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Using Narrative Exposure Therapy to treat women with a history of Intimate Partner Violence for post-traumatic stress. A series of single case studies.

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Thesis Abstract

Background: Intimate Partner Violence (IPV) is said to affect one in four women and is therefore a human rights concern in the UK and internationally. Post-traumatic stress (PTS) is the most prevalent adverse psychological outcome associated with IPV. The impact of IPV can be unique; survivors' sustained exposure to multiple traumatic events can result in psychological parallels to being taken hostage and subjected to torture. However, interventions often focus on risk management, and few treatments are suited to the chronicity and complexity of trauma endured in IPV. Narrative Exposure Therapy (NET), a treatment specifically designed to alleviate PTS following exposure to multiple trauma, has recently been included in NICE guidelines.

Aims: This study aimed to investigate if NET can reduce levels of PTS in women with a history of IPV. The secondary aims were: (1) to determine if NET impacts on levels of depression, anxiety and general stress within an IPV context; (2) to understand NET's mechanisms of change within a single case series design; (3) to determine how participants experience NET; (4) to determine if a short term intervention can be beneficial in an IPV context.

Method: A series of single-case studies with a mixed methods sequential-measurement A-B design was conducted with four participants presenting with PTS following IPV. The primary outcome measure was the Impact of Events Scale - Revised (IES-R); the second measure the Depression, Anxiety and Stress Scale (DASS 21). All sessions were video recorded for fidelity assurance and to facilitate observational measures. Simulation Modelling Analysis (SMA) was used to assess temporal relationships between measures. Process was studied in two ways: (1) using a within-session subjective distress measure and (2) using narrative analysis to assess for changes in pre-post NET trauma narratives. Post-treatment change interviews were also completed.

Results: PTS reduced during NET for all participants, which was substantiated by their qualitative accounts. For some there was a reduction in secondary

measures. Process measures revealed mixed evidence for NET's proposed mechanisms of change. Time series data showed varied individual trajectories.

Conclusion: NET is a potential therapeutic resource for IPV survivors; trauma-focused interventions suited to the complexity and chronicity of trauma experienced in IPV may be helpful for this population. Future research should focus on the autobiographical memory component of NET to develop our understanding of its change mechanisms.

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Statement of Contribution

- Project design: Stephanie Lane, Dr Thomas Schroder, Dr Rachel Sabin-Farrell
- Application for ethical approval: Stephanie Lane
- Recruiting participants: Stephanie Lane, Dr Thomas Schroder, Dr Rachel Sabin-Farrell, Steve Regel
- Data collection/delivery of intervention: Stephanie Lane, supervised by Dr Thomas Schroder
- Scoring measures: Stephanie Lane
- Conducting change interviews: Sophie Wicks
- Treatment fidelity checks: Dr Thomas Schroder
- Reliability check: Steve Regel
- Data entry: Stephanie Lane
- Data analysis: Stephanie Lane supervised by Dr Thomas Schroder. Consultation with Dr Nima Moghaddam and Dr Mark Gresswell
- Write up: Stephanie Lane, supervised by Dr Thomas Schroder and Steve Regel

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Systematic Literature Review[1]

[1] Formatted for submission to: Journal for Psychological Trauma: Theory, Research, Practice and Policy

Applying Narrative Exposure Therapy to treat PTSD in contexts outside of Organisational Violence and Disaster: A Systematic Literature Review

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Abstract

Purpose: Narrative Exposure Therapy (NET) was designed to treat Post-traumatic Stress Disorder (PTSD) in survivors of organisational violence or disaster in refugee or asylum seeker populations. However, there has been an increasing use of NET to treat PTSD in other populations. Thus, the purpose of this article was to systematically review and synthesise the available empirical research, which applied NET to trauma contexts outside of organisational violence and disaster. Method: A comprehensive literature search for articles that were published between 2002 and 2017 was performed using the following databases: MEDLINE, PsycINFO, Web of Science, PILOTS, CINAHL, BASE and Open Grey. Results: Six studies met inclusion criteria. The most common application of NET was in the context of historic child abuse. Studies reported moderate to large effect sizes for NETs effect on PTSD symptom reduction, although quality appraisal indicated significant methodological flaws throughout. Some positive findings were also reported for secondary outcomes of mood, coping and quality of life. However, the extent to which outcomes are attributable to NET processes were unclear. Conclusions: There does appear to be some positive outcomes associated with applying NET to treat PTSD in alternative trauma contexts. However, given the standard of current literature, suggestions for improving the quality of future research are provided.

Keywords: Narrative exposure therapy; trauma; posttraumatic stress disorder.

Introduction

Trauma has the potential to occur across a range of human contexts, including war, natural and manmade disasters, genocide, terrorism, road traffic accidents, intimate partner violence and childhood abuse. An individual can experience trauma directly, or through harm or threat to others, which cause the person to feel frightened or helpless (Regel & Joseph, 2017). Most people are affected by trauma, though they tend to improve over time (Bonanno, 2004). For some, however, their psychological trajectory deteriorates, and they can be diagnosed with Post-Traumatic Stress Disorder (PTSD) (Shalev, 2009). PTSD is associated with four domains of difficulty: (a) distressing recollections, images or flashbacks; (b) avoidance of distressing reminders from the traumatic event (either external or internal), (c) arousal dysregulation and (d) negative thoughts, i.e., a feeling guilty or blaming the self or others (American Psychological Association, 2013; Brewin & Holmes, 2003;). Whilst most people who are diagnosed with PTSD improve without treatment, 10 – 20% develop long-lasting difficulties (Fletcher, Creamer, & Forbes, 2010).

PTSD can occur from exposure to a single traumatic event, e.g., rape, or from exposure to multiple events e.g., prolonged child abuse. However, it has been argued exposure to several traumatic events influences the severity of PTSD; often labelled complex PTSD (CPTSD) in the literature (Herman, 1992; Van der Kolk, 2002). Trauma-Focused Cognitive Behavioural Therapy (TF-CBT) and Eye Movement Desensitisation and Reprocessing (EMDR) are recommended for the treatment of PTSD (National Institute for Health and Care Excellence, 2004), and are efficacious for treating traumatic stress arising from exposure to single traumatic events (Bisson, Roberts, Andrew, Cooper, & Lewis, 2013; Campbell, Greeson, Bybee & Raja, 2008;). However, it has been argued efficacy is less clear when treating PTSD arising from exposure to multiple traumatic events. This may be because in some therapies (e.g., EMDR), the focus on processing the “worst” traumatic memory becomes unclear when working with people who have experienced multiple trauma (Cloitre, Koenen, Cohen, & Han, 2002). Several existing trauma therapies (i.e. TF-CBT) have been adapted for exposure to multiple traumas, but some studies report insufficient evidence (Corrigan & Hull, 2015) and others have reported high attrition rates of up to 41% (McDonagh et al., 2005). Thus, there is a need

for the development and evaluation of other trauma interventions suitable for treating exposure to multiple traumatic events, with higher acceptability (Ford, 2015; Mcfetridge et al., 2017).

Narrative Exposure Therapy (NET) was developed to treat PTSD arising from exposure to multiple traumatic events, such as organisational violence (e.g., war, genocide, sexual violence or torture) (Schauer, Neuner, & Elbert, 2011) or disasters (Zang, Hunt, & Cox, 2014) in refugee or asylum seeker populations (Neuner, Schauer, Elbert, & Roth, 2002). NET is a time limited, standardised treatment, designed for low resourced countries, with the aim of meeting care demands in emergency settings. NET has been found to have consistently low attrition rates in comparison to other therapies, and appears to be a well-tolerated treatment for processing multiple traumatic memories (Schauer et al., 2011).

Drawing on emotional processing theory, NET proposes memory systems become fragmented in the context of a traumatic event (Brewin, Gregory, Lipton, & Burgess, 2010), which means trauma and contextual memories are not integrated within the memory system. Thus, NET aims to enable the integration of contextual information when the memory of the traumatic event is activated; through its mechanisms of: (1) prolonged exposure to the traumatic memory, an already evidence based trauma treatment (Morkved et al., 2014), and, (2) autobiographical integration of trauma memory systems (Schauer et al., 2011).

A previous review (Robjant & Fazel, 2010) found NET treatment trials in adults have demonstrated the superiority of NET in reducing PTSD symptoms compared with other therapeutic approaches. For example, Neuner, Schauer, Klaschik, Karunakara and Elbert (2004) identified a large effect (d=1.6) at one year follow up (FU) in a randomised control trial, and Halvorsen and Stenmark (2010) identified a large effect (d=1.16) at 6-month FU in low and high income countries respectively. Furthermore, effects are often found to be sustained in NET studies suggesting the effects of NET are maintained after the intervention ends. There is also evidence for effectiveness of NET for reducing PTSD symptoms in other trauma populations i.e., former child soldiers (Ertl, Pfeiffer, Schauer, Elbert, & Neuner, 2011) and political detainees (Bichescu, Neuner, Schauer, & Elbert, 2007). Whilst NET was not originally intended for treating

PTSD outside of organisational violence or disaster, the effective use of NET across heterogeneous samples highlights transferability across culture, gender and population. This evidence has generated recommendations for the use of NET within other populations exposed to multiple traumatic events, such as interpersonal violence (Schauer et al., 2011). However, the use of NET outside of the original, intended context requires reviewing to understand whether the model translates effectively to wider populations. Therefore, this review aimed to:

1) Characterise the wider applications of NET outside of organisational violence and disaster, in terms of the range of populations, settings and traumatic foci.
2) Identify and synthesise the outcomes of NET when applied to treat PTSD in contexts outside of organisational violence or disaster

Method

Search Strategy

The review process follows PRISMA guidelines (Moher, Liberati, Tetzlaff, Altman, & Prisma Group 2009). Seven databases covering areas such as psychology and traumatic stress were searched in July 2017; MEDLINE (2002 – July 2017), PsycINFO (2002 – July 2017), Web of Science (2002 – July 2017), PILOTS (2002 – July 2017), CINAHL (2002 – July 2017). Grey literature databases searched were – Bielefeld Academic Search Engine (BASE) and Open Grey. In addition, the reference lists of review articles (e.g., Robjant & Fazel, 2010) and accepted articles were searched. Search terms were assimilated and adapted from published NET articles (McPherson, 2012; Morkved et al., 2014). The search terms were: 'Narrative Exposure Therapy' or 'Narrative Exposure'. Result specificity was increased by using a 'NOT' Boolean operator e.g., NOT disaster or organisational violence or war or genocide, as these appeared to be key terms included in titles and abstracts of NET articles.

Selection Criteria

Figure 1 summarises the screening and selection process. The search strategy produced 587 results. After duplicates were removed, 521 titles and

abstracts were screened against the inclusion and exclusion criteria. Following this, 23 articles were selected for full-text review. The 23 articles were examined using the screening tool (Appendix A).

Table 1

Eligibility criteria of studies

Eligibility criterion	Rationale
All quantitative studies	To yield enough studies for comparison
Assessment of PTSD symptoms as primary outcome variable	The aim of NET is to target and treat PTSD symptoms
Written either in German or English	Pragmatic reasons
Studies published between 2002 and July 2017	A restriction was placed on studies as the first experimental outcome NET study was published in 2002.
Studies published in either peer reviewed or grey literature	To avoid publication bias

Primary exclusion criteria were: (1) individuals treated with NET for PTSD arising from organisational violence or disaster (i.e., war, state based conflict, genocide, mass sexual, political and/or physical violence, natural and/or manmade disaster), as the effectiveness of NET in this population is already established and, (2), studies adapting NET outside of its original format to enable comparison across studies. No criterion was set regarding further specifics of the sample due to the limited number of articles expected. From initial literature scoping, only one qualitative paper was found (i.e. Volpe et al., 2017), therefore due to the lack of qualitative studies a metasynthesis was not deemed possible and so qualitative papers were excluded.

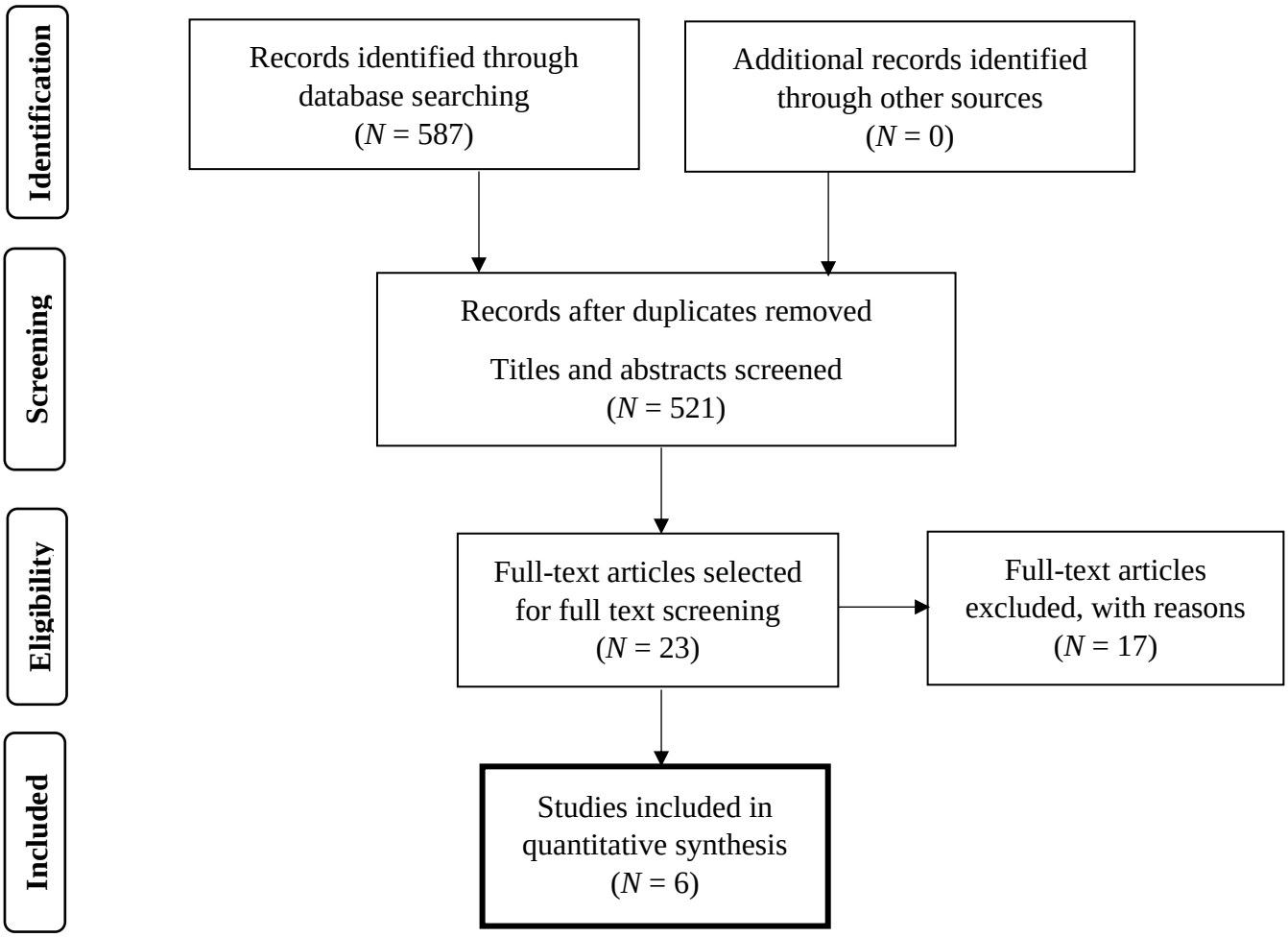

Figure 1. PRISMA Flow Diagram

The main reasons for exclusion of articles were: (1) being written in Japanese (e.g., Domen, Ejiri, & Mori, 2012); (2) PTSD arising from organisational violence (e.g., Katsounari, 2015), (3) alterations to NET format in practice, e.g., Forensic Offender Rehabilitation Narrative Exposure Therapy (FORNET) (Hinsberger et al., 2017), (4) use of qualitative design (e.g., Volpe et al., 2017); (5) PTSD symptoms were not the primary outcome variable (e.g., Weinhold, 2017) and; (6) article was not empirical research (e.g., Mauritz et al., 2016; Murcia, 2008). Six articles met full criteria and were included in the synthesis.

Data Extraction

A data extraction form (Appendix B) was developed for this review using the two review questions. Main descriptive information, data on application of

NET in terms of population and context, and the outcomes of NET in these studies were the focus of data extraction.

Quality Appraisal

Given the heterogeneity of study designs identified in this review, a Mixed Methods Appraisal Tool (MMAT; Pluye et al., 2011) was used to critically appraise study quality. The MMAT is designed for systematic literature reviews that appraise methodological quality for variable study designs. To further assess the quality of the included articles, a supplementary item, NET fidelity, was added to the quality checklist. This aimed to assess whether studies considered the accurate implementation of NET across contexts. Each item in the quality checklist was graded either 'yes', 'partial', 'no', or 'unclear' according to its methodological design classification, to enable fair analysis of quality. Each study was given a rating of 'high', 'moderate' or 'low' to indicate overall quality (rather than assuming all items are equally weighted and generating a total score). Due to the infancy of the literature in this area, studies of all quality were included, as it was assumed the number of articles would be limited and including all studies would help to develop an overall representation of the evidence.

Data Synthesis

To answer the first review question, descriptive information was taken from each article which described the context NET was applied. To answer the second review question, outcome data from the results sections of each study was extracted. For quantitative data, strength of outcome was identified as:

- Cohens D (1988) effect sizes were reported where authors provided these or where relevant information allowed for calculation of effect sizes (i.e., .2 = small effect, .5 = medium and .8 = large effect).
- positive finding (e.g. decrease in mean scores of PTSD symptoms over time)
- negative finding (e.g. increase in mean scores of PTSD symptoms over time)
- no observable change in PTSD symptoms

A small number of included articles conducted an end of therapy interview with participants. The descriptive data was not robust enough for meta-synthesis, given the lack of recognised qualitative methodology. As a result, they were not assessed as mixed methods studies and were treated as quantitative studies with additional descriptive content. The qualitative outcomes from interviews are narratively discussed.

Results

Descriptive information of the six included studies is provided in Table 1. Despite the specified time limit of publication (2002 onwards), all identified articles were written within the last four years. Five studies were identified from peer reviewed literature, one study was sought from grey literature (Smiddy, 2016). All studies were quantitative and had small sample sizes (between 2 – 34). Attrition rates out of a total of 72 participants was 2.8%. Ages of participants varied from 18 to 48 years old. Three studies had female samples (Pabst et al., 2014; Robjant, Roberts, & Katona, 2017; Smiddy, 2016), one study had a male sample (Alghamdi et al., 2015) and two studies had mixed sex samples (Colville, 2017; Steuwe et al., 2016). All participants were adults and diagnosed with PTSD. Not all studies reported average number of trauma events experienced, however ones that did ranged from one (Alghamdi, Hunt, & Thomas, 2015) to five (Pabst et al., 2014). All studies reported therapists having some experience delivering therapy.

Types of trauma experienced by participants varied; an overview is shown in Table 3. Four studies conducted NET in the community (Alghamdi et al., 2015; Colville, 2017; Robjant et al., 2017; Smiddy, 2016), one study conducted NET in an inpatient setting (Steuwe et al., 2016) and one mixed (Pabst et al., 2014). In the measurement of PTSD symptoms; four studies used the Post-Traumatic Diagnostic Scale (PDS) (Colville, 2017; Pabst et al., 2014; Robjant et al., 2017; Steuwe et al., 2016), one study used the Screen for Post-Traumatic Stress Symptoms (SPTSS) (Alghamdi et al., 2015) and one study used the PTSD Symptom Scale- Self-Report (PSS-SR) and the Clinician Administered PTSD Scale (CAPS) (Smiddy, 2016). Common secondary outcome measures were anxiety and depression. Intervention length was highly

variable; between 3 and 30 sessions. All studies conducted pre-and post-outcome measurement including follow up (FU). However, FU length ranged from 2 to 12 months. Methodologies of studies were mixed and included case studies, cohort studies, non-randomised and randomised control trials.

Table 2

General characteristics of included studies

No.	Author (Year), Location	Study Design	Population, Setting	Sample size, age range	Sex	Provider of NET	No. trauma events (average)	Treatment length (sessions)	PTSD measure	Secondary outcome measures	Control group	Follow up (months)
1.	Alghamdi et al. (2015) Saudi Arabia	RCT	Firefighters, Community	*N* = 34, 22 – 41	Male	Researchers	1 – 3	3	SPTSS	HADS Coping skills Social Support	Waiting list	3, 6
2.	Colville (2017) UK	Case series	Parents of acutely ill children, Community	*N* = 4, 32 – 40	Mixed	Clinical psychologist	NR	6-10	PDS	HADS	None	6
3.	Robjant, et al. (2017) UK	Cohort study	Victims of sex trafficking, Community	*N* = 10, 18 - 48	Female	Clinical psychologist	NR	10 – 19	PDS	CORE	None	3
4.	Steuwe et al. (2016) Germany	Cohort study	BPD, Inpatient	*N* = 11, 34.9 (Average)	Mixed	Doctoral or masters level therapists	4.9	15	PDS	BSL BDI DES WHO-QOL	None	12

5.	Pabst et al. (2014) Germany	Non-randomised experimental design	BPD, Community/ Inpatient	*N* = 22 25 – 45	Female	"Experienced therapists"	5	10 – 30	PDS	BSL HAMD HSCL-25 DES	TBE	6, 12
6.	Smiddy (2016) Germany	Single case experimental design	Victims of CA Community	*N* = 2, 35 – 44	Female	Doctoral student	NR	16	PSS-SR	MANSA CAPS	None	3

Note. RCT = Randomised Control Trial; BPD = Borderline Personality Disorder; TBE = Treatment by Experts; PDS = Posttraumatic Diagnostic Scale; HADS = Hospital Anxiety and Depression Scale; SPTSS = Scale of Posttraumatic Stress Symptoms; BSL = Borderline Symptom List; DES = Dissociative Experiences Scale; WHO-QOL = World Health Organisation – Quality of Life Questionnaire; HAMD = Hamilton Depression Rating Scale; MANSA = Manchester Short Assessment of Quality of Life; CAPS = Clinician Administered PTSD Scale; PSS-SR = PTSD Symptom Self-Report; CORE = The Clinical Outcomes in Routine Evaluation; HSCL=25 = Hopkins Symptom Checklist; NR = Not reported; CA = Childhood Abuse.

Quality of Included Studies

Table 2 provides a summary of quality appraisal ratings. Regarding the quality of included studies, two studies (Alghamdi et al., 2015; Smiddy, 2016) were judged as high quality for their study type (RCT and case study). Four studies (Colville, 2017; Pabst et al., 2014; Steuwe et al., 2016; Robjant et al., 2017) were judged as moderate quality for their study type (non-randomised and cohort studies).

In general, studies used reliable and standardised measures for outcome measurement. There was also evidence of attempts to ensure treatment fidelity. Therapists were trained by developers of NET (Robjant et al., 2017; Colville, 2017), treatment adherence was monitored in frequent supervision (Steuwe et al., 2016) and interventions were administered using the standard NET manual (Alghamdi et al., 2015). Only one study (Pabst et al., 2014) recorded sessions for internal fidelity checking.

However, studies had several limitations which impacted on the extent to which outcomes can be linked back to NET processes. For example, Robjant et al. (2017) reported several participants had unsecure immigration status during NET treatment; the study did not report on whether the result of this would have impacted on outcomes. Steuwe et al. (2016) treated their sample with NET and a combination of Standard Inpatient Care (SIC) (i.e., art, body therapy and 1:1 support). Therefore, it is difficult to conclude to what extent NET alone contributed to a reduction in PTSD in this study, as several confounding variables could have impacted on the outcomes (e.g., prior emotion regulation skills, relationship with staff, ward atmosphere). Furthermore, researchers were not blind to treatment groups and participants were selected based on treatment suitability in Pabst et al. (2014). In Alghamdi et al. (2015) participants had varying levels of service as a firefighter and were continually exposed to traumatic incidents which could have impacted on PTSD severity and study outcomes.

In Colville (2017), it was unclear what the rationale for recruitment was, or how much this sample represented the population under study, as there were no broad characteristics given of the paediatric intensive care setting (PICU).

Furthermore, whilst positive findings are reported, symptom severity of PTSD varied from mild to low moderate at baseline, and half the sample had prior contact with a psychologist; it was unclear how much this may have impacted on outcome data. Moreover, it is important to note the high-quality case study (Smiddy, 2016) was a thesis; methodological quality may be due to the level of detail and time associated with the study.

Three studies conducted end of therapy qualitative interviews (Colville, 2017; Pabst et al., 2014; Smiddy, 2016). However, there were significant concerns about the quality of the data provided in all three articles; it was unclear what the aims of the interviews were and formal methods of data collection or analysis were not used.

Table 3

Quality appraisals of included studies using Mixed Methods Appraisal Tool

Study	1	2	3	4	5	6	Fidelity	Rating	Comments
Randomised Control Trial									
Alghamdi et al. (2015)	Y	Y	Y	N	Y	Y	Y	High	Pts. currently working in traumatic environment, difference in pts. length of service as a firefighter
Cohort Studies									
Robjant, Roberts & Katona (2017)	N	Y	N	Y	N	Y	Y	Moderate	No control group, did not control for post migration stressors, unclear reporting of recruitment process and bias associated with this.
Steuwe et al. (2016)	Y	N	N	Y	N	Y	Y	Moderate	Intervention included SIC and NET. Pts. prior distress tolerance knowledge is a confound, no control group, unclear if outcomes link back to intervention or inpatient setting
Non- Randomised Trial									
Pabst et al. (2014)	Y	Y	N	P	N	Y	Y	Moderate	Pts. selected on basis of treatment suitability, researchers unblinded
Case Studies									
Colville (2017)	N	Y	U	U	Y	Y	Y	Moderate	No control group, two cases had exposure to previous psychological treatment

Smiddy (2016)	Y	Y	U	Y	Y	Y	Y	High	No inter-rater reliability of CAPS, no multiple baseline design, experimenter expectancy effects.

Note. SIC = Standard Inpatient Care, NET = Narrative Exposure Therapy; Pts. = Participants; CAPS = Clinical Administered PTSD Scale.

1. **What are the characteristics of studies which have applied NET to reduce symptoms of PTSD in Contexts Outside of Organisational Violence or Disaster?**

This review identified six studies which applied NET to populations outside its original context. Table 4 identifies the contexts in which NET was applied. The most common application of NET was in the context of historic child abuse (Pabst et al., 2014; Smiddy, 2016; Steuwe et al., 2016), one study applied NET in the context of sexual exploitation (Robjant et al., 2017), and two studies applied NET to those who had witnessed trauma to others through their occupation (Alghamdi et al., 2015) and to their child (Colville, 2017). All studies applied NET in high income countries.

Table 4

Trauma context of included studies

Study	Trauma type	Context
1. Alghamdi, Hunt and Thomas (2015) Saudi Arabia	Occupational (Firefighter) i.e., providing aid to injured victims or work colleagues, exposure to death and/or dying.	High income, Community
2. Colville (2017) UK	Parental trauma due to child's admission to PICU	High income, Community
3. Robjant, Roberts & Katona (2017) UK	Sex trafficking (i.e. physical and/or sexual abuse)	High income, Community
4. Steuwe et al. (2016) Germany	Childhood abuse (i.e. physical, sexual, emotional abuse, neglect)	High income, Inpatient
5. Pabst et al. (2014) Germany	Childhood abuse (i.e. sexual abuse and/or physical abuse)	High income, Inpatient/Community
6. Smiddy (2016) Germany	Childhood abuse (emotional neglect, physical and/or sexual abuse)	High income, Community

Note. PICU = paediatric intensive care unit.

2. What are the Outcomes of NET when Applied in Contexts Outside of Organisational Violence or Disaster?

Quantitative outcomes for PTSD.

Six studies assessed quantitative outcomes of NET; findings are presented in Table 5. The table summarises findings in terms of statistical significance and notes effect sizes according to Cohen's D (1988) conventions, where possible.

Table 5

Summary of quantitative outcomes for PTSD

Study	Measure	Pre- post treatment	FU 2 months	FU 3 months	FU 6 months	FU 12 months
1. Alghamdi et al. (2015)	SPTSS	d=0.62		-	+	
2. Colville (2017)	PDS		d=1.3		d=2.3	
3. Robjant, et al. (2017)	PDS	d=5.56		0.6		
4. Steuwe et al. (2016)	PDS	d=0.7				d=1.5
5. Pabst et al. (2014)	PDS				d=1.0	d=1.6
6. Smiddy (2016)	PSS-SR CAPS	- (Patient rated) + (Therapist rated)		- (Patient rated) + (Therapist rated)		

Note. + positive trends (change in mean, did not meet criteria for statistical significance); - negative trends (change in mean, did not meet criteria for statistical significance); d = effect size; FU = Follow up.

As identified in Table 5, all studies described some level of positive outcome. Moderate to large effect sizes for the use of NET in reducing PTSD symptoms were reported post-treatment and at FU. However, whilst positive findings were reported, articles varied significantly by study type, and therefore, some studies were judged to be at greater risk of bias, affecting how reliably the findings can be interpreted (Evans, 2002). Thus, given that several studies were

not adequately controlled and were found to have several confounding variables, large effect sizes reported by some articles need to be interpreted with caution.

Controlled studies.

Alghamdi et al. (2015) reported a moderate effect size immediately post treatment when combining the treatment group and WLC, however, this the effect was not maintained at 3- or 6-months FU. The study reported PTSD scores increased at 3 months FU. Investigators stated this may have been due to participants being exposed to high levels of ongoing trauma during the FU period. Pabst et al. (2014) found NET to be more effective than Treatment by Experts (TBE) immediately post-treatment (NET; d=1.0 versus TBE; d=0.9) and at 12 months FU (NET: d=1.6 versus TBE: d=1.1). Although, therapists were not blinded nor were participants randomised into NET or TBE.

Uncontrolled studies.

The remaining four articles had no control group and varied in design; three studies (Colville, 2017; Robjant et al., 2017; Steuwe et al., 2016) reported moderate to large effect sizes both immediately after NET and at FU. However, in some studies there were methodological limitations which made it difficult to trace the finding back to NET. For example, Steuwe et al. (2016) administered NET in addition to SIC, which incorporated several other on-ward therapies, Colville (2017) stated half the participants had access to a psychologist prior to NET, and in Robjant et al. (2017) participants experienced a change in immigration status during NET. The only study identified from grey literature, (Smiddy, 2016) found no significant changes on the PTSD outcome measure when rated by participants post-NET or at FU. However, a positive trend noting the effect of the intervention on a therapist rated PTSD measure (CAPS) was evidenced, although, there was no inter-rater reliability and the study reported the possibility of therapist expectancy effects.

Quantitative outcomes for secondary outcome measures.

All studies assessed secondary outcomes. Anxiety, depression, quality of life, borderline personality symptoms and dissociation were measured. Whilst some articles (Colville, 2017; Steuwe et al., 2016; Pabst et al., 2014) reported large effect sizes, internal validity of study designs varied, and therefore the reliability of finding effectiveness of NET upon secondary outcomes is unclear.

For the reduction of anxiety, Alghamdi et al. (2015) reported a medium effect of NET post treatment, however, this was lost at 3 and 6-month FU. Colville (2017) reported a large effect (d=1.52) at 2 months FU, and 6 months FU(d=2.15). This indicates the potential usefulness of NET reducing anxiety symptoms (APA, 2013). For the reduction of depressive symptoms, Alghamdi et al. (2015) found a moderate effect for NET immediately post treatment, and at 3-month FU but this was lost at 6-month FU. Pabst et al. (2014) reported a medium effect at 6-month FU which increased to a large effect at 12-month FU. Steuwe et al. (2016) reported a large effect immediately post treatment and at 12-month FU. This may suggest a mechanism through which NET can produce change in low mood, although, this change may also be attributed to common therapeutic factors such as the therapeutic relationship (Thomas, 2006).

Two studies (Pabst et al., 2014; Steuwe et al., 2016) reported a medium effect for the reduction of dissociative symptoms which was maintained at 12-month FU. For borderline symptoms, one study found a large effect (Pabst et al., 2014) which was maintained at 12-month FU and Steuwe et al. (2016) found a medium effect which increased to a large effect at 12-month FU. In addition, Steuwe et al. (2016) looked at the safety of NET in their sample, (i.e., who engaged in non-suicidal self-injury, NSSI, and/or suicide attempts). They found 18.2% of participants engaged in NSSI and none attempted suicide during treatment. For quality of life (QOL), Steuwe et al. (2016) found a medium effect (d= 0.7) immediately post treatment and a large effect at FU (d=1.1). Smiddy (2016) found QOL scores significantly increased for only one participant at the end of NET.

Qualitative outcomes.

Three studies reported conducting interviews post-intervention (Smiddy, 2016; Steuwe et al., 2016; Colville, 2017). All reported some positive outcomes; participants appreciated the lifeline session (Colville, 2017) and that NET was interactive and visual (Smiddy, 2016). Pabst et al. (2014) reported participants felt their self-esteem increased, and other problems such as sleep difficulties and forgetting reduced. Smiddy (2016) also reported improvements in sleep patterns, however, the same participants felt NET was too short. Colville (2017) reported participants found it difficult to organise memories initially, but found they felt relieved once they had. These qualitative descriptions mirror the

outcome data to an extent; however, further qualitative research is necessary to explore this in more detail.

Discussion

This review aimed to identify studies which applied NET in contexts outside of organisational violence or disaster. It then aimed to synthesise outcomes of identified studies.

Application of NET in alternative trauma contexts

NET was found to have been applied to different contexts outside organisational violence or disaster. This included historic child abuse, sexual exploitation, and witnessing trauma to others through their occupation, or to their child. The methodological limitations in some studies means it is not possible to generalise findings to these contexts more broadly, however it does add further evidence to the transferability of NET across gender, population and trauma context.

Outcomes evidence.

Collectively, studies conveyed a reduction in PTSD symptoms over time, reporting medium to large effect sizes. Articles also described some positive findings for secondary outcomes including improvements in mood, dissociation and quality of life. However, a common finding was that the various study designs did not trace outcomes back to specific NET processes, questioning the reliability and validity of outcome evidence. There were discrepancies in findings of studies; high-grade evidence (i.e., RCT) reported medium effect sizes that were lost at FU. Uncontrolled studies reported very large effect sizes post-treatment and at FU. It is therefore unclear as to whether the effects of NET can be: (1) attributed to NET mechanisms and (2) sustained long-term. Given these limitations, the current picture of evidence is likely to be graded as low overall (Evans, 2002), as positive outcomes appear to have been overemphasised as being linked to NET in the current literature. Thus, the review cannot confidently conclude that NET alone is responsible for the reduction of PTSD symptoms in the included studies.

Despite this, the review highlighted several areas of strength; studies reported low attrition rates, suggesting NET is highly acceptable and tolerable to participants in included studies. This is a consistent finding amongst other NET evidence (Schauer et al., 2011), where attrition appears to be lower than other trauma therapies e.g., 24% in TF-CBT (Harned, Korslund, Foa, & Linehan,

2012). Furthermore, it is likely the standardisation of NET lends itself well to examining NET fidelity; this was considered by all articles, however, some had more robust methods than others. Future studies could strengthen checking fidelity by recording and randomly checking NET sessions.

Future research recommendations

Research is graded by the extent to which the study can reduce the risk of bias, as this will affect how confidently the findings can be interpreted for developing clinical recommendations (Evans, 2002). Given this review identified several studies which were judged to be at high risk of bias, the following recommendations are suggested to improve overall quality and reliability of future research.

Controlled studies.

Randomised control trials (RCT) are considered the most reliable evidence for the effectiveness of an intervention due to the processes which minimise risk of bias (Sackett, Richardson, Rosenberg, & Haynes, 1997). Thus, the development of RCT's with active control groups would be desirable, as there are limitations associated with waiting list controls (Furukawa et al., 2014). Additionally, other study designs should aim to introduce more control through processes such as randomisation and identifying and managing confounding variables. For example, applying NET in isolation to any additional treatment would improve the ability to link outcomes back to NET, although the practicalities of this in a clinical setting may be compromised. Furthermore, therapists would ideally be blinded, however this may not be feasible in this context. Additionally, case studies could implement a multiple baseline design or baseline measurement of 3 – 5 weeks (Smith, 2012) to improve control. A further way to enhance research quality could be to use quality checklists associated with study design prior to conducting the study. However, potential reasons for a lack of controlled trials in the current literature could be attributed to difficulty in recruiting trauma populations (Seedat, 2004). Whilst there are limitations to cohort designs, these may be the only option where participants are reluctant to consent to randomisation in the assignment of treatment (Treweek et al., 2010).

Outcome measures.

A consistent use of standardised PTSD measures was a strength of included studies. All but one study found significant reductions in PTSD

symptoms on self-report outcome measures; a lack of sensitivity was argued for the lack of significance on the PSS-SR in Smiddy (2016). A future recommendation might be to use outcome measures which have demonstrated sensitivity to change. Furthermore, only one study used a therapist rated PTSD outcome measure (e.g., CAPS). Thus, the introduction of a therapist rated PTSD outcome measure with two external interviewers would improve the reliability of findings in addition to self-report data. Furthermore, whilst variable secondary outcome measures highlighted researcher sensitivity to specific populations, future studies could develop a standardised battery of outcome measures to understand how NET may or may not impact on secondary outcomes. Additionally, findings associated with treatment safety in populations which engage in NSSI or how it impacts on dissociation (Pabst et al., 2014; Steuwe et al., 2016) warrants further investigation.

Session length.

NET length is advised to be between 8 – 12 sessions (Schauer et al., 2011) however session length varied from 3 – 30 sessions. Whilst this could have been due to therapists using appropriate clinical judgment, the varying session length makes it problematic to compare study outcomes. Future studies could aim to maintain 8 to 12 sessions. However, it is acknowledged, despite treatment length variability, three and 30 sessions have both appeared to produce positive findings.

Process research.

Theoretical literature states NET works via two mechanisms: (1) exposure of traumatic memories and (2) the integration of contextual and trauma memories through the reconstruction of a whole life narrative (Schauer et al., 2011). However, no studies reported on the processes of NET linking this to outcomes. This is also lacking in other NET literature focusing on refugee populations. Therefore, future research should assess processes and outcomes together in NET research, which would aim to strengthen arguments regarding how NET works and inform theoretical literature. For exposure, subjective measurements of distress, both pre-and post-trauma exposure could be used. For reconstructing fragmented trauma and contextual memories, studies could compare participant language pre-NET during the lifeline and post-NET, possibly using referential activity (Bucci et al., 1992). Furthermore, most studies only reported overall PTSD scores; it might be useful to identify which domains

of PTSD NET works best for (i.e., intrusions or hypervigilance for example) which might highlight some further understanding of NET processes.

Qualitative interviews.

Future studies should aim to conduct standardised end of therapy change interviews (e.g. Elliott & Rodgers, 2008) which seek to ascertain the participants view of the nature of changes and why change occurred. Further, standardised methods of qualitative data collection and analysis in triangulation with the above recommended quantitative measures would provide in-depth information about the impact (either positive or negative) of NET for participants. Taken together, this would enhance the understanding of NETs mechanisms of change, but also better understand participant views of NET when applied in alternative contexts.

Limitations of the Review

An AMSTAR checklist was completed (Shea et al., 2007) to check the quality of this review. Limitations included the increased potential for bias due to the lack of two independent reviewers for the screening, quality appraisal, and data extraction processes. Furthermore, literature searching could have been strengthened by consulting textbooks or experts in the field of study.

Conclusion

This review identified NET has been applied in alternative trauma contexts, and outcome data appeared to indicate NET is effective in reducing PTSD symptoms. However, identified methodological limitations, i.e., the lack of control groups and confounding variables, mean positive findings need to be interpreted with caution; the extent to which outcomes are attributable to NET processes is unclear. Nevertheless, a review of the evidence has informed suggestions for the development of future research, with focus on the more controlled and internally valid research designs to advance a more robust research literature.

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*Denotes articles included in the review

Journal Paper[2]

[2] This journal paper has been prepared for submission to Violence Against Women. See Appendix O for journal guidelines. This journal article is within the required academic submission requirement of less than 8000 words, excluding tables, figures and references.

Using Narrative Exposure Therapy to treat women with a history of Intimate Partner Violence for post-traumatic stress. A series of single case studies.

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Journal Abstract

Background: Posttraumatic Stress (PTS) is the most prevalent adverse psychological outcome associated with IPV. Interventions for IPV often focus on risk management, with few focusing on interventions suited to the chronicity and complexity of trauma endured in IPV. Narrative Exposure Therapy (NET), a treatment specifically designed to alleviate PTS following exposure to multiple trauma, has recently been included in NICE guidelines.

Aim: To investigate if NET can reduce levels of PTS in women with an IPV history. Secondary aims were: (1) to determine if NET impacts on levels of anxiety, depression and general stress; (2) whether NET's change mechanisms can be clarified; (3) to determine how participants experience NET; (4) to determine if a time-limited intervention can be beneficial in an IPV context.

Method: A series of single-case studies with a mixed-methods sequential-measurement A-B design was conducted with four participants. The primary outcome measure was the IES-R; the secondary measure the DASS-21. Process was studied by within-session subjective distress measures, narrative analysis and post-treatment change interviews.

Results: PTS reduced for all participants, substantiated by their qualitative accounts. For some there was a reduction in secondary measures.

Discussion: NET is a potential therapeutic resource for IPV survivors. Future research should focus on the autobiographical memory component of NET to develop our understanding of its change mechanisms.

*Keywords***:** Intimate Partner Violence, IPV, Post-traumatic stress, PTS, Narrative Exposure Therapy, NET.

Introduction

Intimate Partner Violence (IPV) is associated with significant morbidity and mortality (Khalifeh, Oram, Trevillion, Johnson, & Howard, 2015) and it is understood to be a public health and human rights concern both in the UK and globally (Amnesty International, 2004; Garcia-Moreno & Watts, 2011; Khalifeh et al., 2015). Therefore, counteracting and reducing this phenomenon represents a crucial challenge for the World Health Organisation (WHO) and ministries of health, non-governmental organisations, and national agencies worldwide (Condino, Tanzilli, Speranza & Lingiardi, 2016).

IPV is not a new phenomenon, although more recently it has been subject to a growing legal and political framework focusing on preventing and reducing risk of IPV (Holt & Devaney, 2015)[3]. IPV is an umbrella term and encompasses a range of abusive behaviours perpetrated by someone who is or was involved in an intimate relationship with the victim (Nelson, Bougatsos, & Blazina, 2012). Definitions of IPV have changed over time (Muehlenhard & Kimes, 1999) with more recent definitions acknowledging the role of coercive control (Carbone-Lopez, Kruttschnitt, & Macmillan, 2006; Graham-Kevan & Archer, 2003; Johnson, 2006)[4]. The current broadly accepted definition is: *"any incident, or pattern of incidents, of controlling, coercive, threatening behaviour, violence or abuse, between those aged 16 or over who are, or have been intimate partners, or family members, regardless of gender, or sexuality"* (Office for National Statistics, 2017, pg. 5).

Current statistics[5] indicate violence to women is profound: a major international study found 1 in 3 women will experience violence within an intimate relationship in their lifetime, which can rise to 2 in 3 depending on the country (García-Moreno et al., 2013). These findings are comparable to the UK; it is estimated one in four women will experience IPV in their lifetime (Strickland

[3] See extended paper sections 1.1.1 and 1.1.2 for the historical, legal and policy context of IPV
[4] See extended paper section 1.2 for further information on the definition of IPV
[5] This thesis will refer to female experiences of IPV and will not reference male related IPV statistics or literature as this is outside the scope of this thesis.

& Allen, 2018). Further, prevalence rates indicate chronicity is of concern, with 21% of women victimised by multiple partners, and between 5 and 13% experiencing IPV for more than 20 years (Thompson et al., 2006). Despite the concerning prevalence, statistics are said to be lower than the actual figure. This is attributed to stigma, intimidation and/or threats from the perpetrator(s) (Rose et al., 2011) and the minimisation of abuse due to limited awareness of IPV (Bolling, Clemens, Phelps &, Smith, 2002; Hattery, 2009; Walby & Allen, 2004).

Prevalence estimates report IPV is disproportionately gendered, with a higher number of female victims (Breiding et al., 2015; Cho, Shamrova, Han, & Levchenko, 2017). For example, UK homicide statistics reveal of the people killed in abusive relationships in the UK between April 2013 to March 2016, 70% were women, and 98% of these women were murdered by men (Office for National Statistics, 2017). However, whist this gender paradigm has been subject to debate in terms of the primary recipients of IPV[6], it is acknowledged the experience of sexual and severe physical violence is higher among women (Smith, Flatley, & Coleman, 2010).

The adverse impact of IPV on health outcomes in women has been well documented in the literature (Ehrensaft, Moffitt, & Caspi, 2006; Lawrence, Orengo, Langer, & Brock, 2012; Sugg, 2015). The consequences can be vast, and include reproductive problems (e.g., sexually transmitted infections, premature birth and perpetrator control over pregnancy outcomes including coerced abortion) (Feder et al., 2009), chronic health problems (e.g., pain, gastrointestinal disorders and migraines) (Black et al., 2011) and bodily injuries (Wu, Huff, & Bhandari, 2010). Furthermore, tragically, IPV also accounts for the death of a woman every three days in the UK (Long, Harper, & Harvey, 2017).

IPV has also been associated with adverse mental health consequences (Black et al., 2011; Creamer et al., 2001). Research has identified a high level of comorbidity associated with IPV and has linked it to post-traumatic stress (PTS), depression, substance misuse, anxiety, psychosis, suicide, shame, guilt and low-self-esteem (Campbell, 2002; Devries, Mak, Loraine, Child, Falder,

[6] See extended paper section 1.3 for a further discussion of the IPV gender paradigm

Petzold, et al., 2013; Golding, 1999; Scheffer -Lindgren & Renck, 2008)[7]. One hypothesis for the high comorbidity of depression and anxiety particularly is that comorbid symptoms may be mediated by the presence of PTS (Schauer, Neuner, & Elbert, 2011). However, it may also relate to the measurement tools, which may all assess for negative affect in PTS, anxiety and depression (Post, Zoellner, Youngstrom, & Feeny, 2011).

However, of all the mental health sequelae, PTS is the most prevalent (Dutton et al., 2006; Golding 1999, Lipsky, Field, Caetano, & Larkin, 2005), with IPV having psychological parallels to being taken hostage and subjected to torture (Williamson, 2010). Studies have reported PTS prevalence rates of between 31% and 84% (Jones, Hughes, & Unterstaller, 2001) compared to lifetime rates of 10.4 to 12.3% (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995; Smith, Summers, Dillon, & Cougle, 2016). PTS can be defined as the normative reactions that occur following exposure to traumatic event(s) (Regel & Joseph, 2017)[8]. These normative reactions vary in terms of individual trajectories, but for most improve over time (Bonanno, 2004). However, for an estimated 5% to 20% of individuals, normative reactions develop into problematic responses which cause significant functional impairment (Greenberg, Brooks, & Dunn, 2015; Norris & Sloane, 2007)

Post-traumatic stress disorder (PTSD) refers to the diagnostic label which conceptualises problematic PTS reactions. Four symptoms are needed to be diagnosed with PTSD: (1) re-experiencing (i.e., flashbacks or nightmares); (2) avoidance of memories, thoughts, external reminders of the event; (3) negative cognitions and mood and (4) hyper physiological arousal[9] (American Psychological Association, 2013). Literature has identified there are pre (i.e., previous exposure to trauma), peri (i.e., degree of traumatic exposure and dissociation) and post traumatic factors (i.e., a negative social environment) that have been found to be important in the development of severe PTS reactions (Sayed, Iacoviello & Charney, 2015)[10].

[7] See extended paper section 1.4 for a further discussion of the impact of IPV
[8] See extended paper section 1.5 further information related to trauma responses
[9] See extended paper section1 1.6 for the epidemiology of trauma
[10] See extended paper sections 1.7.1, 1.7.2 and 1.7.3 for pre, peri and post risk factors for PTSD

Whilst the diagnosis of PTSD has served as a unifying construct enabling the scientific investigation of PTS, it has also been the subject of criticism. The diagnostic term has been criticised for medicalising normal human responses to abnormal events, which may have previously been managed through non-medical interventions (such as social support) (Summerfield, 2001). Further, it has been questioned whether PTSD is better conceptualised as a continuum, extending from mild to severe trauma presentations, rather than being a discrete category (Broman-Fulks et al., 2006; Ruscio, Ruscio, & Keane, 2002). This framework would therefore avoid excluding those with subthreshold or partial PTSD (Zlotnick, Franklin, & Zimmerman, 2002)[11].

There is debate within the literature that the current categorisation of PTSD does not effectively capture the experience of repetitive, chronic trauma exposure as seen in IPV (Herman, 1992). For example, chronic exposure to trauma often results in significant damage to attachments (Ehlers, Maercker, & Boos, 2000), affect regulation, and may increase vulnerability to further abuse (Van der Kolk, & Fisler, 1995). As such this differentiation was recently diagnostically recognised as complex PTSD (CPTSD) in the International Classification of Diseases (ICD-11; World Health Organisation, 2018). The distinction between PTSD and CPTSD symptomatology has been supported in different trauma samples including those experiencing interpersonal violence (Karatzias et al., 2017). However, this development has created some disagreement surrounding appropriate treatments for CPTSD i.e., the need for longer and phased models, although this has been debated (Cloitre et al., 2012)[12].

There are a range of theories which attempt to provide an understanding of the processes involved in PTSD and the subsequent mechanisms of change (Schubert & Lee, 2009). Notable theories include: Conditioning Theory (Mowrer, 1960), Emotional Processing Theory (EPT, Foa & Rothbaum 2001; Rauch & Foa, 2006); Dual Representation Theory (DRT, Brewin 2001; Brewin, Dalgleish, & Joseph, 1996); and Cognitive Theory (CT, Ehlers & Clark, 2000)[13]. Whilst they differ to some degree, they each identify a common theme of maladaptive

[11] See extended paper section 1.8 for further discussion about PTSD diagnostic systems
[12] See extended paper section 1.9 for further discussion of CPTSD
[13] See extended paper sections 1.10.1 - 1.10.5 for further description and critique of trauma theories

processing of traumatic memories, and the role of avoidance in maintaining PTSD (Brewin & Holmes, 2003).

Exposure and habituation are noted to be key mechanisms of change in PTSD treatment[14](Brewin & Holmes, 2003; Ehlers & Clark, 2000; Foa & Kozak, 1986). Exposure is a process which provides structured contact with a feared stimulus (Brewin & Holmes, 2003), and the reduction of fear elicited by that stimulus is known as habituation (Benito & Walther, 2015). Exposure and habituation are said to be most effective when avoidance behaviours are minimised, and reductions in anxiety are noted within and between sessions, for a repeated duration (Craske et al., 2008; For & Kozak, 1986) Within Session Habituation (WSH) is most often measured by comparing peak subjective distress to end-state distress. Between session habituation (BSH) is measured by reductions in peak subjective distress between the first and last sessions (Sripada & Rauch, 2015). Some literature has reported positive treatment outcome is dependent upon higher subjective distress during exposure followed by a significant reduction in post-distress scores (Lang, Melamed, & Hart, 1970; Rauch, Foa, Furr, & Filip, 2004). Though, this has been disputed (Sloan & Telch, 2002; Van Minnen & Foa, 2002)[15].

Incoherent or fragmented narratives are often suggested to be a consequence of traumatic exposure (Brewin, 2001; 2007; Crespo & Fernández-Lansac, 2016). As such, the reorganisation of trauma memories following PTSD treatment is argued to be a key change mechanism. However, inconsistent measurement has resulted in limited conclusions about connections between trauma and indices of memory disruption (Bedard-Gilligan & Zoellner, 2012; O'Kearney & Perrott, 2006). Measurement strategies include subjective and pre-defined objective coding schemes, with most studies using the latter. Findings are often mixed, with some studies reporting improved disorganisation following trauma treatment (Foa, Molnar, & Cashman, 1995; Kindt, Buck, Arntz, & Soeter, 2007; Mundorf & Paivio, 2011; van Minnen, Wessel, Dijkstra, & Roelofs, 2002), and others identifying no change in

[14] A mechanism of change is a process or psychological construct that causes and explains how an intervention ultimately results in change in the outcome of interest (Gallagher, 2017)
[15] See extended paper section 1.11 for a further discussion of exposure and habituation

fragmentation/disorganisation in trauma narratives (Kindt et al., 2007; Moulds & Bryant, 2005; Mundorf & Paivio, 2011)[16].

Given the diversity of treatments, understanding the components necessary for successful treatment has taken precedence in the literature (Schnyder et al., 2015). However, key reviews examining PTSD treatment effectiveness have found trauma treatments are equally efficacious (Laska, Smith, Wislocki, Minami, & Wampold; 2013; Wampold, 2019). One study found removing a key component of PTSD treatment (i.e., exposure) does not lessen effectiveness of therapy (Resick et al., 2008). Thus, this may provide support for the proposition that psychotherapies are equally effective because of common factors (Rosenweig, 1936; Budd & Hughes, 2009)[17]. Others argue improved study methodologies are needed to identify effective treatment elements and identify processes that may affect treatment outcome (Schnyder et al., 2015).

Despite the impact of IPV, there has been comparatively little psychotherapy attention (Beeble, Bybee, Sullivan, & Adams, 2009; Bogat, Garcia, & Levendosky 2013)[18]. Studies investigating psychological treatment for IPV-affected groups typically use variations of Cognitive Behavioural Therapy (CBT) as the main therapeutic modality (Johnson, Zlotnick, & Perez, 2011; Kubany, Hill, & Owens, 2003; Kubany et al., 2004). Despite some positive findings, studies have found links between high attrition and severe PTSD (Crespo & Arinero, 2010). This is consistent with other studies reporting high attrition rates in other IPV interventions (Hansen, Eriksen & Elklit, 2014; Kubany et al., 2004). Additionally, samples are most often recruited from refuges and exclude safe women[19] (Condino et al., 2016). Qualitative data is largely absent, with only one study (Evans, Malpass, Agnew-Davies, & Feder, 2018) investigating IPV-affected women's experience of psychological interventions.

In the absence of IPV specific trauma interventions, National Institute for Health and Care Excellence (NICE) guidance (2018) recommends trauma-focused cognitive-behavioural (TF-CBT) interventions to treat PTSD in an IPV

[16] See extended paper section 1.12 for further discussion and critique of autobiographical integration
[17] See extended paper for section 1.13 for the discussion of common factors
[18] See extended paper section 1.14 for further discussion of IPV specific interventions
[19] This pertains to women who are no longer in abusive relationships and are viewed to be living in a relatively stable setting

population. Interventions within a TF-CBT framework include Cognitive Processing Therapy (CPT), Cognitive Therapy (CT), Narrative Exposure Therapy (NET), and Prolonged Exposure (PE). Whilst they share similarities, their foci differ, with some emphasising imaginal exposure and others in the reappraisal of the event (Schnyder et al., 2015)[20]. Given this, it is difficult to determine which approach might be helpful for an IPV population (Warshaw, Sullivan, & Rivera, 2013). However, some suggest PTSD therapies (i.e., PE) should not be used for the treatment of PTSD arising from chronic traumatisation, because the focus of the exposure may not be as clear (Bradley, Greene, Russ, Dutra, & Westen, 2005) and evidence is limited (Cloitre, Koenen, Cohen, & Han 2002; Corrigan & Hull, 2015; Ford, 2015).

NET is specifically designed to treat PTSD arising from exposure to multiple traumatic events (Schauer et al., 2011). NET is informed by EPT and DRT, in terms of autobiographical memory (Conway, 2001; Squire, 1992; Tulving, 2001) and fear networks (Lang et al., 1970; Foa & Kozak, 1986). Thus, the theoretical underpinnings assume that in the context of acute stress, the functioning of the hippocampus reduces, causing fragmentation of memory systems (Brewin, Gregory, Lipton, & Burgess, 2010). This means "hot" memories, also known as "fear structures" (Lang, 1979) (i.e., emotional, cognitive, sensory perceptions of the traumatic event), and "cold" information (i.e., contextual information related to the event) are separated in the context of a traumatic event (Grey, Holmes, & Brewin, 2001). It is theorised that this fragmentation of trauma memories results in incoherent memories of the trauma event. As such, NET's theorised mechanisms of change are exposure and habituation, and the reconstruction of the autobiographical memory (Schauer et al., 2011).

In practice, the first session of NET is typically psychoeducation, informing the client of normative reponses to traumatic stress and explaining the therapeutic procedure. Next, the client will physically construct a lifeline, placing rocks for trauma events and flowers for positive events along it, in order from birth to the present day. Following the completion of the lifeline, the therapist enables the client to construct a chronological narrative, asking them to

[20] See extended paper section 1.15 for further discussion of NICE recommended treatment and evidence

describe in detail each traumatic event (also called narration). This enables the linkage of contextual information with sensory-perceptual representations of each traumatic memory along the lifeline (Robjant & Fazel, 2010; Schauer et al., 2011). As more contextual information is included within the hot memory through narration, fear networks are dispersed, reducing PTSD symptoms. The therapist then writes this narrative up between sessions and re-reads this in the following session, amending or adding further detail to the narration (re-narration). This process continues until all the traumatic events have been narrated, and a "testimony" has been created.

NET is evidence based and has been found to be efficacious in treating PTSD in various populations. A recent meta-analysis (Lely, Smid, Jongedijk, Knipscheer, & Kleber, 2019) reported NET is effective in the reduction of PTSD across refugee and non-refugee groups. However, there is mixed evidence regarding the effectiveness of NET reducing secondary outcomes such as depression or anxiety (Lely et al., 2019; Smiddy, 2016). Further, NET has consistently low attrition rates compared to other therapeutic modalities (Mørkved et al., 2014).

Recently, NET has been applied to populations outside of its original context. This includes those who have experienced chronic interpersonal violence, studies of which have reported NET's effectiveness in reducing PTSD (Mørkved & Thorp, 2018; Pabst et al., 2014; Robjant, Roberts, & Katona, 2017; Steuwe et al., 2016; Smiddy, 2016). Orang et al. (2018) applied NET to women who remain in abusive relationships and found NET reduced PTS in this group. Further, it reported reduced avoidance may be uniquely important for IPV-affected women by enabling them to "confront the abuser" and resist the perpetrator's ongoing impact on their life, which has been corroborated in other studies (Krause, Kaltman, Goodman, & Dutton, 2008; Street, Gibson, & Holohan, 2005). As such, there is a rationale for the application of NET for treating the chronicity and complexity of trauma endured in IPV[21].

Research aims

[21] See extended paper section 1.16.1 and 1.16.2 for further information on NET theory and evidence

The main purpose of this study was to determine if NET can reduce levels of PTS in women with a history of IPV. The secondary aims of the study were as follows: (1) to determine if NET impacts on levels of anxiety, depression and general stress in IPV-affected women; (2) to determine whether NET's mechanisms of change can be understood within a single case series design; (3) to determine how participants experience NET; (4) to determine whether a short term intervention can be beneficial in an IPV context.

Predictions

This study predicted there would be a marked reduction on the Impact of Events Scale-Revised (IES-R) post-treatment. It was also predicted a marked reduction on the IES-R would occur only following the emotional processing of the whole fear network, in line with Schauer et al. (2011). Given that chronic exposure of traumatic events strengthens the fear network over time, reduction in PTS is predicted to occur once this has been processed (Lang et al., 1970; Schauer et al., 2011). Further, given NET alleviates PTS, there should not be reductions in depression, anxiety or stress (as measured on the DASS 21). However, current literature (Wampold, 2019) suggests PTSD treatments are equally effective because of common factors. As such, this study aimed to explore whether NET has a differential impact on secondary outcomes. Moreover, literature suggests Within Session Habituation (WSH) is necessary for the reduction of PTS (Rauch et al., 2004). Thus, it was predicted physiological arousal should reduce following the narration of each trauma event (as measured by the Subjective Unit of Distress, SUD) to indicate habituation. The analysis of autobiographical integration was predicted to reveal a reduction in fragmentation and disorganisation of lifeline narratives post-NET.

Method[22]

Design[23]

The study used a naturalistic, mixed method, sequential measurement single case AB design (Barlow, Nock, & Hersen, 2009). The study included a non-treatment baseline phase (A) and a 12-week NET treatment phase (B), and

[22] See extended paper section 2.1 for the study epistemology
[23] See extended paper section 2.2, 2.2.1, 2.2.2 for overview and critique of SCD approaches and rationale of study design

a follow up (FU) phase. An AB design was chosen due to the interest in examining process and outcome variables in depth (Kazdin, 2010; Morgan & Morgan, 2008). Further, given single case design (SCD) studies are well suited to investigating the relationships between variables at a micro level (Borckardt et al., 2008), it was deemed an appropriate design to answer the research questions. As the study was facilitated in a naturalistic setting, it permitted generalisation to clinical practice.

Participants

Participants were invited to take part in the study if they met the following inclusion criteria:

1. 18 years old or over
2. Able to give informed consent
3. Female
4. Chronic exposure to abuse/violence from an intimate partner (i.e., more than a single event of IPV)
5. Could communicate verbally and speak English
6. Experiencing PTS or have a diagnosis of PTSD
7. Referred to the Centre for Trauma, Resilience and Growth (CTRG) or Step 4 Psychological services for treatment of PTS.
8. Not be living with an abusive partner at the time of the study.
9. Not receiving any additional trauma-informed therapy beyond the study intervention.

Demographics

Four female participants were recruited (age range: 29 - 43, mean age: 35)[24]. The primary referred difficulty for each participant was PTS, and the reason for accessing therapy was to address this. All participants were prescribed medication for other mental health difficulties and had accessed previous therapeutic support to differing degrees. Two participants had previously received treatment for traumatic stress, and all four had received therapy for mental health problems as shown in Table 6[25].

[24] See extended paper section 2.3 for rationale of sample size
[25] See extended paper section 2.4 for additional participant demographics

Table 6.

Participant Demographics

Demographic	**Participant A (Pseudonym: Niamh)**	**Participant B (Pseudonym: Melissa)**	**Participant C (Pseudonym: Eloise)**	**Participant D (Pseudonym: Grace)**
Brief description of length of IPV and/or other abuse	Length: 8 years (multiple relationships).	Length: 20 years CSA	Length: 5 years CSA	Length: 9 years CSA
Age (years)	37	43	32	29
Marital Status	Single	Divorced	Single	Single
Previous therapeutic input	CBT (Five years ago) EMDR for trauma TF-CBT	Several psychotherapy treatments for a total of 10 years.	DBT (six months ago) Current service user of CMHT (access to CPN and psychiatrist for medication review).	CBT (one year ago)
Psychotropic medication	Antidepressant	Antidepressant Benzodiazepine	Antidepressant Antipsychotic Mood Stabilization	Antidepressant
Diagnosis	Depression PTSD	Depression	Bipolar Disorder	Depression

Note. CSA = Child Sexual Abuse; CBT = Cognitive Behavioural Therapy; CMHT = Community Mental Health Team; DBT = Dialectical Behavioural Therapy; PTSD = Post-traumatic Stress Disorder. EMDR = Eye Movement Desensitisation Reprocessing.; TF-CBT = Trauma-focused Cognitive Behavioural Therapy.

Measures

The design collected repeated weekly outcome and process measurements using a combination of measures. During the baseline phase the IES-R and the DASS 21 were administered at three data points, to assess for stability, against which the intervention could be compared. Both the IES-R and the DASS 21 were administered weekly throughout the intervention and during the change interview. The IES-R was amended from assessing PTS for a single event to assessing PTS related to a participant's abusive relationship(s).

The IES-R (Weiss, & Marmar, 1997) is a non-diagnostic self-report measure of PTS, which assesses three constructs of PTS (Intrusion, Avoidance and Hyperarousal). It is considered a gold standard measure of PTS and has been found to have good reliability and validity (Beck et al., 2008; Creamer, Bell, & Failla, 2003). The DASS 21 is also a non-diagnostic measure, assessing three constructs (Depression, Anxiety and Stress) and has good reliability and validity (Henry & Crawford, 2005; Lovibond & Lovibond, 1995).

The Subjective Unit of Distress (SUD) was completed pre-post narration of each trauma event, to assess for WSH. This was repeated for re-narrations of each trauma event. Each participant indicated distress by marking this on a visual scale connecting two points: 0 (no distress) and 10 (most distress ever experienced). The SUD (Wolpe, 1969) has been found to have good validity and sensitivity to change (Tanner, 2012)[26]. For autobiographical integration, significant trauma events on the first and second lifelines were compared to assess for change (See Appendix C for coding instructions). A check using an external supervisor was completed to assess the reliability of the analysis[27].

Change interview

The change interview was informed by Elliott, Slatick and Urman (2001) (See Interview protocol in Appendix D). The change interview was completed up to one month following the completion of NET and lasted between 40 – 60 minutes. The change interview was completed by an external interviewer (a Trainee Clinical Psychologist) at the service the participant attended for NET. The change interview included questions related to participants' overall experiences of NET, specific aspects of NET (i.e., creating the lifeline, narration and

[26] See extended paper section 2.6.1 - 2.6.4 for overview, rationale and properties of measures used
[27] See extended paper section 2.7 for more information on narrative analysis.

re-narration) and any changes participants had identified. The qualitative data was triangulated with the quantitative data.

Procedure

Ethics

The study was approved by the University of Nottingham Research Governance team, a Research Ethics Committee (Yorkshire & The Humber - Sheffield Research Ethics Committee) and the Health Research Authority (HRA) within the NHS (See Appendix E – I for Ethics Approval letters)[28]. All participants consented to take part in the study, including audio and video recording of sessions, and were informed they could withdraw from the study at any point. As part of the study protocol, there was a pre-agreed condition that either service would offer further psychological treatment to participants if this was necessary at the end of the study (See Appendix J for consent form, See Appendix K for the information sheet, Appendix L for debrief sheet).

Recruitment[29]

Participants were recruited from the Centre for Trauma, Resilience and Growth (CTRG) or Step 4 Psychological Services[30]. The initial approach was from a member of the clinical service. They were assessed by a clinician from the respective service, who informed the participant about the study and gave them the study information sheet. The clinician then contacted the participant at least 24 hours later to confirm verbal consent. If the participant verbally consented, the participant's details were passed to the researcher, who made contact and sought written consent before commencing the intervention.

Baseline[31]

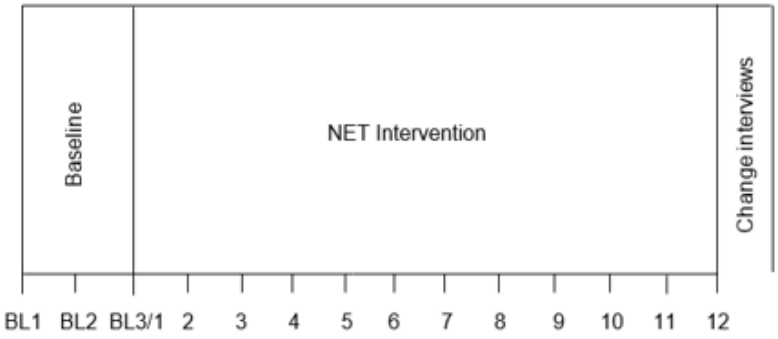
Three baseline measures were taken at natural points within the design: (1) at assessment by the clinician; (2) during the written consent session with the researcher and (3) at the beginning of the first session, prior to the intervention commencing. Whilst establishing a stable baseline is the preferred standard in SCD methodologies, this was not

[28] See extended paper section 2.8 for an overview of ethical approval
[29] See extended paper section 2.9 for recruitment challenges
[30] This refers to a service aiming to treat complex psychological distress.
[31] See extended paper section 2.10 for critique and rationale of baseline phase

ethically possible in this study, and three baseline measures were taken to minimise disruption to participants.

Intervention[32]

Participants received 12[33] 60-90-minute sessions of NET, which were conducted weekly (see Figure 2). The intervention sought to treat PTS and was in line with the standardised treatment protocol detailed within Schauer et al. (2011). The lead researcher was also the therapist for this intervention[34]. The researcher received 90-minute supervision weekly by a supervisor with experience delivering NET. The researcher also kept reflective supervision and clinical process notes. All sessions were audio and video recorded to: (1) aid the treatment quality and the supervision process and; (2) assess treatment fidelity using a scale devised by the supervisor which was informed by the NET manual (Schauer et al., 2011) (See Appendix N for this scale).



BL1, BL2 and BL3 indicate baseline points taken. Structure of NET intervention: Session 1: Psychoeducation, Session 2: Lifeline, Session 3: Narration, Session 5 – 10: process of Narration and Re-narration of trauma events, Session 11: Re-narration of final trauma event and Relaying Lifeline, Session 12: Giving whole narrative to participant. The change interview was completed in a month following NET.

Figure 2. Overview of study design

[32] See extended paper section 2.11 for further detail on the NET intervention
[33] For two participants the total number of sessions was extended to 13 for clinical reasons.
[34] See the extended paper section 2.12 for further information about the dual role of researcher and therapist

2.6 Analysis[35]

Outcome measures were visually analysed, systematically evaluating trend, level and stability both within and across the two phases of the study (Lane & Gast, 2014). Visual analysis is the gold standard for SCD's (Kratochwill et al., 2010; Smith, 2012), although some argue statistical analysis can strengthen the visual analysis. As such, the Fisher, Kelley, and Lomas (2003) dual criterion (DC) was used; the number of data points in the intervention and follow-up phase below both the mean, and projected trend line, were counted. Fisher et al. (2003) reported the DC method has low observed rates of Type 1 errors (concluding the intervention had an effect when it did not) and Type 2 errors (concluding the intervention had no effect when it did). Additionally, the PEM (Ma, 2006) was used to calculate treatment effect size on the IES-R.

Simulation Modelling Analysis (SMA) was applied to analyse any temporal relationships between the IES-R and the DASS 21. SMA uses bootstrapping methods to create simulations that take the phase lengths and autocorrelation of the data stream, inherent in SCD's, into account. Further, to determine if any changes identified were reliable (beyond what could be attributed to chance or measurement error at 95% confidence) and clinically significant, Jacobson and Truax (1991) Reliable Change Index (RCI) and Clinically Significant Change (CSC) method were applied.

SUD measurements were graphed and inspected. Language used by participants during the narration was assessed for disorganisation and fragmentation and aimed to explore if this could show autobiographical changes following treatment. As such, segments of interest (i.e., important trauma events) in the first lifeline were compared to the second lifeline. Incidences of disorganisation (i.e., disjointedness, confusion, and repetition of an utterance) and fragmentation (repetition of a word, unfinished thoughts, and speech fillers) were counted, in line with relevant literature (Foa et al.,1995; Harvey & Bryant, 1999; Jaeger, Lindblom, Parker-Guilbert, & Zoellner, 2014). Further, total word count was assessed because previous studies report differences in length between trauma narratives pre-post treatment (Gray & Lombardo, 2001). A reliability analysis was conducted by an external clinician. Further, a descriptive analysis of qualitative data derived from change interviews was completed. Data was tabulated by each question and was summarised across participants. This enabled data to be considered alongside quantitative findings in order to

[35] See extended paper section 3 for further information on analyses conducted

strengthen or refute any inferences made regarding therapy processes and the possible mechanisms of change within NET[36].

Results[37]

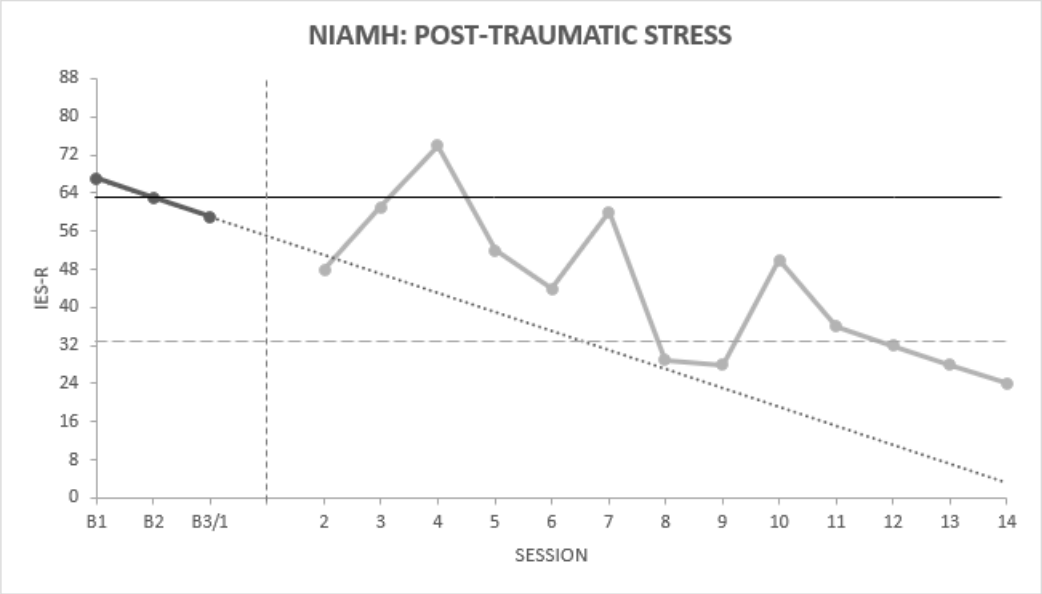
Results revealed treatment completion was 100% and all participants engaged in the change interview. The duration of narrative exposure ranged from 60 – 120 minutes for all participants.

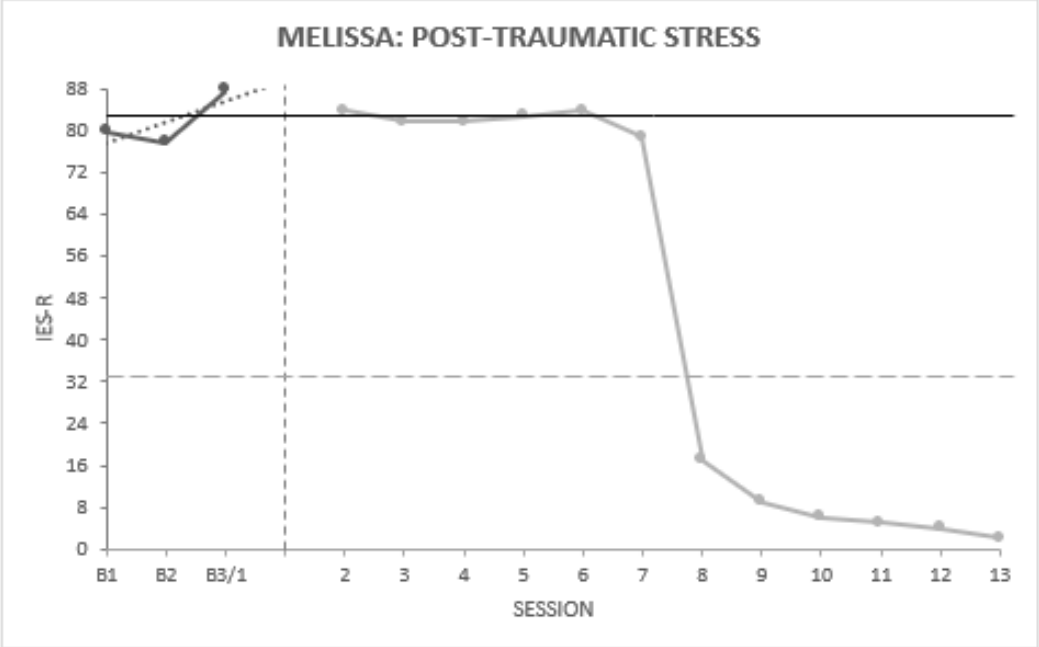
Did NET reduce levels of post-traumatic stress in women with a history of IPV?

Time-series data collected from the repeated IES-R were graphed and visually inspected for change across phase and time, with attention being made to level, trend, variability and points of interest in the data (see Figure 3). The treatment effect size was calculated for each participant using the DC (Fisher et al., 2003) and PEM (Ma, 2006) method. SMA revealed subscales for the IES-R (Intrusion, Avoidance and Hyperarousal) were highly correlated and there were no replicated sequential effects that were repeated across three participants[38]. Given this, the IES-R was presented graphically as a composite measure for all participants.

Visual analysis revealed a deteriorating baseline trend was noted for three participants, and an improving baseline trend for one participant. The data showed an improving trend across the intervention phase for all participants which exceeded the baseline trend for three. There was significant variability for Niamh only; spikes in the data were noted to coincide with external life stressors. With regards to PTS severity, all participants were in the severe range prior to the intervention. At intervention completion Niamh and Melissa were below the clinical range, as was Eloise at the FU. Further, PEM suggested a moderate treatment effect for Eloise and Grace, and questionable treatment effects for Niamh and Melissa (See Table 7). Nonetheless, Niamh, Melissa and Eloise achieved reliable and CSC at the point of the FU. Treatment gains were maintained in the FU for Niamh, Melissa and Eloise, but Grace remained in the clinical range throughout the intervention and worsened at FU (See Figure 3).

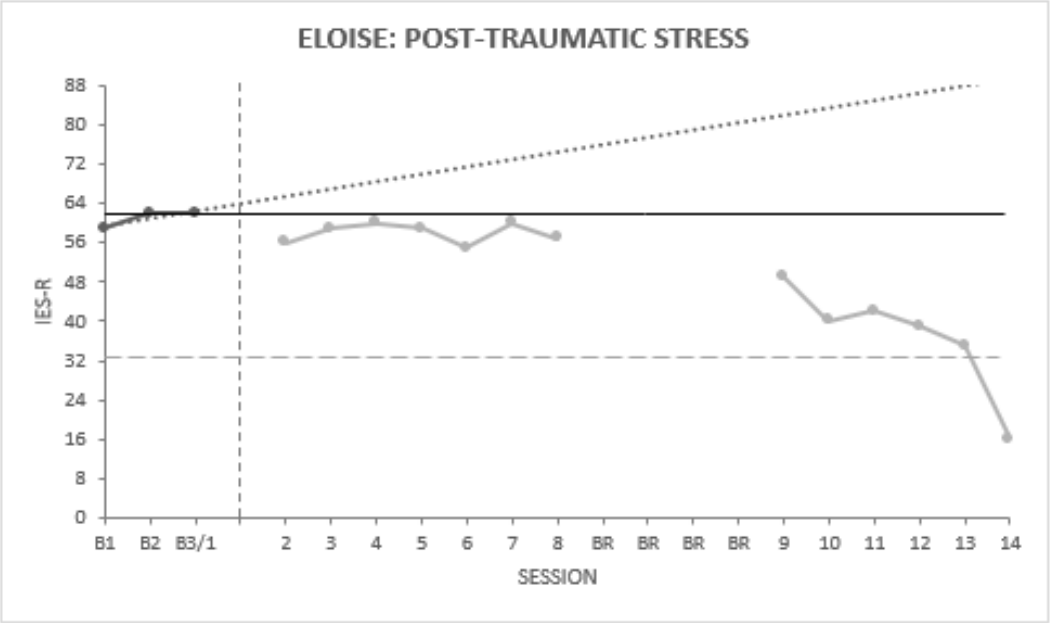
[36] See extended paper section 3.4. for further information on narrative coding
[37] See extended paper section 4.1 for means and standard deviations of measures used
[38] See extended paper section 4.2 for SMA correlations

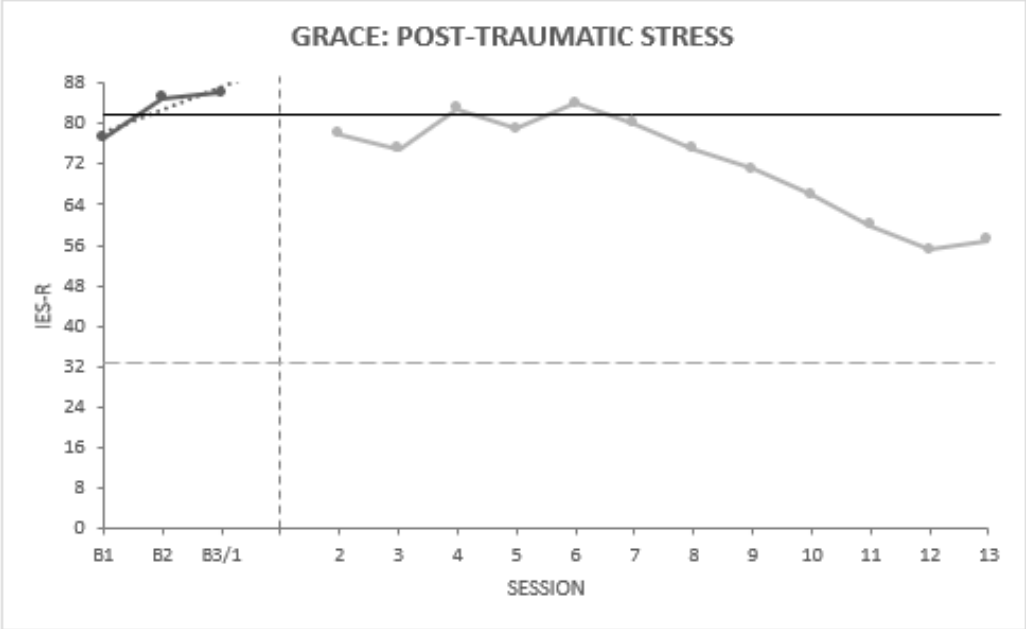




Note. All measures taken at the beginning of therapy sessions. IES-R presented as a composite measure for all participants. Grey dotted line indicates clinical cut off for PTSD (Weiss, 2004). Total number of therapy sessions were between 12 and 13. Session 14 and 13 indicates FU.

Figure 3. Graphs showing overall post-traumatic stress





Note. All measures taken at the beginning of therapy sessions. IES-R presented as a composite measure for all participants. Grey dotted line indicates clinical cut off for PTSD (Weiss, 2004). Total number of therapy sessions were between 12 and 13. Session 14 and 13 respectively indicates FU. BR = Break in therapy.

Figure 3 contd. Graphs showing overall post-traumatic stress

Table 7.

Effect sizes for IES-R

Participant	Effect size
Niamh	0.0
Melissa	0.5
Eloise	0.7
Grace	0.7

Note. Effect sizes of .90 and greater indicate effective treatments, those ranging from .70 to .89 represent moderate effectiveness, those between .50 to .69 are debatably effective, and scores less than .50 are regarded as ineffective (Scruggs & Mastropieri, 1996).

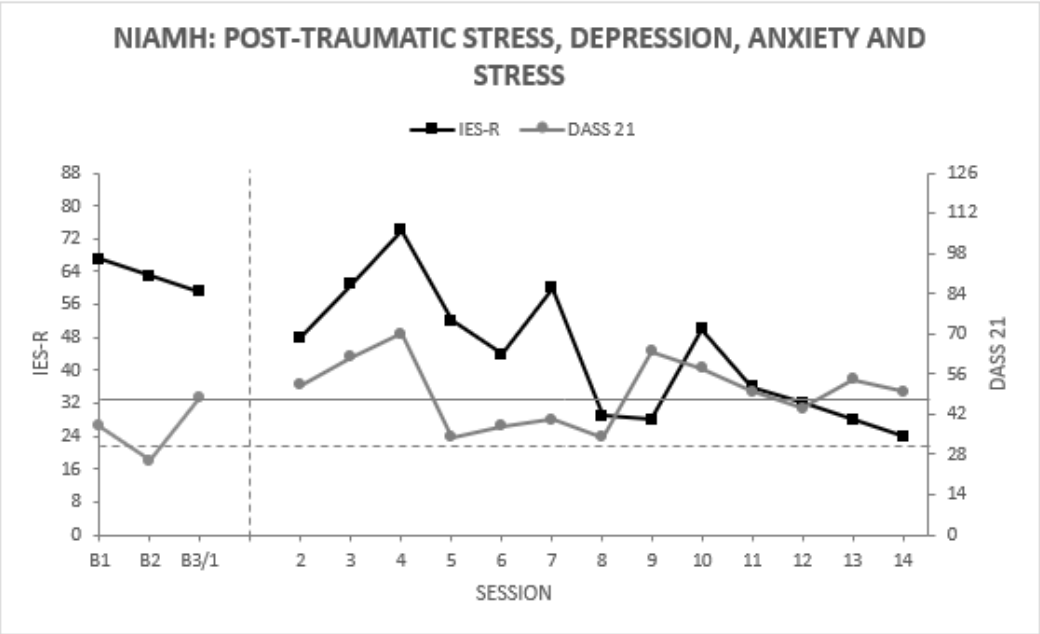
Did NET impact on levels of anxiety, depression and general stress?

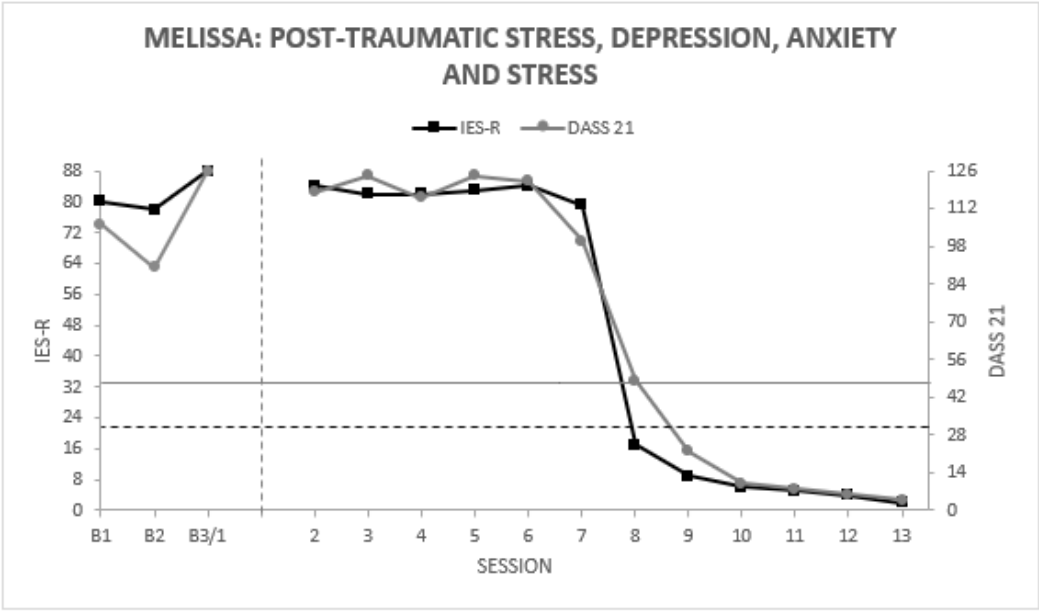
Visual analysis of DASS 21 data was undertaken, with attention being made to level, trend, variability and points of interest in the data. Graphical displays are presented in Figure 4. SMA revealed DASS 21 subscales were found to be highly correlated, with little evidence of differentiation except for Eloise. Given this, the DASS 21 was presented graphically as a composite measure for Niamh, Melissa and Grace, and separately for Eloise.

A deteriorating baseline was noted for Niamh, Melissa and Grace. For Eloise, a slightly deteriorating baseline was reported for anxiety and stress and an improving baseline was seen for depression. An overall flat trend was observed for Niamh. An overall improving trend was observed for Melissa which exceeded the projected baseline trend. A slight improving trend was noted for Grace but Grace's scores remained in the severe range throughout the intervention and worsened at FU. An improving trend for anxiety and stress which exceeded projected baseline data was observed for Eloise. A slightly improving trend was noted for Eloise for depression (See Figure 4). RCI revealed for Depression, Melissa and Eloise achieved reliable and CSC at FU. Grace achieved reliable change for depression post-NET, but this was lost at FU. For Anxiety, Melissa and Eloise achieved reliable and CSC post-NET and at FU with Grace achieving reliable change post-NET and at FU. For stress, Melissa and Eloise achieved reliable change and CSC at FU. A reliable deterioration was noted for Niamh for stress.

When analysing temporal relationships between the IES-R and the DASS 21, SMA showed for Melissa, Eloise and Grace, the IES-R and depression significantly covaried at Lag 0, suggesting IES-R and Depression scores changed concurrently. For IES-R and anxiety, significant correlations were found for three participants at Lag 0 (Niamh, Melissa and Grace).

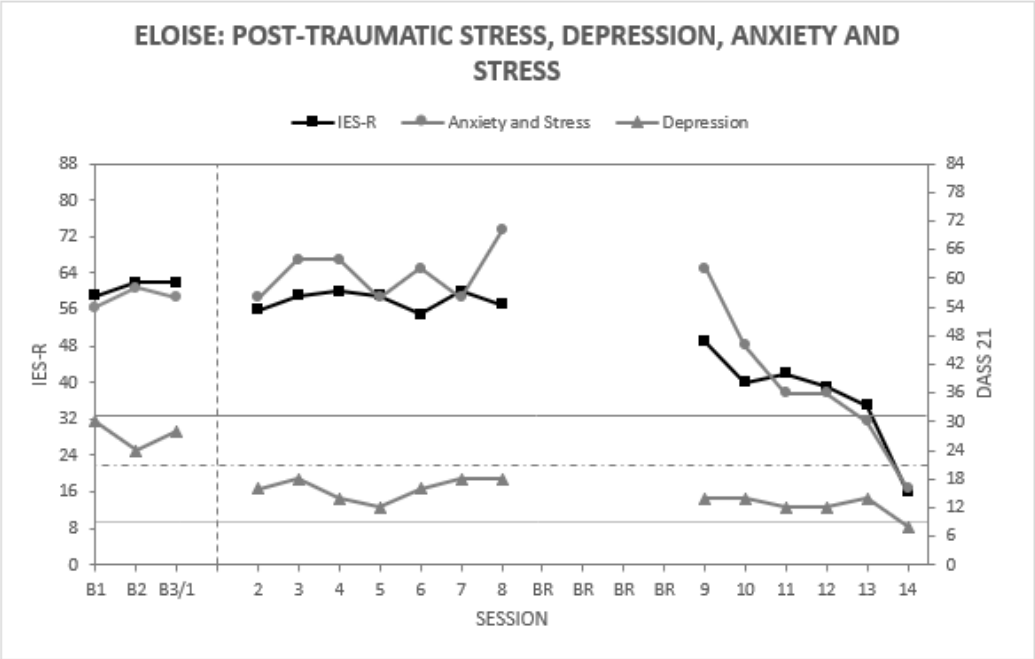
For IES-R and stress, three significant correlations at Lag 0 were found for Melissa, Eloise and Grace, suggesting IES-R and stress scores changed concurrently. Thus, SMA revealed no replicated sequential effects.



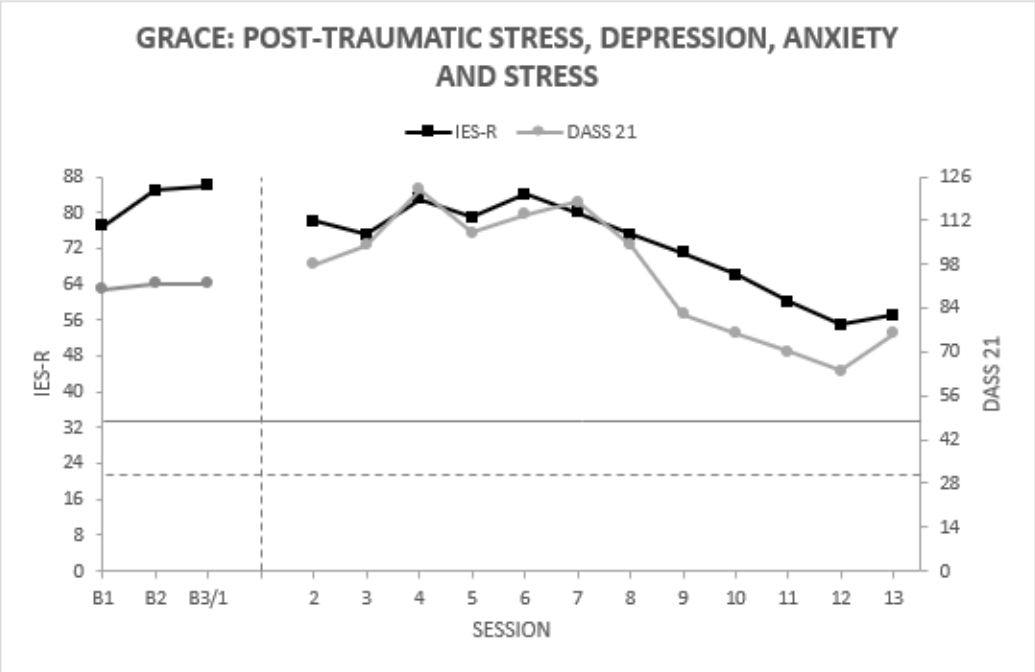


Note. All measures taken at the beginning of therapy sessions. DASS 21 presented as a composite measure. DASS 21 scores are doubled during scoring. Horizontal dotted line indicates clinical cut off for all DASS 21 scores combined. Horizontal solid line indicates IES-R cut off score for PTSD.

Figure 4. Graphs showing IES-R and DASS 21 measures.



Note. DASS 21 Anxiety and stress presented as a composite measure. DASS 21 Depression presented separately. DASS 21 scores are doubled during scoring. Top horizontal solid line indicates IES-R clinical cut off for PTSD. Horizontal dotted line indicates clinical cut off for DASS 21 Anxiety and Stress combined. Bottom dotted line indicates DASS 21 cut off for Depression.



Note. DASS 21 presented as a composite measure. DASS 21 scores are doubled during scoring. Horizontal dotted line indicates clinical cut off for all DASS 21 scores combined. Horizontal solid line indicates IES-R cut off score for PTSD.

Figure 4 contd. Graphs showing IES-R and DASS 21 measures.

Reliable and Clinical Change[39][40]

RCI and CSC analyses were undertaken on the IES-R and DASS subscales at significant time points throughout the intervention, including pre (Baseline), post (session 12/13) and at the point of the FU (Session 13/14). This is presented in Table 8.

Table 8.

Reliable Change and Clinically Significant Analyses

Measure	Time	Niamh*	Melissa	Eloise*	Grace
IES-R	Pre	67	80	59	77
	Post	28[RC]	4[RC]	35[RC]	55[R]
	FU	24[RC]	2[RC]	16[RC]	57[R]
DASS 21 Depression	Pre	8	36	30	22
	Post	10	0[RC]	14[R]	12[R]
	FU	10	0[RC]	8[RC]	20
DASS 21 Anxiety	Pre	14	30	24	36
	Post	20	4[RC]	12[R]	24[R]
	FU	16	4[RC]	6[RC]	26[R]
DASS 21 Stress	Pre	16	40	30	32
	Post	24[D]	2[RC]	18[R]	28
	FU	24[D]	0[RC]	10[RC]	30

Note. RCI and CSC calculated using clinical and non-clinical norms in published literature. IES-R: decrease indicates improvement in post-traumatic stress; DASS 21: decrease indicates improvement. DASS 21 scores are doubled when scoring. Pre = S1. Post = final session of NET. * = 13 sessions. R = Reliable Change; RC = Reliable and Clinically Significant Change.

What are NET's mechanisms of action?

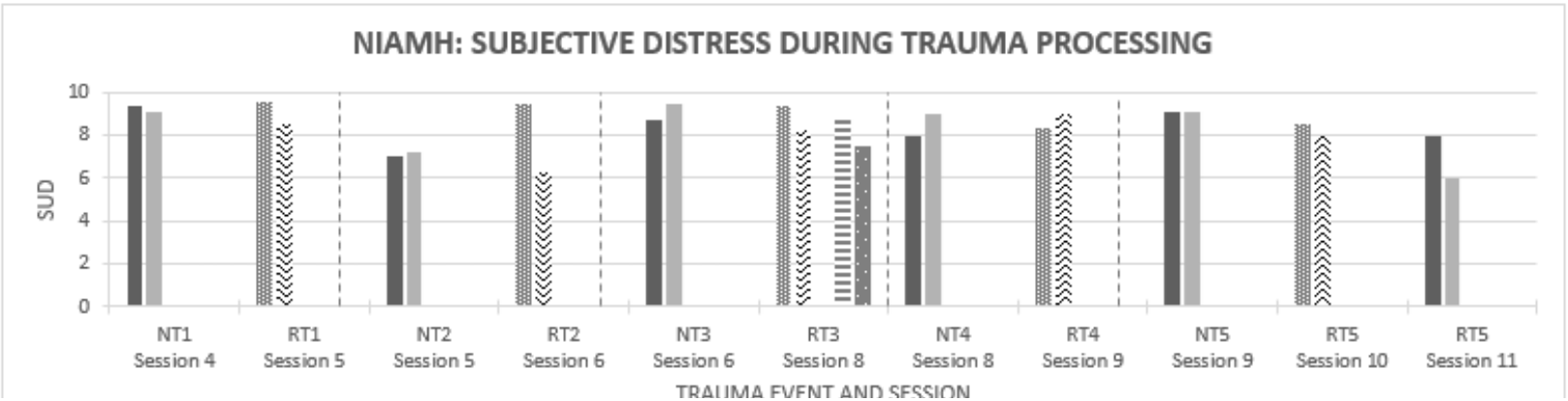
Exposure and Habituation

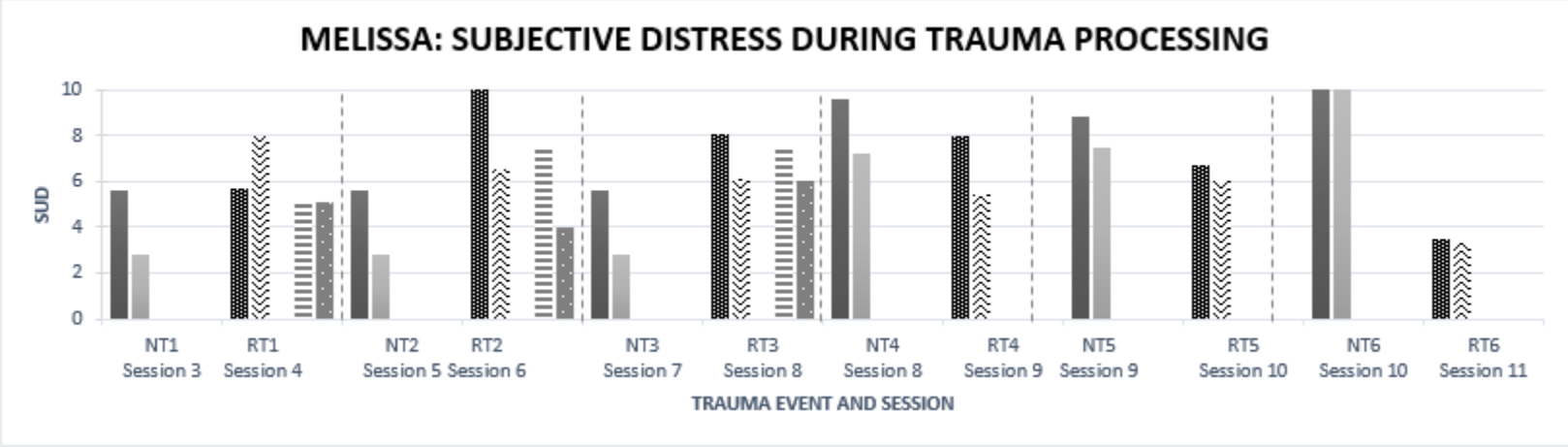
Variation between participants on measures of habituation were observed. Reductions for within-session subjective distress were clearly delineated for Eloise and Grace. This was observed to a lesser degree for Melissa following narration and re-narration, suggesting WSH

[39] See extended paper section 4.3 for clinical and non-clinical data for the IES-R and DASS 21

[40] See extended paper section 4.3.3 for RCI values

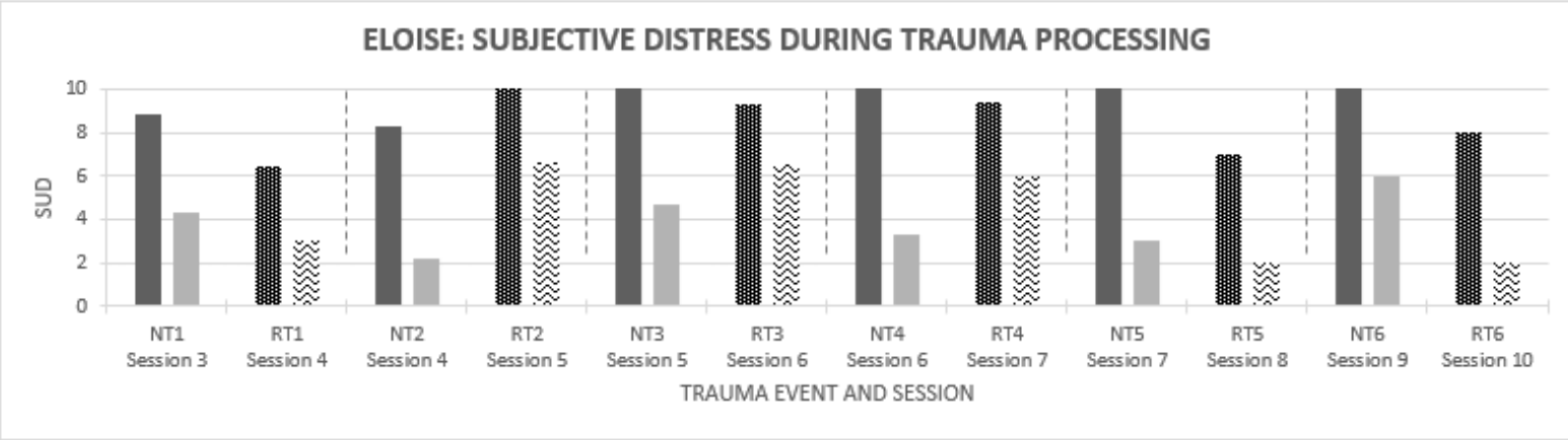
had partially occurred for some narrations. The greatest reduction for Melissa appeared to occur between session 10 and 11. For Niamh, evidence for habituation was less clear. There were limited observed reductions for within-session distress following narration. Further, reductions in distress did not necessarily occur within sessions, and on occasions subjective distress increased both within and between sessions (See Figure 5).

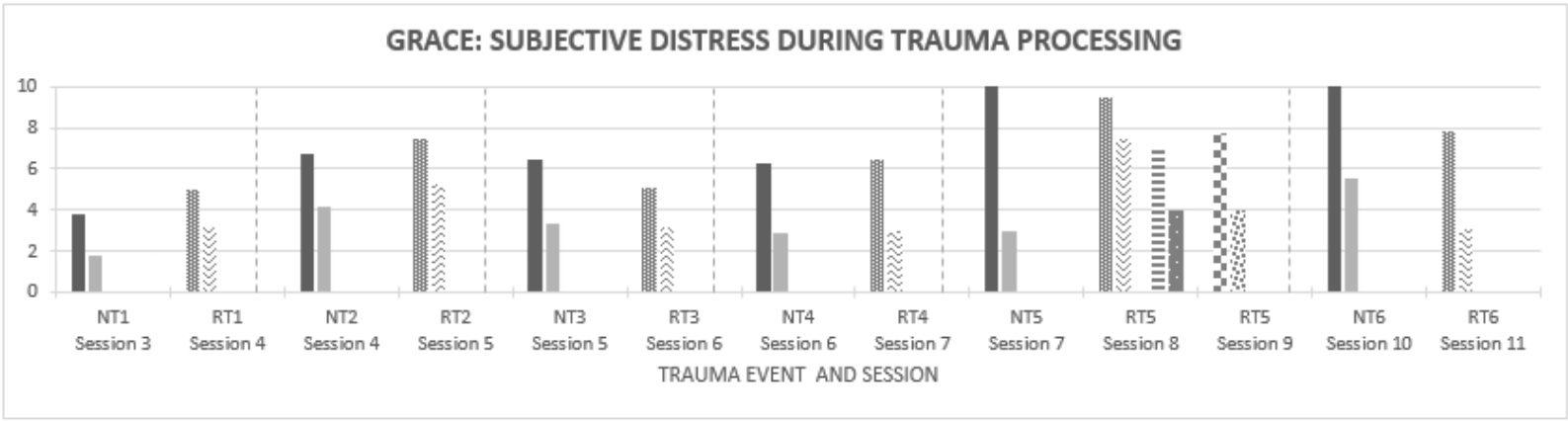




Note. NT = Narration of trauma event which indicates the first-time a trauma event has been processed; RT = Re-narration of trauma event indicates second (or subsequent) time trauma event has been processed. For some participants trauma events have more than one RT as this trauma event was processed more than once. The changing number indicates which trauma event is being processed. The first bar (left) indicates “Pre SUD”; the peak distress reported during trauma processing. The second bar (right) indicates “Post SUD”; the reported distress following habituation to feared stimulus. Grey vertical dotted line indicates the separation of trauma processing for each trauma event.

Figure 5. Graphs showing subjective distress during trauma processing





Note. NT = Narration of trauma event which indicates the first-time a trauma event has been processed; RT = Re-narration of trauma event indicates second (or subsequent) time trauma event has been processed. For some participants trauma events have more than one RT as this trauma event was processed more than once. The changing number indicates which trauma event is being processed. The first bar (left) indicates “Pre SUD”; the peak distress reported during trauma processing. The second bar (right) indicates “Post SUD”; the reported distress following habituation to feared stimulus. Grey vertical dotted line indicates the separation of trauma processing for each trauma event.

Figure 5 contd. Graphs showing subjective distress during trauma processing

Autobiographical integration

The analysis revealed narrative length reduced in the second lifeline narrative for every participant. For disorganisation, for three participants, there were some reductions in disorganisation, with the greatest change occurring for Melissa. For fragmentation, it was observed that second lifeline narratives were less fragmented across all participants, with the greatest reduction occurring for Niamh (See Table 9). For inter-rater reliability, an external rater was trained by the researcher to code and count each segment of lifeline narrative into the categories. A minimum of 80% similarity between rating of transcripts was achieved.[41].

Table 9.

Results of Narrative Analysis

Trauma narrative segment	**Niamh** Rape by abusive partner		**Melissa** Coerced abortion		**Eloise** Physical abuse		**Grace** Physical abuse with weapon	
Language dimension	First	Second	First	Second	First	Second	First	Second
Disorganisation	8	7	14	5	17	17	6	4
% Change		12.5		64.2		0		33.3
Fragmentation	13	2	29	7	29	10	7	3
% change		84.6		75.8		65.5		57.1
Total word count	280	159	604	236	737	604	606	279

Note. Table shows incidences of language dimension occurring within the significant trauma event narrative. First and Second = Lifeline.

Change Interviews[42]

Regarding the experience of NET, all participants commented on therapy being difficult. Niamh and Melissa reported they had a better experience of NET than previous therapies. Three participants said the normalising impact of psychoeducation was helpful. All participants made positive comments about

[41] See extended paper section 4.5 for extended lifeline results

[42] See extended paper 4.4 for full summary of change interview data

the lifeline process, with one stating the physical placing of objects made the experience powerful. All participants made positive comments about the structure of therapy, but Grace stated she would have preferred longer therapy. For re-reading the narratives and gathering contextual information, all participants remarked this was a very difficult but necessary aspect of therapy. Two participants stated they would not have been able to complete therapy if their therapist had been a man. When asked about the relaying of the second lifeline, three participants commented on an increased presence of flowers and fewer stones, with one participant noticing increased stones.

All participants reported positive changes resulting from therapy, the most frequently cited benefits were reduced intrusive symptoms and/or hyperarousal. One participant (Grace) expressed they would have liked to have experienced more positive change, although no participants reported negative changes. Regarding change attributions, one participant commented the changes were solely due to therapy, and the other participants commented the changes were due to both therapy and other factors, e.g., new relationship, making new friends and beginning a college course. When asked about helpful aspects of therapy, all participants mentioned therapist attributes. Specifically, participants talked about therapist kindness and ability to enable safety as well as therapist approaches e.g., being “gentle but firm”. One participant talked about the importance and helpful aspect of their unexpected break during therapy[43][44].

Discussion

This study investigated if NET can reduce levels of PTS in IPV-affected women. The secondary aims of the study were: (1) to determine if NET impacts on levels of anxiety, depression and general stress in women with a history of IPV; (2) to determine whether NET’s mechanisms of change can be understood within a single case series design, (3) to determine how participants experience NET; (4) whether a time-limited intervention can be useful in an IPV context.

[43] See extended paper section 4.5 for further detail of change interviews
[44] See extended paper section 4.6 for individual analysis of participant data

Effectiveness of NET reducing PTS[45]

It was predicted a marked reduction in PTS would occur for all participants post-treatment. This was arguably the case for all participants; however only three demonstrated improvements which exceeded the projected baseline trend. Nevertheless, this satisfies replication criteria given this was repeated across three participants (Kratochwill et al., 2010). Further, the maintenance of treatment gains at FU for three participants offers some suggestion that treatment effects were maintained.

A key theoretical notion of NET in the development of PTS is the fear network (Foa & Kozak, 1986; Lang, 1979). The theory assumes multiple traumas strengthen sensory perceptual representations in the fear network. Thus, as the traumatic load increases it weakens the associations with contextual information, causing increasingly severe PTS (Elbert & Schauer, 2002). Thus, it was predicted for PTS to decrease, the significant traumatic events that have contributed to the network need to be recontextualised into the autobiographical memory. According to this hypothesis, PTS should only reduce once the significant traumatic events in the fear network are emotionally processed. This study found mixed theoretical support for this hypothesis. For one participant, IES-R scores reduced following the completion of all trauma events on her lifeline (See Figure 5 that indicates which session this occurred). According to NET, this might suggest the fear network has been processed and reintegrated into the autobiographical memory. But, for other participants, participants showed incremental reductions on the IES-R over time. This may suggest PTS can be reduced without the traumatic processing of the whole fear network. However, for three participants their most significant event was the last to be processed, and therefore sequencing of processing may have confounded these findings.

Effect of NET on Depression, Anxiety and Stress[46]

NET has been developed for the reduction of PTS; therefore depression, anxiety or perceived stress were not expected to reduce. However, this study

[45] See extended paper section 5.1.1 for further discussion of effectiveness of NET reducing PTS
[46] See extended paper section 5.1.2 for further discussion on the impact of NET on secondary outcomes

found a clinically significant reduction in depression, anxiety and stress at FU for two participants. Whilst this does not satisfy replication criteria of three participants, the reduction of depression is in line with other NET studies (Orang et al, 2018; Pabst et al., 2014).

One hypothesis for this reduction may be due to the commonalities between PTS and depression or anxiety, such as negative affect (Post et al., 2011). Though, this was not the case for all participants; it may be for some participants the reduction of secondary outcomes may result from the reduction of PTS which is mediating the former (Schauer et al., 2011). This hypothesis maybe holds true for anxiety and/or stress also. However, the findings may also be attributable to common factors (e.g., therapist factors).

Understanding NET's mechanisms of change

Efforts to understand the possible treatment mechanisms contributing to the effectiveness of NET included within-session subjective distress measures and narrative analysis of first and second lifelines.

NET theory postulates emotional processing of traumatic memories through imaginal exposure produces habituation and thus an overall reduction of fear (Schauer et al., 2011). Therefore, it was predicted the emotional processing of traumatic memories would be indicated by lower SUD ratings following trauma narration. This study revealed reductions in subjective distress following emotional processing was observed clearly for two participants only. This finding reflects mixed conclusions regarding the necessity and/or effectiveness of WSH in terms of treatment outcomes (Rauch et al., 2004; Van Minnen & Foa, 2002)[47].

This study, in line with NET, predicted trauma narratives would become less fragmented and/or disorganised following the encoding of the autobiographical memories whilst the fear network is activated (Schauer et al., 2011). Arguably, this was the case for all participants (substantiated by qualitative data for some participants) and may evidence that autobiographical integration had occurred. This finding is in line with some studies reporting reduced fragmentation and/or disorganisation post-trauma treatment (Bernard-

[47] See extended paper section 5.2.1 for further discussion exposure and habituation

Gilligan et al., 2017; van Minnen et al., 2002). However, this was not necessarily linked to treatment outcome. For example, Grace remained in the clinically severe range for PTS post-intervention, yet analysis revealed reduced fragmentation and disorganisation post-NET. Although an inter-rater reliability was completed, it remains unclear if this indicates autobiographical change has occurred. Further, repeated retrieval and elaboration through imaginal exposure may have acted as a confound to this finding and therefore findings should be interpreted with caution[48].

There is a current focus of understanding mechanisms of change within the psychotherapeutic literature (Laska et al., 2013). However, research has found limited differences between PTSD treatments (i.e., Resick et al., 2008; Wampold, 2019). This study found some evidence for the proposed mechanisms of change for NET. Results also highlight the role of other factors and their potential contribution to the treatment outcome in this group. Furthermore, improved secondary outcomes for two participants may provide further evidence for common factors influencing therapeutic change especially given NET is a trauma-focused intervention.

Clinical Implications and research strengths[49]

To the researcher's knowledge, this study represents the first study to: (1) apply NET to IPV-affected women who are not in a current abusive relationship; (2) examine mechanisms of change within NET and; (3) explore qualitative views of IPV- affected women who have received NET.

Debate exists within the extant literature regarding appropriate treatment of complex PTS. Specifically, research advises longer treatment lengths and a phased approach (Cloitre et al., 2011). With regard to the fourth aim, the results of this short-term NET treatment found a positive treatment effect, providing support that time-limited trauma-treatments can produce therapeutic effects within a complex trauma population. This may offer valuable information to healthcare systems whose resources are limited. However, longer treatments

[48] See extended paper section 5.2.2 for further discussion of autobiographical integration
[49] See extended paper section 5.4 for further discussion of clinical implications and research strengths

may still be necessary for some individuals, which would be at the discretion of the treating clinician.

Further, this study found it was important to gather and connect contextual information of the abusive relationship(s) specifically in order to link together the sensory perceptual representations of the fear network with wider contextual traumatic memories in this sample of IPV-affected women. As such, this may be a useful adaptation of NET to be used with this population in future.

The qualitative experience of IPV affected women is largely absent from the literature. This study revealed NET is a highly tolerable and acceptable treatment for this sample of women. Qualitative data related to the usefulness of the lifeline coheres with existing research (i.e., Colville, 2017) and also revealed additional benefits, such as participants reporting NET enabled them to form new relationships. Further, qualitative data indicated participants felt NET was specifically effective in reducing avoidance. This finding is comparable with Orang et al. (2018), who reported NET may enable women to "confront the abuser" in an imaginary sense and resist the abuser's ongoing impact on their life. Given the reduction of avoidance has also been linked to the reduction of re-victimisation (Krause et al., 2008; Street et al., 2005), this may be an important successful treatment indicator for this group[50].

Limitations and future research[51]

Despite the promising results, this study is not without limitations. Firstly, the short FU period does not enable strong conclusions regarding the longer-term effects of NET. Secondly, whilst SCD's allow researchers to investigate complex processes using a scientific methodology (Morgan & Morgan, 2008), difficulties are still faced when attempting to separate therapeutic processes, for example mechanisms of action. Furthermore, discerning narrative change and linking that to changes in the traumatic memory is a challenging task. Whilst the study used methods that were in line with current literature, the coding strategy

[50] See extended paper section 5.3.1 for further discussion of the experience of NET
[51] See extended paper section 5.4 and 5.5 for further discussion of research limitations and future research

was subject to bias and may not have adequately measured autobiographical integration. Thirdly, a biometric measurement of subjective distress (e.g., heart rate monitors) may have been useful, as an alternative indicator of physiological arousal although the adverse impact of measures needed to be balanced with the need of the participants. Finally, the dual role of the therapist and researcher could be viewed as a limitation this also limited the impact of therapist factors confounding findings.

Conclusion

This is the first exploratory study investigating the application of NET to treat PTS in an IPV-affected sample of women who are not in abusive relationships. Study findings offer support for the effectiveness of NET for IPV related trauma; a finding that was substantiated by participant's qualitative reports. Future research should focus on further exploration of the theoretical questions raised, and the development of objective coding methods to better understand the meaning and context of trauma narrative processes.

Word count: 7986 excluding tables, figures and references

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Extended Paper

1. Extended Introduction

1.1. Historical, Legal and Policy Context of IPV

1.1.1. Historical and Legal Context

IPV is not a novel phenomenon; socio-historical studies have identified violence towards women was commonplace. The first reported UK case of IPV was in 1395, in which Margaret Neffeld attested she had been attacked by her husband (Freeman, 1979). Early English laws gave men the legal right to hit their wives; British rape laws reflected the status of women as property, stating compensation should be paid to a husband when their wife was raped (Dobash & Dobash, 1979). It was not until the 1970's when the first legislation was introduced to protect women from IPV. These initial publications were the Domestic Violence and Matrimonial Proceedings Act (1976), the Housing Act (1977) and the Domestic Proceedings and Magistrates Court Act (1978) (Graca, 2017). These legal frameworks were superseded by part IV of the Family Law Act 1996 and, since then updated by the Domestic Violence, Crime and Victims Act (DVCVA, 2004). However, changes to legislation were criticised for it's ineffectiveness; the lack of a specific IPV crime meant courts convicted perpetrators based on physical violence only (within the Offences Against the Person Act, 1861) and excluded other integral components of IPV (i.e., controlling behaviour).

This resulted in the development of supplementary legal aids to support and protect victims of IPV. These included the introduction of Domestic Violence Protection Notices (DNPN) and Domestic Violence Protection Orders (DVPO) which increased police powers and enabled them to force suspected perpetrators to leave victims' homes for up to 24 to 48 hours. In the same year the Domestic Violence Disclosure Scheme (also known as Clare's Law[52]) (Home Office, 2016) was introduced across England and Wales, which aimed to

[52] Clare Wood was murdered by her boyfriend in 2010; the DVDS was set up in her name by her family.

protect victims of IPV by enabling them to access information related to their current partner's previous offence history. More recently, the Home Office announced the introduction of the Serious Crime Act (2015) which aimed to support courts to convict perpetrators for the coercive, chronic and controlling aspects of IPV and its cumulative effects on victims, which did not fit other categories of common assault or harassment.

1.1.2. Policy Context

There has been an increasing effort from UK governments to develop more effective ways of preventing and responding to IPV. Much of the current legislation reflects a multi-agency approach, which appears to acknowledge victims' needs are complex, and thus are unlikely to be addressed by a single agency. The "Justice for All" white paper (Jackson, 2003) was influential in highlighting the shortfall of current protection for IPV victims and suggested a change to amend the current legal framework. This influenced the addition of IPV specific support e.g., Multi-agency Risk Assessment Conferences (MARAC) were introduced in 2003, which aimed to provide a multi-agency framework to protect individuals at the highest risk of being seriously harmed within an intimate relationship (Home Office, 2011). Further, Independent Domestic Violence Advisors (IDVAs) were introduced in 2005. This aimed to provide independent advocacy and specialist support to victims at high risk of being harmed (Safe Lives, 2016).

More recently the Home Office published its 2016-2020 strategy to end violence against women and girls (Home Office, 2016). This proposed increased support for IPV victims in the form of refuges, rape crisis support centres and national helplines. Further, the document "Transforming the response to Domestic Abuse: Consultation Response and Draft Bill" was released in January 2019 (Home Office, 2019), highlighting that IPV is a political priority. This bill details four main strategy objectives: to promote awareness; protect and support; transform the justice system process; and improve the responses to IPV and highlight the political focus of reducing risk of IPV.

1.2. Definition of IPV

Domestic Violence and Abuse (DVA) is an umbrella term used to describe threatening behaviour, violence or abuse between adults who are some relation (i.e., relatives, partners or ex-partners). IPV is a form of DVA occurring between intimate partners or ex-partners (Howarth, Feder & Agnew-Davies, 2013). This study will use the term IPV, as there is no consensus on the appropriate term. However, there are a plethora of terms that are used interchangeably in the literature, which include domestic violence, family violence, domestic disputes, wife battering, spouse abuse, wife abuse, and battered women. Some of these terms (e.g., domestic violence) have been criticised for concealing the full range of abuse victims can be subjected to (i.e., psychological abuse) (Smith, 1990).

Recent changes to IPV definitions have centred on the addition of coercive control, which represents a form of psychological violence. Within coercive control the perpetrator is said to threaten, degrade, objectify, deprive and distort reality for victims, questioning their sanity, meaning they lose confidence and certainty of their own thoughts and feelings about their experience (Kirkwood, 1993). It has been suggested to be the most complex of IPV components to define and criminalise, as by its nature, is a pervasive process, rather than a clearly delineated event such as rape (Allen, 2013). Though, the addition of the coercive and controlling behaviour offence in 2015 sought to bridge this gap (See Figure 6 for an overview of IPV).

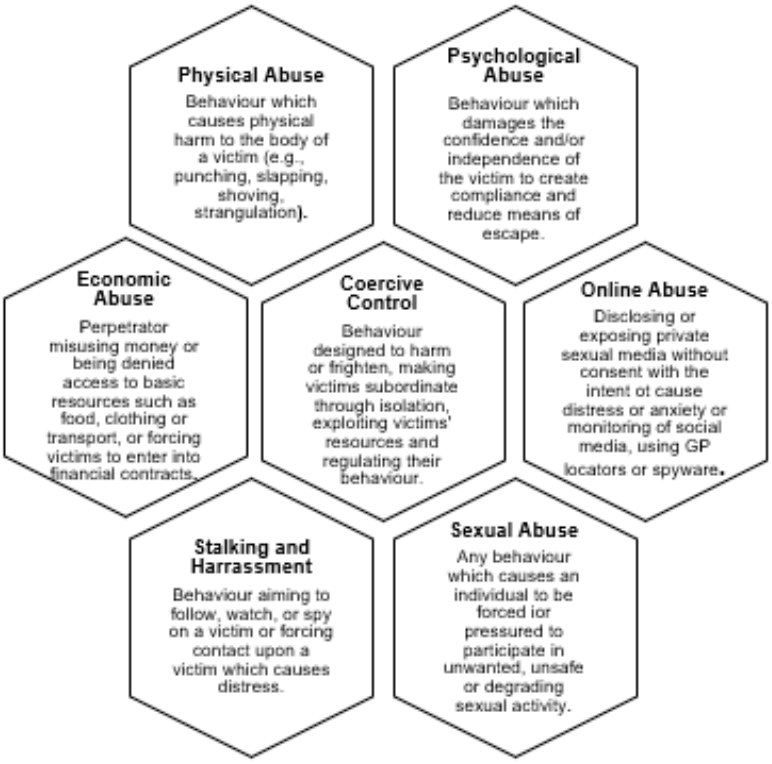

Figure 6. Overview of IPV components (aspects taken from Howard, Feder, & Agnew-Davies, 2013).

1.3. IPV Gender paradigm

Whilst it is acknowledged men experience IPV, there are discussions within the literature as to whether violence perpetrated against men has the same prevalence, meaning and impact as that perpetrated against women (Dutton, Hamel, & Aaronson, 2010; Morgan, & Wells, 2016). This discussion has arisen from consistent patterns emerging from prevalence data that IPV is inherently gendered; perpetrators are overwhelmingly found to be men and its victims are mostly women. International discourse has linked this gendered finding as a problem within patriarchal cultures, which seek to make women subordinates, and thus violence towards women is perpetuated by patriarchal morals, norms and narratives which infiltrate statutory legal frameworks (Harne & Radford, 2008).

However, this viewpoint is vociferously debated within the literature. For example, with regard to female perpetrated IPV; there is increasing evidence to suggest that women commit as much IPV as men (Drijber, Reijnders, & Ceelan,

2013). Research has shown there is a limited focus of male IPV experiences; for example, social norms about who abuses whom within society means men are much less likely to report abuse (Barber, 2008). This is refuted by others who suggest violence perpetrated by women in the context of abusive relationships is the result of self-defence (Dobash & Dobash, 2004; Hines, Brown, & Dunning, 2007).

1.4. Impact of IPV

Research has identified a bi-directional relationship between IPV and mental health difficulties: a previous history of mental health problems increases the risk of IPV, and the experience of IPV worsens already present mental health distress. For example, studies have found people with mental difficulties are up to 11 times more likely to experience IPV than the general population (Choe, Teplin, & Abram 2008; Teplin, McClelland, Abram, & Weiner, 2005; Walsh et al., 2003).

Additionally, some research has reported the uniqueness of IPV exacerbating the impact of it on mental health difficulties, e.g., fear of further violence, ongoing contact with the perpetrator through co-parenting, isolation and lack of support, mourning the loss of an intimate relationship, concerns related to the welfare of their children or family, fear of child protection proceedings and increased shame related to women feeling they are unable to fulfil the role of a mother due to the abuse (Dutton, 1992; Jones, Hughes, & Unterstaller, 2001; Rose et al., 2011).

1.5. Responses to traumatic events

Traumatic responses are highly variable and are best described as understandable and normal reactions to abnormal events. These reactions can include but are not limited to difficulties associated with anxiety, hypervigilance (i.e., scanning environment for cues of danger), sleep disturbance, intrusive images of the traumatic event, guilt, shame, anger, sadness, emotional numbness, cognitive and behavioural avoidance (i.e., avoiding thoughts, feelings and activities associated with the trauma), an increased startle response , physical health problems (such as low libido, gastrointestinal

symptoms), and difficulties in relationships (i.e., avoiding closeness physically and/or emotionally) (Regel & Joseph, 2017; Utzon-Frank et al., 2014).

1.6. Epidemiology of trauma

The experience of trauma is common; with up to 90% of the general population experiencing one or more traumatic events in their lifetime (Kilpatrick, Resnick, Milanak, Miller, Keyes, & Friedman, 2013). Traumatic events are often distinguished into two categories: (1) single event trauma (also known as big 'T' trauma) and (2) multiple event trauma (also known as little "t" trauma). Big T trauma(s) includes single events such as road traffic collisions and small "t" trauma includes events which are chronic and repetitive e.g., child sexual abuse and IPV (Van der Kolk, 2003). But, distinguishing Big "T" and little "t" trauma has been criticised, with some suggesting it should not be the event which distinguishes the severity of trauma response, but the response to the event which indicates severity (Regel & Joseph, 2017).

Empirical studies have identified certain trauma events are more likely to influence PTSD. Specifically, intentionally inflicted trauma has been found to increase the propensity of PTSD when compared with non-intentional trauma (Santiago et al., 2013) (e.g., abuse, violence). Further, research has identified a dose-response relationship between exposure to traumatic events and the subsequent development of PTSD; the prevalence of PTSD increases as the exposure to traumatic events increases (Brewin, Andrews, & Valentine, 2000; Kilpatrick et al., 2013; Ozer, Best, Lipsey, & Weiss, 2008). This is also reflected in IPV literature; the increased severity and chronicity of IPV have been associated with increased severity of PTSD (Vogel & Marshall, 2001; Woods, 2005).

1.7. PTSD Risk Factors

Research has identified the risk of developing PTSD is largely influenced by pre, peri and posttraumatic processes, often more so than the nature of the traumatic event itself (Brewin et al., 2000; Resick, 2014).

1.7.1. Pre-traumatic factors

Research has found a higher risk for PTSD has been specifically associated with being female (Breslaum, 2009) although, this may be explained by women's increased exposure to sexual trauma (Tolin & Foa, 2006). Risk for PTSD has also been associated with having a previous history of traumatic events (Resick, 2014). This suggests repeated exposure to traumatic events is associated with an increased risk of PTSD (Schaaf, & McCanne, 1998). Other predictive factors include a lower socio-economic status and fewer years in education (Enlow, Blood, & Egeland, 2013).

1.7.2. Peri-traumatic factors

One of the most highly researched peri-trauma variables is dissociation. Dissociation is defined as a coping strategy in the context of extreme traumatic stress and results in the disconnection from reality, a separation from thoughts, feelings, identity and experiencing a fear of death and/or helplessness (Briere, Scott, & Weathers, 2005). Dissociation is often linked to immobilisation in animals (Nijenhius, Vanderlinden, & Spinhoven,1998), and in contrast to an increased heart rate in typical physiological traumatic reactions, dissociation has been associated with a decrease in heart rate (Griffin, Resick & Mechanic, 1997).

Further, the degree of exposure to the traumatic stressor, i.e., increased chronicity, intensity and reoccurrence has been found to increase the risk of developing PTSD (Herman, 1992). For example, IPV involving sexual violence, specifically rape, was most likely to be associated with PTSD among 45.9% of women (Darves-Bornoz, Alonso, Girolamo, Graaf, Haro, & Kovess-Masfety, 2008; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). Further, repeated psychological abuse is often as strongly associated with PTSD as physical abuse (Pico-Alfonso et al., 2006). Additionally, trauma which elicits cognitive affective reactions such as a perception of, or threat of death, or experiencing intense negative emotions e.g. fear, helplessness, shame, guilt, and horror (often occurring in the context of sexual trauma), have been found to be strong predictors of PTSD (Alverez-Conrad, Zoellner, & Foa, 2001).

1.7.3. Post-traumatic factors

Research has identified a negative social environment (i.e., the absence of psychological and material resources to help a person cope with stress) is the biggest post-trauma predictor of PTSD (Ulman & Filipas, 2001). In addition, an increased propensity of avoiding thoughts of the trauma has been found to increase the risk of PTSD (Wenzlaff & Wegner, 2000) and limited cognitive flexibility (i.e., a limited ability to reappraise the perception and experience of the traumatic event) also increases the risk of PTSD (Williams, Cahill, & Foa, 2010).

1.8. Critique of DSM diagnostic systems

The diagnostic categorisation of PTSD has received much criticism. For example, empirical literature has suggested Criterion A of the DSM-V PTSD diagnostic framework (APA, 2013), in which a person must have been exposed to death, threatened death, actual or threatened injury or sexual violence in order to gain a PTSD diagnosis, is not a helpful criterion. This relates to research which has suggested PTSD can also develop from events that would not meet this criterion (Avina & O'Donahue, 2002), but still cause valid traumatic distress (such as chronic illness, bullying). There has been some pressure therefore to remove Criterion A from the DSM-V criteria (Rosen, Spitzer, & McHugh, 2008). Nonetheless, Criterion A currently remains a part of the DSM-V PTSD diagnostic criteria.

1.9. Complex PTSD (CPTSD)

The ICD-11 define CPTSD as exposure to a stressor event which is characteristically of a chronic nature. Prevalence estimates for CPTSD have been reported to range from 0.6% to 13% in a USA sample (Wolf et al. 2015), although it is difficult to ascertain prevalence rates given the recent addition of CPTSD as a diagnostic category. One study found 75.6% met the ICD-11 criteria for CPTSD in a trauma -affected community sample (Karatzias et al., 2016).

There are current debates regarding appropriate treatments for CPTSD. Currently, there is limited guidance on what would constitute appropriate treatment. The ISTSS Expert Consensus Treatment Guidelines for Complex PTSD in Adults recommended a phased approach when treating CPTSD (Cloitre et al., 2011). Phased models for traumatic distress would broadly include: (1) developing safety and stabilisation; (2) reliving, i.e., exposure to traumatic memories; and (3) moving on (Herman, 1992). Furthermore, research has suggested treatment for CPTSD needs to be between 5 – 12 months (Cloitre et al., 2011), although within the UK there is no consensus on the appropriate length of CPTSD treatment.

Some of these adaptations to CPTSD treatment have been related to the development of the therapeutic relationship; given complex trauma can have an adverse impact on the capacity to develop and maintain relationships, the development of the therapeutic relationship can be a significant therapeutic task (Pearlman & Courtois, 2005). Thus, phased models are deemed to be more helpful in enabling the development of a therapeutic relationship, avoiding high levels of attrition (Herman, 1992; Wilson & Lindy, 1994).

However, the results of studies investigating the efficacy of phased models has been mixed. One study found a phased approach improved PTSD symptoms after participants received skills training in emotional regulation prior to imaginal exposure treatment (Cloitre, Koenen, Cohen, & Han, 2002). Another study found if exposure treatment was initiated prior to the introduction of a skills-based stabilisation phase, treatment outcome was adversely affected and drop-out increased (Cloitre et al., 2010). Further, DeJongh et al. (2016) reported a stabilisation phase may adversely impact treatment outcome as it increases avoidance. Alternatively, Dorrepaal et al. (2012) found limited differences with or without a stabilisation phase for the treatment of CPTSD. Given the discrepant findings as to the efficacy of traditional and phased component therapies for the treatment of CPTSD, Ford (2015) suggested more evidence is needed to establish treatment guidelines.

1.10. Description of trauma theories

The following section briefly describes the most pertinent trauma theories relevant to this thesis:

1.10.1. Conditioning Theory

Mowrer's (1960) two factor theory suggested fear develops through classical conditioning of a previously neutral stimulus which is present in a fear inducing situation. Specifically, classically conditioned fear is proposed to reinforce the avoidance of feared stimuli, which consequently denies an individual the ability to extinguish the fear via exposure. As such, the maintenance of PTSD is hypothesised to occur if the extinction of fear-associations is impacted by avoidance mechanisms (i.e., through distraction or blocking out memories). This theory identified a central role for avoidance, but, was less helpful in understanding differences in memory processes and the role of appraisals (Pittman, Shalev & Orr, 2000).

1.10.2. Information Processing Theories

Early bio-informational theories of fear described by Lang (1979) expanded on behavioural accounts of fear conditioning. The theory suggested fear is represented in memory as interconnected associations in a network; networks are distinguished from "normal" memory networks in the sense associations in fear networks are more strongly connected and are more resistant to modification (Foa & Kozak, 1986). Networks are suggested to be made from stimulus, response and meaning elements which are theorised to be connected to behavioural (i.e., running away), physiological (i.e., heart rate increase, sweating) and meaning (i.e., I am going to die) responses. The theory proposes when an individual is triggered by the environment, the whole network is activated.

1.10.3. Emotional Processing Theory (EPT)

Later, Foa and Rothbaum (1998) applied information processing theories to PTSD more specifically. They hypothesised fear structures of PTSD are bigger and have increased stimulus, response and meaning elements. Foa and

Kozak (1986) hypothesised effective modification of the fear network necessitates activating the fear network. This was posited to necessitate repeated confrontation of the traumatic memories (i.e., imaginal exposure), which would aim to reduce the avoidance of the trauma memory and integrate incompatible information with the original fear memory (i.e., information relating to safety rather than danger). Further, effective treatment requires optimal activation of the fear network; under or over engagement is said to increase the possibility of treatment failure. EPT has been proposed as a comprehensive theory of PTSD and is associated with a highly effective treatment for PTSD: Prolonged Exposure (PE) (Foa et al., 1991).

1.10.4. Dual Representation Theory (DRT)

DRT proposes that the traumatic memory is represented differently to typical memories (Brewin, Dalgleish, & Joseph 1996; Van der Kolk, & Fisler, 1995). For example, Brewin et al. (1996) proposed two memory systems operate in parallel: (1) Verbally Accessible Memories (VAM), and (2) Situationally Accessible Memories (SAM). VAM reflect memories that are integrated into an autobiographical context, representing past, present and future, and can be deliberately retrieved. VAM's have received sufficient processing for them to be transferred to long term memory, and they include primary emotions from the time of the trauma event and secondary emotions which have been developed post-trauma. In contrast, SAM's contain perceptual information of the traumatic event, such as sensory and physiological responses, that have not been encoded into the VAM system. SAM systems are non-verbal, only consist of primary emotions and therefore do not get updated by autobiographical knowledge. This means that in the context of a traumatic event, VAM and SAM systems are fragmented, causing an individual difficulty when retrieving trauma memories coherently. Thus, the theory proposed two implications for PTSD treatment: (1) enabling the integration of trauma memory information into existing memory pathways, and (2) reducing fear associated with trauma memories within the SAM system through exposure and habitation (Brewin & Holmes, 2003).

1.10.4.1. Neuropsychology and DRT

Following from DRT, Brewin (2001) theorised the role of the amygdala and hippocampus during a traumatic event. It is hypothesised in the context of extreme stress high levels of corticosterone impair the functioning of the hippocampus and enhances the functioning of the amygdala. Given VAM's are often found to be disorganised and vague, suggests they are dependent upon the hippocampus. Furthermore, VAM systems encompass a temporal context and so memories are experienced in the present. Conversely, SAM memories are non-hippocampal or temporally dependent and so when they are triggered (i.e., in the form of a flashback) are experienced as if they were happening in the present. As such, in order to reduce PTS, the individual needs to integrate information in the SAM system with contextual information in the VAM system. This theory provides a neural basis for explaining dual memory processes implicated in DRT and empirical research has supported the existence of SAM and VAM systems (Brewin & Saunders, 2001; Hallawell & Brewin, 2002).

1.10.5. Cognitive Theory (CT)

Ehlers and Clark (2000) proposed causal mechanisms causing problematic responses to trauma occur when the processing of traumatic information (such as external threats to safety, or internal threat to the self or the future) results in a sense of current threat. For example, Ehlers and Clark (2000) outlined certain appraisals (i.e., an overgeneralisation of danger or negative appraisal of one's own actions) can influence post-trauma reactions. Furthermore, the theory suggests unhelpful behavioural responses (such as suppression, distraction, avoidance, use of substances to manage anxiety) and cognitive responses (dissociation, selective attention to threat cues, or rumination) serve to maintain PTSD. Empirical data has found evidence for the existence of the mechanisms in this model (Brewin & Holmes, 2003; Dunmore, Clark & Ehlers, 1997).

1.10.6. Summary

Significant overlap exists for EPT, DRT and CT, with similarities relating to how the elaboration of the trauma memory through reliving can result in recovery from PTSD. Differences include how EPT relies on the single

associative framework, whereas others have considered different types of memory which may be involved. Ifor example, in DRT, inadequate processing can result in trauma information being stored in a temporally absent SAM system (Brewin & Holmes, 2003).

1.11. Exposure and Habituation

There are methodological differences in measuring habituation noted in the literature. These include: (1) measuring WSH via the difference between peak and ending SUDS within one exposure task; (2) measuring BSH via the difference between peak SUDS in an initial task and peak SUDS in later exposure to the same task, and (3) reduction in psychophysiological indicators of anxiety within or across exposure tasks (WSH and/or BSH) (Craske et al,, 2008).

Length of exposure sessions vary between 45 to 120 minutes within the literature (Rothbaum, Meadows, Resick, & Foy, 2000). However, some studies have used certain indicators to determine whether habituation has occurred. These include fixed time indices and others have maintained exposure until distress reduces substantially (Marks, Lovell, Noshirvani, Livanou, & Thrasher, 1998; Tarrier, Sommerfield, Reynolds, & Pilgrim 1999). Further, some suggest fear is best distinguished as a dichotomous variable (i.e., fear is activated vs. fear is not activated), thus, anxiety may only need to be “on” to produce beneficial effects (Benito & Walther, 2015).

There are conflictual findings within the literature regarding the effectiveness of WSH and BSH. For example, some studies have linked WSH and BSH to positive treatment outcome (Baker, Mystkowski, Culver, Yi, Mortazavi, & Craske 2010; Sripada & Rauch, 2015; Telsch et al., 2004). However, some have suggested WSH and/or BSH are not linked to outcome (Craske, Treanor, Conway, Zbozinek, & Vervliet, 2014; Craske et al., 2008). One study has suggested the new learning associated with tolerating distress and coping regardless of fear reduction during exposure is responsible for therapeutic change (Craske et al., 2008). Further, the validity of self-rated SUD

measurements has been disputed; heart-rate monitors have been identified as a more effective physiological arousal indicator (Schäfer et al., 2018).

1.12. Autobiographical Integration

The fragmentation of trauma memories is hypothesised to be important in the development, maintenance and recovery of PTSD (Bedard-Gilligan, Zoellner, & Feeny, 2017). As such, causal mechanisms specified by the DRT (Brewin et al., 1996) suggests that the separation of SAM and VAM systems result in trauma narratives which are characterised by incoherence and lack of sequence (Brewin, 2007). This theory has been strengthened through clinical observations reporting trauma narratives becoming less fragmented over the course of PTSD treatment (Foa, Hembree, & Rothbaum, 2007).

Despite its theoretical and clinical importance, the literature describing autobiographical integration of trauma memories appears mixed and incoherent. For example, there are heterogenous terms used to describe the impact of the distortion of trauma memories (Byrne, Hyman, & Scott, 2001; Foa, Molnar, & Cashman, 1995; Halligan, Michael, Clark, & Ehlers, 2003). Most often fragmentation and/or disorganisation are the widespread terms used to reflect the impact of trauma on memories (Gray & Lombardo, 2001; Foa et al., 1995). Whilst fragmentation and disorganisation have been used interchangeably in the literature, some studies have differentiated them. Fragmentation is said to relate to repetitions of a word, unfinished thoughts, or speech fillers for example (Foa et al., 1995) and disorganisation is related to disjointedness and confusion in trauma narratives for example (Harvey & Bryant, 1999). This lack of consensus in the use of terms appears to reflect the literature more broadly.

Empirical measurement of autobiographical integration is inherently difficult (Bedard-Gilligan et al., 2012). There are two broad strategies of measuring integration noted within the literature: self-rated perception of fragmentation (i.e., metamemory indices) and structured coding (i.e., Burnell, Coleman & Hunt, 2010; Foa et al., 1995). Meta memory indices seek to assess global memory quality; however, this method is argued to be subject to bias (Murray, Ehlers, & Mayou, 2002; Schwartz, Benjamin, & Bjork, 1997). Alternatively,

coding involves using a pre-agreed coding framework and raters, or standardised coding programs to assess trauma narratives to identify indicators of fragmentation and/or disorganisation (Murray et al., 2002). Though, these methods have been widely criticised. For example, whilst standardised coding programs have the advantage of avoiding the potential bias of a subjective rater, they may also miss nuances of trauma narrative change. Furthermore, studies investigating narrative change have been found to have small sample sizes (i.e., N = 14 – N = 37), a lack of control groups and a reliance on methods which are highly subject to bias. Inter-rater checks have been noted to improve the reliability of findings (Bernard-Gilligan et al., 2017).

Furthermore, it has also been suggested that narrative changes may occur as a by-product of repeated retelling of trauma events, not as a result of underlying modifications to trauma memories (Jaeger et al., 2014). Additionally, the way individuals recount their story has been reported to influence the structure of post-treatment trauma narratives (Bedard-Gilligan & Zoellner, 2012). The level of distress when retelling the trauma event and overall cognitive ability of individuals telling their stories has also been noted to be a factor (Zoellner & Bittinger, 2004).

Some research has differentiated between the structural (i.e., repeated words, speech fillers) and content (i.e., increased use of emotion words) features of trauma narratives. For example, a study found content indices in trauma narratives were more strongly predictive of PTSD than structural indices, lending support to the notion that meaning change is more strongly associated to PTSD treatment outcome (Jaeger, Lindblom, Parker-Guilbert, & Zoellner, 2014). This has been disputed by other studies which have reported structural change is also related to PTSD treatment outcome (Foa et al., 1995; Jones, Harvey & Brewin, 2007). In addition, some studies have found a difference in narrative length; although there is little consensus on how this relates to treatment outcome; some studies have reported trauma narratives are longer post treatment; but others suggest narratives are shorter (Gray & Lombardo, 2001).

Overall, there is a dearth of studies investigating autobiographical integration, despite its clinical and theoretical importance. Thus, there is at present no consensus how to measure this mechanism. The most common method of analysing narrative change is through using pre-defined coding criteria and using inter-rater reliability analyses to strengthen findings to mitigate subjective bias. The limited understanding of this mechanism indicates literature is in its infancy and further studies are needed to build upon current knowledge.

1.13. Common Factors

The common factors versus specific effects is a well-known debate within psychotherapeutic literature. It was initially raised by Rosenweig (1936), who proposed psychotherapies are equally effective because of common factors. Rosenweig used the conclusion of the Dodo bird from Alice in Wonderland (Carroll, 1962) to emphasise this point: "At last the Dodo said, 'Everybody has won, and all must have prizes' " (p. 412). This point refers to what has become known as the Dodo bird paradigm; when psychotherapies intended to be therapeutic (i.e., are bona fide) are compared, the differences among treatments are 0 (Laska, Gurman, & Wampold, 2014; Wampold, Mondin, Moody, & Stich, 1997).

This is also reflected in the PTSD literature; a meta-analysis found no indication of differences in treatment efficacy (Wampold, 2019). However, some studies have found exposure therapies were slightly more efficacious than other therapies regarding PTSD symptom severity post-treatment (Tran & Gregor, 2016). Benish, Imel, and Wampold (2008) outlined any differences in efficacy of psychotherapies for PTSD disappear once analyses are restricted to bona fide therapeutic comparisons.

Within common factor literature, the therapeutic alliance (the bond, agreement on therapy goals and tasks of therapy) described by Bordin (1979) is the most researched. A meta-analysis found a medium effect for the therapeutic alliance in delineating therapy outcome (Horvath, Del Re, Flückiger, & Symonds, 2011). Furthermore, a large effect size has also been found for therapist empathy in influencing treatment outcome (Elliott, Bohart, Watson, &

Greenberg, 2011). However, despite evidence to support the role of common factors, findings have been criticised for misrepresenting data by averaging outcomes across primary and secondary outcome measures (Crits-Christoph, 1997). Thus, the debate surrounding which factors are responsible for change in therapy is complex, and it has been questioned whether it is possible to dichotomise common and specific factors (Tschacher et al., 2014). A model of common factors responsible for therapy outcome was expanded on by Wampold (2015) and is presented in Table 10.

Table 10.

Common Factors of therapy

Pathway	Description
A	Therapeutic relationship (consisting of therapeutic bond, alliance and real relationship).
B	Creation of expectations through explanation, and development of goals and tasks
C	Specific therapeutic ingredients enabling the enactment of health promoting actions

1.14. IPV Specific Interventions

Within the UK the majority of IPV interventions are short term and focus on risk-management, which includes help lines, advocacy and refuges offering immediate emergency services. These interventions have been reported to be effective in reducing the risk of IPV (Howard et., 2013). Longer term psychological interventions have received much less attention within the literature. This may be related to the uniqueness of IPV survivors in terms of having multiple needs to address (Dutton, Kaltman, Goodman, Weinfurt, & Vankos 2005), although it may be related to difficulties investigating a problem which is not currently diagnosable (Howard et al., 2013).

Largely, studies have used CBT frameworks to develop longer term psychological interventions for IPV populations. Two notable studies include the Cognitive Trauma Therapy for Battered Women (CTT-BW; Kubany, Hill, & Owens 2003; 2004) and the Helping to Overcome PTSD through Empowerment

(HOPE) interventions (Johnson, Zlotnick, & Perez, 2011). CTT-BW aimed to alleviate several mental health problems in 125 women and found an 87% reduction in PTSD, guilt and negative self-esteem in their intention to treat (ITT) sample. The HOPE study aimed to reduce depression, PTSD, and reduce re-victimisation for 70 women. The study revealed a significant treatment effect for emotional numbing and avoidance in the ITT sample. Further, Iverson et al. (2011) examined the effect of a six-week CBT intervention for improving PTSD and depressive symptoms and future risk of IPV among 150 women. They found CPT (cognitive interventions and written exposure of trauma events therapy) produced most improvements in PTSD, depressive symptoms and IPV risk at 6 months follow up. However, limited control of confounding factors means it is difficult to ascertain if findings are reflective of the treatment or other common factors. Furthermore, the study only included participants who had experienced physical IPV, so its findings may not be applicable to women who have experienced sexual IPV.

Research has also identified positive outcomes using other therapeutic modalities. For example, a study by Ferrari et al. (2018) delivered a specialist day training programme to IPV advocacy practitioners to enable them to deliver cognitive behavioural interventions to 263 IPV affected women. Training topics included PTS, depression, anxiety, low self-esteem, anger and loss. Eight one to one sessions were delivered that alternated with regular advocacy sessions, meeting either weekly or fortnightly. At 12 months follow up they reported greater improvement in the mental health of women in the intervention group. Other interventions used with this group include Compassion Focused Therapy for abused women seeking treatment for drug addiction (Gilbert et al., 2006), focusing on the mind-body connection through yogic breathing (Franzblau, Echevarria, Smith, & Van Cantfort, 2008), social support groups (Constantino, Kim, & Crane, 2005), feminist-oriented counselling (Mancoske, Standifer, & Cauley, 1994), and culturally informed empowerment group therapy (Kaslow et al., 2010), which appear to show some reduction of psychological distress.

Though, studies often exclude non-completers in their samples and are therefore biased towards women who are more likely to improve. Additionally,

many studies report high attrition rates, particularly for samples of women with severe PTS (i.e., Iverson et al 2011). Further, gender of the therapist may be particularly pertinent to attrition. For example, one study found that having a male therapist was unhelpful in a sample of IPV affected women (Bhati, 2014). Furthermore, studies are reported to be methodologically limited with small samples resulting in limited statistical power to test group differences (i.e., Feder et al., 2009). It appears that given the high attrition rate in IPV interventions, understanding what women prefer with respect to therapist gender, and developing more tolerable interventions is important (Dutton et al., 2006). Additionally, depression and/or anxiety are often the focus of therapeutic interventions for IPV populations within the broader National Health Service (NHS) context. As such, this has amassed criticism for not meeting the trauma-specific needs of this group (Humphreys & Thiara, 2003; Trevillion, Howard, Morgan, Feder, Woodall, & Rose 2012).

Furthermore, studies investigating IPV affected women's experience of psychological interventions are very limited. Only one study was noted to investigate this; Evans, Malpass, Agnew-Davies and Feder (2018) qualitatively explored womens experiences of the intervention described in Ferrari et al. (2018). They found participants valued the educational, psychological and emotional elements of the intervention, felt safe to explore emotions and experienced a reduction in self-blame, improved sense of identity and greater self-esteem. Despite the lack of qualitative studies, they are integral to developing effective and appropriate treatments in meeting the needs of this specific group (Chang et al., 2005).

1.15. NICE Recommended Treatments and Evidence

Despite the use of different PTSD treatments, there does not appear to be any systematic difference between the acceptability and effectiveness of trauma focused therapies when they are compared in the same study (Ehring, Welboren, Morina, Wicherts, Freitag, Emmelkamp, 2014; Wampold, 2019). Other studies have disputed this, finding trauma specific approaches (i.e., Trauma Focused-Cognitive Behavioural Therapy, TF-CBT and Eye Movement Desensitization and Reprocessing, EMDR) more effective than others (Bisson,

Roberts, Andrew, Cooper, & Lewis, 2013; Campbell, Greeson, Bybee, & Raja, 2008; Seidler & Wagner, 2006).

Attrition rates in PTSD treatment are often used as an indicator of success. Imel et al. (2013) conducted a meta-analysis of treatment dropout in PTSD treatment. The aggregate proportion of dropout across all active treatments was 18.28%, but, there was a large amount of variability across studies. In addition, a trauma focus (i.e., use of exposure) did not predict an increase in dropout rate; this was instead dependent upon the treatment type. For example, in one study Prolonged Exposure (PE) had the highest rate of dropout. Further, individual attrition rates for CPT are approximately 20% (Monson, Schnurr, Resick, Friedman, Young-Xu, Stevens, 2006), and the drop out rate PE ranged between 10 and 38% (McLean, Asnaani, Foa, 2015). For NET, attrition appeared to be lower than other therapies with studies reporting 0.1% drop out rates (Morkved et al., 2014; Steuwe et al., 2016).

1.16. NET

The following section outlines additional information related to NET theory and relevant evidence base.

1.16.1. Theory

NET was originally developed to treat PTSD arising from exposure to multiple traumatic events, such as organisational violence or disasters in refugee populations (Neuner, Schauer, Elbert, & Roth, 2002). NET was developed from the combination of other TF-CBT approaches (e.g., imaginal exposure) and Testimony Therapy (TT). TT was developed in the 1980's and is a short-term treatment that aims to place the trauma within the cultural socio-political context in which it occurred (Robjant & Fazel, 2010; Neuner et al., 2002). NET is a time limited, standardised treatment, designed for low resourced countries, which can adapt to the unique environment of emergency settings such as refugee camps. NET has been found to have consistently low attrition rates in comparison to other therapies and therefore appears to be a well-tolerated treatment for processing multiple traumatic memories.

Specifically, memories of traumatic events are hypothesised to form fear networks which are dominated by sensory–perceptual information and are lacking in autobiographical information. When an individual experiences a trigger(s), it activates the whole fear network. Increased exposure to traumatic events over time, such as in the case of IPV, mean that the fear network increases and can become more easily activated. This explains how repeated psychological trauma can result in an increased severity of PTSD and/or trauma response (Elbert, Rockstroh, Kolassa, Schauer, & Neuner, 2006; Elbert & Schauer, 2002). Thus, NET is unique in that its method of treating traumatic stress aims to connect implicit memory with episodic memory and rebuild autobiographical memory, which is hypothesised to reduce traumatic distress (Schauer et al., 2011).

1.16.2. Evidence

Current empirical literature has identified NET can produce clinically significant reductions in PTS for victims of organisational violence or disaster (Gwozdziewycz & Mehl-Madrona, 2013; Mørkved et al., 2014). A previous review (Robjant & Fazel, 2010) found NET treatment trials with adults demonstrated the superiority of NET in reducing PTSD symptoms compared with other therapeutic approaches in low-middle income countries. For example, an RCT with 277 participants demonstrated the effectiveness of NET in reducing PTSD symptoms in Rwandan and Somali refugees when compared to a control group (Neuner, Onyut, Ertl, Odenwald, Schauer, & Elbert, 2008).

More recently, NET has been applied to treat PTSD in a range of population groups including asylum seekers (Neuner et al., 2010; Stenmark, Catani, Neuner, Elbert, & Holen 2013), perpetrators of violence such as former child soldiers or veterans (Crombach & Elbert, 2015; Hermenau, Hecker, Schaal, Maedl, & Elbert, 2013), and populations exposed to developmental trauma (Pabst et al., 2012). One recent RCT applied NET to a sample of Iranian women exposed to ongoing IPV. They recruited 45 IPV affected women with a diagnosis of PTSD and delivered 10 to 12 sessions of NET or treatment as usual (TAU), which was supportive counselling. They reported the intervention produced significantly greater symptom reduction in comparison with TAU for

depression, PTSD and perceived stress at both 3 and 6 months follow ups (Orang et al., 2018).

The longevity of NET efficacy has also been reported in a number of studies (Jongedijk, 2014). For example, positive effects of NET were still observed at six months follow ups after the end of therapy. Further, Neuner, Schauer, Klaschik, Karunakara and Elbert (2004) identified a large effect (d=1.6) at one year follow up (FU) in a randomised control trial, and Halvorsen and Stenmark (2010) identified a large effect (d=1.16) at 6-month FU in low- and high-income countries respectively.

Some studies have investigated NET's impact on other psychological problems, such as depression or anxiety. However, they have reported conflicting findings; some studies have reported NET improves anxiety and/or depression, and some studies reported limited effects or treatment effects which are lost at follow up (Alghamdi, Hunt, & Thomas, 2015; Colville, 2017; Orang et al., 2018).

2. Extended Method

2.1. Epistemology

The epistemological position adopted for this research was critical realism. This framework offers a philosophical perspective which proposes an alternative to the established paradigms of positivism and interpretivism (Houston, 2001; McEvoy and Richards, 2003). Positivism is associated with quantitative approaches that incorporate standardised measures and statistical techniques. It is based on the philosophy that assumes empirical observations can reveal objective findings. The aim of positivistic research is to identify generalisable laws that are based on the identification of relationships between dependent and independent variables (Fleetwood & Ackroyd, 2004.) Interpretivist paradigms are associated with qualitative approaches, and it emphasises the way the world is socially constructed and understood (Blaikie, 2000).

Critical realism, argues that the research problem should dictate the research methods used (Pratschke, 2003). For example, critical realism may use quantitative methods which can be used to test out theories about how causal mechanisms operate under sets of conditions (Mingers, 2004). However, it can also combine that with qualitative methods which may enable the investigation of complex concepts and relationships that may be unlikely to be captured by quantitative methods. Though, critical realism is not without critique; some argue the combination of mixed methods is inappropriate because of the complex ontological and epistemological issues that are involved (Blaikie, 2000). Others suggest the use of multiple methods enhances the reliability and validity of findings (Denzin, 1989). For example, the use of triangulation (i.e., using more than one method in research) means quantitative and qualitative findings may corroborate each other and support a more robust conclusion than either source of data could support alone (Bryman, 2016).

Case studies are suitable to a critical realist framework because it asks questions which seek to investigate complex concepts and processes, which often require multiple methods to answer and understand these processes (Easton, 2010). Thus, given the multiple questions to be answered in this study, which required flexibility in research methodologies and interpretation, critical realism was deemed to be the most appropriate epistemology.

2.2. Single Case Designs

Single Case Designs (SCD) were used historically before the development of group designs and statistical methods (Blampied, Barabasz, & Barabasz, 1996; Morgan & Morgan, 2008). Ardent support for SCD's arose from behavioural analysis and the work of B.F. Skinner (1956), who was highly influential in the use of SCD research. He placed emphasis on the observation of single cases pre and post the manipulation of dependent and independent variables over time.

Despite the mainstream precedence of group research designs, criticisms of this approach have suggested it produces a myopic view of research. For example, the measurement strategy of group designs often mean

that inferences cannot be drawn about individual behaviour as they do not consider the changeability of individual behaviour over time, and thus group designs can misrepresent individual variability. SCDs have been identified as an alternative research design which focuses on the individual in analysing the effectiveness of psychological interventions in applied settings for example (Borckardt, Nash, Murphy, Moore, Shaw, & O'Neil, 2008).

2.2.1. Specific features of Single Case Designs (SCDs)

SCDs are idiographic in nature; all analysis and interpretation of behaviour occurs at the level of the individual. Most often, SCD's focus on the observation and measurement of changes in an individual's behaviour pre intervention (i.e., during a baseline phase, A), during an intervention (B phase) and after an intervention (FU). SCD's aim to compare variability and trends in the data across these different phases (Parsonson & Baer, 1986). These individual differences are often argued to be obscured by group designs and are an advantage of SCDs (Morgan & Morgan, 2008).

Repeated observation and measurement are central to SCD's. Given behaviour occurs continuously and changes over time, it is logical that measurement strategies within a SCD take this temporal characteristic of behaviour into account. Continuous measurement is an advantage of SCDs as it ensures representativeness of the data by identifying fluctuations and changes in behaviour over time (Hayes, 1981). SCD's also endorse replication as the primary mechanism for establishing the generality of an empirical finding. This is an important aspect of SCD's, as successful replication of the treatment across individuals would demonstrate external validity of the findings (Morgan & Morgan, 2008). Furthermore, within SCD designs, participants serve as their own controls; data is collected for each individual which serves as the benchmark to measure against change.

2.2.2. Rationale of Study design

A SCD methodology was chosen in this study as the research questions warranted an examination of therapy processes and outcomes in greater depth; something which larger group designs are less likely to do (Davies, Howells, &

Jones, 2007). In addition, SCD's are particularly advantageous for investigating complex processes within psychological interventions, due to their flexibility and ability to integrate both qualitative and quantitative methodologies (Easton, 2010; Nash, Borckardt, Abbasa & Gray, 2011). Therefore, this design was deemed feasible and appropriate both in terms of the scope of this study as well as able to generate appropriate data to answer the hypotheses and achieve the outlined aims.

Within the SCD literature, there are a variety of designs that can be used to study the effectiveness of interventions: (1) AB designs; (2) reversal designs, and (3) multiple baseline designs, (Lobo, Moeyaert, Baraldi, & Babik, 2017). Reversal designs (or ABA) designs involve alternating baseline and intervention phases which allows for a stronger determination of causal relationships between the intervention and outcome (Morgan & Morgan, 2008). However, the reversal design was deemed inappropriate for this study design for two reasons: (1) it was deemed unethical to withdraw the intervention and (2) the nature of psychotherapeutic interventions mean it is impossible to "unlearn" the effects of the intervention (Lobo et al., 2017).

When an ABA design is not feasible, multiple baseline designs can be used (Hinderer, Lehmann, Price, White, deLateur, & Deitz, 1990). Instead of withdrawing the intervention, they stagger the introduction of the intervention in a temporal sequence, creating a staggered baseline. This design enables stronger conclusions about effectiveness of treatment. Nevertheless, a limitation of multiple baseline designs is that they prevent participants from receiving the intervention for different lengths of time (Morgan & Morgan, 2008) This study recruited a trauma sample from an NHS setting, and therefore implementing a design which prevents participants receiving potential advantages of treatment for some time presents significant ethical challenges and therefore this design was deemed unsuitable.

Instead, this study used an AB design. The AB design involves a repeated measurement of outcome variables throughout a baseline phase (A) which acts as a comparison phase for the intervention phase (B) (Nock, Michel & Photos, 2007). The AB design is critiqued for establishing causality because

changes in outcome variables could be related to a variety of other factors. Some ways to improve this include replicating the intervention across at least three cases (Lobo et al., 2017) and achieving at least three baseline data points to establish stability prior to the introduction of the intervention (Kratochwill et al., 2010). As such, a repeated single case AB design used in this study was the most ethically sound and appropriate design to answer the research questions.

2.3. Rationale of Sample Size

At least three replications of treatment effects across individual cases are recommended to achieve enough data to demonstrate the external validity of a SCD (Morgan & Morgan, 2008). The study originally aimed to recruit six cases. However, there were some recruitment difficulties and four participants were recruited. This was deemed an adequate sample size given Kratochwill et al. (2010) recommendations and was considered satisfactory to enable the possibility of any replication of effects that might be identified during the study.

2.4. Inclusion Criteria

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Inclusion criteria were used to assess participants' eligibility for the study. NET is currently being offered in usual clinical practice by both the Centre for Trauma, Resilience and Growth (CTRG) and Step 4 Psychological Services, so participants were not disadvantaged if they did not take part in the study. Apart from gender, participants were not excluded based on any other demographics or individual factors. This was important as individual variation was judged to be an inevitable part of the client group recruited. The inclusion criteria and the rationale for these are outlined in Table 11.

Table 11

Rationale of inclusion criteria

Inclusion criteria	Rationale
To be 18 years old or over	This met the standard service provision.
To be able to give informed consent	To ensure each participant has capacity to decide on participation in treatment.
To be female	Within the literature male experiences of IPV have been found to be dissimilar to female experiences (Perryman & Appleton, 2016). Therefore, the research specified the recruitment of females only to effectively synthesise findings from similar cases.
They had chronic exposure to abuse and/or violence from an intimate partner (i.e., more than a single event of IPV)	This reflects the definition of IPV within the literature (i.e., more than one event and has been pervasive and chronic).
To communicate verbally and speak English	To be able to engage and make use of NET delivered in English.
To be experiencing PTS or have a diagnosis of PTSD	This was to avoid excluding participants who did not have a PTSD diagnosis which is based upon diagnostic criteria, and aimed to validate the experiences of participants who may have subthreshold PTS.
To be referred to the Centre for Trauma, Resilience and Growth (CTRG) or Step 4 Psychological services for treatment of PTS	This related to the standard service provision.
To not be living with an abusive partner at the time of the study.	This was an ethical requirement.
Not currently receiving any additional trauma-informed therapy beyond the study intervention	To avoid the addition of a confounding factor.

2.5. Participants

A total of four participants were approached to take part in the study and all four were recruited into the study. Please see Table 12 for additional demographic data.

Table 12.

Additional demographic data

Participant	Current relationship and length	Ethnicity
Niamh	Yes – Four months	White European
Melissa	None	White European
Eloise	None	White European
Grace	Yes – Two years	White European

2.6. Overview, rationale and critique of measures

An overview, critique and rationale of each measure in the study is provided below. Please see Table 13 for the frequency of data collection of measures and Table 14 for characteristics of weekly measures.

2.6.1. Impact of Events Scale (IES-R)

The extant literature describes a range of self-report instruments in assessing PTS (Norris, & Hamblen, 2004). The IES-R (Weiss & Marmar, 1997) is deemed to be a gold standard measurement instrument for assessing PTS in adults and is a widely used self-report measure (Christiansen & Marren, 2012). The IES-R was developed in response to criticisms related to the limited ability of the previous measure, the Impact of Events Scale (IES), in measuring hyperarousal and how this links to the American Psychiatric Association DSM-III PTSD criteria (APA, 1980). As such the IES-R aimed to improve the utility of the IES and the applicability to the DSM-III symptomatology for PTSD (Larsson, 2000).

The IES-R measures distress over the past seven days and can be used for repeated measurement due to its sensitivity to change (Corcoran & Fischer, 1994). It assesses three constructs of PTSD: intrusion, avoidance and

hyperarousal. Higher scores indicate more severe symptoms of PTS. The IES-R is not a diagnostic tool; however, some studies have reported evidence of its discriminative validity discerning between individuals with and without PTSD (Creamer et al., 2003). Furthermore, the IES-R has been found to have good reliability and validity (Beck et al., 2008).

In summary, the rationale for using the IES-R in this study was that it is widely used in psychotherapy literature and has demonstrated good reliability, validity and sensitivity to change. Considering participant fatigue was important and, given the IES-R is a short measure, the IES-R was deemed suitable especially as measures were given to participants weekly.

2.6.2. Depression Anxiety and Stress (DASS 21)

There is a myriad of self-report instruments developed to assess psychological distress (Sinclair et al., 2012). However these measures have been critiqued for being unable to distinguish between the psychological constructs they propose they are assessing for (Antony, Bieling, Cox, Enns, & Swinson, 1998; Sanderson, Di Nardo, Rapee, & Barlow, 1990). For example, in the context of anxiety and depression, measures have been critiqued for their inability to distinguish between them (Clark & Watson, 1991) despite them being phenomenologically distinct. Some studies have suggested this is related to the common factor of negative affectivity (NA) which is inherent in both anxiety and depression (Brown, Chorpita, Korotitsch, & Barlow, 1997; Clark & Watson, 1991).

The DASS 42 (Lovibond & Lovibond, 1995) was developed to measure depression, anxiety and stress, partly in response to improving the discriminant validity and psychometric quality of measures assessing mood and anxiety. As such, the DASS 42 has been reported to possess adequate discriminative validity (Brown et al., 1997). The DASS 21 (Lovibond and Lovibond, 1995) is a short form of the DASS 42 which aims to measure depression, anxiety and general stress and has been applied in a wide range of research and clinical settings (Henry & Crawford, 2005). Once completed, scores on the DASS 21

are doubled to produce DASS 42 scores; Henry and Crawford (2005) concluded the DASS-21 demonstrates adequate reliability and validity.

The rationale for the use of the DASS 21 was as follows: (1) the DASS 21 was included because this study aimed to explore whether NET has a differential impact on secondary outcomes given current literature (Wampold, 2019) reports PTSD treatments are equally effective because of common factors; (2) given depression and anxiety occur frequently in an IPV context it was deemed important to consider the relative impact of NET on secondary outcomes; (3) the DASS 21's adequate psychometric properties and (4) short-form acceptability in terms of participant fatigue.

2.6.3. Subjective Unit of Distress (SUD)

The Subjective Unit of Distress (Wolpe, 1969; 1990) is a Likert scale that measures how much distress a person experiences in a certain moment. The SUD was developed in response to the increasing clinical utility of short assessments of clients' self-rated distress, in order to create a baseline and monitor any changes and/or progress of therapy (Tanner, 2012). Since its development, the SUD is reported to be highly adaptable and has frequently been used for measuring distress in exposure-based PTSD treatment (e.g., Foa & Rothbaum, 2001). SUD can be used to measure WSH (i.e., the reduction of distress within a session) and BSH (i.e., the reduction of distress across sessions). SUDs have been found to correspond with other indices of fear expression, such as physiological indicators (Foa, Riggs, Massie & Yarczower, 1995; Schäfer et al., 2018).

Given this study aimed to assess for WSH several times over the intervention, the SUD was deemed appropriate given it very short and thus is ideal to be taken at several time points. SUDs has been shown to be a valid measure of physiological arousal and is useful as a tracking measure or process measure.

2.6.4. Additional Measure

During the development of the study, it was discussed whether a measure of working alliance (WA) would be a helpful addition to provide information about the relationship between client and therapist. However, research has suggested WA measures often result in ceiling effects (Paap, Schepers & Dijkstra, 2019) which reduce the accuracy of interpretation and utility of findings. This may be especially true given the trauma-focused intervention within this study; it was deemed likely that ceiling effects would occur, especially given a low therapeutic alliance in exposure therapy would likely cause treatment dropout. Furthermore, given alliance was not a central aspect of the study aims, and participant burden was an important consideration, the use of a WA measure was not deemed appropriate.

Table 13
Frequency of measures

	Baseline 1	**Baseline 2**	**Baseline 3 / S1**	**S2**	**S3**	**S4**	**S5**	**S6**	**S7**	**S8**	**S9**	**S10**	**S11**	**S12**	**S13**
IES-R	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
DASS 21	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Pre SUD					For T1	For T2	For T3	For T4	For T5	For T6	For T7	For T8			
Post SUD					For T1	For T2	For T3	For T4	For T5	For T6	For T7	For T8			
Pre SUD-Re-narration						For T1	For T2	For T3	For T4	For T5	For T6	For T7	For T8		
Post SUD re-narration						For T1	For T2	For T3	For T4	For T5	For T6	For T7	For T8		
Narrative analysis				X									X		

Note. IES-R – Impact of Events Scale – Revised; DASS 21 – Depression, Anxiety and Stress Scale; SUD – Subjective Unit of Distress. T = Trauma Event; S = Session.

Table 14.

Characteristics and properties of the weekly measures

Measure	Aim and construct	No. Items	Example Item	Range and Clinical cut off	Scale Direction	Reliability (Internal consistency)	Validity
Revised Impact of Events Scale (IES-R) (Weiss & Marmar, 1997)	Measures three constructs of post-traumatic stress: Avoidance, Intrusion, Hyperarousal	22	"I thought about it when I didn't mean to" 5-point Likert scale.	0-88 33 (Weiss, 2004)	Higher score reflects higher levels of PTS	α = 0.87 to 0.92 (Intrusion); α = 0.84 to 0.85 (avoidance); α = 0.79 to 0.90 (Hyperarousal) Creamer et al., 2003) α =.95 (total) (Beck et al. 2008)	Good concurrent and discriminative validity (Beck et al., 2008).
Depression, Anxiety and Stress Scale (DASS 21)	Measures three constructs: Depression, Anxiety and general stress	21	"I found it difficult to relax" Four-point Likert scale.	0-21 (doubled when scoring) 9 (Depression), 7 (Anxiety), 14 (Stress)	Higher scores reflect higher distress across the three constructs.	α = 0.91 (Depression), α = 0.84 (Anxiety) and α = 0.90 (general stress) (Lovibond & Lovibond, 1995)	Good convergent and discriminant validity (Henry & Crawford, 2005)
Subject Unit of Distress (SUD)	To measure distress caused by imagined task	1	When you think about that memory, how	0 (no distress) -10 (most distress ever experienced)	Higher scores reflect greater subjective distress	-	Good validity and sensitivity of SUDS rating

	distressed do you feel now?	(Tanner, 2012)

2.7. Narrative Measure

As far as the researcher is aware, no published studies using NET have investigated autobiographical integration. Thus, there is at present no consensus on how to measure this within a NET context. Current studies assessing memory integration have mostly applied pre-determined coding frameworks often occurring in the context of PE (i.e., Foa et al., 1995), which provides an ideal framework for assessing narrative change, as the same trauma narrative is recounted over time. This is not the case in NET, as participants are asked to recount trauma memories once, which are then re-read by the clinician in the following session. Further, when conducting the lifeline within NET, individuals are asked to describe their life story chronologically, but limit the sensory-emotional detail of the trauma events (Schauer et al., 2011). Thus, the assessment of content narrative indices (i.e., meaning changes and use of emotion words in trauma memory) would not be possible in NET.

However, within this study the lifeline was repeated, once prior to the active trauma processing and once after trauma processing. Thus, this was thought to allow for the analysis of structural indices of language. This analysis would therefore aim to compare the structural indices (i.e., fragmentation and disorganisation) of trauma narratives pre-post NET. This study aimed to compare structural trauma narrative change within pertinent segments of the first and second lifelines, which represented the most significant trauma event identified by the participant. Identifying and analysing the same trauma events pre and post-NET was important as the lifeline is subject to change over the course of therapy, so the analysis required the same trauma event to effectively compare narrative change pre-post NET.

The pre-determined coding framework was derived from pertinent studies within the literature. Structural indices were guided by Jaeger et al. (2014) and included disorganisation, which was informed by Harvey and Bryant (1999) and key fragmentation indices identified by Foa et al. (1995). Disorganisation included disjointedness, confusion, and repetition of an utterance. Fragmentation included repetition of a word, unfinished thoughts, or speech fillers. The coding framework also included total word count, because previous studies have found differences in

length between trauma narratives (Gray & Lombardo, 2001). Furthermore, to strengthen the analysis, an inter-rater reliability check was conducted by an external supervisor to the project (See Appendix C for narrative coding framework).

2.8. Procedure

2.8.1. Ethical approval

Potential ethical issues were discussed with the research team prior to applying for and gaining ethical approval. Ethical approval was granted from the Yorkshire & The Humber - Sheffield Research Ethics Committee, the Health Research Authority and the University of Nottingham Ethics Committee (Appendices E – H). The study obtained a favourable REC opinion on 21st December 2017 and a favourable HRA opinion on 2nd January 2017. Two further amendments were submitted and approved on 29th January 2018 and 9th November 2018.

2.8.2. Informed Consent

The initial approach to each participant was from a member of their usual care team (i.e. assessing clinician). The assessing clinician (i.e., Clinical/Counselling Psychologists) went through the Participant Information Sheet and consent process with the participant during the assessment. The participant was given at least 24 hours to consider consenting to the study before being contacted by the assessing clinician. If the participant provided verbal consent to the assessing clinician, then the researcher contacted the participant by telephone. Following this, the researcher made an initial appointment with the participant to discuss the research, answer any questions and ask the participant to provide written consent, with the proviso they understood what was required of them during the study. At this stage the researcher would identify an appropriate timepoint with the participant to begin the intervention. If the participant did not consent to the research, it was made clear to participants that this would not have affected their treatment options as NET was offered as part of routine clinical practice at both service sites.

2.8.3. Withdrawal

It was explained to participants that they would be able to withdraw from the study at any point. Participants were informed they had up until one week after the

NET intervention had ended to withdraw their data from the study. If they requested to withdraw their data before this time, it would be destroyed within one week after the date of withdrawal. After this time, the information collected would be used in the final analysis. This deadline of one week was implemented because the study analysis would be affected significantly otherwise. It was also explained to participants that their withdrawal would not affect their treatment options as the service sites offered NET as part of routine clinical practice. If a participant wanted to withdraw from the study but not the treatment, then a member of the participant's care team would continue with treatment (See withdrawal information in the information sheet and consent form, Appendix J and K).

2.8.4. Confidentiality and Anonymity

All data collected was treated confidentially and held in line with Nottinghamshire Healthcare NHS Foundation Trust Confidentiality and Information Governance Policy. Confidentiality was clearly explained to all participants recruited in the study. This included detailing the parameters of confidentiality during therapy. For example, this was specifically related to breaking confidentiality if information was disclosed during the study that may have posed a risk of harm to participant or others. Furthermore, it was explained that the content of sessions would be discussed in supervision with the researcher's supervisor (a member of the clinical care team).

Additionally, to protect participants' identity, they were assigned an identification letter and pseudonym. Participant identification code letters were used on all study materials (including audio/video recordings). Sessions from audio/video recordings were recorded and transcribed and transcripts were assigned the same individual code number to each individual participant. Narratives produced at the end of the intervention were stored as part of the participant's medical records and uploaded to the participant's electronic clinical notes (Rio).

Confidential documents were developed which detailed the identification code numbers and participant information (name, date of birth) to allow for the datasets to be matched to the individual, if the participant(s) chose to withdraw their data. These documents were kept separately to all study data and were held securely in a locked filing cabinet in a locked office on the NHS research site and were only viewed by

research personnel. Participants were informed their identity would remain anonymised in any subsequent disseminations of the research.

2.8.5. Data storage and security

The audio/video recordings were transferred and stored on a password protected computer file which was only accessible to the researcher and supervisors. The recordings were then deleted from the recording device. Consent forms, which included the full names and signatures of participants, were kept in a locked filing cabinet on Nottinghamshire Healthcare Foundation Trust Premises and then uploaded onto the secure electronic clinical system. All contact details for participants were accessed using Rio. Following each therapy session clinical notes were uploaded onto Rio after every session. Recordings will be destroyed 12 months after study completion. All other data (including anonymised narratives produced from NET sessions, lifeline photos and questionnaire data) will be kept securely for 7 years and destroyed after this time.

2.8.6. Protection of Research Participants

Participants' wellbeing was of upmost importance and it was monitored to be in line with clinical practice. Furthermore, the researcher had access to weekly supervision and had opportunities to discuss each participant in detail, as per clinical guidelines. Moreover, participants' general practitioners provided routine care for each participant (i.e., medication support). The therapist was encouraged to provide the treatment they judged to be of most benefit to the participant, and any resulting deviations from the NET protocol were captured by the fidelity check. Additionally, if at the end of the NET intervention, participants continued to self-report distress then further support would have been offered by the service, for example in providing additional treatment or referral to another service.

2.8.7. Debriefing of Participants

Participants were debriefed by the researcher at the end of therapy. This involved providing them with a debrief sheet which gave them contact details for the researcher, research supervisors and other organisations which may be helpful. Participants were offered the opportunity to ask questions and were offered to have a summary of results sent to them.

2.8.8. Risk to researcher

The nature of this study meant it was likely the researcher was going to be exposed to highly distressing traumatic memories in a prolonged context, which may have been distressing. To manage this, the researcher engaged in weekly clinical supervision in order to manage any possible risks associated with being exposed to distressing information during the NET intervention.

2.8.9. Compensation

Participants were not offered reimbursement of their time as the study aimed to replicate clinical practice where possible. Travel expenses were reimbursed for each participant.

2.9. Recruitment challenges

The primary recruitment site for this study was the CTRG. However as a contingency strategy a second recruitment site (Step 4 Psychological Services) was included on the original ethics application with the stipulation this would only be used if recruitment was difficult or limited at the CTRG. During the beginning of the study, there were several recruitment challenges (e.g., no referrals to the CTRG who met the inclusion criteria), which resulted in the use of the secondary recruitment site. Whilst the study was able to recruit four participants, these challenges significantly affected the timeline of the study by several months.

2.10. Rationale and critique of the baseline phase

There is much debate regarding the appropriate number of baseline points needed to establish stability within SCDs (Center, Skiba, & Casey, 1986; Sharpley, 1987). For example, some studies have reported baseline lengths vary between 3 and 12 points (Center et al., 1986; Huitema, 1985; Jones, Ghannam, Nigg, & Dyer 1977; Sharpley, 1987). Whilst it is argued by some that longer baselines are linked to increased validity within SCDs, research has suggested three to six baseline points would be adequate (Smith, 2012).

Furthermore, there have been several task forces who have published standards for baseline measurement in single case research. For example, the What

Works Clearinghouse (WWC; Kratochwill et al., 2010) agree a minimum number of three data points is required for SCD's during the baseline phase. The literature also suggests the baseline must be relatively stable and free of significant trend (Franklin, Allison, & Gorman, 1997).

This study used a naturalistic design and was recruiting from an NHS sample. Therefore, waiting for baseline data (i.e., DASS 21, IES-R) to stabilise would have meant withholding the intervention, which was deemed unethical. Therefore, taking the ethical considerations, current literature and the task force recommendations together, the study measured three baseline data points prior to the introduction of the intervention to determine the level and trend of the baseline phase. After this, all the participants started the intervention after this time period whether the baseline data had stabilised or not.

2.11. NET Intervention

The NET intervention was guided by Schauer et al's (2011) standardised manual which incorporated imaginal exposure and chronological reconstruction of the autobiographical memory. The National Institute of Health and Care Excellence (NICE) recommends the use of NET to treat PTS in adults (NICE, 2018). See Table 15 for an outline of the NET intervention.

Table 15.

Overview of NET intervention

Session	NET component	Description
1	Psychoeducation	Normalisation Legitimisation Description of trauma reactions The explanation of the therapeutic procedure
2	Lifeline	The participant is asked to lay the lifeline using string/rope, and place traumatic events using stones and positive events using flowers in chronological order, starting from birth.
3	First Narration	Start narration of first trauma event
4 – 10	Re-narration and narration	Reread narrative told in previous session. Continue subsequent narration and re-reading of narrative of traumatic events.
11	Relay of lifeline	Relay lifeline using string/rope, placing stones for trauma events and flowers for positive events.
12	Giving whole narration	Researcher gives participant whole written testimony.

Note. As part of the psychoeducation, participants were given three handouts. Please see Appendix M for details of these. In between narration sessions the researcher transcribes the session to create a trauma narrative of each event.

2.12. Dual role of researcher and therapist

The use of a researcher-therapist was given some consideration prior to the commencement of this study. Some research has reported the adverse impact of this dual role. For example, therapist allegiance (TA), which refers to the contamination of study results that occurs because of researcher's theoretical or treatment preferences (Luborsky, Singer, & Luborsky, 1975), has been found to

impact on treatment outcomes. Research has reported TA can significantly bias research findings (e.g., Luborsky et al., 1999). This study aimed to mitigate TA, although it is not possible to eliminate the risk completely (Levkin & DeRubeis, 2009). For example, the researcher received 90 minutes of NET supervision weekly, which involved watching and listening to audio/video recordings of therapy sessions and engaging in discussion and reflection which sought to manage any potential TA.

Nevertheless, the use of a dual role researcher was chosen to mitigate some challenges to the research design. Some studies have reported therapist effects can influence treatment outcome (Baldwin & Imel, 2013; Berglar, Crameri, von Wyl, Koemeda-Lutz, Kohler, Staczan, Schulthess, & Tschuschke, 2016). Therefore, the dual role researcher in this study mitigated the confounding factor of recruiting multiple therapists conducting NET. Secondly, it was expected that the recruitment of therapists to conduct NET may have resulted in additional recruitment difficulties due to limited resources in NHS services. Thus, the researcher was deemed the most appropriate person to conduct the therapy.

3. Extended Analysis

Additional details of the analyses undertaken are outlined in this section.

3.1. Visual Analysis

Visual inspection remains the most viable and effective strategy for analysing single case data. Visual analysis aims to assess differences in level, change in trend and variability in data (Morgan & Morgan, 2008). This focus enables researchers to draw inferences about the relationship between the independent and dependent variables. Visual analysis is not without its critique. For example, Deprospero and Cohen (1979) and Wolery and Harris (1982) report visual analysis is highly subjective, with findings subject to bias. Specifically, researchers suggest visual analysis is highly susceptible to error (Harbst, Ottenbacher, & Harris, 1991; Ottennbacher, 1990), which is especially problematic when intervention effects are subtle (Lenz, 2013).

Thus, there has been a recognition of the need for more formal approaches for analysing single case data. However, parametric statistics require the normality of

distribution and the independence of observations to conduct inferential statistics (Barlow et al., 2009). As such, these assumptions are often not met in single case data, often due to the high levels of autocorrelation in the data and are therefore unsuitable for SCDs (Lane & Gast, 2014). However, some research has attempted to develop ways of measuring effect size in single case data (i.e., Ma, 2006; Parker, Hagan-Burke, & Vannest, 2007; Scruggs & Mastropieri, 2001). Effect size estimates provide a number of advantages when used in combination with visual analysis as they provide an objective measure of treatment effect. This is said to increase measurement precision and allow for cross case comparisons (Parker & Hagan-Burke, 2007). Despite this, there is no current agreed consensus on what methods are most suitable when delineating effect size in single case data (Lenz, 2013; Morley, 2017).

Within the literature, methods which consider the overlap between data points within the baseline and treatment phase appear to be the most commonly used (Lenz, 2013). The Percentage of Nonoverlapping Data (PND, Scruggs & Mastropieri, 2001) calculates the percentage of treatment phase which overlaps the most extreme data point in the baseline phase. Whilst it is easy to calculate and has correlated well with visual analysis judgments (Parker, Vannest, & Davis, 2011), it has been criticised for its higher risk of making a Type 2 error (Lenz, 2013).

The Percentage of Data exceeding the Median (PEM) method was developed in response to the shortcomings of PND and has been found to be less likely to make a Type 2 error (Lenz, Speciale, & Aguilar, 2012; Ma, 2006). In PEM, data will be on the therapeutic side of the median if the treatment is effective. If an intervention is ineffective, data will oscillate around the median (Ma, 2006). However, the PEM has also been criticised for inflating effect sizes, and making Type 1 errors (i.e., concluding the intervention had an effect when it did not) (Wolery, Busick, Reichow, & Barton, 2010).

Given these criticisms, the current study applied the Fisher, Kelley, and Lomas (2003) dual criterion (DC) method to mitigate the weaknesses of the PEM method. This aims to interpret data from two mathematically derived criteria: (1) the mean line and (2) the baseline trend line. It assumes data falling outside of the lines would be considered rare, and thus indicative of a treatment effect. The DC method

has been reported to be a conservative tool in analysing single case data which has low observed rates of Type 1 and Type 2 errors (Fisher et al., 2003; Morgan & Morgan, 2008).

3.2. Simulation Modelling Analysis (SMA)

The autocorrelation of single case data sets creates difficulties when there is a need to statistically analyse the data (Borckardt & Nash, 2014). SMA is a bootstrapping method which was specifically designed to explore the correlation between two variables adjusting for autocorrelated data, which reduces the likelihood of making a Type I error (Borckardt et al., 2008).

In this study SMA was used to analyse temporal relationships between variables across the course of an intervention. This study seeks to answer the question “does a change in one variable precede a change in another variable”. In the current study, a lag of 1 indicates one week in time. In SMA, a positive lag indicates change in variable one precedes change in variable two, whereas a negative lag suggests change in variable two precedes change in variable one. Furthermore, a positive lag indicates changes in both variables occur in the same direction, and a negative lag indicates both variables change in the opposite direction. Results are reported as an R statistic which can be understood as a correlation (Borckardt et al., 2008). The following pairs of variables were examined to assess for temporal relationships:

- Overall IES-R scores and DASS 21 – Depression
- Overall IES-R scores and DASS 21 - Anxiety
- Overall IES-R scores and DASS 21- Stress
- Intrusion and Avoidance
- Intrusion and Hyperarousal
- Hyperarousal and Avoidance
- Depression and Anxiety
- Depression and Stress
- Anxiety and Stress

3.3. Determining Reliable Change Index (RCI) and Clinically Significant Change (CSC)

The study calculated RCI and CSC during pertinent points in the intervention (i.e., post-NET, Session 12 and at follow up). Preestablished values of measures were used to determine RCI and CSC.

Reliable and CSC analyses are routinely applied to psychotherapy treatment outcome studies which aim to assess change occurring at the individual level (Busch, Wagener, Gregor, Ring, & Borrelli, 2011).These analyses assess for: (1) whether the individual has made statistically reliable improvements in which the change is beyond that which could be attributed to measurement error, and (2) whether individuals are empirically distinguishable from clinical populations after treatment (Lambert & Ogles, 2009).

Jacobson and Truax (1991) proposed a two-step method for clinically significant change based on an original proposal by Jacobson, Follette, and Revenstorf (1984). The first step relates to assessing whether the observed change from pre-test to post-test is statistically reliable (i.e., whether the observed difference in scores is attributed to the true change, and not as a result of measurement error). As such, the RCI is calculated by dividing the difference between the observed post-test and pre-test scores by the standard error of difference (SE). (See Figure 7).

$$\mathrm{RCI} = \frac{(x_{post} - x_{pre})}{\sqrt{2S_E^2}}$$

Figure 7. RCI Calculation

The Standard Error of Measurement (SEM) is calculated by multiplying the Standard Deviation (SD) by the square root of 1 minus the coefficient reliability (r). The reliability (r) of the measures influences the size of the standard error (See Figure 8). This means the more reliable the measure, the smaller the calculated standard error, which produces a smaller observed change between pre- and post-test scores which is required to achieve a statistically reliable change. The coefficient reliability used in this study was the Internal Consistency (IC) as advised by Lambert and Ogles (2009).

$$S_E = SD\sqrt{1-r}$$

Figure 8. Standard Error of measurement calculation

Therefore, if the value of the RCI exceeds +1.96, which is equivalent to the 95% confidence interval, the change measured would be deemed reliable at 95% confidence and not due to measurement error. The second step is the calculation of clinical significance, i.e. the estimation of a cut-off point between a clinical and non-clinical population. Jacobson and Truax (1991) proposed three (a, b, c) criteria to assess this. In this study, normative and clinical data for the IES-R and DASS 21 overlapped (See Table 20), and therefore criterion C was utilised. The three criteria are explained below:

(a) Participant's posttreatment score falls more than two standard deviations from the mean of the clinical group, in the direction of the non-clinical group
(b) Participant's posttreatment score falls within two standard deviations of the mean of the non-clinical group
(c) Participant's posttreatment score falls closer to the mean of the non-clinical group than the clinical group

3.4. Narrative Analysis

Below is the coding framework used to determine indices of fragmentation and disorganisation in lifeline narratives (See Table 15). Coding instructions for fragmentation were derived from Foa et al. (1995) which included repetition of a word, unfinished thoughts, or speech fillers. Coding instructions for disorganisation were derived from Harvey and Bryant (1999) to include disjointedness, confusion, and repetition of an utterance. Indices of either fragmentation or disorganisation were counted and tabulated.

An inter-rater reliability check was conducted in which an external rater was trained to analyse the transcripts for the language indices outlined in Table 16. Pre-post transcripts were blinded to the rater. The two tabulated scores of narrative indices from the rater and researcher were compared; if the ratings of narrative indices of each coder were within 80% similarity of each other then the analyses

were deemed reliable. If narrative coding scores were less than 80% similar, then the researcher and the external rater would discuss and reach a consensus regarding the total score until they reached 80% similarity.

Table 16.

Narrative Coding Framework

Fragmentation indices	Examples	Disorganisation indices	Examples
Repetitions of *words* in the same phrase	"my my my head was spinning"	Disjointedness (doesn't make sense)	"he I was go brought with over"
Unfinished thoughts	"so then"	Confusion of events	"I don't understand how it happened"
Speech fillers	"um" "er"	Repetition of *phrases* in same line of text	"I couldn't get away ..I couldn't get away"

4. Extended Results

The journal paper provides an overview of the key findings of the study and additional information is presented here. Sections of the extended results provide additional data, and therefore there are occasions where the extended results do not follow the narrative of the journal paper.

4.1. Means and Standard deviations of measures

Table 17 outlines the means and standard deviations for each participant on each measure (IES-R and DASS 21).

Table 17.
Means and Standard deviations

Scale	**Baseline** M (SD)	**Intervention** M (SD)	**Baseline** M (SD)	**Intervention** M (SD)	**Baseline** M (SD)	**Intervention** M (SD)	**Baseline** M (SD)	**Intervention** M (SD)	**Min**	**Max**
	Niamh**		Melissa		Eloise**		Grace			
IES-R										
Intrusion	20.3 (1.2)	17.8 (5.3)	30 (1.4)	18.9 (13.2)	26.6 (1.8)	19 (4.8)	28 (3.4)	28.7 (3.4)	0	32
Avoidance	26.3 (2.8)	16.7 (4.9)	29 (2.1)	16.8 (13.2)	16.3 (0.4)	17.3 (2.4)	29 (5.1)	21.9 (5.1)	0	32
Hypervigilance	16.3 (2.4)	15 (3.7)	23 (0.8)	12.9 (10.5)	17.3 (1.2)	14.8 (3.8)	23.3 (1.8)	22.3 (1.8)	0	24
Total	63 (3.2)	45.1 (14.4)	82 (4.3)	48.6 (37)	61 (1.4)	50.9 (9)	82.6 (4)	73.2 (8.9)	0	88
DASS 21										
Depression	8(1.6)	8 (3)	34 (7.4)	23.2 (17.6)	27.3 (2.4)	14.8 (2.2)	24.6 (9.9)	24.5 (9.9)	0	42
Anxiety	13.3 (4.1)	20.8 (4.7)	34 (5.6)	24.7 (15.5)	24.6 (0.9)	24.5 (6.2)	32.6 (3.3)	35 (5.4)	0	42
Stress	16 (3.2)	21.1 (4.9)	39.3 (2.4)	24.5 (17.5)	31.3 (0.9)	28.6 (6.7)	34 (5.2)	36.7 (5.2)	0	42

Note. M = Mean. SD = Standard Deviation. ** = Participant had 13 sessions of NET. IES-R – higher scores indicate higher levels of post-traumatic stress. DASS 21 – higher scores indicate higher levels of depression, anxiety and stress. Scores are doubled for DASS 21. Baselines indicate a mean of all baseline scores.

4.2. Simulation Modelling Analysis (SMA)

SMA was undertaken to analyse the temporal relationships between the primary and secondary outcome measures. Table 18 - 20 provides the full set of correlational data, including non-significant correlations.

4.2.1. SMA: IES-R and DASS 21

SMA was undertaken to analyse the temporal relationships between the IES-R and the DASS 21 subscales (Depression, Anxiety and Stress). Table 18 provides details of correlational data which includes non-significant correlations.

Table 18.

SMA Lag Correlations between IES-R and DASS 21

Participant	Lag	IES-R and Depression	Lag	IES-R and Anxiety	Lag	IES-R and Stress
Niamh	-2	r=-.03	-2	r=+.08	-2	r=-.17
	-1	r=+.49*	-1	r=+.41	-1	r=+.30
	0	r=+.13	0	r=+.43	0	r=+.15
	+1	r=-.31	+1	r=-.20	+1	r=-.46
	+2	r=-.02	+2	r=-.12	+2	r=-.33
Melissa	-2	r=+.53	-2	r=+.49	-2	r=+.47
	-1	r=+.79**	-1	r=+.78**	-1	r=+.76**
	0	r=+.98**	0	r=+.99**	0	r=+.98**
	+1	r=+.81**	+1	r=+.78**	+1	r=+.82**
	+2	r=+.55	+2	r=+.53	+2	r=+.58*
Eloise	-2	r=+.29	-2	r=+.14	-2	r=+.28
	-1	r=+.42	-1	r=+.41	-1	r=+.56
	0	r=+.56*	0	r=+.73*	0	r=+.88**
	+1	r=+.19	+1	r=+.80**	+1	r=+.71*
	+2	r=+.12	+2	r=+.57*	+2	r=+.55*
Grace	-2	r=+.41	-2	r=+.08	-2	r=+.61*
	-1	r=+.65*	-1	r=+.41	-1	r=+.60*
	0	r=+.84**	0	r=+.66*	0	r=+.80**
	+1	r=+.48	+1	r=+.64*	+1	r=+.60*
	+2	r=+.34	+2	r=+.45	+2	r=+.29

Note. Table denotes most significant correlations. * = p<0.05; ** = P<0.01. + or – indicates direction of correlation. - = no significant correlation

4.2.2. SMA: Intrusion, Avoidance, Hyperarousal (IES-R Subscales)

SMA was undertaken to analyse the temporal relationships between the IES-R subscales (Intrusion, Avoidance and Hyperarousal). Table 19 provides details of correlational data which includes non-significant correlations.

Table 19

SMA Correlations between IES-R Subscales

Participant	Lag	Intrusion and Avoidance	Lag	Intrusion and Hyperarousal	Lag	Avoidance and Hyperarousal
Niamh	-2	r=+.20	-2	r=-.10	-2	r=-.21
	-1	r=+.10	-1	r=-.00	-1	r=-.02
	0	r=+.89**	0	r=+.82**	0	r=+.91**
	+1	r=+.09	+1	r=+.01	+1	r=-.14
	+2	r=+.15	+2	r=+.09	+2	r=-.01
Melissa	-2	r=+.52	-2	r=+.50	-2	r=+.49
	-1	r=+.79**	-1	r=+.77**	-1	r=+.77**
	0	r=+.99**	0	r=+1.00**	0	r=+.99**
	+1	r=+.75*	+1	r=+.75*	+1	r=+.79**
	+2	r=+.48	+2	r=+.49	+2	r=+.52
Eloise	-2	r=+.27	-2	r=-.00	-2	r=+.35
	-1	r=+.31	-1	r=+.20	-1	r=+.43
	0	r=+.34	0	r=+.52	0	r=+.52
	+1	r=+.81**	+1	r=+.58*	+1	r=+.27
	+2	r=+.44	+2	r=+.45	+2	r=+.11
Grace	-2	r=+.53*	-2	r=+.47	-2	r=+.25
	-1	r=+.62*	-1	r=+.55*	-1	r=+.46
	0	r=+.48	0	r=+.82**	0	r=+.79**
	+1	r=+.01	+1	r=+.15	+1	r=+.83**
	+2	r=-.11	+2	r=-.05	+2	r=+.55*

Note. Table denotes most significant correlations. * = p<0.05; ** = P<0.01. + or – indicates direction of correlation. - = no significant correlation.

4.2.3. SMA: Depression, Anxiety and Stress (DASS 21 Subscales)

SMA was undertaken to analyse the temporal relationships between the DASS 21 subscales (Depression, Anxiety and Stress). Table 20 provides details of correlational data which includes non-significant correlations.

Table 20.

SMA Lag Correlations between DASS 21 subscales

Participant	Lag	Depression and Anxiety	Lag	Depression and Stress	Lag	Anxiety and Stress
Niamh	-2	r=-.13	-2	r=-.18	-2	r=-.36
	-1	r=-.05	-1	r=-.19	-1	r=+.24
	0	r=+.55*	0	r=+.71**	0	r=+.84**
	+1	r=+.24	+1	r=+.06	+1	r=+.26
	+2	r=-.10	+2	r=+.06	+2	r=-.25
Melissa	-2	r=+.53	-2	r=+.52	-2	r=+.51
	-1	r=+.80**	-1	r=+.80**	-1	r=+.76*
	0	r=+.98**	0	r=+.99**	0	r=+.99**
	+1	r=+.80**	+1	r=+.83**	+1	r=+.82**
	+2	r=+.56	+2	r=+.59*	+2	r=+.57
Eloise	-2	r=-.04	-2	r=-.02	-2	r=+.43
	-1	r=+.06	-1	r=+.09	-1	r=+.77**
	0	r=+.24	0	r=+.47	0	r=+.85**
	+1	r=+.49	+1	r=+.34	+1	r=+.43
	+2	r=+.33	+2	r=+.47	+2	r=+.16
Grace	-2	r=+.04	-2	r=+.54	-2	r=+.69**
	-1	r=+.45	-1	r=+.69*	-1	r=+.62*
	0	r=+.68*	0	r=+.84**	0	r=+.65*
	+1	r=+.63*	+1	r=+.66*	+1	r=+.34
	+2	r=+.54*	+2	r=+.21	+2	r=+.02

Note. Table denotes most significant correlations. * = p<0.05; ** = P<0.01. + or – indicates direction of correlation. - = no significant correlation

4.3. RCI and CSC calculations

As explained in the Extended Method, the RCI and CSC values were calculated on the IES-R and DASS 21. These were calculated immediately post-NET (i.e., session 12 or 13 depending on the participant) and at FU. Table 21 provides the clinical and non-clinical normative data used for RCI calculations.

4.3.1. Impact of Events Scale – Revised (IES-R)

Normative data outlined in Table 21 was used to calculate the RCI. For clinical normative data the sample size was small, but it was deemed important to use normative data close to the population being studied. Another study (Tutty, 2015) provided clinical normative data (N = 188) on a sample of women in refuges in

Canada. Given this sample was non-UK and in refuges, it was deemed this sample was too dissimilar to the sample being used in this study.

4.3.2. Depression, Anxiety and Stress (DASS 21)

Normative data outlined in Table 21 was used to calculate the RCI. Similarly, to the IES-R, the mean sample N was small but it was deemed important to use normative data close to the population being studied.

Table 21.

Comparison data for outcome measures

Measure	Sample	Population	N	Subscale	Mean and SD
Impact of Events Scale – Revised (IES-R)	Clinical Barraclough (2004)	Women and children living in Refuge's safe houses (UK)	25	Total	47.56 (13.69)
Impact of Events Scale – Revised (IES-R)	Non-clinical (Ashbaugh, Houle-Johnson, Herbert, El-Hage, & Brunet, 2016)	Undergraduate students recruited from the University of Ottawa and McGill University in Canada.	838	Intrusion Avoidance Hypervigilance Total	7.4 (7.4) 8.7 (8.1) 4.5 (5.3) 20.6 (19.4)
Depression, Anxiety and Stress 21 (DASS 21)	Clinical (Hill, 2009)	Women recruited from Women's Aid services in the UK.	31	Depression Anxiety Stress	12.28(6.10) 8.74 (6.14) 11.51 (5.41)
Depression, Anxiety and Stress 21 (DASS 21)	Non-clinical (Sinclair, Siefert, Slavin-Mulford, Stein, Renna & Blais, 2012)		499	Depression Anxiety Stress	5.70(8.20) 3.99 (6.27) 8.12 (7.62)

Note. N = Number. SD = Standard Deviation.

4.3.3. Reliable Change Values

Table 22 provides reliable change values, indicating whether RC was achieved by exceeding the value of 1.96. For example, if the RCI value (calculated using the formulae in Extended Method) exceeded 1.96, one can be 95% confident that reliable change has occurred.

Table 22.

RCI Values determining Reliable Change

Participant	Time	IES-R	DASS 21 Depression	DASS 21 Anxiety	DASS 21 Stress
Niamh	Post (S13)	9.01[RC]	-.77	-1.73	-3.31[D]
	FU	9.93[RC]	-.77	-.58	-3.31[D]
Melissa	Post (S12)	17.56[RC]	13.91[RC]	7.49[RC]	15.71[RC]
	FU	18.02[RC]	13.91[RC]	7.49[RC]	16.53[RC]
Eloise	Post (S13)	5.54[RC]	6.18[R]	3.45[R]	4.96[R]
	FU	9.93[RC]	8.50[RC]	5.18[RC]	8.27[RC]
Grace	Post (S12)	5.08[R]	3.86[R]	3.45[R]	1.65
	FU	4.62[R]	.77	2.88[R]	.83

Note. [R] = Reliable Change. [RC] = Reliable and Clinically Significant Change. FU = Follow Up (which indicates change interview).

4.4. Change Interviews

Table 23 provides a full overview of qualitative data derived from all participants.

Table 23.

Summary of change interview data

Change interview Question	Niamh	Melissa	Eloise	Grace
How are you now	Really shit this week; I suffer from chronic pain and endometriosis	I am feeling good, I never thought I would get to the place where I feel ready to move on	Some ups and downs but the downs haven't been quite as down as they were before	Having a really bad week
What was therapy like	It was very emotionally draining, but I found it was the best therapy I've ever done. I've tried EMDR and CBT and none worked, this was the best one.	Other therapies I've had were hard, but this was harder. I talked about my trauma to anyone, but it would be surface level; this time I feel I've had a damn good look at it and now I can pack it and put it away	I didn't want to go in the first half, but then after the break something clicked and when I came back, I was more comfortable, and I didn't feel as exposed.	Hard, I didn't expect it to be that hard
Did psychoeducation make sense	Yeah, it opened my eyes about it and gave me an insight into trauma	It did at the time, its understanding what normally when you have gone through a traumatic experience	It made sense, it helped me to understand that it is a normal cycle what people can go through after certain events	Yeah - Steph made me feel like I am normal and why these things are happening
What did you make of the lifeline	I enjoyed that bit	It was hard, something I've never done before. There was something about the physical	Interesting – I didn't like doing it at first, it was painful but once it was done, I thought it allows	Weird… but I liked seeing it, it made me realise those things have happened

		touching of the objects that made it an important part, it was powerful.	you to have a bigger picture of everything, to put it in order.	
What did you make of the questionnaires	Time consuming, I got the rationale for them but sometimes it was hard to put down an answer	It was difficult to decide on how I felt. It was good because your monitoring how you're doing but then on the other hand there's all these questions	It took some time at first and then I got used to it. I've done similar things with other therapists	I made them part of my routine. I'd done them before when I did CBT
How was the structure/time limited aspect	It was good, I liked it being organised around my work.	It was good but the pace was intense, with the timeline you were in control with the traumas that were coming up	It was good to know what to expect, you knew when it was going to be over.	I didn't want therapy to end and I wanted it to be longer, but I needed the structure and knowing it was every week.
Rereading narrative	Hard, it felt like it was about a different person, but it emphasised it in my head	Really hard, some were more difficult than others. For one I didn't want to hear it back, but I found it was helpful	It was easier hearing it than the doing it. It was frustrating when being asked about the detail again because sometimes I felt like I had to repeat myself.	It was difficult, it was something that I had been through, it made it real.
Talking about the context at the beginning of each narration	Very difficult, but as I went through the sessions, I was more able to go back to the past than at the start	Really intense and hard, but I needed someone to see what I was seeing, and this therapy did that through the detail it was asking me	It took some getting used to, but the questions did help me to think about the memory.	I don't know, it all was quite difficult to speak about

What if gender of therapist had been a man	I wouldn't have gone; being a victim of rape and by a man, I'd rather not	-	I wouldn't have minded; it might have brought a different perspective	Not a chance, I would have probably come once realised they were male and then never come again
Any changes	The nightmares that I was having before the therapy have lessened but they haven't gone completely I am less jumpy than I was	Stopped having nightmares about it Stopped thinking bad of myself I feel much calmer and less edgy I've been doing some courses and mixing with different people	Reduced intensity and frequency of panic attacks Reduced physical pain I don't feel I need to tell everyone about my experiences any more in social situations	Getting here by myself, I couldn't do that before Challenging intrusive thoughts
How important is this change?	A reduction in hypervigilance and feeling on edge is important	Massive, everything was so restricted before. Things are much brighter now	Major, I still have some work to do but it's a big change	Massive, the intrusive thoughts and flashbacks ruled me, whereas now I try to compose myself and remind myself it's in the past
Surprised by these changes (if any)?	Yeah, but I was open minded about the therapy	Absolutely	Yeah – but I hope they will be permanent	Yeah – I never imagined that I would be able to do that, but I can now

Changes caused by external events	Probably due to the therapy but I've also got a new partner and it's probably the first genuine love relationship I've had	I think both – therapy, being ready and it being the right time and being able to cope with the demands of therapy. I think also making new friends and having healthy people around me	It must have been something to do with the therapy because it had been like that for so long, but I also took other things on like college	I think just therapy because without Steph I wouldn't have got in the car without that, and I needed to keep pushing myself because I want to be a better mum for my kids.
Helpful aspects?	Hearing the narrative, as awful as it was to hear it back again, it was a good way of processing it and letting it go, the timeline and Steph was amazing, I can't fault her, I felt safe. I have found this therapy very helpful	Kindness and understanding Steph showed made a huge difference, and Steph being gentle and firm at the same time in pulling me back from going off topic	Therapy felt like a safety net, knowing someone's there	It was just knowing every week I was coming here. I felt safe, I felt at ease with Steph.
Unhelpful aspects	None	None	None	How far it was, because I had to travel. I wanted the therapy to be longer
Anything unexpected?	Getting to keep the narratives, I possibly might burn it in the future, I'm not sure what I'll do yet, but it's another way of processing it	The changes I've noticed - I've been doing therapy for years and years and years and felt there was no end to it, it's like finally I can move on now	I said a lot more than I thought I would, some things I've never told anyone	I spoke to Steph about one event and I never spoke to anyone about it before

Any point you felt you couldn't carry on and did any help continue?	I was in a dark place and felt suicidal at times, but I was experiencing problems at work and health problems, I can see the light now, but I don't know what helped me to complete	At the beginning, because it was tough and intense, but I wanted to get better. Previous therapy helped me to feel safe and so the safety was built in already for me to carry on	One session [session six], I didn't want to talk anymore, and we'd been talking for a long time, but Steph picked up on it and we stopped, I don't know what would have happened if she didn't stop	Plenty of times, Steph and my dad helped me to keep going
Most important trauma narration?	What happened with my ex-partner first, the longest person id been with who was so abusive with me which led me to repeat the pattern over again with other people	The abortion	The last one [session 10]	Knife incident
Important flower?	I had one sunflower representing my mother and the other representing my partner	Ballet	The last flower [future hopes]	My kids
Relaying second lifeline, any differences?	More flowers and less stones than the first time. I felt less attachment putting down the stones the second time.	I used ribbon and was smaller. Instead of putting separate rocks for traumas, I piled rocks together and put a flower on top representing I was looking at it differently.	There were more flowers and more events. I could recognise positives in the second one, before positives felt insignificant	There were more stones on the first one than the second one, but I felt I didn't need to put another lifeline down again because Steph knew all the events

		I placed the rope across the ribbon to draw a line under the trauma		
Anything else?	I've found it a really good therapy for anyone who has gone through this type of trauma	None	Break: Good – it allowed me to catch my breath and stop for a minute, things became more in order and I attended more willingly Therapy was hard and I couldn't do much after each narration session because I was so drained	Nothing

Note. Steph = Name of therapist/researcher

4.5. Lifeline outcomes

The following section provides an image of the first and second lifelines for each participant and describes any changes observed pre-post NET. Observations of the lifeline images have revealed there appeared to be an increase of flowers in the second lifeline when compared to lifeline one for two participants. For example, for Niamh, 16 flowers were identified in lifeline two compared to 12 flowers. For Melissa, 4 flowers were observed in Lifeline two compared with 11 flowers in Lifeline one. For Eloise 13 flowers were observed in lifeline two compared to 11 in lifeline one. For Grace seven flowers were noted for both.

Additionally, the number of stones appeared to change for participants. An increase in stones in the second lifeline was observed for Niamh. However, a decrease was observed for Melissa (18 to 4) and Grace (8 to 6). For Eloise there was no change in stones. Furthermore, a change in the presentation of rocks was noted for two participants (Melissa and Eloise). They commented in the sessions that this was to organise the trauma events that occurred in their relationship and reported this helped them to “compartmentalise” their experiences. These participants also placed a flower over groups of stones in the second lifeline, which they reported to signify the “healing had begun” (See Figure 9).

4.5.1. Niamh

4.5.2. Melissa

Figure 9. First lifeline (left), second lifeline (right).

4.5.3. Eloise

4.5.4. Grace

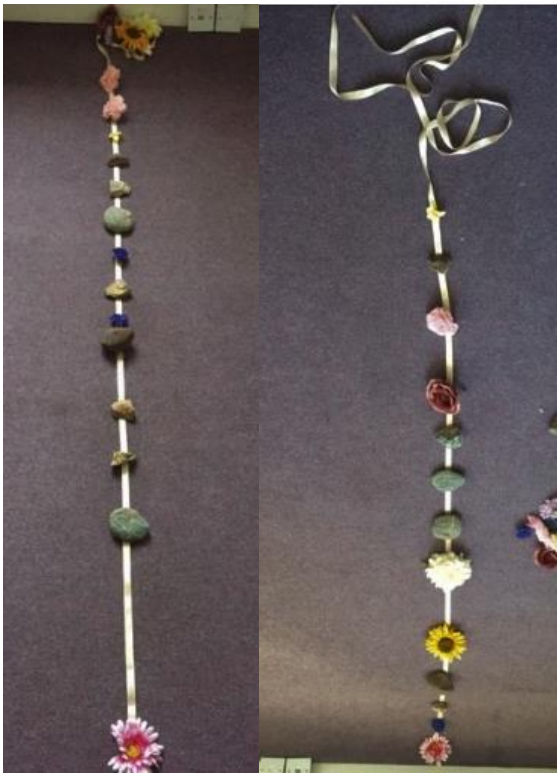

Figure 9 contd. First lifeline (left), second lifeline (right)

4.6. Summary results for each participant

The following section aims to comment on the idiosyncratic differences between participants. The section will refer to the quantitative and qualitative analyses conducted within the study. This section is also supplemented by supervision notes, the therapist's reflective log, additional observational data noted throughout the participant's therapy and external factors outside of therapy that may provide evidence for and against therapeutic change.

4.6.1. Niamh

IES-R data for Niamh indicated a reliable change which reached clinical significance. However, visual analysis revealed the improvement was not comparable to the projected baseline trend. In addition, the DC analysis suggested the intervention was ineffective. Nonetheless, overall pre-post scores indicated a change from "severe" to below the clinical range for PTS. Further, FU data revealed the maintenance of treatment effects. Qualitative data revealed Niamh found the intervention helpful and that it had reduced PTS. For example, she reported "the nightmares…have lessened". External factors were reported in terms of their positive impact; Niamh explicitly discussed the impact of her new relationship and therapist factors.

Furthermore, visual analysis of the data revealed significant variability across the time series graph at three individual points (Session 4, 7 and 10) for the IES-R and Session 4 and 10 for DASS 21). During the course of the intervention Niamh was experiencing two external difficulties which were causing her distress (her physical health and pain), and the distress she experienced as a result of her work (Niamh informed me she felt very overworked and had a negative relationship with her manager). Importantly, these three spikes in the data corresponded to the same three sessions where Niamh was very distressed about these external factors. Moreover, during therapy Niamh was referred to the Crisis Team by her GP as she was experiencing suicidal thoughts. The Crisis Team assessed but discharged Niamh without intervention as they felt she was not high-risk. Niamh attributed

this worsening of her distress to her work difficulties, although reported she experienced an increase in her PTS (identified by the IES-R).

For secondary outcomes, limited effects were observed, and Niamh did not achieve reliable change across the DASS 21 measure in the desired direction. Specifically, for stress she was observed to reliably deteriorate post-NET and in the FU. This may be explained by the high level of stress Niamh was reporting due to external factors. For the analysis of temporal relationships between IES-R and DASS 21, a significant correlation was noted at -1 Lag for Niamh, suggesting an increase in depression preceded an increase in PTS, which may suggest increased low mood for Niamh was a trigger for increased PTS.

In terms of process measures, there was little evidence of within-session or between session habituation. During therapy, observational data suggested Niamh appeared to physiologically habituate to the distress within the session, but this was not reflected on the measure. Thus, it may be that treatment outcome was dependent upon other factors, e.g., external relationship. Narrative analysis revealed lifeline transcripts showed an 84% reduction in fragmentation post-NET. Furthermore, Niamh's lifelines indicated an increase of flowers and stones post-NET, which may be suggestive that Niamh was better able to access more positive and negative memories at the end of therapy. This may be suggestive of trauma narrative change and appeared to be concurrent with Niamh's qualitative descriptions of how she felt, i.e., "things feel less foggy".

4.6.2. Melissa

Melissa achieved reliable and CSC on the IES-R measure and DASS 21 subscales. Visual analysis revealed the improvements exceeded the projected baseline trend for both measures, which were maintained at FU. However, the DC analyses revealed an effect size of 0.5, which suggests the intervention was debatably effective for the reduction of PTS. Though, visual analysis noted an extreme change in level in the desired direction between Session 7 and 8, with

the IES-R and DASS 21 continuing to reduce until Session 10, where scores begin to stabilise.

Contextual information revealed that prior to the intervention, Melissa had experienced over 10 years of psychological therapy; this was not reported to have improved her trauma-related distress. Melissa qualitatively referred to the "direct" nature of NET, meaning that it was a therapy which "did not allow her to avoid like the others had". Thus, findings in Melissa's case may be that Depression, Anxiety and Stress were all mediated by PTS and therefore, when PTS was improved through therapy, other indices of psychological distress reduced at the same time. Qualitative reports corroborated the view that there had been "massive" change for Melissa in terms of the improvement of PTS, Depression, Anxiety and Stress.

In terms of process measures, there was some evidence of within session and between session habituation. The biggest reduction occurred between-session for Trauma 6. However, this is not necessarily completely linked to treatment outcome. For example, Melissa noted that in addition to therapy, external factors such as "being ready to change", it "being the right time and being able to cope with the demands of therapy" and "making new friends" were important factors influencing therapy outcome. Thus, these may also be partly responsible for the observed mechanisms of change.

Narrative analysis revealed a 64% reduction in disorganisation and a 75.8% reduction in fragmentation of lifeline narratives post-NET. Observational data would attest to this finding; the researcher noted a change in the way Melissa talked about her traumas. For example, Melissa reported she felt "things were more organised" and was able to "put them into order in her mind". Furthermore, the most dramatic changes in the comparisons of the lifeline were for Melissa. There was a contrast between the length, number of, and way the items on the lifeline were placed post-NET. For example, Melissa stated the placement of multiple stones together was a product of feeling trauma events were more organised; she referred to the first lifeline where trauma events felt very muddled, but now she could "compartmentalise the events". This may

provide some evidence that for Melissa, trauma memories appeared less fragmented post-therapy.

4.6.3. Eloise

Eloise achieved reliable change post-NET and achieved CSC at FU on the IES-R. Visual analysis revealed the improvements exceeded the projected trend. The DC analysis revealed the effect size was 0.7, which suggested the intervention was at the low end of moderately effective. During therapy, there was an unexpected four-week break, which is not recommended during trauma processing therapy as it is likely to increase avoidance. However, visual analysis revealed further reductions occurred following the return from the break on the IES-R. This may have suggested an opposite effect, in which the break offered Eloise an opportunity to consolidate gains made during treatment. This was further substantiated by her qualitative reports: “it allowed me to catch my breath and stop for a minute, things became more in order and I attended more willingly”. This may suggest that for Eloise a break in trauma treatment was beneficial and may have enhanced treatment gains.

SMA revealed some sequential effects which were unique to Eloise. For example, for the analysis between IES-R and DASS 21, a significant correlation at +1 Lag was noted between IES-R and anxiety. This suggested a change in IES-R precedes a change in anxiety. This may therefore suggest an increase in PTS caused an increase in anxiety a week later. Additionally, analyses of the IES-R subscales revealed a sequential effect between intrusion and avoidance and intrusion and hyperarousal. This suggests for Eloise an increase in intrusive symptoms predicts an increase in avoidance and an increase in hyperarousal.

For the DASS 21, Eloise achieved reliable and CSC for Depression, Anxiety and Stress at FU. Visual analysis revealed comparable observations for anxiety and stress when compared to the IES-R, although a peak was noted in Session 8 before the break. External factors noted by Eloise during this time (such as anxiety related to taking exams for college) or anxiety related to coping during the break could have been attributed to this peak in anxiety and stress.

Depression was observed to have an improving trend, which exceeded the baseline trend.

In terms of process measures, there was evidence of within-session habituation across therapy. Treatment outcomes may therefore be more related to within-session habituation for Eloise. The most reduction occurred for Trauma 5 and 6, which were identified as most significant by Eloise. Narrative analysis revealed no change in disorganisation of lifeline narratives, but a 65.5% change in fragmentation in narratives. This finding may corroborate with Eloise's' qualitative report of "feeling things are less blurry".

4.6.4. Grace

Grace achieved reliable change on the IES-R post-NET and at FU, but, did not achieve CSC. At the end of therapy, Grace remained in the clinically severe range of PTS as measured by the IES-R. However, DC analysis revealed an effect of 0.75 which indicates the intervention was moderately effective in reducing PTS. Visual analysis revealed a gradual reduction in PTS over the course of therapy, which became increasingly noticeable following Session 6. Observational data revealed the impact of Grace's traumatic stress was the most impairing of all the participants in this study, as she was unable to function in her life without the aid of a safe person. Thus, whilst there were some improvements on the IES-R, it was apparent that this therapeutic protocol was not sufficient to alleviate all of Grace's traumatic distress. Furthermore, traumatic stress was observed to increase at FU. This increase at FU may be related to Grace's distress relating to the ending of therapy, especially given these increases were also observed on the DASS 21 and Grace reported she struggled with the ending.

SMA analyses revealed a sequential effect between IES-R subscales Intrusion and Avoidance. This suggested an increase in avoidance preceded an increase in intrusion. This suggests for Grace, an increase in avoidance precedes an increase in intrusive symptoms. Furthermore, another sequential

effect was noted between avoidance and hyperarousal, which suggested an increase in avoidance precedes an increase in hyperarousal.

For the DASS 21, reliable change was achieved for Depression, but this was lost at FU. Reliable change was achieved for anxiety both post-NET and at FU. Visual analyses revealed the DASS 21 showed an improving trend over therapy, but similarities were noted in the increase in distress at FU. SMA revealed a sequential relationship between anxiety and stress, suggesting an increase in stress preceded an increase in anxiety for Grace.

In terms of process measures, there was evidence of within-session habituation. The most significant reduction was within session for Trauma 5. Grace showed some improvement in PTS over the course of therapy, and as such this may provide some evidence within-session habituation is related to her treatment outcomes. Though, external factors reported by Grace (i.e., her father's support) and helpfulness of the therapist may also be related to treatment outcome.

Narrative analysis revealed a 33.3% reduction of disorganisation and a 57.1% reduction in fragmentation of lifeline narratives. But, observational data did not indicate that Grace felt trauma narratives had become less fragmented, especially with her still reporting high levels of PTS and having referred to some trauma events still feeling "muggy". Thus, it is not clear if the changes noted in lifeline narratives indicated that narrative integration of trauma memories had occurred.

5. Extended Discussion

The extended discussion will expand on ideas explored in the journal paper, referring to psychological theory and existing research. Additionally, it will discuss the implications of findings for Clinical Psychology, considering the study's limitations and recommendations for future research.

5.1. Summary and discussion of findings:

5.1.1. Effectiveness of NET reducing PTS

To our knowledge this is the first study to investigate the effect of NET on PTS in women who have experienced IPV who are now safe[53]. The primary aim of this study was to determine if NET can reduce PTS for women who have experienced IPV. Taken together, the repeated single case series, follow up, three replications of effects and qualitative data would suggest NET was somewhat effective in reducing PTS for all participants. The replication of these effects provides external validity, but, claims of effectiveness cannot be made beyond this sample. Nonetheless, the naturalistic design offers ecological validity.

However, it is unclear if and/or how common factors (e.g., therapist factors) influenced treatment outcome. The ability to disentangle common factors from specific therapy interventions is complex (Tschacher et al., 2014). It is important to consider, especially given all participants noted the therapist was a key helpful factor during therapy. For example, the normalising aspect of psychoeducation was reported by most participants; whilst this was commented on as an aspect of psychoeducation, normalising was reported as a helpful aspect of therapy broadly. Thus, normalising may have been an important factor in therapeutic change. It also appeared feeling safe, which was linked to the therapist's ability to enable this, was a helpful aspect of therapy and may relate to treatment outcome. This may be particularly important in trauma therapy, given the high level of fear related to previous traumatic experiences, particularly in IPV populations when often victims remain highly fearful despite being out of the relationship (Dutton et al., 2006).

The study predicted PTS should reduce only after processing of all trauma events in the fear network (Schauer et al., 2011). The study found mixed evidence for this prediction. Whilst one participant's data behaved congruently with this prediction, for most participants PTS reduced incrementally. Thus, this may provide support that effective traumatic processing for one event can result

[53] Referring to women no longer in abusive relationships

in significant PTS reduction (Mørkved et al., 2014). However, given the variation in trauma experience and number of significant trauma events reported by participants, variability in rapidity of treatment gains would possibly be expected. Furthermore, for most participants the most significant events were processed in the last session during therapy. Thus, this may confound the findings and therefore make it difficult to delineate whether the processing of the significant event was responsible for PTS reduction in and of itself.

5.1.2. Effect of NET on Depression, Anxiety and Stress

The consideration of NET on secondary outcomes in this study was particularly important given the high comorbidity of depression and anxiety in IPV populations (Creamer et al., 2001). Broadly, the NET literature has found mixed evidence for the improvement of anxiety and depression, with some studies reporting improvement and some limited effects (Alghamdi, 2015; Colville, 2017; Orang et al., 2018). This study found mixed evidence that NET impacted on levels of Depression, Anxiety and Stress; a finding which appears to substantiate other NET studies reporting mixed findings for secondary outcomes.

Improvements in secondary outcomes could be accounted for by the overlapping construct of negative affect within depression, anxiety and stress, (Post, Zoellner, Youngstrom, & Feeny, 2011). Although this hypothesis would not account for only finding improvement in secondary outcomes for half of participants; if changes in secondary outcomes were a result of NA, then one would expect all participants to improve on secondary outcomes. An alternative hypothesis may be that the resulting resolution of comorbid symptoms may have occurred through the treatment of PTS, which mediated the comorbidities (Schauer et al., 2011). This may explain why not all participants improved in secondary outcome measures; their comorbidities may not have been mediated by PTS and were mediated by other external factors (e.g., physical health).

5.2. Mechanisms of change

5.2.1. Exposure and habituation

NET postulates that WSH is instrumental in determining treatment outcome (Schauer et al., 2011). However, there was mixed evidence for the support of WSH as a treatment mechanism. In this study, WSH was noted to occur for two participants, which was linked to treatment outcome in a positive direction, but this was not the case for the other two participants where limited to no evidence of WSH was found. In some incidences, subjective distress increased during the session rather than reduced. This is not compatible with habituation literature (Sripada & Rauch, 2015) and may suggest that habituation did not occur during the session. Though, given both participants who did not demonstrate WSH showed clinically significant reductions in PTS, it may be that this finding suggests WSH is not necessary to produce clinically significant reduction in PTS and this therefore may be idiosyncratic to individuals.

One explanation for this finding may be related to distress tolerance (Craske et al., 2008) (i.e., the ability to tolerate and move towards a goal orientated activity whilst experiencing emotional distress and the ability to withstand discomfort) (Brown et al., 2005). Despite fear, new secondary learning occurs in which regardless of the level of fear reduction during exposure, the new secondary learning underlies changes in symptom expression (Craske et al., 2008). However, it could be proposed that general psychological distress was being rated for these two participants instead of physiological arousal; some studies criticise the use of subjective distress measures to measure physiological arousal, suggesting these are not valid ways of measuring distress and heartrate monitors should be used instead (Lang et al., 1970; Schäfer et al., 2018).

5.2.2. Autobiographical Integration

The analysis revealed fragmentation and/or disorganisation reduced across all participants. But, this was not always related to treatment outcome; fragmentation appeared to be a better indicator, with most reduction in

fragmentation of language occurring for participants with the most reduced IES-R scores. This finding was somewhat corroborated by participants' qualitative data which indicated memories were "less blurry and mixed up". Further, visual analysis of the lifelines would indicate they were shorter for most participants and for some the placement of stones (i.e., into big piles) was qualitatively reported by participants to indicate organisation of trauma(s) memories.

Most published studies have utilised a structured coding framework to assess for trauma narrative changes, but findings are mixed and sometimes inconclusive with regard to narrative change and whether this change (if it is found) is reflective of autobiographical integration. For example, it has been suggested changes in narrative structure may only reflect repeated retelling in treatments which endorse imaginal exposure, or alternatively changes in narrative retelling, level of distress during the retelling of the trauma and overall cognitive ability (Zoellner & Bittinger, 2004). Furthermore, other factors including cognitive ability and distress during recounting could have affected the structure and content of trauma narratives, as well as subjective bias inherent in coding frameworks (Bernard-Gilligan et al., 2012). Despite these limitations, there is no agreed consensus of the most effective way to measure this mechanism, and structured coding of narratives is the most frequently utilised measurement strategy in the literature.

Furthermore, recent research suggests there is a differentiation between structure and content of trauma narratives, and that the assessment of content (i.e., meaning) is more indicative of treatment outcome when compared to structural comparisons of the same narrative (Jaeger et al., 2014). Structural indices of language have been found as a treatment outcome predictor in other studies (i.e., Foa et al., 1995; Jones, Harvey & Brewin, 2007). Nonetheless, analysing content of narratives is not possible within the process of NET, as NET does not involve the individual repeatedly retelling the same trauma event as seen in PE for example. Given NET was unable to permit the analysis of content indices within narratives, it is unclear if that analysis may have revealed differences not found in structural language comparisons.

5.3. Clinical Implications and research strengths

Complex trauma literature argues a phased trauma model is necessary to produce therapeutic change (Cloitre et al., 2011). However, there has been mixed evidence to support the use of this model in individuals who have experienced complex trauma (DeJongh et al., 2016). Further, there have been conclusions made within the literature that IPV populations in particular need a phased approach given the high level of treatment dropout (Hansen et al., 2014). This would suppose that a non-phased approach to treat complex trauma presentations would be ineffective. Contrary evidence was found in this study. This corroborates with the broader NET evidence base, suggesting its tolerability and efficacy in reducing PTS with populations exposed to multiple traumatic events (Lely et al, 2019). As such, this study provides support that a phased model is not always necessary for the treatment of PTS in this sample of IPV affected women.

Further, this study demonstrated therapeutic change can occur within a time-limited 12-week intervention. Research has suggested treatment length within complex trauma needs to be between 5 and 12 months (Cloitre et al., 2011). However more recently the UK PTS guidelines have reported effective trauma-focused treatment length is unknown. Whilst this study protocol was not long enough to treat PTS in all participants, and a longer treatment protocol would have been needed for Grace, for three participants therapeutic effects were found. As such, this study has provided support that time-limited trauma-treatments can create therapeutic effects within a complex trauma population.

Breaks between emotional processing in PTSD treatment are not advised and are suggested to be countertherapeutic (Schauer et al., 2011). This study revealed a single finding for one participant that IES-R scores continued to decline following an unexpected four-week break during traumatic processing. This was substantiated by participant reports of the break being helpful in consolidating gains made during therapy. This may be an important clinical observation that breaks are not always unhelpful.

Qualitative data regarding women's experiences of psychological interventions are largely absent within the literature. As such, the qualitative component of this study afforded data regarding participants' experiences of the

processes and outcomes of NET. Of note, most participants commented on the lifeline being an important and enjoyable part of therapy, with some reporting it supported the organisation of memories. This finding links with current literature reporting the lifeline component was an enjoyable aspect of NET (Colville, 2017). There is limited evidence for the therapeutic effectiveness of the lifeline process of NET (Neuner et al. 2004; Schauer et al., 2002), but it appears for this population, the lifeline was a key aspect of therapy that contributed to the organising of trauma memories. Regarding NET processes, re-narration appeared to be the most difficult for all participants, but it also appeared to be one of the most helpful; only one participant reported a negative experience. The relaying of the lifeline was also reported to be a helpful aspect of therapy, which enabled participants to identify changes (i.e., more rocks and/or flowers), enable the consolidation of gains made during therapy and provide a way to process the end of therapy.

Current literature reports high attrition rates when treating an IPV sample for psychological distress (i.e., Hansen et al., 2014; Kubany et al., 2004). Reasons for this high attrition rate include unique IPV factors i.e. ongoing threats from abuser(s) (Dutton, 2000), and perpetrators of abuse preventing women from seeking treatment (Warshaw, Sullivan & Rivera, 2013). Furthermore, the high prevalence of severe PTS in this population has also been linked to limited treatment completion (Hansen et al., 2014; Kubany et al., 2004). However, this study found a 0% dropout rate for participants completing therapy. This finding reflects other research reporting lower dropout rates for NET than other therapies (Morkved et al., 2014; Steuwe et al., 2016). Additionally, it appeared gender of the therapist was important to most participants in this study and would influence treatment dropout. Research has reported female victims of sexual violence find it difficult to work with a therapist who is the same gender of their abuser(s) (Bhati, 2014). The findings reaffirm it is important to consider the gender of the therapist when working with an IPV population, particularly given the high attrition rates of this population during psychological therapy (Kubany et al., 2004).

This study employed a naturalistic design which enabled the application of findings of this study to other clinical contexts. For example, the study identified key adaptations to the NET protocol which can be directly applied to clinical practice. The study found an important adaptation was gathering and connecting contextual information related to the abusive relationship(s) specifically in order to link together sensory perceptual representations of the fear network with wider contextual information (Schauer et al., 2011) in an IPV context.

Further, the successful application of NET to a sample of IPV-affected women could have important implications for IPV services. Given NET's ability to be delivered by lay-people, it could be used to equip non-specialist workers to deliver this treatment in IPV refuges. This may be particularly important, as studies report symptoms of traumatic stress are missed in IPV services, and survivors are often directed towards non trauma-specific treatments (Humphreys & Thiara, 2003; Trevillion et al., 2012). Thus, the application of NET in this context may be cost-effective at improving survivors' well-being, given the high prevalence of traumatic stress in IPV populations and cost of IPV to individuals, health services, and society more broadly (Ferrari et al., 2018).

5.4. Research limitations

A key limitation of this study was related to the baseline length. The length of the baseline was incorporated into the design in a way which was the least disruptive to the participants. However, achieving stable baseline data is desired within SCD's as it enables the development of more confident conclusions regarding the treatment effect, and enables better separation of treatment effects from external factors (Lane & Gast, 2014). Nonetheless, delaying a clinical intervention for a participant within the NHS was not deemed ethical and therefore achieving baseline stability was not possible.

The extant literature investigating autobiographical integration is limited. Therefore, there is not a clear consensus on the most effective way to measure narrative changes in PTSD treatment, and as such the methodology used in this study remains a limitation. For example, the complexities of indirectly

associating findings with change in autobiographical memory is difficult. In addition, despite the use of a coding strategy which was derived from existing literature, and an inter-rater reliability check, it is inherently subject to bias.

Many studies have used SUD measurements when analysing WSH during PTSD treatment using imaginal exposure. However, the use of a subjective distress measurement may be a limitation, as the use of physiological measurement has been suggested to be more reliable (Schäfer et al., 2018). Though, it was important to minimise obtrusive recording measures, particularly given the sensitivity of the intervention and as such physiological markers were not deemed suitable.

5.5. Future research

This study revealed several factors which might have been implicated in the improvements noted. As such, it may also be helpful for future research to investigate specific transtheoretical mechanisms of change reported within this study that may be particularly important in the delivery of trauma therapy, for example, the impact of normalisation as a process intervention, and the influence of establishing safety within the context of trauma therapy. Future research would also aim to focus on developing alternative ways of investigating autobiographical integration as a proposed treatment mechanism of PTSD. For example, this may involve developing a measurement strategy which is shared and agreed within the literature.

6. Extended Reflections

Reflection can be viewed as a conscious focused thinking process which enables learning to occur (Kolb, 1984). Reflection is a key competency of Clinical Psychologists (Brown, Lutte-Elliott, & Vidalaki, 2009), and it has been found to help individuals make sense of experiences, as well as leading to change in practice (Schutz, 2007; Knight, Sperlinger & Maltby 2010). This section will outline my reflections on the research process. It will focus on aspects of the research process which I view to be the most pertinent for me.

6.1. Motivation for research

Prior to training, I had experience working in services that aimed to meet the needs of traumatised populations, and thus I began to develop an interest in trauma sequelae and trauma-focussed interventions. Once I was training, I felt sure that I wanted to complete a project within a trauma-lens, and thus when this study idea arose, I decided it was an opportunity I wanted to take. However, even though I had some previous exposure to trauma-focussed treatments, I was not aware of NET. Though, for me, the opportunity to develop skills in an approach I had limited knowledge of and apply this to a population whom I had previously had little exposure to, was an exciting, intriguing opportunity and highly motivating.

Furthermore, as I began reading I became aware of the lack of specific trauma treatments with an effective evidence base suited to working with individuals who have been exposed to multiple traumatic events. Specifically, I noticed this population was absent from many meta-analyses and large-scale reviews analysing efficacy of trauma treatments, and as such surprised at how little this group was represented in the broader trauma literature. It appeared to me there was clear need to develop more research in this area and it was a major motivator for me throughout the project.

6.2. Developing the design

In my previous research experience, I had only been exposed to quantitative survey-based methods, and as such the proposition of using a SCD was very new to me. As such, I struggled with its assumptions and I remember feeling

very overwhelmed initially. However, over the course of the research I realised that actually, this methodology was highly suitable to the clinician I am. I have always been critical of the current mainstream scientific way of measuring effectiveness (i.e., group designs) and have felt it neglects important idiosyncrasies of individual experience. Thus, by using this methodology I felt I was very much bringing to light individual experience and their stories, which was important to me.

Furthermore, given the close connection between this naturalistic single case design and clinical practice, I felt I was bridging an important gap between research and clinical practice. Not only this, but the design enabled me to investigate multiple complex processes scientifically (e.g., outcome and mechanisms of change) which I felt enabled creativity in deciding how to investigate these processes.

6.3. Recruitment

During the development of the project, recruitment was always an area of the design that I was concerned about; the literature relating to attrition rates in trauma therapy can be high and I was worried about being able to recruit (and retain) enough participants. Given this, it was decided that the CTRG would be the primary recruitment site, and a secondary recruitment site was added in the event things were not to go as expected. As probably expected, recruitment did not go to plan. Once I gained ethical approval there were limited suitable referrals which caused me some considerable anxiety. After some time and the use of the secondary recruitment site, I was able to recruit and retain four participants. However, this delay meant I became significantly behind schedule, completing data collection in February 2019.

6.4. Delivering the therapy

From the beginning I was certain that I would prefer to be the one who would deliver the therapy. This was for two reasons: (1) to mitigate therapist effects as a possible confounding variable, and (2) to enable further development of my knowledge and skills in a novel area.

Despite my wish to deliver the therapy, I feel I underestimated the demand of conducting therapy in a research context in addition to completing other aspects of my studies (placement, assignments). Furthermore, NET as an approach places a high demand on the therapist in terms of transcribing each session, and this became stressful to complete each week. Furthermore, one of my initial plans was to stagger participants across the year of recruitment to limit the demand on myself, but due to the recruitment delay this was no longer possible. As such I conducted NET with two participants at once (which changed to three for some of the time). This in addition to recruitment difficulties, attending research supervision for 90 minutes a week, and completing other aspects of my studies meant that at times I felt very drained and exhausted.

However, upon reflection, I would not have changed my decision to conduct the therapy. I very much valued the control that being a therapist-researcher afforded me (especially co-ordinating times, changing therapy dates etc) and feel that liaising between multiple therapists and myself would have been even more stressful. Furthermore, being the therapist meant that I felt I gained a unique clinical insight into therapy and enabled me to consider the data perhaps in ways I might not have if I did not have that additional role. Whilst it was one of the most difficult things I have done, certainly in terms of witnessing highly distressing traumatic memories, it was also funny at times and uplifting when some participants began telling me their traumatic distress was improving. I personally gained so much during the process, and it is something I value.

6.5. Supervision

As part of the research process, I engaged in 90 minutes of supervision a week, which included viewing video tapes of NET sessions and discussing this in terms of fidelity to the NET manual. Initially, I remember feeling a lot of anxiety and panic about my performance. As such, supervisions felt quite intense and at times, observing myself on videos felt exposing and I worried about my supervisor thinking I was incompetent. Over time this feeling changed, and I began to feel more confident when conducting NET and less anxious during supervision.

By nature, I am very curious and so I loved the creativity and curiosity present within supervision sessions regarding clinical material. However sometimes I tended to go off on tangents related to interesting clinical material, and often had to remind myself to bring supervision back to the task. Further, I also often found it difficult to switch from being a therapist to researcher during supervision, as I often became very immersed in the therapy-supervision process. Over time I felt supervision became less about fidelity and more about discussing the clinical material that I brought to the session –I wondered if this reflected my increased confidence and skills in applying NET.

6.6. Data analysis and write up

My biggest underestimation was the analysis and the write up. I have reflected this might be because data collection (i.e., conducting the therapy) felt like a huge task which I had completed, I did not think anything else could be as demanding. However, the amount of data in itself was so overwhelming. Furthermore, as I was investigating several complex processes my analysis reflected this, and I underestimated the length of time it would take to analyse all the data using the different methodologies required. Some of these processes meant I had to learn new statistical methods and conduct qualitative analyses that were new to me. As such, I had to ask for more supervisions than I anticipated to support me in understanding and applying analytical concepts accurately.

The interpretation and write up of the data felt equally as complex; my data was variable across participants and whilst that is key unique point of SCD's I found it very difficult to compare across cases. As such, this took me some time to synthesise my results. Furthermore, whilst SCD's are said to be adept at analysing complex outcome and process variables, the realities of this felt very difficult in terms of disentangling specific versus non-specific factors. However, over time I felt less overwhelmed as I became more familiar with the data, and I felt (with support from supervisors) I was able to interpret the findings of my study both within and across cases in a way which I feel reflected the stories of the participants who are central to this project.

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Appendices

Appendix A: Screening Tool

Title:		
Year:	Author:	
Type of article		
○ Written in English or German language ○ Quantitative or mixed methods empirical research ○ In-press, in-preparation or published article in a peer-reviewed journal or retrieved from grey literature ○	☐ Yes ☐ No: Exclude* ☐ Unsure	Comments**:**
Population and context		
○ Population described as experiencing post-traumatic stress or diagnosed with PTSD ○ Traumatic stress arising from any traumatic events other than: 1) organised violence including; war, state based conflict, genocide, mass sexual and/or physical violence, political violence, terrorism, or 2) natural and/or manmade disasters including: earthquakes, tsunamis, wildfires, floods, and manmade disasters include oil explosions or fires.	Yes No: Exclude* Unsure	Comments:
Intervention		
○ Narrative Exposure Therapy (NET) And cannot be: ○ An amended form of NET i.e. FORNET, POWER-NET.	Yes No: Exclude* Unsure	Comments:

Appendix B: Data Extraction Tool

Title:	
Year:	Author(s):
Source:	Bibliographic Electronic Database Hand searching of references
Type of article:	Empirical research study
Aims(s)/research questions:	
Design and method:	
Sample/population:	
Study design:	
Screening measures used:	
Quantitative	
Outcome measures used	Primary:
	Secondary:
Follow up:	
Key findings:	Immediately post NET
	Follow up:
Strength of quantitative findings:	Statistically sig. positive effect. Effect size: Statistically sig. negative effect. Effect size: Trend towards positive result Trend towards negative result No observable change over time Not reported
Qualitative	
End of therapy interview	Yes No
Qualitative methods used for interview:	
Key findings:	
Overall	
Conclusions:	
Future directions:	
Limitation of study:	
Strengths of study:	

Appendix C: Narrative Analysis coding framework

Fragmentation indices	**Examples**	**Disorganisation indices**	**Examples**
Repetitions of *words* in the same phrase	"my my my head was spinning" Words have to be repeated in same phrase to be counted	Disjointedness (doesn't make sense as you read it)	"he I was go brought with over"
Unfinished thoughts	"so then"	Confusion of events	"I don't understand how it happened"
Speech fillers	"um" "er" Count each individual filler separately.	Repetition of *phrases* in same line of text	"I couldn't get away ..I couldn't get away"

Language dimension total:

Participant		
Language dimension	Lifeline one	Lifeline two
Disorganisation		
Disjointedness (doesn't make sense as you read it)		
Confusion of events		
Repetition of *phrases* in same line of text		
Fragmentation		
Repetitions of *words* in the same phrase		
Unfinished thoughts		
Speech fillers		

Appendix D: Change Interview schedule

Interviewer introduce themselves and say something such as “Following on from your therapy with Steph, I would like to find out about your thoughts about it. I have several questions to ask you today as part of the interview. It’s important to say that today is not a therapy session and so we won’t be discussing your difficulties, that was something you did with Steph. Today the plan will be to go through the following questions that I have down here, is that ok? [interviewer do not follow up on clinical material just remind client that interview is not for discussing difficulties].

Before we do this, I would like you to fill in 2 questionnaires that you will probably remember completing before. [ask client to complete IES-R and DASS 21].

General questions

- How are you feeling generally?

Feasibility and acceptability questions

- Looking back now, what was therapy like for you?
- NET has a psychoeducation component. This is where Steph will have talked to you about what happens in our minds when we have experienced traumatic stress and how the therapy is meant to help with that – did it make sense to you?
    - Can you recall any of it/what was the most important thing you remember/anything else?
- Looking back now, what did you make of the lifeline?
- You were asked to fill in two questionnaires during each session, what did you make of them?
- The therapy was structured/time limited – how was that for you?
- What was it like having someone reread your narrative back to you each session?
- What was it like talking about the context (i.e., specific details of each event such as what did rooms look like etc) of each trauma event?
- What would therapy have been like if your therapist had been a man?

Change questions

- Have you noticed any change(s)?
- If you have noticed a change, how important is this to you?
- Were you surprised by the change(s)?
- Do you think change is due to the therapy, or other things (i.e., things that happened outside therapy room that might have influenced the outcome)

Helpful or unhelpful aspect questions

- Was any aspect of therapy particularly helpful?
- Was any aspect of therapy unhelpful?
- Anything unexpected or took you by surprise?
- Was there any point where you thought you could not carry on? If so, what helped you to complete therapy?
- The therapy aimed to focus on your traumatic experiences. Of all the different traumas that you discussed with Steph, what was the most important one? [see first lifeline picture]
- Was there a flower that was particularly important? [first lifeline]

- When relaying the second lifeline, was there a difference? And can you describe those differences?

If client talks about problematic feelings, then direct client to their own GP and debrief sheet.

Appendix E: Nottingham Ethics Committee, University of Nottingham Approval

University of Nottingham
UK CHINA MALAYSIA

Our reference: RGS 17080
IRAS Project ID: 229183

0115 8467906
sponsor@nottingham.ac.uk

Health Research Authority
Research Ethics Committee

Research and Innovation
University of Nottingham
East Atrium
Jubilee Conference Centre
Triumph Road
Nottingham
NG8 1DH

Dr Thomas Schröder
Associate Professor in Clinical Psychology;
Room B12 YANG Fujia Building,
Jubilee Campus,
Wollaton Road,
Nottingham, NG8 1BB

13 October 2017

Dear Sir or Madam,

Sponsorship Statement

Re: Using Narrative Exposure Therapy to treat individuals with a history of Intimate Partner Violence for post-traumatic stress: A series of single case studies

I can confirm that this research proposal has been discussed with the Chief Investigator and agreement to sponsor the research is in place.

An appropriate process of scientific critique has demonstrated that this research proposal is worthwhile and of high scientific quality.*

Any necessary indemnity or insurance arrangements will be in place before this research starts. Arrangements will be in place before the study starts for the research team to access resources and support to deliver the research as proposed.

Arrangements to allocate responsibilities for the management, monitoring and reporting of the research will be in place before the research starts.

The duties of sponsors set out in the NHS Research Governance Framework for Health and Social Care will be undertaken in relation to this research.**

* Not applicable to student research (except doctoral research).
** Not applicable to research outside the scope of the Research Governance Framework.

Yours faithfully

Angela Shone
Head of Research Governance
University of Nottingham

world-changing research
from The University of Nottingham

Appendix F: Research Ethics Committee Approval letter, 21st December 2017

NHS
Health Research Authority

Yorkshire & The Humber - Sheffield Research Ethics Committee
Room 001
Jarrow Business Centre
Rolling Mill Road
Jarrow
Tyne and Wear
NE32 3DT

Telephone: 0207 104 8087

Please note: This is the favourable opinion of the REC only and does not allow you to start your study at NHS sites in England until you receive HRA Approval

21 December 2017

Dr Thomas Schroder
Associate Professor of Clinical Psychology
University of Nottingham
Room B12 YANG Fujia Building
Jubilee Campus
Wollaton Road
Nottingham
NG8 1BB

Dear Dr Schroder

Study title:	**Using Narrative Exposure Therapy to treat women with a history of Intimate Partner Violence for post-traumatic stress: A series of single case studies.**
REC reference:	**17/YH/0377**
Protocol number:	**15080**
IRAS project ID:	**229183**

Thank you for your letter of 01 December 2017, responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information has been considered on behalf of the Committee by the Chair.

We plan to publish your research summary wording for the above study on the HRA website, together with your contact details. Publication will be no earlier than three months from the date of this opinion letter. Should you wish to provide a substitute contact point, require further information, or wish to make a request to postpone publication, please contact hra.studyregistration@nhs.net outlining the reasons for your request.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a **favourable ethical opinion** for the above research on the basis described in the application form, protocol and supporting documentation as revised, subject to the conditions specified below.

Appendix G: Research Ethics Committee Substantial Amendment approval letter, 29th January 2018

NHS
Health Research Authority
Yorkshire & The Humber - Sheffield Research Ethics Committee
Room 001
Jarrow Business Centre
Rolling Mill Road
Jarrow
Tyne and Wear
NE32 3DT

Tel: 0207 104 8079

Please note: This is the favourable opinion of the REC only and does not allow the amendment to be implemented at NHS sites in England until the outcome of the HRA assessment has been confirmed.

29 January 2018

Miss Stephanie Lane
Room B12 YANG Fujia Building
Jubilee Campus
Wollaton Road
Nottingham
NG8 1BB

Dear Miss Lane

Study title:	**Using Narrative Exposure Therapy to treat women with a history of Intimate Partner Violence for post-traumatic stress: A series of single case studies.**
REC reference:	**17/YH/0377**
Protocol number:	**15080**
Amendment number:	**Substantial Amendment 1, 03/01/2018**
Amendment date:	**05 January 2018**
IRAS project ID:	**229183**

The above amendment was reviewed by the Sub-Committee in correspondence.

Summary of Amendment

Submission of this amendment was to make the consent procedure more streamline and less burdensome for the participants.
The amendment aim was to remove the three baseline measurement points in the design.
The change interview schedule was still informed by Elliott (2008), however it had been reworded/clarified to make it simpler for the participant and the professional delivering the interview.
Participants would be asked to give a rating of their distress prior to the narration of each trauma event, and then give a rating of their distress after the narration of the trauma event.
The protocol was amended.

The professional delivering the change interviews was Sophie Wicks (Trainee Clinical Psychologist).
The amendment was to extend the timeframe of the study from December 2017 - September 2018 to December 2017 - 31st December 2018.

Ethical opinion

The members of the Committee taking part in the review gave a favourable ethical opinion of the amendment on the basis described in the notice of amendment form and supporting documentation.

Approved documents

The documents reviewed and approved at the meeting were:

Document	*Version*	*Date*
Covering letter on headed paper		
Notice of Substantial Amendment (non-CTIMP)	Substantial Amendment 1, 03/01/2018	05 January 2018
Other [Change Interview Schedule]	1	03 January 2018
Participant information sheet (PIS) [PIS - Applying NET to Intimate Partner Violence]	1.3	03 January 2018
Research protocol or project proposal [Protocol - Applying NET to Intimate Partner Violence]	1.2	03 January 2018

Membership of the Committee

The members of the Committee who took part in the review are listed on the attached sheet.

Working with NHS Care Organisations

Sponsors should ensure that they notify the R&D office for the relevant NHS care organisation of this amendment in line with the terms detailed in the categorisation email issued by the lead nation for the study.

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

We are pleased to welcome researchers and R & D staff at our Research Ethics Committee members' training days – see details at http://www.hra.nhs.uk/hra-training/

17/YH/0377:	**Please quote this number on all correspondence**

Yours sincerely
Pp

Professor Basil Sharrack
Chair

E-mail: nrescommittee.yorkandhumber-sheffield@nhs.net

Appendix H: HRA Minor Amendment Approval letter, 13th November 2018

Amendment Categorisation and Implementation Information

Dear Dr. Schroder ,

IRAS Project ID:	229183
Short Study Title:	Applying NIET to Intimate Partner Violence
Date complete amendment submission received:	08 November 2018
Amendment No./ Sponsor Ref:	MA01
Amendment Date:	24 October 2018
Amendment Type:	Non-substantial
Outcome of HRA and HCRW Assessment	**This email also constitutes HRA and HCRW Approval for the amendment,** and you should not expect anything further.
Implementation date in NHS organisations in England and Wales	35 days from date amendment information together with this email, is supplied to participating organisations **(providing conditions are met)**
For NHS/HSC R&D Office information	
Amendment Category	**A**

Thank you for submitting an amendment to your project. We have now categorised your amendment and please find this, as well as other relevant information, in the table above.

What should I do next?

Please read the information in IRAS, which provides you with information on how and when you can implement your amendment at NHS/HSC sites in each nation, and what actions you should take now.

If you have participating NHS/HSC organisations in any other UK nations please note that **we will** forward the amendment submission to the relevant national coordinating function(s).

If not already provided, please email to us any regulatory approvals (where applicable) once available.

When can I implement this amendment?

You may implement this amendment in line with the information in IRAS. Please note that you may only implement changes described in the amendment notice.

Who should I contact if I have further questions about this amendment?

If you have any questions about this amendment please contact the relevant national coordinating centre for advice:

- England – hra.amendments@nhs.net
- Northern Ireland – research.gateway@hscni.net
- Scotland – nhsg.NRSPCC@nhs.net
- Wales – research-permissions@wales.nhs.uk

Additional information on the management of amendments can be found in the IRAS guidance.

User Feedback

The Health Research Authority is continually striving to provide a high quality service to all applicants and sponsors. You are invited to give your view of the service you have received and the application procedure. If you
website: http://www.hra.nhs.uk/about-the-hra/governance/quality-assurance/.

Please do not hesitate to contact me if you require further information.

Kind regards

Hayley Kevill
Health Research Authority
Ground Floor | Skipton House | 80 London Road | London | SE1 6LH
E.hra.amendments@nhs.net
W. www.hra.nhs.uk

Appendix I: Health Research Authority Approval, 2nd January 2018

NHS
Health Research Authority

Dr. Thomas Schroder
Associate Professor of Clinical Psychology
University of Nottingham
Room B12 YANG Fujia Building
Jubilee Campus, Wollaton Road
Nottingham
NG8 1BB

Email: hra.approval@nhs.net

02 January 2018

Dear Dr Schroder,

Letter of HRA Approval

Study title:	**Using Narrative Exposure Therapy to treat women with a history of Intimate Partner Violence for post-traumatic stress: A series of single case studies.**
IRAS project ID:	**229183**
Protocol number:	**15080**
REC reference:	**17/YH/0377**
Sponsor	**University of Nottingham**

I am pleased to confirm that **HRA Approval** has been given for the above referenced study, on the basis described in the application form, protocol, supporting documentation and any clarifications noted in this letter.

Participation of NHS Organisations in England

The sponsor should now provide a copy of this letter to all participating NHS organisations in England.

Appendix B provides important information for sponsors and participating NHS organisations in England for arranging and confirming capacity and capability. **Please read *Appendix B* carefully**, in particular the following sections:

- *Participating NHS organisations in England* – this clarifies the types of participating organisations in the study and whether or not all organisations will be undertaking the same activities
- *Confirmation of capacity and capability* - this confirms whether or not each type of participating NHS organisation in England is expected to give formal confirmation of capacity and capability. Where formal confirmation is not expected, the section also provides details on the time limit given to participating organisations to opt out of the study, or request additional time, before their participation is assumed.
- *Allocation of responsibilities and rights are agreed and documented (4.1 of HRA assessment criteria)* - this provides detail on the form of agreement to be used in the study to confirm capacity and capability, where applicable.

Appendix J: Participant Consent Form

CONSENT FORM
Final version 1.2: 29.05.18

Title of Study: Using Narrative Exposure Therapy to treat women with a history of Intimate Partner Violence for post-traumatic stress. A series of single case studies.

IRAS Project ID: 229183

Name of Researcher: Stephanie Lane, Thomas Schroder, Rachel Sabin - Farrell

Name of Participant: **Please initial box**

1. I confirm that I have read and understand the information sheet version number 1.4 dated 21.05.18 for the above study and have had the opportunity to ask questions. ☐

2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, and without my medical care or legal rights being affected. I have up until one week after the NET intervention has ended to withdraw my data from the study. After this time, I am aware the information collected will be used in the final analysis. If you withdraw we will no longer collect any information about you or from you but we will keep the information about you that we have already obtained as we are not allowed to tamper with study records. ☐

3. I understand that relevant data collected in the study may be looked at by authorised individuals from the University of Nottingham, the research group and regulatory authorities where it is relevant to my taking part in this study. I give permission for these individuals to have access to these records and to collect, store, analyse and publish information obtained from my participation in this study. I understand that my personal details will be kept confidential. ☐

4. I consent to video/audio recordings being made of therapy sessions and for these recordings being used to aid the work. I understand that anonymised direct quotes may be used in the study results. ☐

5. I agree to take part in the above study. ☐

_____	_____	_____
Name of Participant	Date	Signature

_____	_____	_____
Name of Person taking consent	Date	Signature

2 copies: 1 for participant, 1 for the project notes

Appendix K: Participant Information sheet

Participant Information Sheet
(Final version 1.4: 21.05.18)

IRAS Project ID: 229183

Title of Study: Using Narrative Exposure Therapy to treat women with a history of Intimate Partner Violence for post-traumatic stress. A series of single case studies.

Name of Researcher(s): Thomas Schroder, Rachel Sabin – Farrell and Stephanie Lane

We would like to invite you to take part in our research study. Before you decide we would like you to understand why the research is being done and what it would involve for you. One of our team will go through the information sheet with you and answer any questions you have. Talk to others about the study if you wish. Ask us if there is anything that is not clear.

What is the purpose of the study?
The purpose of the study is to look at the impact of Narrative Exposure Therapy on women who are experiencing post-traumatic stress related difficulties who have experienced abusive relationships.

Why have I been invited?
You have been asked to take part because you are seeking psychological treatment for post-traumatic stress related difficulties, and have experience of one or more abusive relationship(s). We are inviting six people like you to take part in this study.

Do I have to take part?
It is up to you to decide whether or not to take part. If you do decide to take part you will be given this information sheet to keep and be asked to sign a consent form. If you decide to take part you are still free to withdraw at any time and without giving a reason. This would not affect your legal rights.

What will happen to me if I take part?

1) If you are interested in taking part in this study, you will be called by the clinician who you met at your assessment sessions at the service. This will be at least 24 hours after being given this information sheet. They will ask you if you would like to take part in this study.

2) If you say yes, then they will arrange a time and date with you to come into the service and give consent to take part in this study. This will be with the researcher who is conducting the intervention

with you (Stephanie Lane). When you come into the service, this will involve asking any questions you have about the study, and signing the consent form. Signing the consent form will be for taking part in the research and for consenting for sessions to be audio/video recorded. Audio/video recording is a part of routine clinical practice, as it can be helpful to use them to enhance the therapy. All audio/video recordings will only be used for the purposes of this study and will be stored securely on a password protected computer. All audio/video recordings will be destroyed after the study is completed. All sessions recorded will be transcribed by the person delivering Narrative Exposure Therapy with you (Stephanie Lane).

3) If you decide to consent to the research, Stephanie will ask you to fill in two short questionnaires during the session. These will be the same two short questionnaires you already completed when you came for your assessment at the service. Stephanie will then go through the practicalities of therapy (such as suitable times of sessions).

3) Stephanie will then arrange to meet with you frequently (usually once a week for 60 – 90 minutes) for 12 weeks of Narrative Exposure Therapy. Narrative Exposure Therapy is offered routinely as part of usual clinical care, and you would be offered this therapy if you were not participating in this study. The expectations and structure of therapy will be explained to you on your first session. You will be expected to attend the service for therapy sessions. During therapy sessions, you will be asked to complete two questionnaires prior to each therapy session. These will be same questionnaires you completed before. This is to monitor progress and possible improvements in therapy. You will also be asked to rate how you are feeling during the therapy using a scale of 0 – 10.

5) After the completion of therapy, you will be asked to take part in an interview up to six weeks after the end of your treatment. This aims to ask you about your thoughts and feelings about the therapy you have received, and what parts of it you found helpful or unhelpful. This will be done by another professional (Sophie Wicks, who is a Trainee Clinical Psychologist) who is separate to the research.

Expenses and payments

Participants will not be paid to participate in the study. However, travel expenses will be reimbursed.

What are the possible disadvantages and risks of taking part?

There is a potential for participants to feel distressed during the intervention. However, this is not unique to this study, and would be the same for any trauma focused intervention. Additional research components proposed in this study are unlikely to increase distress in participants. Furthermore, if your difficulties related to post-traumatic stress have not improved after the intervention, you would be offered another assessment with a regular therapist at the service to discuss other treatment options.

What are the possible benefits of taking part?
We cannot promise the study will help you but the information we get from this study may help us understand whether Narrative Exposure Therapy can help people who experience post-traumatic stress from Intimate Partner Violence.
What happens when the research study stops?

Once the study is completed, results will be disseminated in an academic journal. If you wish to know the results of the study, please email stephanielane981@gmail.com or alternatively call 07582166283. We will be happy to give you an overview of the findings of the study once it has finished.

What if there is a problem?
If you have a concern about any aspect of this study, you should ask to speak to the researchers who will do their best to answer your questions. The researchers contact details are given at the end of this information sheet. If you remain unhappy and wish to complain formally, you can do this by either writing to Patient Advice and Liaison Service, Moorgreen House, Highbury Hospital, NG6 9DR or emailing PALS@nottshc.nhs.uk.

Will my taking part in the study be kept confidential?

We will follow ethical and legal practice and all information about you will be handled in confidence.

If you join the study, we will use information collected from you during the course of the research. This information will be kept **strictly confidential**, stored in a secure and locked office, and on a password protected database at the University of Nottingham. Under UK Data Protection laws the University is the Data Controller (legally responsible for the data security) and the Chief Investigator of this study (named above) is the Data Custodian (manages access to the data). This means we are responsible for looking after your information and using it properly. Your rights to access, change or move your information are limited as we need to manage your information in specific ways to comply with certain laws and for the research to be reliable and accurate. To safeguard your rights we will use the minimum personally – identifiable information possible.

If you join the study, the data collected from the study will be looked at by authorised persons from the University of Nottingham who are organising the research. They may also be looked at by authorised people to check that the

study is being carried out correctly. All will have a duty of confidentiality to you as a research participant and we will do our best to meet this duty.

You can find out more about how we use your information and to read our privacy notice at:

https://www.nottingham.ac.uk/utilities/privacy.aspx.

The data collected for the study will be looked at and stored by authorised persons from the University of Nottingham who are organising the research. They may also be looked at by authorised people from regulatory organisations to check that the study is being carried out correctly. All will have a duty of confidentiality to you as a research participant and we will do our best to meet this duty.

Where possible, any information about you which leaves the site will have your name and address removed (anonymised) and a unique code will be used so that you cannot be recognised from it.

Your personal data (i.e. name, address, telephone number and audio/video recordings) will be destroyed after the completion of the study (between 6-12 months). This information will be kept separately from the research data collected and only those who need to will have access to it. Narratives produced at the end of the intervention will be stored as part of your medical records. All other data (including anonymised narratives produced from NET sessions, lifeline photos and questionnaire data) will be kept securely for 7 years. After this time your data will be disposed of securely. During this time all precautions will be taken by all those involved to maintain your confidentiality, only members of the research team will have access to your personal data.

In accordance with the University of Nottingham's, the Government's and our funders' policies we may share our research data with researchers in other Universities and organisations, including those in other countries, for research in health and social care. Sharing research data is important to allow peer scrutiny, re-use (and therefore avoiding duplication of research) and to understand the bigger picture in particular areas of research. Data sharing in this way is usually anonymised (so that you could not be identified) but if we need to share identifiable information we will seek your consent for this and ensure it is secure.

What you say during therapy is confidential between the researcher/therapist, however the researcher/therapist may wish to discuss aspects of their work with you with their supervisor, as they will be using supervision to promote best practice. Should you disclose anything to the researcher which puts you or anyone else at any risk, they may feel it is necessary to report this to appropriate persons.

What will happen if I don't want to carry on with the study?

Your participation is voluntary, and you are free to withdraw at any time during the study, without giving any reason, and without your legal rights being affected. Participants have up until one week after the NET intervention has

ended to withdraw their data from the study. After this time, the information collected will be used in the final analysis. This deadline of one week has been implemented because the study analysis would be affected significantly otherwise. If you withdraw we will no longer collect any information about you or from you but we will keep the information about you that we have already obtained as we are not allowed to tamper with study records and this information may have already been used in some analyses and may still be used in the final study analyses. To safeguard your rights, we will use the minimum personally identifiable information possible.
The CTRG or Step 4 service offer Narrative Exposure Therapy as part of routine clinical practice and so your treatment options would not be affected if you chose not take part.

Who is organising and funding the research?
This research is being organised by the University of Nottingham and is being funded by the Trent Doctoral course in Clinical Psychology.

Who has reviewed the study?
All research in the NHS is looked at by independent group of people, called a Research Ethics Committee, to protect your interests. This study has been reviewed and given favourable opinion by the Yorkshire & the Humber – Sheffield Research Ethics Committee.

Further information and contact details
Thomas Schroder (Chief Investigator)
Room B12
YANG Fujia Building
Jubilee Campus
Wollaton Road
Nottingham
NG8 1BB
Tel: 0115 846 8181
Email: thomas.schroder@nottingham.ac.uk

Rachel Sabin-Farrell
Level B
Yang Fujia
Jubilee Campus
Nottingham
NG8 1BB
Tel: 0115 846 6734
Email: rachel.sabin-farrell@nottingham.ac.uk

Stephanie Lane
Trainee Clinical Psychologist
DClinPsy, School of Medicine, Division of Psychiatry and Applied Psychology
University Park
University of Nottingham
NG8 1BB
Email: msxsl7@nottingham.ac.uk

Appendix L: Participant Debriefing sheet

Thank you for participating in this study which has looked at the impact of NET in treating post-traumatic stress in women who have experienced Intimate Partner Violence.

Any personal information you have provided will remain confidential and all data analysed in the study will be anonymous. As we discussed, we can send you the results of the study once the data has been analysed and interpreted, in the post.

If you have any further questions, please feel free to contact the lead researcher or supervisors on the contact details provided. If you have experienced any distress during the study that you do not wish to discuss with us, please use the advice helplines outlined below.

Advice/Helplines

Samaritans: 116123 or jo@samaritans.org or www.samaritans.org

Further information and contact details

Stephanie Lane (Lead researcher)
Trainee Clinical Psychologist
DClinPsy, School of Medicine, Division of Psychiatry and Applied Psychology
University Park
University of Nottingham
NG8 1BB
Email: msxsl7@nottingham.ac.uk

Thomas Schroder (Research supervisor)
Room B12
YANG Fujia Building
Jubilee Campus
Wollaton Road
Nottingham
NG8 1BB
Tel: 0115 846 8181
Email: thomas.schroder@nottingham.ac.uk

Rachel Sabin-Farrell (Research supervisor)
Level B
Yang Fujia
Jubilee Campus
Nottingham
NG8 1BB
Tel: 0115 846 6734
Email: rachel.sabin-farrell@nottingham.ac.uk

Appendix M: Participant Psychoeducation hand-outs

Overview

Narrative Exposure Therapy is a treatment for individuals who have suffered multiple traumatic experiences.
When a person experiences an extremely traumatic event, their brain becomes focused on surviving that experience. During this time, the Brain is overly focused on sensory information – such as what you can see, smell, hear, taste, touch. This is because it can help with surviving that experience. While the Brain is focused on doing this, it shuts down other parts of the Brain that are less useful to survive –such as contextual information (what time it is, what day it is, where you are etc).
After the traumatic event, the Brain tries to recombine this sensory and contextual information. However, sometimes, this does not always happen. This is because for some people, thinking about the event that happened to them is too distressing, and so understandably, they avoid thinking about it. But unfortunately, even though this gives people some short-term relief, in the longer term, it results in unwanted distressing experiences such as flashbacks, intrusive thoughts, nightmares, and feeling "on edge" a lot. People also report feeling as though their memory about the traumatic event is disjointed and fragmented.
So, the purpose of NET, is to combine the sensory and contextual information related to the traumatic event(s) you have experienced. It aims to do this through the process of telling your story, in as much detail as possible, starting from when you were born up until the present day. Doing it in this way, can help bring clarity to your experiences, and reduce the amount of distress you are experiencing as a result of your trauma.

What to expect

Understandably, many people do not want to talk or think about their traumatic experiences. However, therapy for trauma requires a person to talk through their experiences, which means people can be worried or scared about starting therapy.

This is often because talking about your trauma can bring up vivid images and sensations of what you experienced. For many people there are high levels of anxiety. Some people are worried that if they begin talking about their trauma, they will not stop feeling distressed, which results in people avoiding therapy or disengaging with therapy during the session. However, this can mean that your distressing experiences such as flashbacks or nightmares continue.
In light of this, it is important to know that when you first start talking about your trauma(s) your fear or anxiety will increase. However, it will naturally reach a peak and then it will decrease. When you talk about your trauma for a second time, your fear and anxiety will not be as intense as the first time, and so the distress related to each trauma will lessen, once it has been talked through in detail with your therapist.

It is also important to say, that you will not be alone when working through these experiences - your therapist will be there with you throughout the process of

therapy, guiding you through it in a way which feels safe and that you are comfortable with.

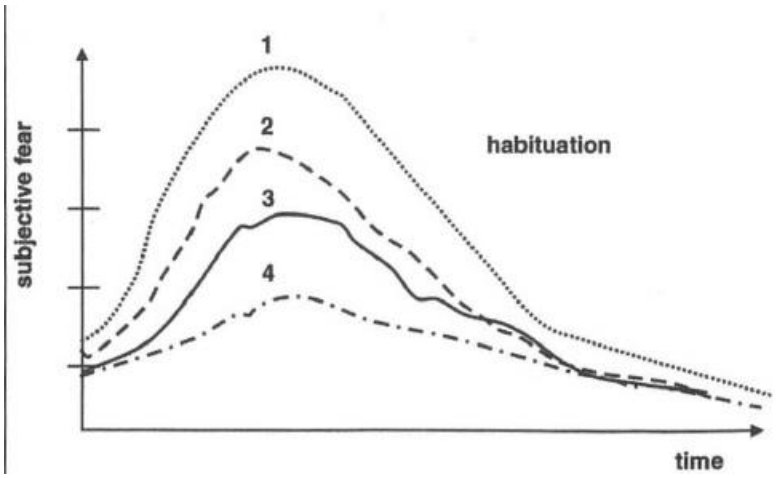
NET Process

Session		What to expect
1	Introduction	You will be provided with information about NET and offered the opportunity to ask any questions.
2	Lifeline 	During the first session you will use a piece of string or ribbon to create your lifeline. You will then mark out the significant events on your lifeline with stones (traumatic events) and flowers (positive events). You will begin from when you were born to the present day.
3	Narration 	You will begin this session by narrating the first event (either positive or negative) on your lifeline. You should try to be as detailed as possible, taking the therapist through the event step by step. Your therapist understands that this could feel very scary, but they will be there to help guide you through the process in a safe way.
4 - 10	Re-Narration & New Narration 	During this session your therapist will read out to you a detailed summary of the narration you provided in the previous session. This provides an opportunity for you to make any changes. For some people their memory of events are fragmented and through narration things become clearer. This is an opportunity for you to hear your own story narrated back to you. This, in itself, is part of working through the things that have happened to you. Once this is done then you will continue to narrate some more events on your lifeline.
11	Finishing last narration & relay lifeline	During this session your therapist will read out to you a detailed summary of the narration you provided in the previous session. In addition, your therapist will ask you to lay out your lifeline once more.

		This can provide you with some further clarity of what you have experienced throughout your life so far.
12	Final lifeline narrative	During the final session, your whole lifeline narration will be presented to you in a written document. It is your choice whether you want to keep this or not.

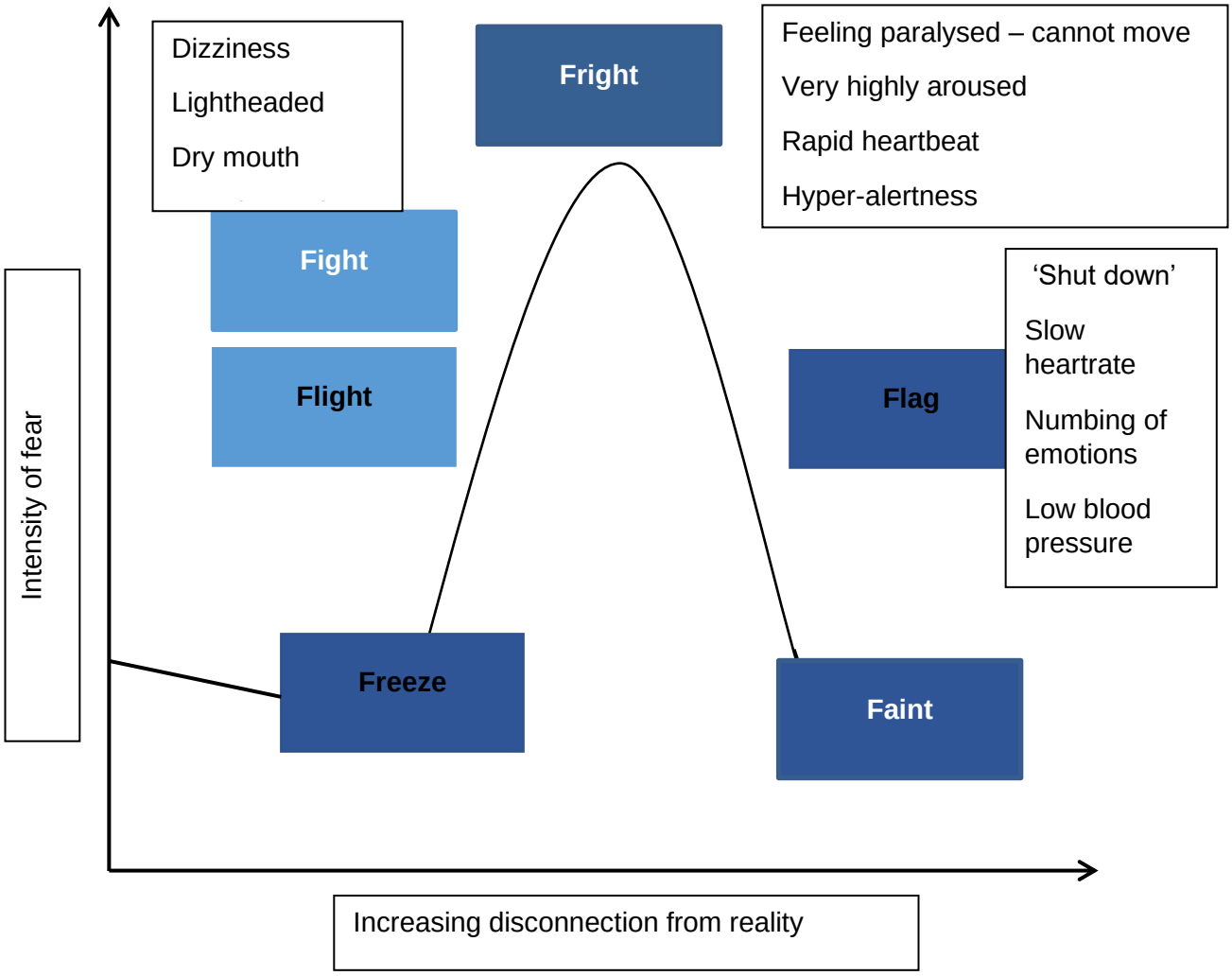
Process of NET

As you talk through your traumatic experience, your anxiety will lessen over time. When you talk about that same experience again, you will feel anxiety related to that experience slightly less than before, and may pass more quickly:



The Trauma Response

This is what happens to people when they experience a traumatic event. Everyone's responses are different and they do not all go through the same stages.



Appendix N: Fidelity Check

Session no.	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Trauma no.										
General context elicited.										
Event-specific details elicited.										
Not stopping a session during the height of fear and anxiety										
Staying in trauma narration until arousal has subsided.										
Past AND current feelings elicited.										
Avoidance and dissociation prevented/managed.										
Chronology adhered to (preventing going back and forth in time).										
Not mixing exposure and closure										
Further details / corrections elicited in next session										
Not interrupting further processing in next-session narration.										

0 = never, 1 = sometimes, 2 = often, 3 = most of the time, 4 = always. ✓= yes, ✗ = no

Appendix O: Journal guidelines

Aims and Scope

Violence against Women is an international, interdisciplinary journal dedicated to the publication of research and information on all aspects of the problem of violence against women. The journal assumes a broad definition of violence; topics to be covered include, but are not limited to, domestic violence, sexual assault, incest, sexual harassment, female infantcide, female circumcision, and female sexual slavery.

Submission Guidelines

Manuscripts should be submitted electronically to http://mc.manuscriptcentral.com/vaw. Articles should be typewritten, double-spaced, with footnotes, references, tables, and charts on separate pages, and should follow the Publication Manual of the American Psychological Association (6th edition).

Manuscripts will be sent out anonymously for editorial evaluation. Each article should begin with an abstract. The page limit is 35 double-spaced pages.

Obtaining permission for any quoted or reprinted material that requires permission, and paying any and all associated fees, is the responsibility of the author. Submission of a manuscript implies commitment to publish in the journal. Authors submitting manuscripts to the journal should not simultaneously submit them to another journal, nor should manuscripts have been published elsewhere in substantially similar form or with substantially similar content.

Using Narrative Exposure Therapy to treat women with a history of Intimate Partner Violence for post-traumatic stress

University of Nottingham
UK | CHINA | MALAYSIA

Stephanie Lane Thomas Schroder Rachel-Sabin Farrell Steve Regel

UNIVERSITY OF LINCOLN

Trent Doctorate in Clinical Psychology

Introduction

- Intimate Partner Violence (IPV) is associated with significant morbidity and mortality and is noted to affect one in four women in their lifetime in the UK. .
- Post-traumatic stress (PTS) is the most prevalent adverse psychological outcome associated with IPV, however it is argued few treatments are suited to the chronicity and complexity of trauma endured in IPV.
- Narrative Exposure Therapy (NET), a treatment designed to alleviate PTS following exposure to multiple trauma, has recently been included in NICE guidelines. NET combines imaginal exposure and testimony therapy through the use of a story-telling process
- As such, NETs theorised mechanisms of change are exposure and habituation, and the reconstruction of autobiographical memories.

Main research questions

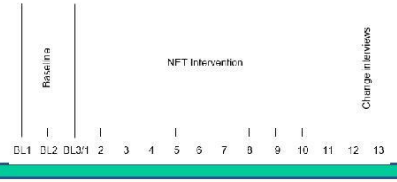
1. Does NET reduce Post-traumatic stress?
2. Does NET affect Depression, Anxiety or Stress?
3. What are NETs mechanisms of change?
4. Is NET feasible/acceptable to use?

Method

The study used a naturalistic, mixed method, sequential measurement single case AB design.
Four participants were recruited.
Baseline phase (three weeks) and intervention phase 12 weeks of Narrative Exposure Therapy (NET).
Follow up included a change interview

Data Analysis

Visual analysis and Simulation Modelling Analysis (SMA) undertaken. Reliable Change (RC) and Clinically Significant Change (CSC) were calculated. For autobiographical integration, sections of the first and final lifeline were compared. Key themes identified in the qualitative data.



Results

Impact of Events Scale-Revised

Reliable and clinically significant change was observed post-NET and at follow up for three participants.

Depression, Anxiety and Stress Scale

Reductions in psychological distress appeared to co-vary for two participants.

Subjective Units of Distress

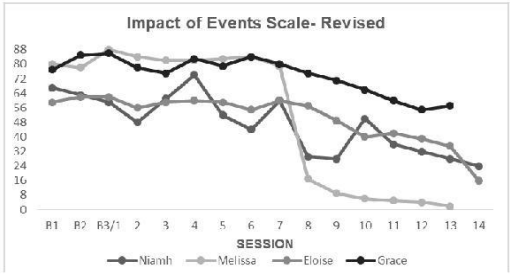
Average pre-post subjective distress Changes reduced most significantly for two participants only.

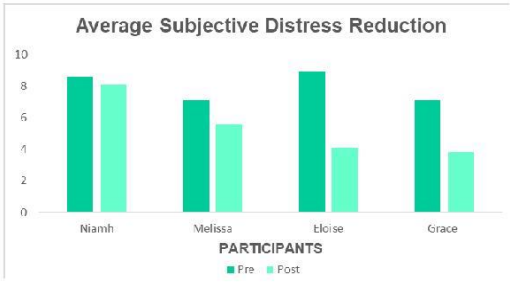
Narrative Analysis

Fragmentation and/or disorganisation of trauma narratives reduced post-NET for all participants.

Qualitative

All participants found NET helpful;
factors responsible for change were linked to NET, therapist (i.e., enabling safety) and external factors (i.e., new intimate relationships, making friends)





Discussion

- This is the first exploratory study investigating the application of NET to treat PTS in an IPV-affected sample of women who are not in abusive relationships, and thus offer support for the effectiveness of NET for IPV related trauma.
- For some there was a reduction in secondary measures. Process measures revealed mixed evidence for NETs proposed mechanisms of change.
- However, NETs proposed mechanisms did not appear to be solely reasonable for treatment outcome. Future research should focus on autobiographical integration to develop our understanding of its change mechanisms.

References. Ford, J. D. (2015). Complex PTSD: Research directions for nosology/assessment, treatment, and public health. *European Journal of Psychotraumatology,* 6(1), 27584. doi: 10.3402/ejpt.v6.27584. Garcia-Moreno, C., & Watts, C. (2011). Violence against women: an urgent public health priority. *Bulletin of the World Health Organization, 89,* 1-2. doi: 10.2471/BLT.10.085217. . Schauer, M., Neuner, F., & Elbert, T. (2011). *Narrative exposure therapy: A short-term treatment for traumatic stress disorders (2nd ed.).* Germany: Hogrefe Publishing.