



An RCT of The Together Webinar Programme
(TTP-webinar): Increasing the Accessibility of
Mental Health Support for Military Partners

2020

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Combat Stress

Combat Stress is a national veterans charity in the UK that was established in 1919. It specialises in providing clinical mental health services for UK veterans with a history of trauma. Combat Stress receives approximately 2,500 new referrals per year. Clinical services are spread across the UK with 14 community teams and three residential treatment centres. Clinical services are delivered by a multi-disciplinary team of clinicians and are informed by

NICE approved guidance for the treatment of PTSD. More information about Combat Stress can be found at combatstress.org.uk.

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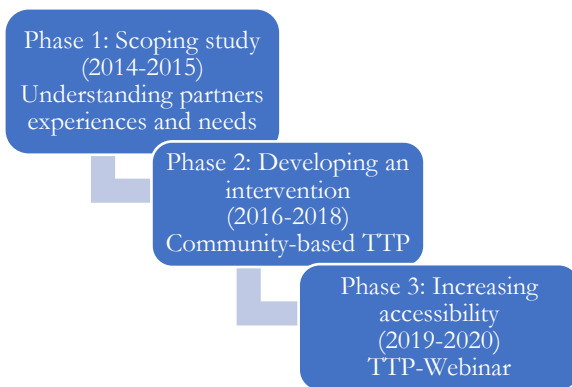
EXECUTIVE SUMMARY



An RCT of The Together Webinar Programme (TTP-webinar): Increasing the Accessibility of Mental Health Support for Military Partners

Background

Through the support of The Royal British Legion, we at Combat Stress have developed *The Together Webinar Programme (TTP-Webinar)* to increase the accessibility of mental health support for partners of veterans with PTSD and other mental health difficulties.



We understand that partners of military partners are at risk of symptoms of anxiety, depression, and ‘secondary traumatisation’ (i.e., symptoms resembling veterans’ PTSD difficulties). We developed a community-based intervention, *The Together Programme (TTP)*, that was found to reduce partners’ common mental health difficulties and secondary trauma symptoms. However, it was apparent that many partners face a range of barriers to accessing and engaging in support. To increase the accessibility of evidence-based mental health support for military partners, we developed *The Together Webinar Programme (TTP-Webinar)*.

Study aims

1. Develop an online programme to increase accessibility of support for military partners
2. Assess the effectiveness of the online programme in promoting quality of life and reducing general psychological distress and secondary trauma symptoms.

Study method

We conducted a randomized controlled trial (RCT), which involved running two arms of TTP-Webinar groups: June – July 2019 and August – September 2019. We compared changes in mental health from prior to post TTP-Webinar of the first arm to changes in mental health across two points prior to running the second arm of groups.

Our findings

Military partners who took part in TTP-Webinar reported important reductions in general psychological distress and secondary trauma symptoms. There were no changes in quality of life.

Implications

This study provides valuable evidence of the effectiveness of a brief, online, manualized intervention to support the mental health needs of partners of veterans with mental health difficulties, which can be disseminated throughout mental health centres to increase the accessibility of support for partners who may otherwise be unable to access support

1. Introduction

1.1. Background

Living alongside a veteran suffering from PTSD and other mental health difficulties can have adverse outcomes on personal relationships and the health of family members (Ray & Vanstone, 2009; Sayers, Farrow, Ross, & Oslin, 2009). Military partners have been highlighted as a particularly high-risk group for developing health problems. A study by Combat Stress found that among a sample of partners of UK veterans with PTSD, 45% met case criteria for alcohol problems, 39% for depression, 37% for Generalised Anxiety Disorder and 17% for symptoms of probable PTSD (Murphy, Palmer, & Busuttil, 2016). Importantly, a survey of 89 cohabitating partners revealed that while more than half of the partners found access to individual therapy essential to helping them cope, only 40% had received minimal support in the past six months and another 28% had received no support (Sherman et al., 2005). In line with this, it appears that there may similarly be a disparity between the number of UK military partners reporting psychological difficulties compared to those who are able access support (see Murphy et al., 2016). In addition to the direct health consequences for partners living alongside PTSD, a stressful family environment and increased tension in the partner relationship may have important consequences on veteran's PTSD treatment (Tarrier, Sommerfield, & Pilgrim, 1999). Collectively, these findings demonstrate a clear need for an intervention to address the mental health difficulties in partners of veterans.

1.2. Distress of military partners

Military spouses appear to experience greater distress than the general population (44.9%; Renshaw, Rodrigues, & Jones, 2008) as well as other caregiving populations (e.g., 29.5% among dementia caregivers; Cohen et al., 1990), and the increased burden of being a caregiver among partners of veterans suffering from PTSD can increase their risk of health difficulties (Calhoun, Beckham, & Bosworth, 2002). The increased risk of military partners to develop mental health difficulties has received various explanations. Firstly, partners may experience 'secondary traumatization' (Ahmadi, Azamper-Afshar, Karami & Mokhtar, 2011). As a result of being exposed to the adverse details of veteran's military experience, partners may begin to mirror their symptoms of PTSD. Secondly, the partner relationship is impacted by the veteran's mental and physical health difficulties, and often may result in the need for the partner to take on a caregiving role (Yambo & Johnson, 2014). Thirdly, caregiving partners often report feeling isolated, increased emotional pressure and relationship inequality (Lawn & McMahon, 2014), a sense of responsibility for controlling stressors that may exacerbate the veteran's PTSD symptoms (Fredman, Monson,

& Adair, 2011), and little opportunity to develop own identity within the relationship (Murphy, Palmer, Hill, Ashwick, & Busuttill, 2017). Furthermore, the level of military partners' distress is further complicated by factors such as employment status, being ex-military themselves, longer deployment and deployment extensions and the stage of veteran treatment (de Burgh, White, Fear, & Iversen, 2011; Murphy et al., 2016; Renshaw et al., 2008). Such findings clearly outline the unique and complex challenges military partners face and the need for appropriate mental health support.

1.3. Mental health support for military partners

Despite existing conjoint therapy to support veterans and their families, there remains a need for an evidence-based treatment to individually support the mental health needs of military partners. In response to this, Combat Stress developed The Together Program (TTP), a structured 5-week support group intervention for partners living alongside veterans with PTSD and other mental health difficulties. The community-based intervention provides partners with psychoeducation about PTSD and mental illness and equips them with strategies that enable them to both support the veteran with managing their symptoms and keep themselves well. The sessions are based on pre-existing evidence-based US programmes, such as SAFE (Support and Family Education; Sherman, 2008) and Homefront Strong (Kees, Nurenberg, Bachrach, & Sommer, 2015), which have shown positive outcomes on the psychological wellbeing of military partners. A recent pilot study examined the effect of the TTP intervention administered across nine UK locations and revealed promising reductions in military partners' mental health difficulties and secondary trauma symptoms (Murphy, Spencer-Harper, & Turgoose, 2019).

1.4. Barriers for accessing help

The community-based pilot identified various barriers that prevented UK military partners from accessing support. Stigma-related beliefs, such as embarrassment about seeking support or the fear of being perceived by others as weak, were strong internal barriers that prevented partners from accessing support (Murphy et al., 2017; Murphy et al., 2019). This suggests that the toughness and self-reliance promoted in the military culture may also be adopted by partners and other family members (see Rossi, 2012). Previous research with UK military partners has also indicated that they may avoid seeking help for themselves to protect the veteran from being identified as having mental health difficulties, which in turn results in a greater experience of distress (Thandi, Oram, Verey, Greenberg, & Fear, 2016). Further internal barriers may also relate to the fear that others would not understand the difficulties military partners face (Murphy et al., 2016).

It also became apparent that there was a range of more practical barriers preventing partners from engaging in the TTP intervention, such as work hour conflict, childcare and distance or travel time to venue where the support was provided (Murphy et al., 2019). It is not uncommon

for caregiving partners to become the primary financial provider, as veterans' chronic symptoms significantly limit their ability to hold down a permanent job (Murphy et al., 2017). The increased financial responsibility may create additional distress and can limit partners' availability to engage with appropriate support. Despite being offered letters to supply to employers requesting time off, many partners reported that this would be too much of a risk as they believed it would threaten their job security (Murphy et al., 2019). Furthermore, as veteran's PTSD symptoms are linked to displaying violence and aggressive responding within the family environment (Grieger, Benedek, & Ursano, 2010), it is likely that military partners may assume the primary caregiving role for children, thus creating an additional pressure. Clearly, it is essential for mental health support to be made more accessible for military partners to help accommodate their challenging circumstances and various work and home responsibilities.

1.5. Increasing the accessibility of support

How do we make support more accessible for military partners? In recent years, there has been a rapid increase in the accessibility of online mental health support. Evidence suggests that home-based interventions may in fact be more acceptable than residential or outpatient services in clinical populations (e.g., Titov, Andrews, Johnson, Schwencke, & Choi, 2009). A meta-analysis comparing internet-based versus face-to-face Cognitive Behavior Therapy (CBT) revealed similar treatment effects (Andersson, Cuijpers, Carlbring, Riper, & Hedman, 2014), suggesting they may be similarly effective. Finally, a randomized controlled trial (RCT) evaluating the effectiveness of an online depression intervention among NHS service users in the UK indicated that 85% of participants completed the intervention and that follow-up rates were quite high (83% and 89% in the intervention and control condition, respectively) (Salisbury et al., 2016). Collectively, such findings suggest that internet-based interventions may be useful to help reach a high number of individuals while maintaining treatment effects.

Within the military context, online support widely differs in terms of their scope, availability, and delivery format. The U.S. Department of Veterans Affairs' Midwest Health Care Network currently makes extensive use of telehealth to support veterans and their families in the aim of improving care access in remote areas, improving the overall quality of care and decreasing the costs of care (VA Midwest Health Care Network, n.d.). The US Military Spouse and Advocacy Network (MSAN) (Military Spouse and Advocacy Network, n.d.) provides live-webinar support for military partners, which focuses on employment, finance, mental health and resilience. The webinars are promoted as an effective way for partners to share their experiences in a non-intrusive way and that the anonymity can help override stigma-related beliefs that partners may hold. This is in line with research demonstrating that some individuals find the internet approach to be more

convenient than face-to-face therapy, and particularly appreciate anonymity it provides (Tivov et al., 2009). Another webinar design including an interactive video intervention is offered by British Columbia Operational Stress Injury Clinic to support veteran family member (British Columbia Operational Stress Injury Clinic, n.d.). Importantly, there is also empirical evidence supporting the use of internet-based group interventions within military populations. For example, online group interventions for veterans with PTSD or anger problems have shown similar efficacy as face-to-face groups (Frueh, Monnier, Yim, Grubaugh, Hamner, & Knapp, 2007; Morland et al., 2011). Furthermore, evidence suggests that treatment satisfaction and drop-out rates may be similar across both formats, with potentially lower attrition rates in tele-therapy (Greene, Morland, Macdonald, Frueh, Grubbs, & Rosen, 2010; Morland, Pierce, & Wong, 2004).

1.6. The present study

The present study aims to extend the use of internet-based interventions within the military context to support partners of veterans with PTSD and other mental health difficulties. As an attempt to overcome barriers that may prevent treatment-seeking partners from engaging in mental health support (see Murphy et al., 2019), the present study investigated the efficacy of a webinar modified version of The Together Programme, namely TTP-Webinar. It is expected that, similar to the community-based TTP programme, TTP-Webinar will result in significant improvements in military partners' quality of life and reduce levels of general psychological distress and secondary trauma symptoms.

2. Method

2.1 Participants and Recruitment

The flow chart of participant recruitment can be found in Figure 1.

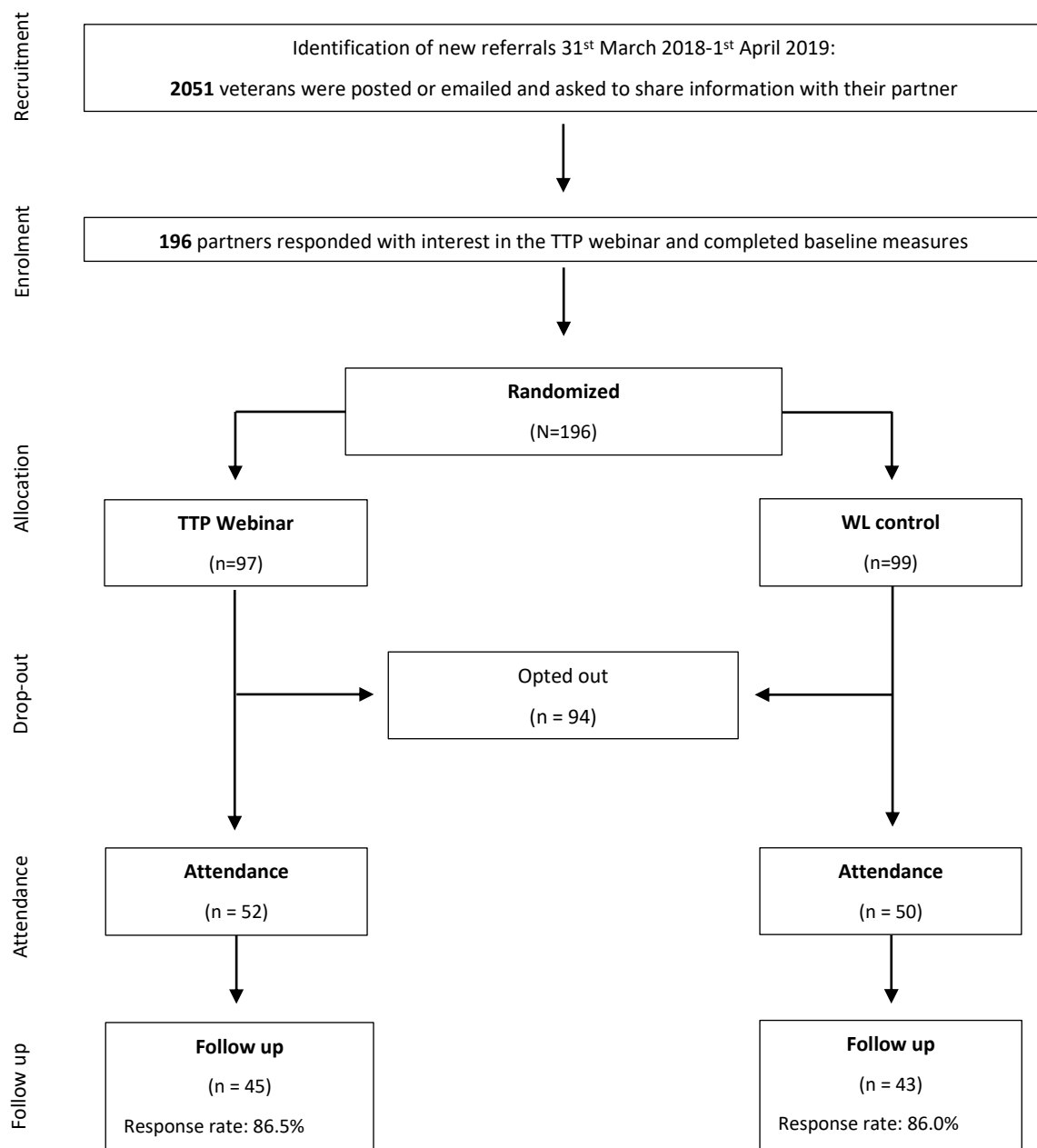


Figure 1. Flow chart of participant retention throughout the RCT.

All participants were recruited via postings and emails to veterans who have engaged with Combat Stress over a 12-month period (April 2018 – April 2019) and via referrals by Combat Stress clinicians. A total of 2051 veterans were provided with information about the study. They were asked to provide consent and contact information to reach out to their partners. Of the 285

partners who responded with interest in the study, 196 successfully completed the baseline measures and signed up to participate. They were randomly assigned to the Intervention (N = 97) or Waitlist condition (N = 99). Participant characteristics can be found in Table 1.

Table 1

Demographic information of participants registering interest in the TTP-Webinar study

Participant characteristics (N = 196)*	
Age	48.28 (SD = 10.82)
Gender	
Female	185 (94.4%)
Male	1 (0.5%)
Living with partner?	
Yes	170 (86.7%)
No	24 (12.2%)
Length of relationship?	
< 9 years	68 (34.7%)
> 9 years	126 (64.3%)
Dependants?	
Yes	101 (51.5%)
No	92 (46.9%)
Ex-military?	
Yes	14 (7.1%)
No	179 (91.3%)
Employment status	
Full-time	77 (39.3%)
Part-time	49 (25.0%)
Not working, seeking employment	51 (26.0%)
Level of education	
Low (A Levels/HNDs/NVQ/GCSEs, or lower)	139 (70.9%)
High (Degree/Postgraduate)	51 (26.0%)

Note: Due to missing data, numbers may not add up to the sample size and percentages may not add up to 100%

Note: For participants who selected two responses, the average of both responses was entered. However, in the case of level of education and length of relationship, the highest response was considered.

An additional 62 partners signed up following the randomisation deadline (RAD). For ethical reasons, they were offered the TTP-Webinar along with the waitlist condition. Twenty-seven RAD partners took part, but their data was not used.

2.1.1. Drop-out. Of the 97 participants assigned to the TTP-Webinar, 62 participants opted in by selecting one of the intervention group slots. Thirty-five participants dropped out because of lack of contact and/or failure to sign up for a timeslot, previous participation in the community-based TTP, termination of relationship, no access to IT equipment or not confident with technology, bereavement, etc. Following group assignment, 10 participants either withdrew from the study or did not take part in the webinar programme.

Of the 99 participants assigned to the waitlist condition, 61 participants opted in by selecting one of the waitlist group timeslots. Thirty-eight participants dropped out because of lack of contact and/or failure to sign up for a timeslot, termination of relationship, no access to IT equipment, childcare, etc. Following group assignment, 11 participants either withdrew from the study or did not take part in the webinar programme.

2.2. Eligibility Criteria

Participants were screened via telephone by the study coordinator. Eligibility was based on being in an intimate relationship at time of recruitment with veteran who: i) met the diagnostic criteria for PTSD or other mental health related difficulties and ii) was currently, or had previously been, engaged with Combat Stress (minimal requirement is to have called the veteran helpline).

2.3. Procedure

The study used a randomised waitlist-controlled design. Interested partners completed the informed consent process and completed baseline measures. Following randomisation to the Intervention or Waitlist condition, participants were screened to ensure eligibility. Those assigned to the Intervention condition were emailed a link to sign up to one of the five TTP Intervention groups, which ran from June – July 2019.

Participants assigned to the Waitlist were told that they would receive further details in the future and were contacted two-weeks prior to the start of the programme. They were contacted two-weeks prior to the start of the programme to complete pre measures and to sign up to one of the four TTP Waitlist groups, which ran from August – September 2019.

One month after completing the TTP-Webinar, participants completed follow-up measures. They were sent two or three reminder emails with a link to complete the measures online. To minimise non-response, participants who did not complete the measures were followed up with two phone calls and the measures were completed over the phone.

After completing the measures, participants were sent a £10 Amazon voucher. They were provided with the links to the recordings of the six webinar sessions, as well as literature to further support their own mental health needs. Those who attended 4 or more sessions were sent a certificate of participation in the TTP-Webinar.

2.4. TTP-Webinar Programme

The TTP-Webinar was a modified version of community-based TTP intervention that was piloted across nine UK locations (Murphy et al., 2019). The programme outline of the TTP-Webinar is outlined in Table 2.

The intervention consisted of six weekly hour-long sessions. Each session focused on two main categories: psychoeducation and self-management strategies for supporting veteran who suffers from PTSD or other mental health difficulties, and self-management strategies and skills training to enhance their own self-care. Each session allowed participants to share their experiences through discussion, and to ask questions and provide feedback at the end of each session. Participants who were unable to attend a session were sent the video recording to watch on their own time. Furthermore, participants were offered 1:1 telephone contact if requested or if a potential risk arose.

Participants in the Intervention condition were offered five different timeslots: Tuesday, Wednesday and Thursday afternoons and Tuesday and Wednesday evenings. Those in the Waitlist condition were offered four different timeslots: Tuesday and Wednesday afternoons and evenings. Both afternoon (12:30-13:30) and evening (18:30-19:30) slots were offered to increase the amount of sessions available for participants to attend. Participants were sent emails with links to access the online platform, through which they could view the webinar, engage in the in-session activities and communicate with the facilitators and other group members in a chat box.

As in the community-based TTP programme, the TTP-Webinar incorporated a range of techniques used in Cognitive Behavioural Therapy (CBT), Dialectical Behavioural Therapy (DBT), Compassion Focused Therapy (CFT), and Acceptance and Commitment Therapy (ACT).

CBT strategies were used illustrate the maintenance of PTSD symptoms, namely low mood, depression and anxiety. The basic maintenance cycle was also used to help partners explore the impact of mental health difficulties on both the veteran and themselves. CBT strategies were also used to help partners manage anger triggers and reframe unhelpful thinking patterns.

DBT skills helped equip partners with tools to manage their reactions to the veteran's symptoms and to regulate their own emotions. Partners were guided to recognise their own emotions and were encouraged to maintain healthy boundaries in their relationships. Basic mindfulness skills were also introduced to improve relaxation and stress tolerance.

CFT strategies were used to help participants focus on taking care of their own well-being, with attention on accessing one's own soothing system. This involved techniques such as progressive muscle relaxation, building a compassionate image and safe place visualisations.

ACT value-based exercises were focused at helping partners reduce veteran partners'

Table 2

Outline of the TTP-Webinar

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
<u>Part A</u>	<u>Intro Session</u>	<u>Session 1</u>	<u>Session 2</u>	<u>Session 3</u>	<u>Session 4</u>	<u>Session 5</u>
Psychoed & Strategies How can I help my partner and take care of my own needs (45 mins)	Programme outline eLearning resources Support contact	Understanding PTSD & its impact on relationships	Understanding anger & PTSD Finding me again	Communicating & reconnecting with my partner Talking to others about PTSD	Managing depression & difficult emotions	Taking care of my needs & moving forward
Q & A (15 mins)	Q & A	Q & A	Q & A	Q & A	Q & A	Q & A
<u>Home activity</u>		<u>Session 1</u>	<u>Session 2</u>	<u>Session 3</u>	<u>Session 4</u>	<u>Session 5</u>
Online videos, handouts, worksheets, Audios, 1:1 telephone support		My goals Intro to CBT Intro to grounding	Time out Progressive muscle relaxation	Talking to children & young people about PTSD Safe place imagery	Building a compassionate image Mindful breathing	My Wellness Plan

avoidance behaviours and improve engagement with meaningful activities. ACT metaphors were used to explore the role of emotions and their impact on personal goals. Additional techniques helped partners distance themselves from difficult emotions and rediscover a sense of self.

2.5. Outcome measures

Demographic information was collected as part of baseline measures. Participants completed the General Health Questionnaire (GHQ-12; Goldberg & Williams, 1988) and the Secondary Traumatic Stress Scale (STSS; Bride, Robinson, Yegedis, & Figley, 2004) at each measurement time-point. They also indicated their 'quality of life as a whole' (QoL), on a scale ranging from 1 (*Very good*) to 5 (*Very bad*). Quality of life ratings were reverse scored for higher values to indicate greater quality of life.

As part of pre (Waitlist condition only) and follow-up (both conditions) measures, participants responded to 10 items assessing confidence in knowledge and skills that were of focus during TTP-Webinar. Items (e.g., "*How confident are you in your ability to identify symptoms of PTSD and understand their development?*") were scored on a scale ranging from 1 (*No confidence*) to 10 (*Complete confidence*).

2.5.1. GHQ-12. The GHQ-12 (Goldberg & Williams, 1988) is a 12-item self-report measure assessing psychological distress within the past month. Six items relate to the negative experiences (e.g., '*Felt constantly under strain*'), and six relate to more positive experiences (e.g., '*Felt capable of making decisions about things*'). Items are scored on a 4-point Likert scale, ranging from 0 (*Not at all/Much less than usual*) to 4 (*Much more than usual/More so than usual*). Positive items are reverse scored before calculating a sum score, with larger scores indicating greater psychological distress.

2.5.2. STSS. The STSS (Bride et al., 2004) is a 17-item self-report measure of secondary trauma symptoms within the past month. Items (e.g., '*It seems as if I am reliving the trauma(s) experienced by my partner*') are scored on a 5-point Likert scale, ranging from 1 (*Never*) to 5 (*Very often*). Scores are summed to create total secondary trauma symptom scores, as well as avoidance, arousal and intrusion subscales. Larger scores indicate greater severity of symptoms.

2.6. Data Analysis

Independent sample t-tests and chi-square tests were performed to examine differences in demographics and baseline mental health outcomes between participants who opted out of the study and those who took part. Missing items on the mental health outcomes were replaced with mean scores (see Appendix A for further details of missing data). Additional independent sample t-tests and chi-square tests were conducted to ensure successful randomisation of demographics and baseline mental health outcomes across the Intervention and Waitlist conditions.

Separate 2 (Condition: Intervention vs. Waitlist) x 2 (Time: T₀ and T₁)¹ repeated measures Analysis of Variance (RM-ANOVA's) were performed to investigate the effect of TPP-Webinar on participant's mental health outcomes. Separate RM-ANOVA's were ran for each outcome variable (i.e., reverse scored QoL ratings, total GHQ-12 scores, and total STSS scores). Significant interactions were further investigated with paired sample t-tests per condition. Effect sizes (Cohen's *d*)² were calculated for differences between T₀ and T₁ ratings in the Intervention condition. Additional exploratory RM-ANOVA's were performed for avoidance, arousal and intrusion subscales of the STSS.

Ten independent sample t-tests were conducted to examine differences in knowledge and skill acquisition between the two conditions.

¹T₀ ratings represent baseline measures for both Intervention and Waitlist conditions. T₁ ratings represent follow-up measures for the Intervention and pre measures for the Waitlist condition.

² Cohen's *d* of 0.2, 0.5, and 0.8 is considered a 'small', 'medium', and 'large' effect size, respectively. An effect size is a measure of the magnitude of a difference between two values (Cohen, 1988).

3. Results

3.1. Feasibility outcomes

Of the 196 partners who signed up for the study, 102 (52.0%) took part and only 70 (35.7%) completed the TTP-Webinar programme (attended 5 or more sessions). A more detailed account can be found in Appendix B.

3.1.1. Drop-out. Participants who opted out significantly differed from those who took part in terms of education level, $p = .002$, and employment status, $p = .039$. Furthermore, those who opted out of the study reported significantly poorer quality of life than those who took part, $p = .014$. However, they did not differ in terms of general psychological distress or secondary trauma symptoms (see Table 3).

Table 3

Differences between participants who dropped out and those who took part in TTP-Webinar

	Opted in (N = 102)	Opted out (N = 94)	p-value
QoL	3.27 (SD = 0.83)	2.97 (SD = 0.82)	.014*
GHQ-12	18.86 (SD = 6.49)	20.52 (SD = 7.85)	.106
STSS	46.48 (SD = 13.28)	48.62 (SD = 14.12)	.274
Avoidance	18.47 (SD = 5.86)	19.08 (SD = 6.52)	.489
Arousal	15.43 (SD = 4.32)	16.09 (SD = 4.42)	.290
Intrusions	12.58 (SD = 4.41)	13.45 (SD = 4.55)	.175

* denotes a significant between-group difference.

3.1.2. Participant engagement. Of the 52 participants assigned to the Intervention and 50 to the Waitlist conditions, completion rates were 63.5% and 74%, respectively. The average attendance rate was 77% and 82% in the Intervention and Waitlist conditions, respectively. The Intervention condition had an average afternoon attendance of 69% and an average evening attendance of 81%. The Waitlist condition has an average attendance of 88% and an average evening attendance of 79%.

3.2. Randomisation

Between-group differences were found in terms of education level, $p = .030$, with larger ratio of low to high education in the Intervention compared to the Waitlist condition. Conditions did not differ in terms of other demographics and mental health outcomes (see Table 4).

Table 4

Randomisation across Intervention and Waitlist conditions

	Intervention (n = 52)	Waitlist (n = 50)	<i>p</i>
Age	49.37 (SD = 11.08)	47.78 (SD = 10.43)	.459
Living with partner?			
Yes	47 (90.4%)	43 (86.0%)	.463
No	4 (7.7%)	6 (12.0%)	
Dependants?			
Yes	23 (44.2%)	27 (54.0%)	.230
No	29 (55.8%)	21 (42.0%)	
Length of relationship?			
< 9 years	19 (36.5%)	18 (36.0%)	.984
> 9 years	33 (63.5%)	31 (62.0%)	
Ex-military?			
Yes	4 (7.7%)	4 (8.0%)	.930
No	48 (92.3%)	45 (90.0%)	
Employment status			
Full-time	22 (42/3%)	24 (48.0%)	.420
Part-time	12 (23.1%)	15 (30.0%)	
Not working, seeking employment	12 (23.1%)	7 (14.0%)	
Level of education			
Low (A Levels/HNDs/NVQ/GCSEs, or lower)	37 (71.1%)	26 (52.0%)	.030*
High (Degree/Postgraduate)	13 (25.0%)	23 (46.0%)	
Mental Health Outcomes			
QoL	3.19 (SD = 0.79)	3.35 (SD = 0.88)	.358
GHQ-12	19.68 (SD = 6.33)	18.00 (SD = 6.60)	.192
STSS	47.51 (SD = 12.57)	45.40 (SD = 14.02)	.427
Avoidance	19.21 (SD = 5.06)	17.71 (SD = 6.56)	.198
Arousal	15.62 (SD = 4.33)	15.22 (SD = 4.33)	.646
Intrusions	12.68 (SD = 4.68)	12.47 (SD = 4.16)	.814

Note: Gender is not presented in the table as all participants were female.

3.3. Mental health outcomes

3.3.1. QoL. There was no main effect of time, $F(1, 93) = 1.08, p = .300, \eta_p^2 = .01$, and no main effect of condition, $F(1, 93) = 0.12, p = .732, \eta_p^2 = .00$. Furthermore, the Time x Condition interaction was not significant, $F(1, 93) = 3.57, p = .062, \eta_p^2 = .04$ (see Figure 2).

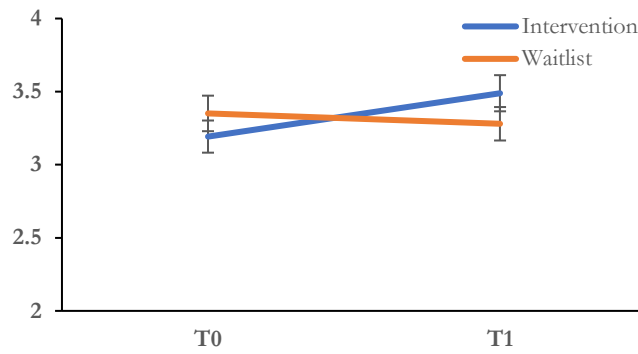


Figure 2. Mean quality of life per condition per measurement time point. The difference between T₀ and T₁ in the Intervention condition has an effect size of $d = -0.27$. Standard errors are represented by the error bars.

3.3.2. GHQ-12. There was a main effect of time, $F(1, 93) = 9.10, p = .003, \eta_p^2 = .09$, but not of condition, $F(1, 93) = 6.15, p = .960, \eta_p^2 = .00$. However, the Time x Condition interaction was significant, $F(1, 93) = 6.15, p = .015, \eta_p^2 = .06$ (see Figure 3). As expected, general psychological distress reduced in the Intervention, $t(44) = 3.50, p = .001$, but not the Waitlist condition, $t(49) = 0.42, p = .674$.

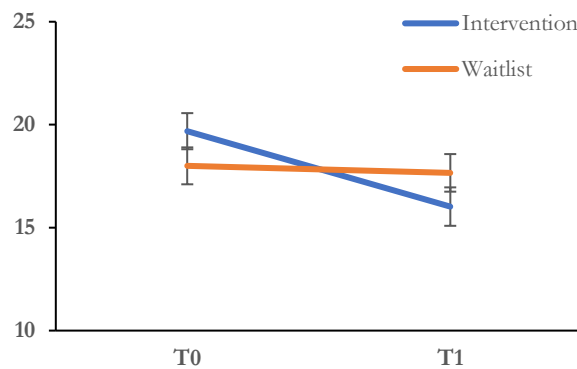


Figure 3. Mean general psychological distress ratings per condition. The difference between T₀ and T₁ in the Intervention condition has an effect size of $d = 0.52$. Standard errors are represented by the error bars.

3.3.3. STSS. There was no main effect of time, $F(1, 93) = 1.56, p = .215, \eta_p^2 = .02$, and no main effect of condition, $F(1, 93) = 0.20, p = .659, \eta_p^2 = .002$. However, the Time x Condition interaction was significant, $F(1, 93) = 12.56, p = .001, \eta_p^2 = .12$ (see Figure 4). There was a significant reduction of secondary trauma symptoms in the Intervention, $t(44) = 3.04, p = .004$, but not the Waitlist condition, $t(49) = -1.82, p = .074$.

Further exploration of the avoidance, arousal and intrusion subscales revealed that there was a significant increase in intrusion symptoms in the Waitlist condition, $p = 0.25$, and a significant reduction of both avoidance, $p = .001$, and arousal, $p = .047$, in the Intervention condition.

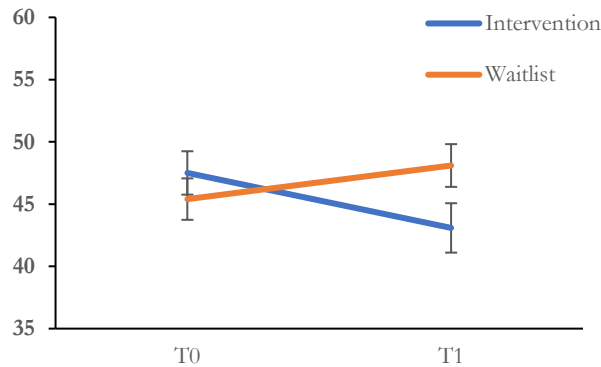


Figure 4. Mean secondary trauma symptom scores per condition. The difference between T_0 and T_1 in the Intervention condition has an effect size of $d = 0.45$. Standard errors are represented by the error bars.

3.4. Learning outcomes

Compared to the Waitlist, participants in the Intervention condition reported significantly more confidence in their understanding of PTSD as well as the ability to use skills to manage the associated difficulties (Table 5). This involved greater confidence in being able to identify symptoms of PTSD, using grounding strategies to manage associated distress, understanding communication differences, being aware of new ways to communicate more assertively and understanding depression and other difficult emotions as well as how to manage them.

Table 5

Knowledge acquisition across the Intervention and Waitlist conditions.

Item	Intervention (n = 44)	Waitlist (n = 50)	p-value
Confidence in recognising not alone in challenging experience being a partner alongside PTSD	75.68 (SD = 28.58)	57.60 (SD = 26.46)	.002*
Confidence in understanding TTP programme aims/outline	83.52 (SD = 19.46)	56.00 (SD = 25.23)	.000*
Confidence in ability to identify PTSD symptoms and understand their development	78.64 (SD = 19.48)	53.00 (SD = 24.00)	.000*
Confidence in using grounding strategies to support partner and self	67.50 (SD = 25.98)	47.00 (SD = 29.16)	.001*
Confidence in understanding different communication styles	75.23 (SD = 23.18)	51.80 (SD = 29.60)	.000*

Confidence in using new strategies to communicate with partner and others in more assertive manner	67.05 (SD = 27.67)	50.40 (SD = 26.95)	.004*
Confidence in understanding low mood and depression, including use of supportive skills	76.25 (SD = 22.67)	58.80 (SD = 24.55)	.001*
Confidence in understanding difficult emotions and how to manage them	69.32 (SD = 19.81)	47.00 (SD = 20.63)	.000*
Confidence in ability to develop plan to maintain gains and stay well	67.27 (SD = 26.77)	53.40 (SD = 23.44)	.009*
Confidence in ability to reflect upon experiences living alongside mental health difficulties and things learnt during the process	77.39 (SD = 22.06)	57.00 (SD = 22.88)	.000*

3.5. Exploratory Analyses

The trend of mental health outcomes across the Waitlist condition were explored by plotting QoL, GHQ-12 and STSS ratings across all timepoints (see Figure 5).

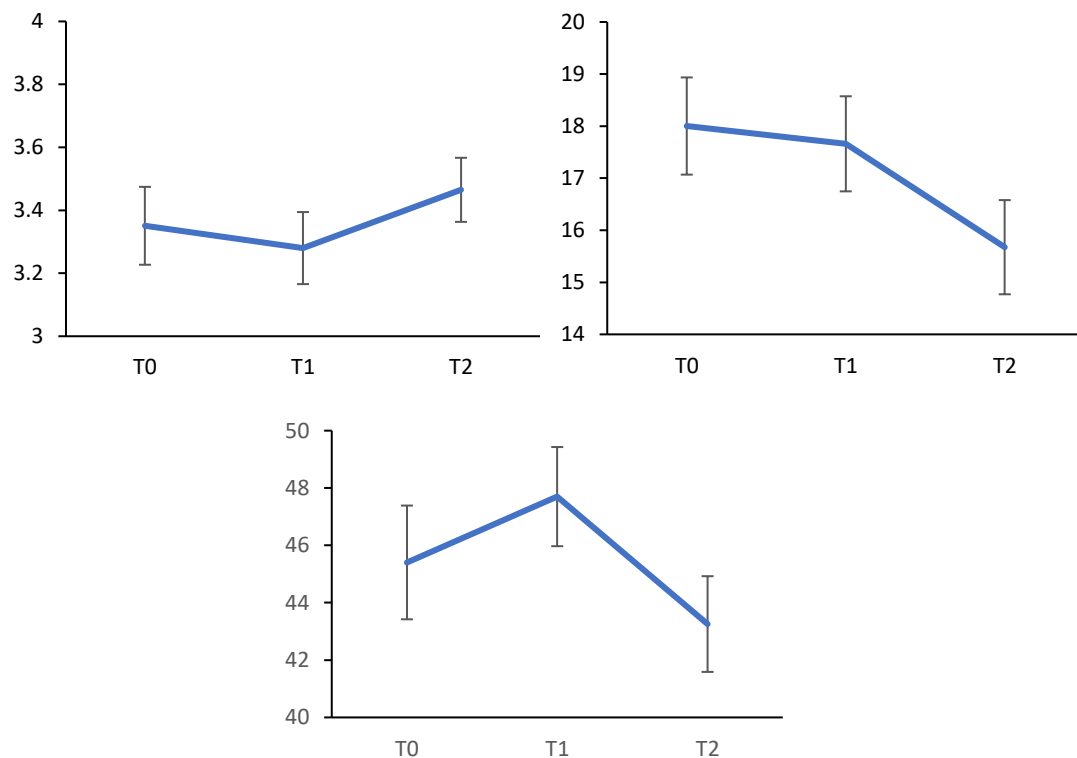


Figure 5. Baseline, pre and follow-up reverse-scored QoL ratings (top left), GHQ-12 ratings (top right), and STSS ratings (bottom) within the Waitlist condition. Standard errors are represented by the error bars.

Given the visual trend reductions of mental health outcomes following the TTP-Webinar in the Waitlist condition, follow-up measures were merged across Intervention and Waitlist conditions. Linear regressions were performed to examine predictors of GHQ-12 and STSS mental health outcomes (Table 6). Follow-up GHQ-12 ratings were predicted by relationship length, QoL and STSS ratings. However, only STSS remained a significant predictor after adjusting for the additional variables. Follow-up STSS ratings were predicted by both QoL and GHQ-12 ratings, with both remaining as significant predictors after adjusting the additional variables.

Table 6

Predictors of follow-up mental health outcomes across both TTP-Webinar and Waitlist conditions.

Predictors	GHQ-12		STSS	
	Unadjusted Coefficient (95% CI)	Adjusted Coefficient (95%CI) ^a	Unadjusted Coefficient (95% CI)	Adjusted Coefficient (95%CI) ^a
Relationship length	-2.75*	-2.15	-4.73	-1.04
< 9 years	(-5.32, -0.19)	(-4.63, 0.33)	(-9.49, 0.03)	(-5.50, 3.43)
> 9 years				
Dependants	1.03	1.98	0.40	-0.73
Yes	(-1.43, 3.50)	(-0.48, 4.44)	(-4.32, 5.11)	(-5.05, 3.60)
No				
Education Level	1.40	0.08	4.72	2.93
Low	(-1.23, 4.03)	(-2.43, 2.60)	(-0.06, 9.50)	(-1.63, 7.50)
High				
Employment status	0.84	1.15	3.40	4.53
Working	(-2.57, 4.25)	(-1.92, 4.23)	(-2.66, 9.47)	(-0.87, 9.93)
Not working				
Mental health				
QoL	-2.10*	0.91	-5.61*	-1.82
	(-3.59, -0.62)	(-0.96, 2.78)	(-8.22, -3.00)	(-5.24, 1.60)
STSS	0.22*	0.24*	-	-
	(0.14, 0.30)	(0.13, 0.36)		
GHQ-12	-	-	0.96*	0.72*
			(0.66, 1.25)	(0.29, 1.16)

^a Adjusted for relationship length, presence of dependants, education level, employment status, and QoL and GHQ-12 mental health scores.

* $p \leq 0.05$

3.6. Facilitators reflections

3.6.1. Evaluation of the webinar format. The facilitators provided quite positive feedback of TTP-Webinar. In terms of the webinar format, they appreciated being able to reach many people in terms of those located geographically far away, those who may be too shy to engage in face-to-face groups and those who have commitments preventing them from engaging in support. Second, they liked that the platform provided peer support and the opportunity to engage with the material

by asking questions and discussions. Third, they favoured being able to watch the recordings to evaluate their own delivery and circle back to something that was unclear or that they forgot to mention. Fourth, the facilitators found the online platform relatively easy to use, flexible in terms of incorporating interactive activities, and helpful in allowing partners to remotely access resources and homework activities. The facilitators reported that they believed the programme had promise of being helpful at all stages of partners' life alongside a veteran with mental health difficulties.

However, it is important to note that occasional technological difficulties arose that required immediate IT support and that a few partners also experienced difficulties, such as unstable internet connection and problems with audio/video, that affected the running of the webinar. Another main negative aspect was that facilitators reported that some sessions felt riskier and less contained, especially those focusing on low mood and depression. On the practical side of running the webinar, they found that it took considerable time sending reminder emails and sorting through questions raised during discussions and that the time constraint prevented them from reaching out to all partners between sessions.

3.6.2. Evaluation of the therapeutic relationship. The facilitators reported that the therapeutic relationship with the partners was influenced by the amount of communication (via screening, telephone, email contact) and the engagement of the partners during discussions. They also noted that partners' level of trust appeared to be influenced by consistency of communication, in terms of communicating with the same facilitator throughout stages of the study. Facilitators also thought that feelings of trust were increased by having partners 'meet' each of the facilitators through the webcam.

3.6.3. Evaluation of the group size. The facilitators noted that group dynamics were influenced by the size of the group, with larger groups having more discussions, better flow and greater facilitator confidence. However, as larger groups often had a greater amount of questions, questions would sometimes get lost and there would be limited time to address them all. However, they reported that there was a trade-off with size, with sometimes no questions or discussion occurring in smaller groups. On the practical side, it was also noted that there was a greater need for administration support in larger groups.

4. Discussion

The present study was an RCT investigating the effectiveness of a webinar programme developed for partners of veterans with PTSD and other mental health difficulties. The primary intention of developing TTP-Webinar was to increase the accessibility of effective mental health care support for military partners. In line with findings of the community-based TTP programme (Murphy et al., 2019), the present study revealed that, compared to a waitlist condition, the TTP-Webinar resulted in reductions of partners' general psychological distress and secondary trauma symptoms. Although there appeared to be a small improvement in quality of life, this did not differ from the change among partners who were waitlisted. The present study provides promising evidence for the effectiveness of TTP-Webinar in supporting the mental health needs of partners of veterans with PTSD and other mental health difficulties.

As a result of vicariously experiencing veterans' traumas or by adopting their feelings and experiences while trying to understand and empathise with them, partners may experience similar trauma symptoms that appear to cluster in a similar manner to PTSD (i.e., avoidance, arousal and reexperiencing symptom clusters) (see Figley, 1989; National Child Traumatic Stress Network, Secondary Traumatic Stress Committee, 2011). Interestingly, exploratory analyses of the present study suggest TTP-Webinar may attenuate avoidance and arousal symptoms, but that intrusion symptoms remained unchanged. Given that the content of the programme is primarily focused on psychoeducation on symptoms of PTSD and depression and teaching strategies to manage symptoms, it is understandable that avoidance and arousal reduced. Intrusion symptoms may have remained unchanged as such invasive thoughts and images are usually more directly addressed by trauma-focused interventions. The study also observed an increase of intrusion symptoms among partners who were waitlisted. Such an effect may potentially be explained by a limitation of waitlist conditions, in that participants may be subjected to 'control condition effects' resulting in an increase in symptoms (Mohr et al., 2008). Nonetheless, as is the case in the present study, Mohr and colleagues (2008) argue that waitlist control groups may be useful in evaluating novel interventions.

After engaging in TTP-Webinar, partners who had been waitlisted likely experienced similar reductions in general psychological distress and secondary trauma symptoms. Additional efforts to understand predictors of change provided valuable information. First, even after controlling for quality of life and other demographic factors, baseline psychological distress predicted secondary trauma symptoms, and vice versa. Second, decreasing quality of life was found to predict worsening of both psychological distress and secondary trauma symptoms, these associations dissipated after controlling for additional predictors. Third, relationship length was

not associated with mental health outcomes, suggesting that partners are likely to benefit from TTP-Webinar regardless of the amount of time they have been in a relationship with the veteran. Previous evidence of an association between partners' primary trauma symptoms and perceived relationship satisfaction (Hamilton, Goff, Crow, & Reisbig, 2009) suggests that relationship satisfaction may be more predictive than relationship length of partners' mental well-being. Finally, the present study found that the presence of dependants and employment status was not associated with partners' mental health outcomes. This is in contrast with previous research suggesting that high work and family demands can worsen partners' psychological distress (Andres, Moelker, & Soeters, 2012). Thus, the results suggest that partners may still benefit from TTP-Webinar in face of additional life responsibilities.

The present study further indicated that, compared to partners who were waitlisted, partners reported greater confidence in their understanding of PTSD and its symptoms, understanding of depression, low mood and other difficult emotions, understanding of different communication styles following TTP-Webinar. They also indicated greater confidence in using different strategies to both manage their own emotions and distress and to help support the veteran in managing their difficulties. Such findings are highly relevant in the context of understanding that a lack of partner involvement in veteran PTSD treatment may have detrimental effects on treatment outcomes (Miller et al., 2013). This suggests that TTP-Webinar can help partners gain more knowledge and skills that can bolster their own mental wellbeing as well as enable them to support the veteran through treatment. Nonetheless, it is important to consider that asking participants to rate how much they gained from the programme may have introduced an element of demand characteristics, thus inflating the true learning effect. Alongside this, it is worth noting that there is evidence suggesting that greater partner engagement in veterans' treatment may be associated with increased levels of partner burden (Manguno-Mire et al., 2007). Thus, there appears to be a remaining need to infer how involved partners should be in veteran treatment, for example, in terms of encouraging veteran to receive treatment and catering to practical issues surrounding veteran treatment, as well as whether there may be an appropriate time for partners to access support.

Although not as high as other online mental health interventions (e.g., Salisbury et al., 2016), the study demonstrated high levels of engagement and completion. This suggests that TTP-Webinar may be useful in retaining military partners for the duration of the 6-week programme. These outcomes are highly favourable, particularly considering lower retention rates among longer programmes, such as the 18-sessions SAFE programme (Sherman, 2006). Given the complex

circumstances military partners face, the present study provides support for the idea that shorter interventions may be more appropriate in offering support to this target group.

Although the webinar format may have improved the accessibility of mental health support for military partners (see Murphy et al., 2019), there were still several partners who were unable to take part in the programme due to practical barriers, such as work or childcare responsibilities. Importantly, there were also a few partners who did not take part in all timeslots they had signed up for, but instead took part in the different times that best fit their schedules, suggesting that competing responsibilities may have prevented them from consistently attending their initially selected time. In addition to this, it is worth considering that engagement differed between conditions, which may have been influenced by differences in childcare responsibilities during summer vs autumn months, and time of the day that webinar sessions were held. Furthermore, as participants drop-out who dropped out of the study had reported worse quality of life at baseline, it is essential to consider whether one's current state may impact their ability or willingness to engage with support. Thus, there remains a need to further investigate the obstacles explaining the disparity between partners in need of support and those who engage in support (Murphy et al., 2016; Sherman et al., 2005).

4.1. Strengths and Limitations

The present study had distinguished strengths. Firstly, the TTP-Webinar is a manualized intervention, which increases the confidence in treatment fidelity. Thus, subsequent implementations of the TTP-Webinar manual are likely to elicit similar outcomes. Secondly, the RCT design of the present study provides a strong evidence base for the effectiveness of the intervention. Finally, there was a high response rate of partners who took part in the TTP-Webinar. This is in line with previous research demonstrating high follow-up rates of online interventions (Salisbury et al., 2016).

Nonetheless, there remain certain limitations. One of the main limitations of the study is that partners were recruited via veterans' consent. This may have increased the possibility that veterans may have felt threatened and restricted partner engagement. Further implementations making use of similar recruitment means should first aim to better understand veterans' attitudes towards their partner engaging in support. Alternatively, this may be circumvented by disseminating the programme through mental health centres that allow direct contact with military partners. Secondly, the study employed a single follow-up timepoint. This limits the ability to make any inferences about the lasting changes in psychological wellbeing following the TTP-Webinar. Thirdly, as some participants were offered 1:1 telephone sessions if requested or if a potential risk was highlighted, not all partners received the same level of support.

4.2. Recommendations

4.2.1. Partner recommendations. The TTP-Webinar was highly accepted by partners. It was found to be ‘informative’ and ‘helpful’. Nonetheless, partners’ feedback highlighted certain considerations. Firstly, some suggested that some sessions could have been longer to allow more time to practice certain strategies or to explain some concepts more in depth. Secondly, while partners reported finding it comforting and helpful to hear that others were facing similar difficulties, it was also mentioned that having more time to discuss one’s personal circumstances would have been useful. Tying in these two, it is worth considering whether the duration of each session should be extended to allow activities that provide the chance to practice the strategies more or to allow each participant to share their own personal challenges. Alternatively, perhaps a brief final 1:1 session could be provided to each partner at the end of the webinar to allow everyone the opportunity to discuss difficulties unique to their personal circumstances, in terms of problems not discussed, strategies not understood, and so on.

Finally, it was suggested that it would have been helpful to have had access to the webinar earlier or alongside the time the veteran was enrolled in the 6-week programme at Combat Stress.

4.2.2. Facilitator recommendations. The facilitators made various recommendations for further implementations of the TTP-Webinar. Firstly, it was suggested that the programme be made more interactive, both within sessions as well as on the eLearning resource webpage. It was also suggested to consider opening a forum page on the webpage to allow partners to gather to support each other. Secondly, it was recommended to provide each partner with at least one 30-60 minute session, either face-to-face or on the phone. This was suggested to help enhance the therapeutic relationship and trust between the programme facilitator and each partner. Furthermore, this would have allowed the opportunity to assess and manage any potential risks. Thirdly, the facilitators suggested that partners be provided with more consistent communication, in terms of having contact with the same facilitator throughout the programme, in terms of phone, email, and webinar contact. Tying in with this, it was suggested that further implementations of the TTP webinar should make sure to have more support for administration tasks and for any technological issues that may arise.

Fourthly, it was recommended that the programme be extended to include additional topics to help support military partners, such as nightmares and sleep hygiene, healthy vs. unhealthy relationships, children, alcohol and drugs, and further details on how to develop intimacy. It was also suggested that knowledge acquisition be assessed following each session, so that partners can know what to focus on during independent study. Lastly, the facilitators suggested that groups should have no more than 30 partners and no less than 5. Along with this,

they suggested that more out-of-hour groups be offered to make it more accessible for partners with work and childcare responsibilities. In addition to this, it was recommended that further programmes need to ensure that there is adequate support for administrative tasks, as it was time consuming to, for example, send out reminder emails and sort through questions.

4.3. Conclusions

Despite the limitations and future considerations of the study, the RCT provides promising evidence for the effectiveness of the TTP-Webinar in supporting military partners mental health needs, particularly in terms of general psychological distress and secondary trauma symptoms. Importantly, the study suggests that TTP-Webinar may be useful in increasing the accessibility of support for military partners who may be unable to attend face-to-face sessions.

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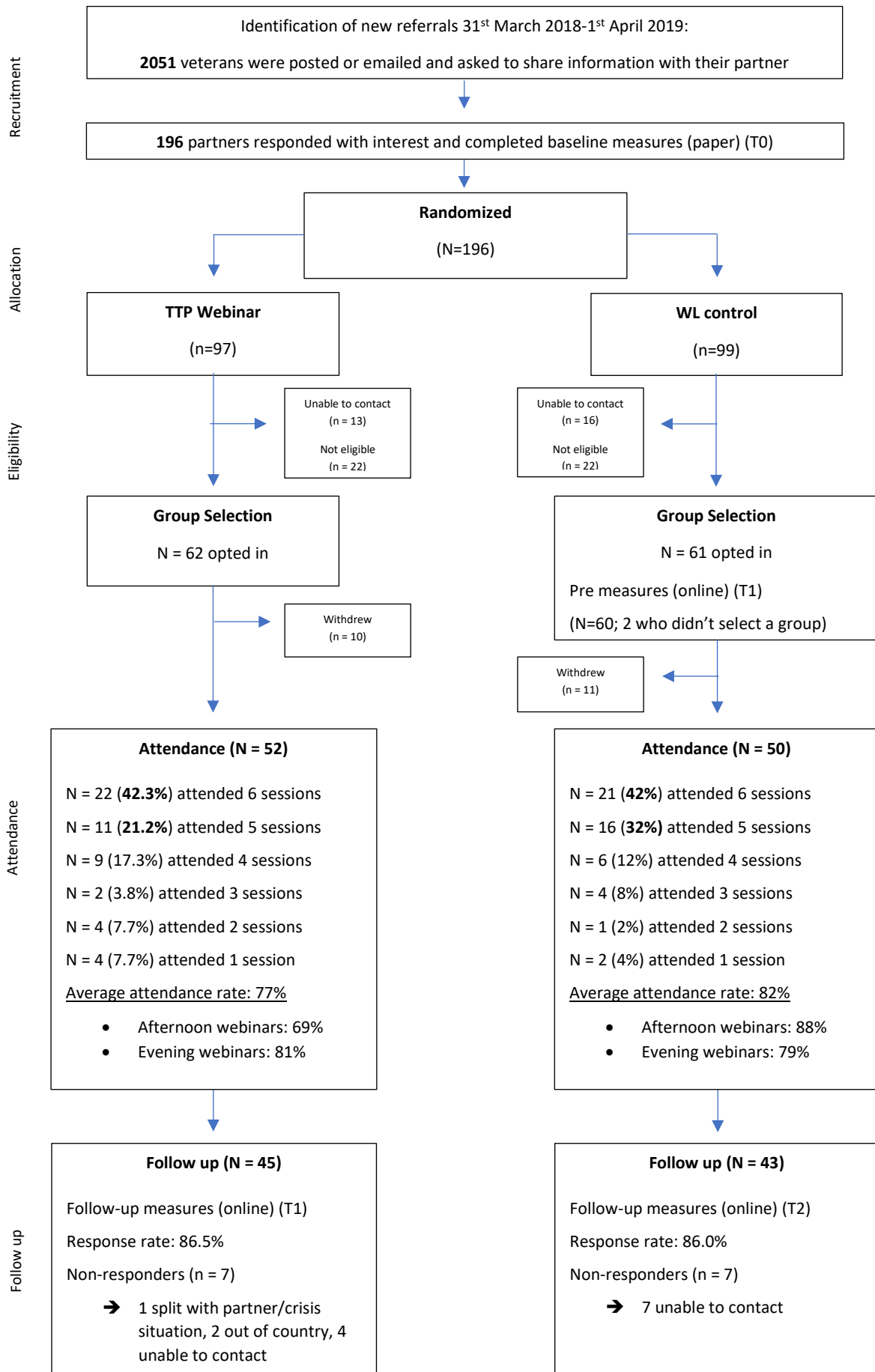
Appendices

Appendix A. Dealing with missing data

Missing data in the present study was dealt with in a step-wise manner. All missing data on self-reported items was replaced with mean scores, computed differently according to the corresponding time point measure. Missing data for the GHQ-12 and STSS across all times points were only imputed 20% or less items were missing.

Means for missing baseline items were calculated across all 196 participants who completed baseline measures. Means for time point 1 only included participants who took part in the programme. The means were completed separately per condition and only included participants who completed the measures at the given time point. Means for time point 2 only included participants who took part in the programme. The means were only completed for the Waitlist condition and only included participants who completed the measures at the given time point.

Appendix B. Detailed graphical layout of participant retention



Appendix C. Outcomes of main statistical analyses

	Time x Condition		T ₀ – T ₁ comparisons			
	F-value (p)	η_p^2	Intervention condition		Waitlist condition	
			<i>t</i> -value (p)	<i>d</i>	<i>t</i> -value (p)	<i>d</i>
Quality of life	3.57 (.062)	.04	-	-	-	-
General psychological distress	6.15 (.015)*	.06	3.50 (.001)*	.52	0.42 (.674)	.06
Secondary trauma symptoms	12.56 (.001)*	.12	3.04 (.004)*	.45	-1.82 (.074)	.26

* $p \leq 0.05$