A programme for the prevention of post-traumatic stress disorder in midwifery (POPPY): indications of effectiveness from a feasibility study

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ABSTRACT. **Background:** Midwives can experience events they perceive as traumatic when providing care. As a result some will develop posttraumatic stress disorder (PTSD) with adverse implications for midwives’ mental health, the quality of care provided for women and employing organisations. POPPY (Programme for the prevention of PTSD in midwifery) is a package of educational and supportive resources comprising of an educational workshop, information leaflet, peer support, and access to trauma focussed clinical psychology intervention. A feasibility study of POPPY implementation has been completed. **Objective:** To identify potential impacts of POPPY on midwives’ understanding of trauma, their psychological wellbeing and job satisfaction. **Method:** POPPY was implemented in one hospital site between October 2016 and September 2017. Midwives (N= 153) employed at the host site completed self-report questionnaires prior to taking part in the POPPY workshop (T1), which measured exposure to work-related trauma, knowledge and confidence of managing trauma responses, professional impacts, symptoms of PTSD, burnout and job satisfaction. Measures were repeated (T2) approximately 6 months after training (N=91, 62%). **Results:** Midwives’ confidence in recognising (p=.001) and managing early trauma responses in both themselves (p<.001) and their colleagues significantly improved (p<.001). There was a trend for reduced levels of PTSD symptomatology, and fewer midwives reported sub-clinical levels of PTSD (10% to 7%). The proportion of midwives reporting high and moderate levels of depersonalisation towards care was reduced (33% to 20%) and midwives reported significantly higher levels of job satisfaction at T2 (p<.001). Reductions in self-reported stress-related absenteeism (12% to 5%), long-term changes to clinical allocation (10% to 5%) and considerations for leaving the midwifery profession (34% to 27%) were identified. **Conclusions:** Findings highlight very positive potential of the POPPY programme to improve midwives’ mental health, the sensitivity of care they provide and reduce service disruption and costs for trusts. Large-scale longitudinal evaluation is required.

Keywords: feasibility; midwives; prevention; psychoeducation; posttraumatic stress disorder; trauma

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# Highlights

1. There is potential for midwives to experience trauma whilst providing care, and for a proportion to develop posttraumatic stress disorder (PTSD) as a result
2. POPPY is the first programme aimed specifically at preparing midwives for trauma exposure, preventing PTSD, and providing access to appropriate input
3. Findings from this feasibility study highlight potential important positive impacts on midwives’ personal wellbeing, engagement with recipients of care, and for reduced disruption within maternity services

# Background

Midwives can experience work-related events that they find traumatic. Exposure to trauma through the provision of care can lead to adverse psychological responses, including posttraumatic stress disorder (PTSD, APA, 2013). The vulnerability of midwives to such responses has been highlighted (Sheen, Slade & Spiby, 2014), where factors pertinent to the midwifery profession (empathic engagement, organisational stress) were associated with an increased risk for post traumatic stress (PTS) responses in other health professional groups. A large-scale UK investigation of midwives’ experiences of work-related trauma and PTSD reported findings indicating that at least one in 20 midwives were experiencing levels of symptoms commensurate with a PTSD diagnosis (Sheen, Spiby & Slade, 2015).

PTSD is characterised by repeated and involuntary recollection of the traumatic event, avoidance of reminders or feeling ‘numb’, a state of constant vigilance to surroundings (‘hyperarousal’), negative beliefs about the self, the world and other people or lower mood levels. PTSD is acutely distressing and can be enduring if not appropriately managed; however, it is not an inevitable outcome following exposure to trauma.

Following a traumatic experience midwives report reduced levels of confidence and an increased tendency to practice defensively (Elmir et al., 2017; Sheen, Spiby & Slade, 2016). Levels of PTSD have also been associated with burnout including higher levels of emotional exhaustion and an increased tendency to depersonalise recipients of care (Sheen et al., 2015). A midwife who is emotionally exhausted or experiencing PTSD is unlikely to be able to provide the compassionate and sensitive care that is so important for childbearing women (Department of Health, 2012).

There are negative implications for maternity services. After a traumatic experience, midwives may take time off sick, change their clinical allocation, or consider leaving midwifery altogether (Leinweber et al., 2017a; Sheen et al., 2015; Wahlberg et al., 2016). In an Australian survey midwives with probable PTSD were four times more likely to report an intention to leave their profession (Leinweber et al., 2017b). Swedish midwives with partial or probable PTSD symptoms were significantly more likely to report that they had amended their clinical allocation to outpatient care, and to have taken sick leave following a trauma experience when compared to midwives without partial or probable PTSD (Wahlberg et al. 2016). The potential for increased disruption within services is a pertinent issue for UK maternity organisations, where workforce shortages, increasing birth rates and case complexity have been attributed to existing and increasing pressures on staff (RCM, 2017b).

There are currently no specific methods in place to support midwives in the context of trauma exposure. An in-depth interview study with UK midwives (n= 35) highlighted a perceived lack of awareness to encounter trauma or develop PTSD responses(Sheen, Slade & Spiby, 2016b). Midwives also reported an unhelpful organisational climate, and typically did not perceive responses from senior colleagues or managers to be emotionally supportive. In addition, midwives who sought external input to help manage their responses to trauma were often referred to counselling services despite this being contraindicated for the treatment of PTSD (NICE, 2005).

The POPPY programme was developed from primary research with midwives (Sheen et al., 2015; 2016a, 2016b), integrated with psychological theory. After a traumatic event, stress responses develop indicative of normal memory processing. The way that an individual responds to the responses (e.g., flashbacks, intrusive thoughts) can influence the likelihood that the stress responses naturally decline (Ehlers & Clark, 2000). For example, if an individual attempts to avoid talking about or ‘blocks out’ thoughts of the event then the natural processing can be inhibited. POPPY involves guidance in the self-management of early responses to trauma to aid processing of a traumatic event, maximising opportunities for natural resolution. Furthermore, implementing helpful strategies for processing initially after a traumatic event may prevent the use of maladaptive coping strategies linked both to the development and maintenance of PTSD (Ehlers & Clark, 2000, Wessley et al., 2008).

POPPY involves a stepped care process and combines educational and supportive resources to (1) prepare midwives for the potential to experience work-related trauma, understand normal responses and provide simple self-management to prevent the development of PTSD, (2) provide peer support to facilitate resolution of difficult experiences and (3) to provide trauma focussed clinical psychology intervention where required.

The POPPY resources include:

1. *The POPPY workshop*. This is a 2.5 hour interactive training session aimed at supporting midwives understanding about trauma experiences and responses, and providing guidance on methods of managing feelings in the early weeks after a traumatic event. Midwives are also provided with a leaflet summarising the workshop content.
2. *POPPY peer support*. This provides midwives with the opportunity to receive confidential support over the telephone from a midwife peer, trained specifically for this purpose.
3. *Referral and access to psychological assessment and input.* Midwives experiencing difficulty over 3 months after a traumatic work-related event are able to contact a clinical psychologist (SC) to receive assessment and, where required, trauma focussed structured psychological intervention (cognitive behavioural therapy).

Between October 2016 and September 2017, the POPPY programme was provided for midwives at one hospital site in the North West of England to evaluate feasibility of implementation and acceptability of resources. Preliminary indications of effectiveness were evaluated as part of this feasibility evaluation, which form the focus of this manuscript. This involved identifying and examining any indications of impacts (understanding of trauma and managing responses, psychological wellbeing) following implementation of the POPPY programme. Qualitative evaluations of POPPY feasibility are presented separately.

# Methods

## Design

Midwives completed self-report questionnaires just prior to participating in the POPPY workshop, and again approximately 6 months later.

## Procedure

The POPPY workshops were provided from October 2016 until June 2017. The additional POPPY resources (peer support, access to trauma-focussed psychological assessment and input) were available between October 2016 and September 2017 only for midwives who consented to participate in the research. At the beginning of each POPPY workshop midwives were invited to participate in the study aimed at evaluating the feasibility and acceptability of the programme, and to provide preliminary information about its utility. Participation in the POPPY research involved the completion of a self-report questionnaire prior to receiving the POPPY training, repeated 6 months later. Midwives who chose not to participate in the POPPY research still received the POPPY workshop as part of mandatory training.

## Measures

This questionnaire collected basic descriptive data, including understanding of trauma and responses, levels of PTSD, burnout and job satisfaction. Recruitment and retention data was recorded. Completed questionnaires were returned directly to the researcher at the time of the workshop. Follow-up questionnaires could be completed as hard copy and returned by post, or online.

*Demographic variables* and *professional variables* (years’ experience in the profession, years’ practising clinically as a midwife, current professional designation, NHS Agenda for Change (AfC) Band, and whether working full time/ part time) were recorded. *Personal as opposed to work trauma history* was assessed using Criterion A of the DSM-IV-TR; an event where they believed themselves or someone else to be in danger of serious injury or death, and where they experienced a sense of intense fear, helplessness or horror in response (APA, 2010).

Midwives’ understanding about traumatic perinatal events and the management of psychological responses in themselves or their colleagues were assessed using three items. These included the degree of confidence felt with their (1) knowledge of what a traumatic perinatal event was, (2) knowledge of how to self-manage early responses to trauma should they experience a traumatic event, and (3) knowledge of how to help a colleague who experienced a traumatic event. Responses were scored between 0 (not confident at all) to 4 (very confident).

Midwives’ were asked whether they had ever experienced a traumatic perinatal event (1) throughout their career as a midwife, and (2) in the past 5 years. The definition of a traumatic perinatal event was provided in the questionnaire, and corresponded to Criterion A of the DSM-IV for PTSD (APA. 2010). Midwives were also asked to indicate as a result of trauma exposure whether in the past 6 months they had (1) taken time off due to stress, (2) made a short-term or long term change to their clinical allocation, (3) seriously considered leaving midwifery, or (4) their current organisation.

Several standardised scales were also included;

The *Impact of Event Scale-Revised* (IES-R; Weiss & Marmer, 1997) was used to measure symptoms of PTSD. This assesses symptoms of intrusion, avoidance and hyperarousal. The IES-R has demonstrated excellent internal validity (Weiss & Marmer). A total score of 33 or above (from a potential range of 0-88) was used to indicate symptoms of PTSD occurring at levels commensurate with a clinical diagnosis. This threshold has been reported to predict clinical diagnosis of PTSD with sensitivity of 73% specificity of 72% positive predictive value of 0.78 and negative predictive value of 0.67 (Rash et al., 2008). Presence of sub-clinical symptoms of PTSD were inferred using a cut-off of 22 or above, previously demonstrated to predict presence of PTSD with sensitivity of 92%, specificity of 57%, positive predictive accuracy of 0.74 and negative predictive accuracy of 0.83 (Rash et al., 2008).

The *Maslach Burnout Inventory Human Services Survey (MBI; Maslach et al., 1996)* was used to measure symptoms of burnout. This assesses three separate domains of burnout; emotional exhaustion, depersonalisation and personal accomplishment. Higher scores on the emotional exhaustion (potential range 0-54) and depersonalisation (potential range 0- 30) subscales and lower scores on the personal accomplishment (potential range 0-48) subscale indicate elevated burnout. For the purposes of this study, several items in the scale referring to ‘recipients of care’ were amended to refer to ‘women in my care’. The MBI has demonstrated good internal consistency for each domain (Maslach et al., 1996).

The *Attitudes to Professional Role* scale was used to assess job satisfaction (Turnbull, Reid, McGinley & Sheilds, 1995). It assesses professional satisfaction, professional support, client interaction professional development. Items are scored 1 (strongly agree) to 5 (strongly disagree). Scores are interpreted via the stratification of the scale to a range of -2 to 2 followed by calculation of mean scores for each subscale. Lower scores denote more negative attitudes.

## Analysis

Descriptive statistics were computed for total scores on the IES-R, MBI and attitudes to professional role subscales. Missing items constituting <20% of one subscale/ scale were imputed using the mean score. Where missing items exceeded this proportion of the scale then the response for the total scale was considered missing. Due to missing values total N values vary for descriptive statistics. To compare changes over time, Mann-Whitney U tests were used to examine mean scores where groups were independent. Wilcoxon signed rank tests were used to examine changes in midwives’ understanding and confidence in managing trauma responses, mean levels of PTSD symptomatology, and attitudes to their professional role at T1 and T2, McNemar tests were used to examine changes over time where paired variables were dichotomous (professional impacts, clinical and subclinical levels of PTSD at T1 and T2). Where nominal variables formed three categories, McNemar-Bowker tests were conducted (examination of changes in burnout categorisation, examination of clinical, sub-clinical and below threshold levels of PTSD). As this was a feasibility study significance was inferred at α=.10, or p<.100 to identify preliminary indications of significance (Lee et al., 2014). Statistical analyses were conducted using IBM SPSS 22.

# Results

## Participant characteristics

176 midwives received the POPPY training in 29 group workshops. 153 midwives participated in the POPPY research. Details are shown in Table 1

## Baseline Measures

### Work-related perinatal trauma

The majority of participants reported that they had experienced a work-related traumatic event throughout their career to date as a midwife (N= 136, 89%). Over two thirds reported that they had experienced a traumatic perinatal event whilst working as a midwife in the past 5 years (N= 104, 68%)

### Confidence in knowledge of trauma and trauma responses

Prior to the workshop, only a third of midwives (N= 54, 36%) were very confident in their knowledge of what could constitute a traumatic perinatal event and 57% (N= 86) were somewhat confident. Few midwives (N= 20, 13%) were very confident in their ability to self-manage early responses to trauma and 54% (N= 81) were somewhat confident. Few (N= 18, 12%) were very confident in their ability to help a colleague who had experienced trauma and 53% (N= 79) were somewhat confident (Table 2).

### Impacts on professional role

The proportions of midwives reporting different impacts on their professional role are presented in Table 3. Over one third of participants had seriously considered leaving their current organisation (N= 54/150, 36%), and a similar proportion had seriously considered leaving midwifery (N= 53/150, 35%). Almost one quarter of midwives reported that, in the last six months, they had taken time off work due to stress as a result of trauma exposure (N= 36/150, 24%), 7% reported that they had changed or had seriously considered changing their clinical allocation on a short-term basis (e.g., 1-2 shifts), and 10% had changed or seriously considered changing their clinical allocation on a long-term basis (Table 3).

### Posttraumatic stress symptoms

Table 4 shows mean total scores on the IES-R for all midwives who reported experiencing a traumatic perinatal event at least once whilst working as a midwife (N=136). Fourteen percent reported symptoms of PTSD commensurate with a clinical diagnosis (N= 19) and an additional 10% reported sub-clinical levels.

### Burnout

Mean total scores for each burnout subscale were indicative of a moderate level of emotional exhaustion, low level of depersonalisation, and moderate level of personal accomplishment. Just under forty percent (N= 59, 39%) reported high emotional exhaustion, seven percent (N= 10) reported high levels of depersonalisation, and just under thirty percent (N= 41, 28%) reported low levels of personal accomplishment within their professional role (Table 5).

### Job satisfaction

Midwives held more positive attitudes towards their general satisfaction with their role and interaction with clients. Attitudes were slightly lower for the potential for professional development. Scores on the professional support subscale were lowest, indicative of more negative attitudes (Table 6).

## Findings at follow up

### Comparisons of responders and non-responders at follow up

Ninety one (62%) of 147 midwives returned their follow up questionnaire. The average time at follow up was 5 months (SD= 1.51, range 2-10 months). Midwives who did and did not return the follow-up survey did not differ significantly in terms of age (U(147)= 2189.50, p= .152), length of experience in midwifery (U(146)= 2177.50, p= .168), or length of experience working in clinical practice (U( 146)= 2161.00, p= .148) or presence of work-related trauma experience (*X*2(1, 144)= .334, p= .398). A significantly larger proportion of non-respondents had experienced a traumatic perinatal event in the previous five years in comparison to responders (*X*2(1, 143)= 6.65, p= .015). There were no significant differences in baseline level of PTSD symptoms or burnout reported by non-responders compared to responders (U(147)= 2364.00, p= .460), emotional exhaustion (U(146)= 2432.00, p= .623), depersonalisation (U(146)= 2258.00, p= .146) or personal accomplishment (U(146)= 2467.00, p= .729) respectively .

Almost forty percent (N= 34/89, 38%) reported that they had experienced a traumatic perinatal event in the previous six months, defined as an event where they perceived a woman or her infant to be at risk of serious injury or death and where they felt fear, helplessness or horror in response.

## Comparison of Time 1 (T1) and Time 2 (T2)

### Understanding of trauma and self-management

At T2 the majority of midwives (N= 87, 98%) felt very or somewhat confident in their knowledge of traumatic perinatal events, and 93% (N= 82) felt very or somewhat confident in their ability to self-manage early responses to trauma. In addition, 93% (N= 83) felt very or somewhat confident in their ability to help a colleague should they experience a work-related traumatic perinatal event (please see Table 2). Findings indicated that midwives’ confidence in their knowledge of trauma (Z= -3.30, p= .001), their confidence in managing early trauma responses (Z=-4.99, p<.001) and their confidence in knowing how to help a colleague following an adverse event (Z= -5.46, p<.001) were all significantly higher at follow up.

### Posttraumatic stress symptomatology

Over time the total scores on the IES-R were slightly reduced (T1 M= 11.81, SD= 14.39, T2 M= 10.30, SD = 15.52), however this just misses significance (Z= -1.62, p= .105) (Table 4). Eleven midwives (13%) reported clinical levels of PTSD symptoms at T2 and an additional 7% (N= 6) reported subclinical levels of PTSD symptoms. The proportion of midwives reporting subclinical levels of PTSD reduced from 10% at T1 to 7% at T2 (Table 4).

### Burnout

Similar to T1, mean total scores were indicative of a moderate level of emotional exhaustion, low level of depersonalisation, and moderate level of personal accomplishment. Findings indicated that the proportions of individuals reporting low, moderate and high levels of emotional exhaustion between T1 and T2 was not significant (McNemar-Bowker (3) = 0.85, p= .837). There was however a significant difference in depersonalisation categories (McNemar- Bowker(3)= 60.63, p<.001). The proportion of individuals reporting low levels of depersonalisation increased from 67% to 80% indicative of a reduced tendency for staff to distance themselves from recipients of care. Personal accomplishment significantly improved (McNemar-Bowker(3)= 8.16, p=.043), with the proportion of individuals reporting levels of high personal accomplishment increasing from 45% to 48%, and the proportion of individuals reporting low personal accomplishment reducing from 28% to 23% (Table 5).

### Professional impacts

There was a general reduction in stress-related professional impacts between baseline and follow-up (Table 3). The proportion of trauma related self-reported stress-related sickness absence had halved from 12% (T1 N= 11) to 5% (T2 N= 4), however this proportion just misses statistically significance (McNemar p= .106). Short-term changes to clinical allocation over time were unchanged (T1 N= 5, 6%; T2 N= 6, 7%; McNemar p= .727). The proportion of those making a long-term change to their clinical allocation reduced from 10% (N= 9) at T1 to 5% (N=4) at T2, but this difference was not significant (McNemar p = .125). In addition, the proportion of midwives who had seriously considered leaving midwifery significantly reduced from 34% (N= 30) at T1 to 27% (N= 24) at T2 (McNemar p= .065). There was a slight reduction in those reporting seriously considering leaving the current organisation; 37% (N= 32) at T1 to 35% (N= 30) at T2, but this was not significant (McNemar p= .804).

### Job satisfaction

Midwives’ attitudes to their professional role were all significantly higher at T2 in comparison to T1, for each domain of professional satisfaction (Z=-3.58, p<.001), professional support (Z= -5.33, p<.001), client interaction (Z= -4.09, p<.001) and professional development (Z= -4.95, p<.001) (Table 6).

# Discussion

The POPPY programme is the first package of resources developed specifically to prevent the development of PTSD in midwifery, and to facilitate the provision of appropriate intervention where required. The POPPY study was not originally intended as powered to detect statistical differences or changes over time, and these preliminary inferences are drawn with recognition of relatively small sub-group analyses.

On entry to the study, almost all (89%) midwives reported that they had experienced a traumatic work-related event at least once during their career, and 14% of participants were reporting clinically relevant levels of PTSD symptomatology. It seems likely that exposure to traumatic events is an inherent aspect of the role and PTSD a potential work related hazard. The integration of POPPY training into mandatory study days removed the potential for self-selection, and therefore findings emphasise that the experience of trauma and PTSD confirm that this is an issue for clinical services. These findings also confirm recent studies highlighting that a significant proportion of midwives experience trauma and consequential PTSD as part of their working lives (Leinweber et al., 2017; Schröder et al., 2017; Wahlberg et al., 2016).

Midwives’ confidence in recognising and managing early responses to trauma in both themselves and their colleagues were enhanced at follow up. This increase in understanding and confidence indicates that the POPPY training workshop may be an effective method of improving midwives’ understanding and ability to self-manage responses to trauma as intended.

There was a trend for lower overall PTSD scores, and fewer midwives reported sub-clinical levels of PTSD symptoms at T2. The provision of training about PTSD and methods of managing early responses, and the ability to access additional sources of appropriate support if needed, may have beneficially impacted midwives’ wellbeing.

There was a reduction in the proportion of midwives reporting moderate or high depersonalisation or distancing towards women in their care. The capacity for a midwife to empathically engage with women is essential for the provision of compassionate care, and to facilitate effective communication throughout the perinatal period. A recent survey in the Netherlands highlighted the importance of communication and clear, supportive interactions from healthcare providers in reducing the likelihood that birth was perceived as traumatic by new mothers (Hollander et al., 2017). Recent NHS guidance plans for a system providing women and their families with greater continuity of carer to facilitate provision of empathic, woman-centred and quality care (NHS England, 2016). Reducing depersonalisation of recipients of care will hold positive implications for midwives’ capacity to provide effective, high-quality and empathic care for women.

Findings highlight the potential for reduced disruption within services, with fewer midwives reporting having taken stress-related absenteeism, making a long-term change to their clinical allocation, or seriously considering leaving the midwifery profession. One interpretation of these findings could be that the workshop and provision of POPPY had positively impacted upon midwives’ coping strategies. Reports indicate that there is currently a deficit of 3500 midwives within UK maternity services (RCM, 2017b). Staff shortages, increasing workload and an inability to have enough time to provide quality care for women leads to more midwives leaving the profession, further exacerbating strain on services (RCM, 2016a, 2017b). Trauma exposure is one aspect contributing to organisational disruption, and findings from this feasibility study suggest that the POPPY programme may hold important benefits for organisations and contribute to service improvement.

Positive impacts at the individual level were identified, with midwives reporting more positive perceptions of their professional role and level of support at work, satisfaction with client interaction, and opportunity for professional development. It has previously been identified that an absence of support, is a key determinant of a midwife’s decision to leave the profession (Ball, Curtis & Kirkham, 2002; RCM, 2017). These findings highlight preliminary impacts that could support retention in midwifery services.

## Implications

There is growing acknowledgement internationally of the need to identify methods of reducing midwives’ distress following trauma exposure (Beck et al., 2016; Cohen et al., 2017; Leinweber et al., 2017a; Wahlberg et al., 2016).

The POPPY programme was developed for midwives but findings may hold relevance for other maternity professional groups where similar levels of trauma exposure may occur (Schröder et al., 2016). A study of obstetricians and midwives in Sweden (n= 706) reported that 43% of obstetricians had experienced a work-related event fulfilling Criterion A1 and A2 of the DSM-IV-TR, and that 7% were reporting symptoms fulfilling PTSD criteria (Wahlberg et al., 2016). Obstetricians reporting partial or probable levels of PTSD were more likely to have changed their location of practice away from delivery suite, having stopped being on call, or changing their allocation to outpatient care (Wahlberg et al., 2016). Given the evidence of parallel impacts, there is a requirement to examine the experiences of obstetricians and gynaecologists further and determine whether, and how, elements of the POPPY programme could be extrapolated for the benefit of this professional group. The ’INDIGO’ study (*Investigation into the experience of traumatic work-related events in gynaecologists and obstetricians*), currently underway, aims to identify the scale and nature of impact in medical professionals and inform the need for and development of appropriate preventative and supportive interventions.

## Limitations

These findings provide preliminary indications of effectiveness as this feasibility study was not powered to detect statistical differences. The response rate of 62% must be noted and the potential for response bias acknowledged. A key symptom of PTSD is avoidance which may have led some POPPY participants experiencing high levels of PTSD to avoid completing a subsequent questionnaire about their symptoms. Impacts were recorded following a relatively short amount of time, and with a small sample of midwives on a single site. Further evaluation of the programme is now warranted to establish feasibility for scalability and ultimately to establish effectiveness via longitudinal evaluation (e.g., a randomised controlled trial including intention to treat analyses ) on a multisite basis.

# Conclusion

Preliminary quantitative evaluation of POPPY indicates potential utility for improving midwives’ understanding and confidence in managing early responses to trauma. Evidence of potential improvements to midwives’ mental health were also detected via reduction in sub-diagnostic levels of PTSD and improved job satisfaction. Lower levels of depersonalisation were also identified with positive implications for the quality of care. There was also reduced service disruption via lower absenteeism, fewer long term changes to clinical allocation and a lower proportion of midwives considering leaving the profession. This is the first programme specifically aimed at preventing PTSD in midwifery, and findings emphasise the value and need for further longitudinal multisite evaluation.

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| Table 1. Demographic, professional experience and designation details for all participants  |
|  |  | Baseline (N=153) | Follow up (N= 91) |
|  |  | M (SD) | Range  | M (SD) | Range |
| Age (years) | 46.01 (0.94) | 23- 69 | 47.29 (10.62) | 23- 70 |
| Qualified (years) | 17.66a (10.89) | 0.3- 46 | 19.21 (11.36) | 0.5- 42 |
| Working clinically (years) | 16.93a (10.78) | 0.3-46 | 18.38 (10.98) | 0.5- 42 |
|  |  | Baseline (N=153) | Follow up (N= 91) |
|  |  | N | % | N | % |
| Gender | Female | 153  | 100.0 | 91  | 100.0 |
|  | Male | 0  | 0 | 0  | 0 |
| Education | Degree level | 55  | 36.2 | 33  | 36.3 |
| Diploma/ certificate | 44  | 28.9 | 15  | 16.5 |
| RM/ SCM | 34  | 22.4 | 28  | 30.8 |
| MSc | 7  | 4.6 | 7  | 7.7 |
| Advanced/ specific qualification | 12  | 7.9 | 8  | 8.2 |
| Missing | 1  |  | 0  |  |
| Main current professional designation | Delivery suite | 38  | 24.8 | 25  | 27.5 |
| MLU | 26  | 17.0 | 12  | 13.2 |
| Maternity Ward | 16  | 10.5 | 9 | 9.9 |
| Antenatal Clinic | 5  | 3.3 | 4  | 4.4 |
| Community Midwifery | 40  | 26.1 | 25  | 27.5 |
| MAU | 6 | 3.9 | 2  | 2.2 |
| Multiple designations/ roles | 6  | 3.9 | 3  | 3.3 |
| Other | 16  | 10.5 | 11  | 12.1 |
| NHS Band | 5- 6 | 122  | 81.3 | 72  | 79.1 |
| 7- 8 | 28  | 18.7 | 19  | 20.9 |
| Missing  | 3  |  | 0 |  |
| Previous GP visit | Yes | 70  | 45.8 | 38  | 41.8 |
| No | 80 | 52.3 | 51  | 56.0 |
| Missing | 3  | 2.0 | 2  | 2.2 |
| Outcome of GP consulation(N= 70)b | Counsellor | 40  | 57.1 | 27  | 71.1 |
| No referral | 20  | 28.6 | 9  | 23.7 |
| Multiple | 6  | 8.6 | 0  | 0 |
| Psychologist | 2  | 2.9 | 1  | 6.8 |
| Other | 2  | 2.8 | 1  | 2.6 |
| Personal prior trauma | Yes | 82  | 93.2 | 45  | 90.0 |
| No | 6  | 6.8 | 5  | 10.0 |
| Missing | 65 |  | 41  |  |
| Note. aN= 152; b% expressed as proportion of respondents indicating ‘yes’ to stem question (previous GP visit) |

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| Table 2. Midwives’ confidence in understanding and managing responses to trauma experiences  |
|  |  | Total sample at baseline (N= 153) | Follow up sample at baseline (N= 87) | Follow up sample at T2 (N= 89) |
|  |  | N (%) | N (%) | N (%) |
| Knowledge of a traumatic event | Very confident | 54 (36.0) | 32 (36.3) | 47 (52.8) |
| Somewhat confident | 86 (57.3) | 50 (56.8) | 40 (44.9) |
| Not very confident | 10 (6.7) | 5 (5.7) | 2 (2.2) |
| Not confident at all | 0 (0) | 0(0) | 0 (0) |
| Missing | 3  |  |  |
| Self-management after experiencing trauma | Very confident | 20 (13.4) | 9 (10.2) | 32 (36.0) |
| Somewhat confident | 81 (54.4) | 50 (56.8) | 51 (57.3) |
| Not very confident | 43 (28.9) | 24 (27.3) | 3 (3.4) |
| Not confident at all | 5 (3.4) | 4 (4.5) | 3 (3.4) |
| Missing | 4  |  |  |
| How best to help a colleague who experienced trauma | Very confident | 18 (12.0) | 9 (10.3) | 29 (32.6) |
| Somewhat confident | 79 (52.6) | 46 (52.9) | 54 (60.7) |
| Not very confident | 46 (30.7) | 28 (32.2) | 5 (5.6) |
| Not confident at all | 7 (4.7) | 4 (4.6) | 1 (1.1) |
| Missing | 3  |  |  |
| Note. % represents proportion of available data.  |

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| Table 3. Proportion of midwives reporting professional impacts |
|  |  | Total sample at baseline (N= 150a) | Follow up sample at baseline (N= 89) | Follow up sample T2 (N= 89) |
| “In the past six months have you:” |  | N | % | N | % | N | % |
| Taken time off sick due to stress | Yes | 16 | 10.7 | 11 | 12.4 | 4 | 4.5 |
| No | 114 | 76.0 | 66 | 74.2 | 76 | 85.4 |
| Strongly considered | 20 | 13.3 | 12 | 13.5 | 9 | 10.1 |
| Changed your clinical allocation on a short-term basis | Yes | 9 | 6.0 | 5 | 5.6 | 7 | 7.9 |
| No | 140 | 93.3 | 83 | 93.3 | 79 | 88.8 |
| Strongly considered | 1 | 0.7 | 1 | 1.1 | 3 | 3.4 |
| Changed your clinical allocation on a long-term basis | Yes | 14 | 9.3 | 9 | 10.1 | 4 | 4.5 |
| No | 135 | 90.0 | 80 | 89.9 | 84 | 94.4 |
| Strongly considered | 1 | 0.7 | 0 | 0 | 1 | 1.1 |
| Seriously considered leaving midwifery  | Yes | 53 | 35.4 | 30 | 33.7 | 24 | 27.0 |
| No | 97 | 64.7 | 59 | 66.3 | 65 | 73.0 |
| Seriously considered leaving current organisation | Yes | 54 | 36.2 | 34 | 38.2 | 32 | 35.9 |
| No | 95 | 63.8 | 55 | 61.8 | 57 | 64.1 |
| Note.a 3 missing |

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| Table 4. Descriptive statistics for scores on the Impact of Event Scale-Revised (IES-R) |
|  | Total sample at baseline (N= 136) | Follow up sample at baseline (N= 88) | Follow up sample T2 (N= 88) |
|  | Mean (SD) | M (SD) | M (SD) |
| Intrusion | 5.64 (6.49) | 5.10 (6.06) | 4.09 (5.87) |
| Avoidance | 4.80 (6.40) | 4.68 (6.30) | 3.60 (5.55) |
| Hyperarousal | 2.39 (3.39) | 2.16 (3.64) | 2.60 (4.52) |
| Total IES-R | 12.83 (15.33) | 11.94 (14.47) | 10.30 (15.52) |
| Clinical cut-off | N (%) | N (%) | N (%) |
| ≥33 | 19 (14.0) | 10 (11.0) | 11 (12.5) |
| <33 | 117 (86.0) | 81 (89.0) | 77 (87.5) |
| Subclinical cut-off | N (%) | N (%) | N (%) |
| ≥22 | 30 (22.1) | 19 (21.6) |  17 (19.3) |
| <22 | 106 (77.9) | 69 (78.4) |  71 (80.7) |
| Subclinical only  | N (%) | N (%) | N (%) |
|  |  | 9 (10.2) | 6 (6.8) |
|  |  | 69 (78.4) | 71 (80.7) |

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| Table 5. Descriptive statistics for scores on the Maslach Burnout Inventory (MBI) |
|  |  | Total sample at baseline (N= 153) | Follow up sample at baseline (N= 87) | Follow up sample at T2 (N= 87) | Comparison baseline and T2 for follow up sample (N= 87) |
| Emotional Exhaustion | M (SD) | 23.20 (11.70) | 23.35 (11.40) | 22.34 (10.63) |  |
| Depersonalisation | M (SD) | 4.60 (4.38) | 4.73 (4.08) | 4.63 (4.57) |  |
| Personal Accomplishment | M (SD) | 35.65 (8.04) | 35.51 (7.69) | 36.13 (8.34) |  |
| **Category** |  |  |  |  |  |
| Emotional Exhaustion | High N (%) | 59 (38.6) | 32 (36.8) | 30 (34.5) |  |
| Moderate N (%) | 41 (26.8) | 27 (31.0) | 28 (32.2) | *p*= .837 |
| Low N (%) | 53 (34.6) | 28 (32.1) | 29 (33.3) |  |
| Depersonalisation | High N (%) | 10 (6.5) | 5 (5.7) | 10 (11.6) |  |
| Moderate N (%) | 36 (23.5) | 24 (27.6) | 7 (8.1) | *p*<.001\* |
| Low N (%) | 107 (69.9) | 58 (66.7) | 69(80.2) |  |
| Personal Accomplishment | High N (%) | 67 (43.8) | 39 (44.8) | 42 (48.3) |  |
| Moderate N (%) | 44 (28.8) | 24 (27.6) | 25 (28.7) | *p*=.043\* |
| Low N (%) | 41 (27.5) | 24 (27.6) | 20 (23.0) |  |

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| Table 6. Descriptive statistics for scores on the Attitudes to Professional Role Scale  |
|  | Total sample at baseline(N= 151) | Follow up sample at baseline(N= 85) | Follow up sample at T2(N= 85) |
|  | Range | Mean (SD) | Range | Mean (SD) | Range | Mean (SD) |
| Professional satisfaction | -1 – 1.83 | .52 (.61) | -1.00- 1.83 | .47 (.57) | -.67- 1.83 | .75 (.58) |
| Professional support | -1.8- 1.40 | -.17 (.68) | -1.80- 1.20 | -.22 (.66) | -1.40 – 1.93 | .21 (.61) |
| Client interaction | -0.8 – 1.40 | .28 (.44) | -.80- 1.40 | .28 (.45) | -.60- 2.00 | .68 (.70) |
| Professional development | -1.50 - 2 | .17 (.75) | -1.25 – 2.00 | .13 (.74) | -.75 – 1.75 | .55 (.62) |