The Birth Trauma Psychological Therapy Service: An audit of outcomes

**ABSTRACT**

**Objective:** To evaluate routinely collected service data from a ‘Birth Trauma’ psychology clinic integrated into maternity services, in order to review effectiveness for women with symptoms of post-traumatic stress disorder (PTSD) following childbirth.

**Background:** Prevalence of PTSD after childbirth has been estimated to be around 3% for women meeting full diagnostic criteria and up to 9% for subthreshold symptoms. This can occur even in response to deliveries considered to be medically straightforward. NICE guidelines (2018) recommend psychological therapy as a first line treatment for symptoms of PTSD.

**Methods:** The sample included 114 women referred post-natally for psychological assessment and intervention following a traumatic birth experience. Measures were routinely administered as part of initial assessment (T1) and at completion of intervention (T2). Data from these measures were collated and analysed using a series of paired sample *t* tests. Following assessment 101 women were taken on for psychological intervention and of these, 74 completed both T1 and T2 measures.

**Results:** There were highly significant reductions across all measures of PTSD, anxiety and negative mood symptoms. The treatment effect sizes were very large. Mean total score on a measure of PTSD symptomatology was no longer clinically significant following interventions.

**Conclusion:** This evaluation suggests an integrated Birth Trauma psychology clinic using a small number of contact sessions is a highly efficient and effective model of care for women experiencing symptoms of PTSD following childbirth.

Keywords: PTSD; birth trauma; antenatal; postnatal; psychological; depression; anxiety

# Introduction

Post-Traumatic Stress Disorder (PTSD) is increasingly recognised as a possible consequence of childbirth, even in response to deliveries deemed to be medically straightforward (Leeds & Hargreaves, 2008).

Fully diagnostic PTSD is shown in 3% of women, and in 5-9% of women if sub-diagnostic levels (partial PTSD) are included (Yildiz et al, 2017). PTSD is acutely distressing for women, can affect their relationship with their partner, and can also impact upon an infant’s cognitive, emotional and social development (Garthus-Neigel et al, 2017; Cook et al, 2018).

To support women who feel distressed following their experience of childbirth, the ‘Birth Afterthoughts’ service was established within the Jessop Wing (JW) at Sheffield Teaching Hospitals NHS Foundation Trust (STH). This is a midwife-led clinic and provides women the opportunity to review their labour notes and discuss their experiences, clarify reasons for the clinical decisions made during the birth process, and ask any questions that are troubling them with a highly skilled and experienced midwife. The midwives work closely with Clinical Psychology, and through liaison are aware of indicators of PTSD. The Clinical Psychologists delivering the Psychological service (PS and EW) also provided training, consultation and clinical supervision for the midwives. These birth review meetings are led by women and purely follow their individualised concerns. The Birth Trauma psychology clinic works alongside the Birth Afterthoughts service to provide specialist psychological assessment and intervention to women experiencing symptoms of PTSD. A particular feature is that the service is embedded within the maternity service, with close liaison between psychology, midwifery and obstetric staff, with opportunities for discussion, collaborative working and rapid referral. Whilst depressive symptoms are often comorbid with PTSD(Yildiz et al, 2017) and indeed a common consequence of trauma symptoms, the clinic does not provide input for general mental health difficulties relating to transitions to parenthood or postnatal depression. There is good liaison with local mental health services, including the perinatal mental health service and relevant third-sector services, and there is potential for discussion and cross-referral if required.

Psychological therapy for PTSD is recommended as a first line treatment by NICE (2018) but the evidence base from which these guidelines are drawn does not relate to perinatal samples, and there are potentially major differences of context including the gender basis of the samples from which these recommendations are derived. Slade et al (2021) recently reviewed the evidence for psychological interventions for PTSD following childbirth, and drew attention to the limited number of studies.

The Birth Trauma psychology clinic offers interventions consistent with NICE guidelines(2018) and matched to women’s needs and preferences. Interventions include trauma-focused Cognitive Behaviour Therapy (CBT) and Eye Movement Desensitisation and Reprocessing (EMDR). Within the scope of CBT, ‘third-wave’ cognitive therapies including Compassion-Focused Therapy (CFT) are incorporated, as these have a growing evidence base within the field of PTSD(Lee, 2012), and with women post-natally (Cree, 2015). All of the above approaches are predicated upon the establishment of a warm, non-judgmental relationship, validation of distress and the development of a collaborative, non-blaming understanding or ‘formulation’ of why such experiences may have developed for this particular woman, in relation to these particular events. The process of formulation is based on understanding information relating to three phases, considering predisposing factors (what a woman brings to the birth event through her pre-pregnancy and pregnancy experiences), precipitating factors (what actually happened around the birth i.e. perinatal events), and maintaining factors (how a woman manages her early reactions to the birth postnatally) is utilised (Slade, 2006). This formulation is usually developed both verbally and as a visual diagram, and is co-constructed with each woman to provide a clear understanding of why such symptoms may have arisen. Psycho-education about how and why PTSD can develop and how trauma memories are processed in the brain is also incorporated (Slade et al, 2020).

Women are typically offered two assessment sessions and, if they choose to engage with therapy, five intervention sessions, although this number may be adapted according to the woman’s needs. Sessions typically last ninety minutes, as recommended for trauma-focused work (Grey, 2007). Measures of psychological distress are routinely collected pre and post intervention to inform clinical decision making, and for centralised auditing of service effectiveness. See ‘Method’ section below for further details of measures used in the service.

Even where there is high quality evidence of efficacy for particular interventions with particular populations, these do not always translate to evidence of effectiveness in service roll-out. The consideration of practice-based evidence in routine clinical care conditions is therefore essential (Holmqvist, 2013). Information in relation to outcomes in routine systems of care for PTSD after childbirth is desperately needed, not least because of planned expansions of services in the NHS Long Term Plan (Department of Health, 2019), but this is currently lacking in the literature. It was therefore deemed timely for a cumulative review of audit data for this well established but almost unique service to consider its effectiveness.

# Objectives

To evaluate the effectiveness of providing formulation-driven psychological therapy to women attending the Birth Trauma clinic, who are experiencing symptoms of PTSD following childbirth using routinely collected service audit data.

# Method

# *Women attending the clinic*

This service evaluation was fully approved by the Clinical Effectiveness Unit at STH (reference number 7536). A total of one hundred and fourteen post-natal women were referred to, and discharged from, the Birth Trauma clinic during the data collection period (from the clinic’s inception at the end of 2011 to the date of analysis in August 2019).

Table 1. Patient demographics

|  |  |
| --- | --- |
| **Demographic measures** |  |
|  |  |
| **Mean Average age at referral** | 31.15 years (range 18-43, SD 5.5 years) |
| **Median Parity** | 1 child (range 1-4) |
| **Median months post-natal at time of referral** | 7 months (range 2-96) |

# *Measures*

# Impact of Event Scale-Revised (IES-R). The IES-R (Weiss, 1996) is a 22-item self-report measure that assesses subjective distress caused by traumatic events. In the version used, the event is specified as childbirth and events immediately after. This can then encompass events such as postpartum haemorrhage or hospitalisations for infection or serious complications but excludes pre-existing trauma responses. Three subscales reflect diagnostic domains of intrusion, avoidance, and hyperarousal. The IES-R yields a total score (ranging from 0 – 88), and cut-off of 33 and above is thought to represent the best cut-off for a probable diagnosis of PTSD (Creamer, 2003). A score of 24 or more suggests that PTSD symptomatology is a clinical concern (Asukai et al, 2002).

**Patient Health Questionnaire (PHQ-9)**. The PHQ-9 incorporates the diagnostic criteria of depression into a brief self-report tool, providing screening and measurement of severity within the past two weeks. Diagnostic validity of the PHQ-9 was originally established in studies involving primary care and obstetric clinics, and was shown to have .80 sensitivity and .88 specificity for major depression at a cut-off of ≥ 10 (Kroenke et al, 2001).

**Generalised Anxiety Disorder (GAD-7)**. The GAD-7 is also a brief self-report questionnaire that measures anxiety related symptoms as experienced during the past two weeks. The measure has been demonstrated to have good internal consistency and test-retest reliability. Using the threshold score of 10, the diagnostic validity of the GAD-7 has a sensitivity of .89 and specificity of .82 for generalized anxiety disorder (Spitzer et al, 2006).

***Procedure***

Measures were routinely given to women to complete at their initial assessment session (T1) with the Clinical Psychologist and following the completion of psychological intervention (T2). As expected from a service audit, subgroups of women showed different patterns of care journeys.

From the 114 post-natal women referred to and discharged from the service during the time period under review, 74 (65%) completed their full assessment and interventions i.e. with measures at T1 and T2. A small number of women (N=13) (11.5%) were seen for an assessment only and completed T1 measures, but further psychological therapy was not needed or wanted, or it was felt that onward referral, for example to Perinatal Mental Health Services, would be more appropriate. Fourteen women attended for an assessment and consented to participate in a therapeutic intervention but then subsequently did not complete therapy (12%). This group of women attended an average of three sessions, and therapy was either incomplete due to unexplained attrition, or other life factors meaning they were not able to continue the sessions. For example if their stage of employment, e.g. a new post or training course did not facilitate their taking time for regular therapy sessions at that time point. T1 data is therefore available for this group, but not T2. Thirteen women were referred and sent an initial appointment but never attended (DNA), and no data is therefore available for these women (11.5%).

Results will therefore be considered for these groups individually (therapy completed, assessment only, and women who did not complete therapy). For women who were offered psychological therapy, the median total sessions was six i.e., 9 hours of clinical input (minimum = 2, maximum = 17).

***Data Analysis***

Data from these routinely collected measures were recorded at service level within a password-protected Excel spreadsheet and analysed using a series of paired sample t tests. Although means and standard deviations for subsamples are presented statistical comparisons between these are not presented because of some being small sample sizes.

**Results**

Descriptive statistics (mean average and standard deviation) for the groups ‘assessment only,’ ‘therapy incomplete,’ ‘therapy completed T1’ and ‘therapy completed T2’ are presented in Table 2, below. Please note that the data for assessment only and therapy incomplete is taken from T1 only as women in these groups did not progress to the end of therapy to complete T2.

Table 2. Descriptive statistics

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Measure** | **Assessment only (N=13)** | | **Therapy incomplete(N=14)** | | **Therapy complete T1**  **(N=74)** | | **Therapy complete T2**  **(N=74)** | |
|  | **Mean** | **SD** | **Mean** | **SD** | **Mean** | **SD** | **Mean** | **SD** |
| IES-R Total | 34.44 | 22.07 | 63.14 | 14.13 | 37.54 | 19.80 | 9.10 | 9.34 |
| IES-R Avoidance | 13.22 | 9.78 | 20.71 | 5.08 | 13.94 | 7.98 | 2.78 | 3.55 |
| IES-R Intrusion | 13.00 | 10.11 | 25.57 | 5.96 | 14.85 | 8.18 | 3.93 | 3.93 |
| IES-R Hypervigilance | 9.00 | 6.46 | 16.85 | 4.98 | 9.05 | 6.49 | 2.43 | 3.14 |
| GAD-7 | 9.71 | 7.63 | 15 | 3.41 | 10.65 | 5.83 | 5.35 | 6.13 |
| PHQ-9 | 9.75 | 6.98 | 14.66 | 4.76 | 9.42 | 6.20 | 3.92 | 3.94 |

**Pre and Post measures**

A series of paired sample t-tests were then carried out to compare scores for women who completed therapy at T1 and T2, to provide a measure of change in scores following completion of psychological intervention. Results of this analysis are presented in Table 3 below.

**Table 3. T-test comparisons of scores at T1 and T2 (completed therapy group)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Measure** | **T** | ***p*** | ***Effect size (Cohen’s d)*** |
| IES-R Total | 10.75 | 0.00\* | 1.8 |
| IES-R Avoidance | 10.58 | 0.00\* | 1.8 |
| IES-R Intrusion | 9.98 | 0.00\* | 1.7 |
| IES-R Hypervigilance | 7.49 | 0.00\* | 1.3 |
| GAD-7 | 4.94 | 0.00\* | 0.9 |
| PHQ-9 | 5.88 | 0.00\* | 1.1 |
| CORE-10 | 6.98 | 0.00\* | 1.2 |

*\*denotes clinical significance at the p<0.05 level, two-tailed t-test,*

‘Intention to Treat’ (ITT) analyses are a pragmatic approach used in trials of new treatments to estimate the benefit of a treatment across a population. ITT is widely used in controlled clinical trials (McCoy, 2017) and has been carried out in the current study to provide a conservative estimate of the benefits of treatment within the Birth Trauma clinic, avoiding the effect of attrition from the study sample. As per standard ITT protocols, where T2 data was not available, this was generated by assuming no change as a result of therapy, and T2 scores were assumed to be equal to their T1 scores. This data was then combined with the T2 data for the completed therapy group and used in a series of t-tests. The results are presented in Table 4.

**Table 4. Intention to Treat Analysis Results**

|  |  |  |  |
| --- | --- | --- | --- |
| **Measure** | **T** | ***p*** | ***Effect size (Cohen’s d)*** |
| IES-R Total | 7.88 | 0.00\* | 1.29 |
| IES-R Avoidance | 8.41 | 0.00\* | 1.38 |
| IES-R Intrusion | -7.35 | 0.00\* | 1.21 |
| IES-R Hypervigilance | 5.92 | 0.00\* | 0.97 |
| GAD-7 | 5.76 | 0.00\* | 0.96 |
| PHQ-9 | 4.99 | 0.00\* | 0.86 |

*\*denotes clinical significance at the p<0.05 level, two-tailed test*

**Discussion**

This audit evaluation has demonstrated that the Birth Trauma Clinical Psychology service offers highly effective brief treatment for post-natal women experiencing PTSD following childbirth. Scores across all measures were reduced from pre-to-post intervention, and a series of t-tests confirmed that this change was statistically significant with large effect sizes.

An important finding is that 89% of women referred attended the service. This contrasts with studies that suggest only 50% of perinatal women uptake mental health services when offered (Albaugh et al, 2018).The high uptake for this clinic is likely to be due to the close liaison between midwives and psychologists, and the integrated nature of the service. Secondly, two out of three women attending completed a full course of therapy. Engagement was excellent and loss to therapy small. This suggests this model of care is a highly efficient use of resources.

Even when accounting for the relatively low number of women who did not complete therapy, the effectiveness of the clinic was reinforced by the results of the ITT analysis. Whilst an ITT is recognised as a conservative form of analysis, as the calculation assumes no change in those without T2 data, it is of course possible that the mental health of some women in the ‘incomplete therapy’ group could have deteriorated. No further NHS follow up information was available to inform this. While the effect sizes were slightly reduced in the ITT analysis compared with the large effect sizes seen in the comparison of T1 and T2 data in those who completed therapy, results were still highly significant and effect sizes remained large.

When considering differences between the groups (‘assessment only,’ ‘completed therapy,’ and ‘therapy incomplete’) at T1, several patterns are clear. T1 scores for the assessment only group as expected appear slightly lower, although this difference appears marginal. This suggests that reliance purely on scores on psychometric measures alone will not accurately inform whether a woman needs this service. For some women in this group, there were logistical difficulties, for example, no access to suitable childcare or because of the very limited days of the week that appointments could be offered. This may therefore be an artefact of the small service provision although the data cannot be interrogated in that detail. It is also possible that following assessment, women decided that they did not want or need therapeutic input, or did not feel the service model was suited to their needs. Further data would need to be collected to inform this. It is clear, however, that a thorough clinical assessment is required to establish what psychological input is needed, and a shared decision to proceed with therapy, put an intervention on hold, or refer to a different service, needs to be driven by a psychological formulation and discussion of needs with each individual woman. It is likely that this process, bespoke to each woman, underpins the high retention in therapy rate.

It does appear from the data that the small subgroup of those who did not complete therapy may have higher initial levels of post-traumatic stress symptoms. Clearly one dimension of post-traumatic stress symptoms is avoidance. This is an important indication for clinicians working with women who report high levels of distress at T1 to be mindful of the possibility of disengagement, and to make necessary adjustments to the intervention to maintain the woman’s engagement.

**Limitations**

As this clinic is a limited resource, a relatively small number of women have been seen and the sample is therefore modest. The current evaluation has been carried out in the context of routine clinical care, and has therefore been unable to follow up women who did not engage with, or complete therapy to ascertain the reasons for this, or obtain a fully complete data set. Due to the nature of the interventions provided in the clinic, the therapy delivered has been formulation-driven and does not therefore represent a model-specific way of working with women who experience PTSD symptoms following childbirth, although all approaches are driven by evidence-based protocols and provided by experienced Clinical Psychologists trained in multiple therapeutic models, across the life span (PS and EW). Follow up was immediate and we have no longer term information after discharge to know whether the improvements were sustained. No formal cost effectiveness analysis was completed although given the low ‘did not attend rate’, high engagement and high treatment effect sizes reported, and the fact that the clinical hours reported are fewer than typically required for PTSD (NICE, 2018), this integrated service is likely to be highly cost effective.

**Conclusion**

The Birth Trauma clinic as structured and staffed within Sheffield Teaching Hospital Foundation Trust provides a highly effective psychological treatment for women experiencing symptoms of PTSD. It provides excellent rates of engagement and therapy completion and merits consideration as a model for other services. .

**Disclosure statement**

No potential conflict of interest was reported by the authors.

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