and then defined what level of effect represented a clinically important difference and incorporated this into an a priori agreed algorithm to determine different levels of recommendation. This is a major strength of the ISTSS Guidelines and adheres to recommended standards (GRADE) but requires judgment calls that inevitably influence the recommendations made. For example, the decision to require an effect size for placebo-controlled trials 50% that of waitlist/usual care trials (0.8 versus 0.4), although informed by previous guideline development work and expert opinion, may or may not be optimal. It is almost impossible to argue against having a reduced threshold for placebo-controlled trials but the magnitude of that reduction is open to debate. Similarly, the effect size threshold for active treatment control comparisons was 0.2 as it was agreed that active treatment controls were likely to be more effective than placebo. Another decision, in line with many other guidelines, was to group wait list and usual care control conditions. Careful scrutiny of usual care conditions reveals a variety of approaches ranging from minimal care to more extensive intervention with the potential to influence

outcomes quite significantly and possibly cause some interventions to appear less effective than they actually are.

One measure of the effectiveness of these a priori decisions is that only five recommendation decisions (all concerning treatment) required the achievement of consensus through ISTSS Guidelines Committee discussion; the algorithm generated the other 120 recommendations. This 24:1 ratio is a strength of the methodological approach; strict adherence to a priori rules is not only relatively unique in PTSD guideline development but also likely to have reduced risk of bias due to specific views of Committee members.

The five more subjective committee decisions (upgrading CPT in adults, and EMDR and CBT-TF for children and adolescents, and downgrading neurofeedback and TMS in adults) were made as a result of the a priori rules triggering reconsideration of algorithm-generated recommendations when a degree of doubt was present. Allowing any reconsideration clearly introduces the risk of bias, but this has to be balanced against unintended consequences of an algorithm that, although developed a priori, has the potential to generate spurious results. A different committee may have made different decisions, but those made were carefully deliberated over before achieving consensus, and importantly occurred through an explicit and transparent process.

The ISTSS recommendations are based on the agreed primary outcome of PTSD symptomatology post-treatment. This was usually the primary outcome for included studies but risks ignoring or underplaying other important outcomes. Depression, anxiety, substance use, overall functioning, quality of life and longer-term follow-up with respect to PTSD were not considered, yet could have altered the recommendations if they were and have done so in other guidelines. For example, NICE recommends against psychological debriefing for adults on the basis of evidence of harm at longer-term follow-up (NCCMH, 2005); the ISTSS Guidelines concluded that there is insufficient evidence to recommend either way.

Significant clinical and statistical heterogeneity within the meta-analyses undertaken complicates interpretation, not least with respect to reliability and generalizability of some of the findings (Melsen et al., 2014). For example, the emerging evidence recommendation for hydrocortisone as an early pharmacological treatment following traumatic events in adults is based on RCTs of hospitalized inpatients following major surgery. It is very debatable as to how generalizable this finding would be to other populations and hydrocortisone could not be recommended for routine use following traumatic events with the evidence available at present. The key implication of the emerging evidence for hydrocortisone recommendation is that it is a strong candidate for further research to determine its potential to prevent PTSD.

The studies included in the meta-analyses covered heterogeneous settings and populations. The majority of included studies were conducted in higher income settings and caution is required when applying the results to low and middle-income settings. It cannot be assumed that interventions are always transferable, reassuringly, however, research has found that a number of effective treatments for PTSD are effective in different settings across the world (Bass et al., 2013). Whatever the heterogeneity, it is likely that some adaptations to processes adopted in research studies, based on local service configuration, will be needed to implement recommendations in an acceptable, effective and sustainable manner. These and other factors, for example, variation in therapist competence, differences between grouped interventions and the number of sessions/dosage delivered, the possibility of interventions causing adverse effects and being less tolerated by some individuals than others, means that care should be taken in interpreting recommendations and determining their implications for clinical practice.

Whatever the level of recommendation, a specific intervention is unlikely to be appropriate for all people with PTSD. Interventions should only be delivered after a thorough assessment of an individual's needs and, where possible, a discussion between the

individual (and caregivers) and therapist with clear information about the evidence base, potential benefits and risks to allow informed decision-making and the development of a co-determined intervention plan. These issues will be covered in detail in the *Effective Treatments for PTSD* book.

Conclusion

The ISTSS Guidelines represent a high-quality addition to the existing guideline recommendations available to clinicians. Like all guidelines, the ISTSS Guidelines should be used with appropriate caution; they represent a tool to aid the prevention and treatment of PTSD rather than a document that mandates specific approaches. The ISTSS Guidelines should stimulate research to improve the effectiveness of interventions in the future and also stimulate work to improve the methodology of guideline development. It is hoped they will support the dissemination and implementation of evidence-based practices to reduce the impact of traumatic stress globally. Further work to develop appropriate public-facing materials, including decision aids, to facilitate this is underway.

References

American Psychological Association (2017). *Clinical Practice Guideline for the Treatment of Posttraumatic Stress Disorder (PTSD) in Adults*. Washington, DC: Author.

Bass, J.K., Annan, J., McIvor Murray S., et al. (2013). Controlled trial of psychotherapy for Congolese survivors of sexual violence. *N Engl J Med, 368,* 2182-2191.

Bisson, J.I., Andrew, M., Roberts, N., Cooper, R., Lewis, C. (2013). Psychological therapies for chronic post-traumatic stress disorder (PTSD) in adults (review). *Cochrane Database of Systematic Reviews*. 10.1002/14651858.CD003388.pub4

Bothwell, L.E., Greene, J.A., Podolsky, S.H., Jones, D.S. (2016). Assessing the Gold Standard — Lessons from the History of RCTs. *N Engl J Med, 374,* 2175-2181.

Cloitre, M., Courtois, C.A., Ford, J.D., Green, B.L., Alexander, P., Briere, J., Herman, J.L., Lanius, R., Stolbach, B.C., Spinazzola, J., Van der Kolk, B.A., Van der Hart, O. (2012). The ISTSS Expert Consensus Treatment Guidelines for Complex PTSD in Adults. https://www.istss.org/ISTSS_Main/media/Documents/ISTSS-Expert-Concesnsus-Guidelines-for-Complex-PTSD-Updated-060315.pdf

Cloitre, M., Garvert, D.W., Brewin, C.R., Bryant, R.A., Maercker, A. (2013). Evidence for PTSD and complex PTSD: A latent profile analysis. *European Journal of Psychotraumatology, 4,* DOI: 10.3402/ejpt.v4i0.20706.

Department of Veterans Affairs and Department of Defense (2017). *VA/DoD Clinical Practice Guideline for the Management of Posttraumatic Stress Disorder and Acute Stress Disorder*. Washington, D.C.: Author.

Eccles, M., Mason, J. (2001). How to develop cost-conscious guidelines. *Health Technology Assessment, 5,* 1–69.

Foa, E.B., Keane, T.M., & Friedman, M.J., (2000). *Effective Treatments for PTSD*. New York, NY: Guilford Press.

Foa, E.B., Keane, T.M., Friedman, M.J., & Cohen, J.A. (2009). *Effective Treatments for PTSD: Practice Guidelines from the International Society for Traumatic Stress Studies*. New York, NY: Guilford Press.

Forbes, D., Creamer, M., Bisson, J.L., Cohen, J.A., Crow, B.E., Foa, E.B., Friedman M.J., Keane T.M., Kudler H.S., Ursano R.J. (2010). A guide to guidelines for the treatment of PTSD and related conditions. *Journal of Traumatic Stress, 23,* 537-552.

Galovski, T.E. Blain, L.M. (2012). Manualized Therapy for PTSD: Flexing the Structure of Cognitive Processing Therapy. *J Consult Clin Psychol, 80,* 968–981.

GRADE website. http://www.gradeworkinggroup.org - Accessed 28 November 2018.

Hamblen, J.L., Norman, S.B. Sonis, J., Phelps, A., Bisson, J., Delgado Nunes, V., Megnin-Viggars, O., Forbes, D., Riggs, D., Schnurr, P.P. (In Preparation). A guide to guidelines for the treatment of posttraumatic stress disorder in adults: an update.

Henriques, G. (2018). The APA is in conflict over PTSD treatment guidelines. https://www.psychologytoday.com/intl/blog/theory-knowledge/201802/debate-about-ptsd-treatment-guidelines. Accessed 28 November 2018.

Higgins, J. P. & Green, S. (Eds.) (2011). *Cochrane Handbook for Systematic Reviews of Interventions Version 5.1.0*. The Cochrane Collaboration, 2011. Available from handbook.cochrane.org.

Hoskins, M., Pearce. J., Bethell, A., Dankova, L., Barbui, C., Tol, W.A., van Ommeren, M., de Jong, J., Seedat, S., Chen, H., Bisson, J.I. (2015). Pharmacotherapy for post-traumatic stress disorder: systematic review and meta-analysis. *British Journal of Psychiatry, 206,* 93-100.

IOM (Institute of Medicine) (2011). *Clinical Practice Guidelines We Can Trust.* Washington, DC: The National Academies Press.

ISTSS Prevention and Treatment Guidelines (2018) https://www.istss.org/treating-trauma/new-istss-prevention-and-treatment-guidelines.aspx

Karatzias, T., Cloitre, M., Maercker, A., Kazlauskas, E., Shevlin, M., Hyland, P., Bisson, J.I., Roberts, N.P., Brewin, C.R. (2017). PTSD and Complex PTSD: ICD-11 updates on concept and measurement in the UK, USA, Germany and Lithuania. *European Journal of Psychotraumatology, 8,* Issue sup7.

Lewis, C., Roberts, N.P., Bethell, A., Bisson, J.I. (2015). Internet-based cognitive and behavioural therapies for post-traumatic stress disorder (PTSD) in adults. *Cochrane Database of Systematic Reviews.* 2015-05-22 Number:5. ISSN:1469-493

Melsen, W.G., Bootsma, M.C., Rovers, M.M., Bonten, M.J. (2014). The effects of clinical and statistical heterogeneity on the predictive values of results from meta-analyses. *Clin Microbiol Infect., 20,* 123-129. doi: 10.1111/1469-0691.12494.

Morland, L.A., Mackintosh, M.A., Rosen, C.S., et al. (2015). Telemedicine vs in-person delivery of cognitive processing therapy for women with posttraumatic stress disorder: a randomized non-inferiority trial. *Depress Anxiety., 32,* 811-820.

[NCCMH] National Collaborating Centre for Mental Health (2005). *Post-traumatic stress disorder: The management of PTSD in adults and children in primary and secondary care*. London and Leicester: Gaskell and BPS.

National Institute for Health and Clinical Excellence (2018). Developing NICE guidelines: the manual, process and methods. https://www.nice.org.uk/process/pmg20/resources/developing-nice-guidelines-the-manual-pdf-72286708700869

National Institute for Health and Clinical Excellence (2018). *Guideline for Post-traumatic Stress Disorder*. London: National Institute for Health and Clinic Excellence.

Phoenix Australia-Centre for Posttraumatic Mental Health (2013). *Australian Guidelines for the Treatment of Acute Stress Disorder and Posttraumatic Stress Disorder*. Melbourne, Victoria: Phoenix Australia.

Review Manager (RevMan) [Computer program]. Version 53 Copenhagen: The Nordic Cochrane Centre, The Cochrane Collaboration, 2014.

Roberts, NP, Kitchiner, N., Kenardy, J., Bisson, J.I. (2009) Multiple session early psychological interventions for the prevention of post-traumatic stress disorder. *Cochrane Database Systematic Review*, Issue 3, CD506869.

Roberts, NP, Kitchiner, N., Kenardy, J., Bisson, J.I. (2010) Early psychological interventions to treat acute traumatic stress symptoms. *Cochrane Database of Systematic Reviews* 2010, Issue 3, CD007944.

Rose, S., Bisson, J., Churchill, R., & Wessely, S. (2005). Psychological debriefing for preventing posttraumatic stress disorder. Cochrane Database of Systematic Reviews.

Sachser, C., Keller, F., & Goldbeck, L. (2017). Complex PTSD as proposed for ICD-11: validation of a new disorder in children and adolescents and their response to Trauma-Focused Cognitive Behavioral Therapy. *Journal of Child Psychology and Psychiatry, 58,* 160–168.

Sackett, D.L., Rosenberg, W.M.C., J A Muir Gray, J.A., Haynes, R.B., Richardson, W.S. (1996). Evidence based medicine: what it is and what it isn't. *BMJ, 312,* 71.

Schardt, C., Adams, M. B., Owens, T., Keitz, S., & Fontelo, P. (2007). Utilization of the PICO framework to improve searching PubMed for clinical questions. *BMC Medical Informatics and Decision Making, 7,* 16. doi: http://dx.doi.org/10.1186/1472-6947-7-1

Shekelle, P.G. (2018). Clinical Practice Guidelines. What's Next? *JAMA, 320,* 757-758.

Shevlin, S., Hyland, P., Roberts, N.P., Bisson, J.I., Brewin, C.R., Cloitre, M. (2018). A psychometric assessment of Disturbances in Self-Organization symptom indicators for ICD-11 Complex PTSD using the International Trauma Questionnaire. *European Journal of Psychotraumatology, 9,* Issue 1.

Sijbrandij, M., Kleiboer, A., Bisson, J.I., Barbui, C., Cuijpers, P. (2015). Pharmacological prevention of Posttraumatic Stress Disorder and Acute Stress Disorder: A systematic review and meta-analysis. *Lancet Psychiatry, 2,* 413-421.

Stirling, C. (2017). Move over RCT—time for a revised approach to evidence based medicine. https://blogs.bmj.com/bmj/2017/10/20/christine-stirling-move-over-rct-time-for-a-revised-approach-to-evidence-based-medicine/

World Health Organization (2013). *Guidelines for the management of conditions specifically related to stress.* Geneva: WHO.

Acknowledgment: The ISTSS provided some funding to support meetings and contributions from non-ISTSS members to the development of the Guidelines.

- Any randomized controlled trial (including cluster and cross-over trials) evaluating the efficacy of interventions aimed at preventing (within 3 months of the traumatic event), treating or reducing symptoms of PTSD.
- Study participants have been exposed to a traumatic event as specified by PTSD diagnostic criteria for DSM-III, DSM-III-R, DSM-IV, DSM-5, ICD-9, ICD-10 or ICD-11.
- Eligible comparator interventions for psychosocial interventions: waitlist, treatment as usual, symptom monitoring, repeated assessment, other minimal attention control group or an alternative psychological treatment.
- Eligible comparator interventions for pharmacological interventions: placebo, other pharmacological or psychosocial intervention.
- The RCT is not solely a dismantling study
- Study outcomes include a standardized measure of PTSD symptoms (either clinician-administered or self-report).
- No restriction on the basis of severity of PTSD symptoms or the type of traumatic event.
- Individual, group and couple interventions.
- No minimum sample size.
- Only studies published in English.
- Unpublished studies eligible.

For early intervention studies only

- Intervention begins no later than 3 months after the traumatic event.
- Intervention is not provided pre-trauma.

For treatment studies only

- For adults, at least 70% of participants required to be diagnosed with PTSD according to DSM or ICD criteria by means of a structured interview or diagnosis by a clinician.
- For children and adolescents, at least 70% diagnosed with partial or full DSM or ICD PTSD by means of a structured interview or diagnosis by a clinician (partial PTSD is

defined as at least one symptom per cluster and presence of impairment), or score above a standard cut-off of a validated self-report measure.

- Duration of PTSD symptoms required to be three months or more.
- No restrictions on the basis of comorbidity, but PTSD required to be the primary diagnosis.

Figure 1. Inclusion criteria for included studies.

- PTSD symptom change was the primary outcome measure and other outcomes (e.g., diagnosis, functioning, other symptom change, tolerability) were considered as secondary outcome measures.
- The clinically important definition was based on both magnitude of change and strength/quality of evidence.
- An intervention delivered three or more months after the traumatic event had to demonstrate an effect size, calculated as the standardized mean difference (SMD), for continuous outcomes of >0.8 (<0.65 relative risk for binary outcomes) for wait list control comparisons, >0.5 for attention control comparisons (no meaningful treatment, but same dosage of time/same number of sessions with a therapist), >0.4 for placebo control comparisons and >0.2 for active treatment control comparisons.
- To be rated clinically important, an early intervention had to demonstrate an effect size for continuous outcomes of >0.5 for wait list control comparisons (< 0.8 relative risk for binary outcomes).
- If there was only one RCT, an intervention was not normally recommended as clinically important. Non-inferiority RCT evidence alone was not enough to recommend an intervention as clinically important.
- Unless there was a GRADE quality of evidence rating of high or moderate, consideration was given to downgrading the strength of recommendation made with respect to clinical importance.
- The primary analysis for a particular question included data from all included studies. When available, this was clinician rated; when not, self-report was included. In addition, an analysis was also considered of only studies with clinician rated data. The combination of these two analyses was considered along with the GRADE ratings and risk of bias ratings to determine the strength of recommendation.
- The 95% confidence interval range had to completely exclude the thresholds for the strongest level of recommendation (e.g. lower confidence interval of >0.8 for waiting list control comparisons of treatments).

Figure 2. Definition of clinical importance.

- *'Strong'* - interventions with at least reasonable quality of evidence and the highest certainty of effect.
- '*Standard*' - at least reasonable quality of evidence and lower certainty of effect.
- *'Intervention with Low Effect'* - at least reasonable quality of evidence and high certainty of a low level of effect.
- *'Emerging Evidence'* - lower quality of evidence and/or certainty of effect.
- *'Insufficient Evidence to Recommend'* - absence of evidence of effectiveness or ineffectiveness.

Figure 3. Levels of recommendation.

Strong Recommendation - ***Cognitive Processing Therapy***, ***Cognitive Therapy***, ***EMDR***, ***Individual CBT with a Trauma Focus (undifferentiated)***, and ***Prolonged Exposure*** are recommended for the treatment of adults with PTSD.

Standard Recommendation - ***CBT without a Trauma Focus***, ***Group CBT with a Trauma Focus***, ***Guided Internet-based CBT with a Trauma Focus***, ***Narrative Exposure Therapy***, and ***Present Centered Therapy*** are recommended for the treatment of adults with PTSD.

Interventions with Emerging Evidence - ***Couples CBT with a Trauma Focus***, ***Group and Individual CBT with a Trauma Focus***, ***Reconsolidation of Traumatic Memories***, ***Single Session CBT***, ***Written Exposure Therapy***, and ***Virtual Reality Therapy*** have emerging evidence of efficacy for the treatment of adults with PTSD.

Insufficient Evidence to Recommend - There is insufficient evidence to recommend ***Brief Eclectic Psychotherapy for PTSD***, ***Dialogical Exposure Therapy***, ***Emotional Freedom Techniques***, ***Group Interpersonal Therapy***, ***Group Stabilizing Treatment***, ***Group Supportive Counseling***, ***Interpersonal Psychotherapy***, ***Observed and Experimental Integration***, ***Psychodynamic Psychotherapy***, ***Psychoeducation***, ***Relaxation Training***, ***REM Desensitization***, or ***Supportive Counseling*** for the treatment of adults with PTSD.

Figure 4. Recommendations for psychological treatment of PTSD in adults. Summary of relevant scoping questions: For adults with PTSD, do psychological treatments when compared to treatment as usual, waiting list, no treatment or other psychological treatments result in a clinically important reduction of symptoms, improved functioning/ quality of life, presence of disorder, or adverse effects?