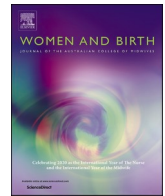




Contents lists available at ScienceDirect

Women and Birth

journal homepage: www.sciencedirect.com/journal/women-and-birth

Original research

Evaluation of a pilot online education program to develop midwives' knowledge, skill and confidence in perinatal mental health in rural South Australia

Lois McKellar^{a,*,1}, Lee Martinez^b, Tiffany De Sousa Machado^c, Amye Eden^d, Cathy Stoodley^d, Pam Adelson^e

^a School of Health and Social Care, Edinburgh Napier University, United Kingdom

^b UniSA Department of Rural Health, University of South Australia, Australia

^c Adelaide Business School, The University of Adelaide, Australia

^d UniSA Health and Clinical Sciences, University of South Australia, Australia

^e Rosemary Bryant (AO) Research Centre, University of South Australia, Australia

ARTICLE INFO

Keywords:

Rural /regional
Midwife
Perinatal mental health
Education

ABSTRACT

One in five women will experience perinatal anxiety and/or depression. In South Australia, a rural health service identified a high proportion of women with risk of perinatal mental health challenges and sought additional education for midwives. In response, a six-week facilitated, online perinatal mental health education program (e-PMHEP) was piloted.

Aim: The aim of this study was to evaluate the effectiveness of the (e-PMHEP) for rural midwives, nurses and Aboriginal maternal infant care practitioners.

Method: Program evaluation incorporated a validated online pre/post survey to assess self-reported knowledge, skill and confidence regarding perinatal mental healthcare. Additional questions sought feedback on satisfaction and feasibility.

Findings: Sixteen participants from rural South Australia engaged in the project from June to August 2022. Twelve participants completed the online pre/post survey. The overall pre/post knowledge scores were statistically significant ($t = 2.73, 8df, p = 0.025$) with improvement from the pre to post-test. Pre/post data also showed a measurable increase in confidence and skills. All respondents agreed that the content addressed their learning needs and would recommend this program to other practitioners.

Discussion: The e-PMHEP appeared beneficial in developing knowledge, skills and confidence regarding perinatal mental healthcare in rural midwives and practitioners. Only a third of practitioners routinely developed a mental health care plan with women. Key strengths of the program included the accessible content, and the combination of an experienced mental health clinician and a facilitator with lived experience.

Conclusion: Providing an accessible, facilitated online perinatal mental health education program could be beneficial for rural midwives.

Statements of Significance

Problem or Issue

Some midwives lack knowledge, skill and confidence in providing perinatal mental healthcare and there have been limited options for perinatal mental health education in rural areas.

What is Already Known

Approximately one in five women experience perinatal mental health challenges. This is often exacerbated in rural/regional areas, with practitioners reporting an increase in presentation of perinatal mental distress in rural maternity services.

What this Paper Adds

* Corresponding author.

E-mail address: l.mckellar@napier.ac.uk (L. McKellar).

¹ ORCID: 0000-0001-7490-2478

<https://doi.org/10.1016/j.wombi.2023.11.005>

Received 4 April 2023; Received in revised form 23 November 2023; Accepted 23 November 2023

1871-5192/© 2023 The Author(s). Published by Elsevier Ltd on behalf of Australian College of Midwives. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Facilitated online perinatal mental health education would be beneficial for rural midwives.

Background and aims

The perinatal period encompasses significant transition and is associated with increased risk of onset or relapse of mental health conditions [1]. It is difficult to know exactly how many women and their families experience perinatal mental health issues, particularly following the COVID pandemic [2]. However, research reports that one in five women will experience anxiety and/or depression during pregnancy or in the year following birth [3]. Perinatal mental illness can have enduring adverse effects on women, their children and families, incurring substantial ongoing economic and personal costs [4,5]. It is estimated that perinatal mental illness costs the Australian government over \$800 million annually [6]. A significant proportion of the cost of perinatal depression relates to adverse impacts on the child, most likely mediated through impairment to the mother-infant relationship [7]. Anxiety and depression are also often misattributed to aspects of pregnancy (e.g., hormones) or having a baby (e.g., adjustment, sleep deprivation). Being aware of symptoms, referral pathways and effective treatments is critical for health professionals caring for women in the perinatal period [8].

To promote early access to mental health care, screening for perinatal mental distress/illness has been a part of routine antenatal care in Australia since 2011 [9]. In South Australia, midwives and other maternity care providers are advised to use the Antenatal Risk Questionnaire (ANRQ) to assess for psychosocial risk factors in women as early as possible in pregnancy, together with the Edinburgh Postnatal Depression Scale (EPDS) to screen for possible depressive symptoms [10,11]. National recommendations for practice also include enquiry after the woman's emotional wellbeing at every therapeutic encounter, and repeat screening at least once later in pregnancy and within the first six weeks after birth [8]. Women who have psychosocial vulnerabilities or are identified as experiencing mental distress should be offered referral to specialised or supportive services relevant to their unique needs [12].

Current evidence favours the overall benefits of perinatal mental health screening, as it can provide an opportunity for prevention, early detection and treatment of distress and illness and is associated with improved perinatal outcomes [13]. However, both midwives and women contend with barriers to using these tools [5], and approximately 21 % of women in Australia are not currently being screened according to national guidelines [14]. Research indicates that whilst midwives are interested in providing women mental healthcare, most lack knowledge, skill and confidence [5,15]. Additionally, referral as a form of practice is complicated by a lack of practitioner knowledge and skill [16,17].

These challenges are often exacerbated in rural and remote communities where access to perinatal mental health care for expectant mothers and their families is limited [18,19]. A recent study, which included 806 women from across Victoria and Western Australia, concluded that postnatal depression is higher in women living in rural communities and the further a woman is from the metropolitan and/or regional services, the less likely they are to receive specialist care [19]. Anecdotally, similar findings were reported in regional South Australia where a community midwife identified a high number of women disclosing perinatal mental distress and difficulties finding appropriate support. This led to a desktop review of antenatal screening from September to December 2020 in which the ANRQ scores were collected. Of the 138 perinatal women who attended the service in this four-month period, 56 women had ANRQ scores recorded in the data collection book. It is believed the scores of the remaining women were recorded in their case notes; however, this was not retrieved. The demographics of the women presenting were from a variety of backgrounds. The results showed 26 of the 56 women (46.2 %) scored greater than or equal to 24

on the ANRQ Questionnaire. This represented a significant proportion of women presenting with potential risk of perinatal mental health challenges.

Following the desktop review, midwives from the health service identified a need for further education and support providing care to women with perinatal mental health needs. In their review, Coates et al. [5] suggested that the deficit in families receiving the support required could be addressed with appropriate training and organisational support and there is some evidence that midwife-led counselling interventions are effective [5]. However, there are limited options for education that addresses the specific learning needs of midwives providing perinatal mental healthcare in rural settings often due to geographical distance, in/direct costs and ineffective locum relief programs [20] as well as a lack of spatially informed content [21]. In response to this, the Upper Eyre Local Health Cluster (a rural health advisory group) sought funding to develop, implement and evaluate an online perinatal mental health educational program (e-PMHEP).

The e-PMHEP is a new program developed in collaboration with The Village Foundation and the University of South Australia (UniSA) and UniSA, Department of Rural Health, to deliver education to maternity care practitioners working in rural areas. The Village Foundation is an organization that offer support and education to parents and families. The program development team consisted of midwives with perinatal mental health expertise and mental health practitioners. The program was designed to address identified perinatal mental health education needs and to situate the education within the rural context. The content was informed by current evidence and practice guidelines, and consultation with the advisory committee (distinct from the development team). The advisory committee consisted of midwives, mental health practitioners, rural nurses, community and lived experience members. The six-module program was delivered utilising virtual technology by a trained lived experience facilitator and an experienced rural mental health nurse and midwife. Each session was approximately one hour long. Resources, videos and participant workbooks were provided via a purpose designed website. A brief overview of topics addressed are presented in Fig. 1.

The aim of this study was to evaluate the effectiveness of the e-PMHEP in developing perinatal mental health knowledge, skills and confidence in midwives and practitioners providing perinatal care to women in a rural local health network.

Methods

Evaluation of the e-PMHEP incorporated a pre/post survey design to assess midwives/practitioners self-reported knowledge, skill, and confidence regarding perinatal mental health care before and after the education program. An additional e-questionnaire was included in the post survey which sought feedback on the satisfaction and feasibility of the e-PMHEP.

Pre and post survey design

A validated e-survey instrument utilized in the Mind Mothers, multi-site study in Ireland was used for this study [22]. The survey incorporated a combination of binary (yes/no), categorical, Likert scale, and open-ended questions. It collected the following data: Demographic data; contact with and caseload of women with perinatal mental health problems; knowledge of perinatal mental health (19 items); skill in perinatal mental health care (35 items); overall skill and confidence in perinatal mental health care (2 items); perinatal mental health practices (23 items); previous perinatal mental health education; perinatal mental health services and guidelines (6 items); and educational and practice priorities (2 open-ended questions). Written permission was granted to use the survey from the instrument developer.

The survey was administered prior to beginning the program and following completion of the final session. The data was deidentified and

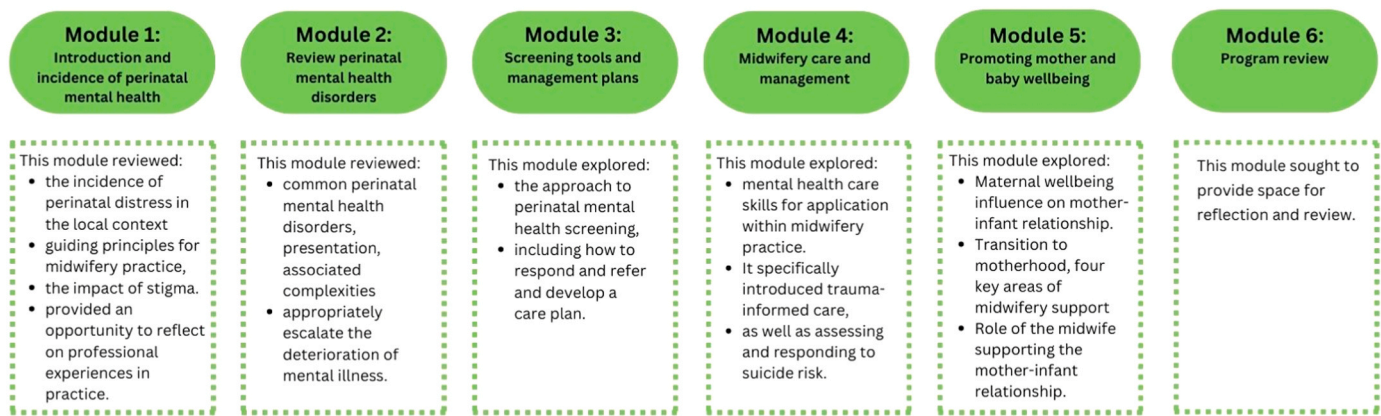


Fig. 1. Overview of content for the e-PHMSP program.

required participants to select a code name to match survey data, and not linked to any personal identifiers for the pre and post survey collection.

Purpose designed questionnaire

A purpose designed anonymous e-questionnaire collected feedback on the program regarding: satisfaction, accessibility, engagement, benefits, what worked well and what needs further improvement. It also identified further knowledge gaps and/or education needs. The questionnaire consisted of Likert scale and open-ended questions.

Participants

Midwives and practitioners employed in two South Australian regional/rural health services were invited to participate in the study. The researchers initially aimed to only recruit midwives but extended this to nurses and Aboriginal Maternal Infant Care (AMIC) practitioners working with perinatal women due to local interest. In total there were 40 potential practitioners invited to participate. The e-PMHEP was promoted through the local health network communication process and an invitation email sent via the Nursing Unit Managers of the health services to midwives/nurses/AMIC practitioners. This was followed up by a Zoom meeting hosted by the Regional Nurse Educator for each site and two members of the research team to explain the program and evaluation. Interested practitioners were emailed the participant information sheet and a link to complete an online consent form prior to commencing the e-PMHEP and evaluation surveys. Participants were provided a certificate of completion as evidence of continuing professional development.

Surveys were distributed via Survey Monkey© and analysed using the software Stata v17 [23] for paired t-tests, and confidence intervals for pre/post education differences in participants' mean skill, confidence, and knowledge scores. Open-ended responses were reviewed by the authors for feedback to improve the program and reported through verbatim quotations.

Ethical approval was gained from the Women's and Children's Health Network Human Research Ethics Committee no. 2022/HRE00017.

Findings

Pre questionnaire

The program was implemented over six weeks from the 16th of June to 21st July 2022. Participants were emailed a link to the questionnaire one week before the program commenced and 16 participants completed the pre-questionnaire, however only 14 participants

commenced the program (14/40) of potential participants). Of the 16 who completed the pre-questionnaire, 11 were registered midwives and/or registered nurses and 3 were Aboriginal Maternal Infant Community practitioners. two selected 'other'. Age ranged from between 25 to over 55 years (Table 1). Seven (44 %) respondents indicated being in practice for more than 21 years with only two (12 %) less than 5 years. The majority of respondents had certificate level education (Table 1).

Ten (62 %) participants identified having some form of education on perinatal mental health prior to undertaking this program but six (38 %) had not. A variety of responses were provided to indicate where participants had received this education, the highest percentage (40 %, n = 6) identified this education was from their pre-registration midwifery program, 27 % (n = 4) identified a designated study day, 20 % (n = 3) gained knowledge through self-directed learning and 20 % (n = 3) from a colleague. Two of the AMIC practitioners identified having received education during their training program.

Participants were also asked about their knowledge of whether their organisation had perinatal mental health policies and procedures in place. The response category options were 'yes', 'no', 'I don't know'. Whilst 69 % (n = 11) indicated that there were policies or guidelines on perinatal mental health within their service nearly 31 % (n = 5) either did not know or reported an absence of policies or guidelines on perinatal mental health. Eighty percent (n = 12) stated there was a designated place in the woman's record to document a health history but only 44 % (n = 7) indicated that there was a place in the women's record to document a mental health plan of care with the woman. While 73 % (n = 11) identified that there were care pathways for women experiencing a mental health problem only 37 % (n = 6) reported that there was access to specialist perinatal health services.

Post questionnaire

Twelve participants completed the post-questionnaire within five weeks of completing the program (21 July to 28 August 2022), of those

Table 1
Age range and education level.

Please select your age range.		
	n = 16	%
25 – 34 years	4	25.00
35 – 44 years	4	25.00
45 – 54 years	2	12.50
55 years and over	6	37.50
Please tick your highest level of education.		
Certificate	9	56.25 %
Diploma	0	0.00 %
University Degree	3	18.75 %
Postgraduate diploma	4	25.00 %
Post-graduate degrees	0	0.00 %

who completed the post questionnaire eight were registered as a midwife and nurse, one was a midwife, one was a nurse, two were AMIC practitioners. All responders provided care for women with perinatal mental health challenges in their current role, with one third indicating they had each cared for more than six women experiencing mental health issues in the past six months. Participants were asked about the type of activities they undertook in their current role (Table 2).

Participants were asked to identify what they asked women about during a mental health assessment (Table 3).

For pre-post education significance testing, only nine participants were able to be matched for comparison with their code name or Internet Protocol (IP) address. Three could not be compared because the participant had forgotten their code name or used a code name different from their original. Pre and post-test mean scores were compared for normality with the Shapiro-Wilk test prior to paired t-testing, with normality confirmed. Pre and post data suggests a measurable increase in knowledge, skills and confidence. Participants were asked to rate their knowledge on 19 aspects of perinatal mental health on a scale from 1 (not at all knowledgeable) to 5 (very knowledgeable). The overall pre-post self-rated knowledge scores were statistically significant ($t = 2.73, 8df, p = 0.025$) with improvement from the pre-testing mean score of 41.55, std 12.34 to the post-testing score of 60.33, std 12.76.

Participants were asked to rate their skill in undertaking 35 aspects of perinatal mental health care on a scale from 1 (not at all skilled) to 5 (very skilled). The 35 activities addressed six subthemes: opening a discussion with women; providing support to women; developing a plan of care; discussing the need for referral; providing support to partners/family members; and asking colleagues for advice or assistance. The pre and post data suggest a measurable increase in skill (Table 4).

The overall pre to post scores in relation to skill and confidence in perinatal mental health care were also statistically significant with improvement from the pre-testing mean score (Table 5). Additionally, respondents were asked specifically, 'do you think the program contributed to you feeling more confident in your role providing

Table 2
Activities undertaken in current clinical practice.

Please indicate if you undertake the following activities in your current clinical practice.	Yes		No		Not part of my role	
	n	%	n	%	n	%
n = 12						
Include mental health as a dimension of the assessment you complete with women	10	83.33	1	8.33	1	8.33
Identify women's protective/coping strategies for maintaining mental health	9	75.00	3	25.00	0	0.00
Identify women at risk of perinatal mental health problems	12	100.00	0	0.00	0	0.00
Ask woman about their past mental health history/diagnosis	11	91.67	1	8.33	0	0.00
Discuss the nature of perinatal mental health problems with women	10	83.33	2	16.67	0	0.00
Discuss women's concerns related to psychopharmacology in pregnancy and breastfeeding	10	83.33	1	8.33	1	8.33
Provide information on perinatal mental health problems to women's partners/family	10	83.33	2	16.67	0	0.00
Use mental health tools to screen for or assess mental health problems	9	75.00	3	25.00	0	0.00
Develop a care plan with women who have a pre-existing mental health diagnosis	4	33.33	6	50.00	2	16.67
Refer women to mental health services	11	91.67	0	0.00	0	0.00
Refer women with mental health issues to child protection services (indirectly through social worker or directly)	10	83.33	1	8.33	1	8.33

Table 3
What women are asked during a mental health assessment.

Please indicate if you ask women about the following when you complete a mental health assessment.	Never ask a woman		Ask women that have mental health risk factors		Ask all women		I do not complete a mental health assessment	
	n	%	n	%	n	%	n	%
n = 12								
Experience of mood disorders (depression, bipolar affective disorder)	2	16.67	4	33.33	5	41.67	1	8.33
Experience of psychosis	4	33.33	3	25.00	3	25.00	2	16.67
Experience of intimate partner violence	5	41.67	4	33.33	1	8.33	2	16.67
Experience of sexual abuse/sexual violence	6	50.00	2	16.67	2	16.67	2	16.67
Experience of eating disorders	5	41.67	4	33.33	1	8.33	2	16.67
Experience of anxiety/panic/OCD disorder	2	16.67	3	25.00	5	41.67	2	16.67
Past and current alcohol use	3	25.00	2	16.67	6	50.00	1	8.33
Past and current substance use	3	25.00	2	16.67	6	50.00	1	8.33
Self-injury/suicidal thoughts/behaviour	1	8.33	7	58.33	2	16.67	2	16.67
Past trauma/grief/loss experiences	3	25.00	2	16.67	5	41.67	2	16.67
Usual mental health coping strategies	2	16.67	2	16.67	6	50.00	2	16.67
Psychological support available to them	3	25.00	2	16.67	5	41.67	2	16.67

Table 4
Pre-post questions on skill (sub-themes 1–6).

Sub-themes	Pre-test score n = 9	Post-test score n = 9	Mean difference, 95 %CI, statistical significance*
Subtheme 1. Opening a discussion; Anxiety, self-injury, eating behaviours, etc (8 statements, score 8–40)	16.11	22.0	5.88 (1.33–10.44 CI) $t = 2.98, 8df, p = 0.017^*$
Subtheme 2. Providing support to women (5 statements, score range 5–25)	14.11	17.77	3.66 (–0.47 to 7.80) $t = 2.04, 8df, p = 0.075$
Subtheme 3. Providing support to partners (5 statements, score range 5–25)	13.66	18.11	4.44 (–0.93 to 9.82) $t = 1.90, 8df, p = 0.093$
Subtheme 4. Developing a plan of care with women (7 statements, score range 7–35)	14.11	22.33	8.22 (2.89–13.544) $t = 3.56, 8df, p = 0.007^*$
Subtheme 5. Discussing with women consulting (6 statements, score range 6–30)	18.66	23.44	4.77 (–0.65 to 10.21) $t = 2.028, 8 df, p = 0.077$
Subtheme 6. Asking for advice on mental health issues (4 statements, score range 4–20)	16.11	17.55	1.44 (.052–2.83) $t = 2.39, 8df, p = 0.043$

* statistically significant

perinatal mental health care? All respondents agreed that the program contributed to their confidence in providing perinatal mental health care with 42 % (n = 5) agreed that the program 'significantly' contributed to their confidence and the remaining 58 % (n = 7) stating it 'moderately' contributed.

Table 5
Pre-post scores in relation to skill and confidence in perinatal mental health.

Questions	Pre -test score n = 9	Post- test score n = 9	Mean difference, 95 % CI, statistical significance
Overall, how skilled are you in relation to your activities in perinatal mental health care? Please rate it on a scale from 1 (not at all skilled) to 10 (very skilled)	4.77	6.33	1.55 (0.27–2.83) t = 2.80, 8df, p = 0.023*
Overall how confident are you in relation to your activities in perinatal mental health care? Please rate it on a scale from 1 (not at all confident) to 10 (very confident).	4.33	6.11	1.77 (0.51–3.03) t = 3.24, 8df, p = 0.011*

Program evaluation data

Of the twelve participants, 91 % (n = 11) completed at least four sessions with 42 % (n = 5) attending five or more sessions, one person attending three sessions only. Respondents were asked how beneficial the program was to their role, 75 % (n = 9) indicated very beneficial (highest choice) and the remaining 25 % (n = 3) moderately beneficial. Comments on what was most beneficial included:

Group discussions, learning from lived experiences (P1)

Because the groups in general was [sic] small it allowed for great team discussions and being able to have all different experiences on the table (P6)

Referral pathways and services made [available] locally to our women. (P9)

The reflections on my own practice. It made me view situations I've experienced with more knowledge. This makes me feel like I would do a better job next time faced with similar situations (P11)

All respondents agreed that the content specifically addressed their learning needs. When asked whether there were barriers to attending the course, only 11 responded, with 73 % (n = 8) indicating no. Respondents provided feedback on barriers which were mostly due to work related commitments and not having protected time to attend.

Respondents were asked about the effectiveness of using an online environment for delivering the program, 91 % (n = 11) found the online environment very/moderately effective, however most indicated that they had some difficulties connecting at times. This was mostly related to connecting to the platform, but comments indicated this was quickly resolved. Additionally, some respondents identified that not all links within the program worked. Respondents were asked what they believed was the best way to provide education to midwives, 67 % (n = 8) suggested that a combination of online and face-to-face would be ideal. All respondents agreed that the six-week length of the program was appropriate, however when asked about the length of each session, 42 % (n = 5) felt that sessions were too short, the remaining 58 % (n = 7) agreed they were appropriate.

All respondents commented that the program had achieved the intended aims with several responses commenting on the length of sessions:

'It has given me vital information and support in an area that I have had minimal exposure too. I had difficulty in knowing where to get information from. It was good talking to other midwives' (P8)

'I do feel that the sessions were too short...the content was excellent but not enough time to explore each topic and hear of the midwives' challenges in their day-to-day practice (P10)

Respondents were asked to indicate which modules they found most beneficial with the introduction and review identified least beneficial (Table 6).

Respondents were asked what additional topics they would have like covered; these included pharmacology, adolescent women, understanding the role of the local mental health services and developing skills in asking hard questions.

Respondents were asked to rate the quality of the facilitation using a 5-star rating, with 5-stars representing excellent. The program received a 4.75 star rating, 75 % (n = 8) rated it as excellent and the remaining 25 % (n = 4) rating it as very good (4 stars). All participants indicated they would recommend this program to other practitioners. Open-ended comments were used to gain feedback on what worked best and what didn't work so well, comments included:

I liked the combination of learning and then group to discuss issues as we all have a different approach (P8)

Combination of lived experience and skilled clinician as co-facilitators (P10)

I enjoyed the week to read the information and do the reflections (P11)

The technology let the program down a little, teams was not a good platform (P6)

Discussion

This study sought to evaluate the effectiveness of an online perinatal mental health education program (e-PMHEP). The pre and post data showed a statistically significant increase in knowledge, confidence and skills and all respondents agreed that the program contributed to their ability in providing perinatal mental health care. These findings suggest that the e-PMHEP is beneficial in developing knowledge, skills and confidence in midwives and practitioners providing perinatal mental healthcare to women in a rural local health network.

The survey identified topics which participants did not discuss with the women, and this could inform future education and focus. Approximately, one quarter of the participants identified that they never ask a woman about past trauma/grief/loss experiences and the psychological support available to them, and between 40 % and 50 % of participants reported that they did not ask all women about experience of intimate partner violence, sexual abuse/sexual violence and disordered eating. Australian data suggest that 18 % of women have experienced sexual violence and 17 % have experienced intimate partner violence from a current or previous partner [24]. There is evidence that the risk of intimate partner violence increases during pregnancy and following birth [25]. A policy report prepared for the Australian government estimated that 25 % of women first experienced violence during pregnancy [26]. Additionally, violence and sexual abuse is associated with higher incidence of depression, anxiety and post-traumatic stress syndrome [27]. In a recent systematic review, Brunton and Dryer [28] concluded that women with a history of childhood sexual abuse had more adverse experiences throughout the perinatal period. Midwives are well placed to ask women about these experiences as they have a

Table 6
Which modules did you find most beneficial? (Respondents could select more than one).

	n = 12	%
Module 1: Introduction and incidence of perinatal mental health	4	33.33 %
Module 2: Review perinatal mental health disorders	9	75.00 %
Module 3: Screening tools and management plans	7	58.33 %
Module 4: Midwifery care and management	11	91.67 %
Module 5: Mother and baby well-being	9	75.00 %
Module 6: Program review	3	25.00 %

primary role in assessing perinatal mental health risk and initiating support, interventions and/or referral [29]. Providing appropriate and accessible education will support practitioners to gain competence and confidence in this role. [30]. Importantly, it was noted that almost 60 % of participants asked women with mental health risk about suicide. This is important as suicide remains one of the leading causes of death in the perinatal period and recommendations include universal screening for suicide as part of the perinatal mental health assessment [31].

In this study, one third of participants working with women who experience disruption to perinatal mental health had not undertaken previous perinatal mental healthcare training, and 40 % of those who had previous training gained this in their undergraduate midwifery program only. Significantly, only 33 % of participants stated that they developed care plans with women with pre-existing mental health diagnoses. These findings are consistent with wider research, in which practicing midwives report limited access to professional development to provide mental healthcare [29] and midwifery students describe a lack of preparedness in relation to perinatal mental illness [32]. Although perinatal mental health courses are increasingly embedded in pre-registration midwifery programs, opportunities for students to gain practical experience in mental healthcare are limited [33]. A review of current undergraduate midwifery education relating to perinatal mental health would be beneficial [32] to identify and embed strategies to support student skill development, such as simulation [33]. There is also a need for accessible education beyond the pre-registration degree to ensure that midwives and other health care practitioners are equipped with knowledge and skills to provide care and support for women experiencing challenges in mental health [34]. For example, in addition to screening and referral, it is increasingly suggested that midwives could provide basic counselling [5]. Professional development should take into account the unique contours of perinatal mental healthcare in rural settings [21].

Feedback regarding the program for content, accessibility, engagement, benefits, what worked well and what needs further improvement was overall positive. Participants found the online forum mostly accessible and commented on the benefit of weekly sessions. This enabled consecutive learning and provided a forum to share openly with colleagues. Participants also noted the benefit of the program being facilitated by a combination of practitioners with clinical experience and lived experience. Postelnik and colleagues [35] reported that using lived experience facilitators can enhance learning outcomes, finding that participants could connect to the content and gain greater insights. They can also act as a bridge connecting the experiences of service users with the experiences of service providers [36]. Engaging lived experience facilitators may enhance understanding and delivery of sensitive content related to mental wellbeing [36]. In a recent Dutch study, trainee psychiatrists reported that disclosure of mental health challenges during peer supervision sessions was beneficial and that sharing personal experiences provided a positive role model and contributed to reducing stigma [37]. Notably, the Australian Government guidelines on the lived experience workforce, recommend that lived experience should be at the heart of mental health care reforms [38].

A challenge experienced by participants was securing protected time to undertake the program, as most participants engaged in the program while at work during allocated education time. They also commented that while six weeks was adequate to cover the objectives, each session could have been longer to enable more critical discussion and deeper learning. There is a need to invest in education on perinatal mental health and to ensure that adequate time is considered to address an often complex and challenging aspect of maternity care. Alongside this, participants asked for more education on psychopharmacology and more focus on developing communication skills required to ask challenging questions. Previous studies have found that training in communication and/or counselling skills improve the confidence and competence of midwives in identifying and responding to women with psychosocial issues in the perinatal period [39,40].

Limitations

This is a pilot study with a small sample size and therefore while there was a statistically significant difference between knowledge, skills and confidence pre and post survey in this cohort, the findings cannot be generalised. The program was initially developed for midwives and some of the participants may not have had the same level of education. Additionally, the pilot program was only offered to public sector staff, it would be beneficial to include those in private practice and non-government sector. The Mind Mothers survey had undergone face validity but had not reported reliability, it is recommended that this survey is further validated.

Conclusion

There is a need for perinatal mental health education for midwives and practitioners working in rural Australia. The results of the pilot e-PMHEP suggest that providing an online, facilitated education program could be beneficial for midwives. Key strengths of the program included the accessible content, and the combination of both an experienced clinician and a lived experience facilitator. There is a need to ensure that midwives and other practitioners who engage with women through the perinatal period are provided time and resources to increase their knowledge, confidence and skills to support women experiencing a disruption in perinatal mental health. This study also provided baseline data on a small number of midwives knowledge skills and confidence regarding caring for women with perinatal mental health needs. It is recommended that a further study utilising the Mind Mother survey is undertaken across a range of sites with a larger sample size.

Conflict of Interest

None declared.

Acknowledgements

The authors acknowledge The Upper Eyre Local Health Cluster Committee members who formed the advisory panel for the project, Ms Carol-Ann Stanborough Mental Health Nurse and Midwife, (clinical facilitator) for her local knowledge and extensive experience of working in rural Australia and abroad. We also acknowledge the Country SA Primary Health Network for providing the funding for the program, via the Upper Eyre Local Health Cluster. The Flinders and Far North Local Health Network is acknowledged for their support of midwives, nurses, nurse unit managers and AMIC workers to attend the program. Finally, the contribution of the midwifery and mental health clinicians and academics for their participation in the development of the webinars and those with a lived experience of perinatal mental health who assisted with the development and facilitation of the program.

References

- [1] L. Howard, H. Khalifeh, Perinatal mental health: a review of progress and challenges, *World Psychiatry* 19 (3) (2020) 313–327.
- [2] Papworth R., Harris A., Durcan G. Wilton J., Sinclair S. Maternal mental health during a pandemic: A rapid evidence review of Covid-19's impact. Centre for Mental Health March. 2021 [cited 2023 February]:1–54. Available at https://maternalmentalhealthalliance.org/wp-content/uploads/CentreforMH_MaternalMHPandemic_FullReport.pdf.
- [3] K. Yang, J. Wu, X. Chen, Risk factors of perinatal depression in women: a systematic review and meta-analysis, *BMC Psychiatry* 22 (2022), 63, <https://doi.org/10.1186/s12888-021-03684-3>.
- [4] K. Hazell Raine, K. Thorpe, P. Boyce, Perinatal depression screening in Australia: a position paper, *Nurs. Health Sci.* 23 (1) (2021) 279–287, <https://doi.org/10.1111/nhs.12793>.
- [5] D. Coates, M. Foureur, The role and competence of midwives in supporting women with mental health concerns during the perinatal period: a scoping review, *Health Soc. Care Community* 27 (4) (2019) e389–e405. DOI:10.1111/hsc.12740.
- [6] PWC. The cost of perinatal depression and anxiety in Australia, Price WaterHouse, Australia 2019 [cited February 2023]. Available at <https://www.pwc.com/au/en/issues-and-insights/articlespublications/the-cost-of-perinatal-depression-and-anxiety-in-australia.html>.

- perinatalwellbeingcentre.org.au/Handlers/Download.ashx?IDMF=53aab8d3-c748-4818-abab-32a58d3c510f.
- [7] K. Raine, K. Thorpe, P. Boyce, Perinatal depression screening in australia: a position paper, *Nurs. Health Sci.* 23 (1) (2021) 279–287.
- [8] Austin M.-P., Highet N. and the Expert Working Group. Mental Health Care in the Perinatal Period: Australian Clinical Practice Guidelines. Melbourne, Centre of Perinatal Excellence 2017 [cited February 2023]. Available at (https://www.cope.org.au/wp-content/uploads/2018/05/COPE-Perinatal-MH-Guideline_Final-2018.pdf).
- [9] P. Forder, J. Rich, S. Harris, C. Chojenta, N. Reilly, M. Austin, D. Loxton, Honestly and comfort levels in mothers when screened for perinatal depression and anxiety. *Women Birth* 33 (2) (2020) e142–e150, 11.
- [10] SA Health. South Australian Perinatal Practice Guidelines: Anxiety and Depression in the Perinatal Period. SA Health 2019 [cited February 2023]. Available at (https://www.sahealth.sa.gov.au/wps/wcm/connect/c7c0ccf9-b704-4411-9b47-fbf777ac0829/Anxiety+and+Depression+in+the+Perinatal+Period_PPG_v1_0.pdf?MOD=AJPERES&CACHEID=ROOTWORKSPACE-c7c0ccf9-b704-4411-9b47-fbf777ac0829-nGzKlbc).
- [11] Black Dog Institute (BDI). Antenatal Risk Questionnaire. BDI 2011 [cited February 2023]. Available from (<https://www.blackdoginstitute.org.au/wp-content/uploads/2020/04/anrqlclinicians.pdf>).
- [12] M. Austin, N. Reilly, E. Dobson, D. Loxton, L. Tooth, G. Mishra, The need to evaluate public health reforms: Australian perinatal mental health initiatives, *Aust. N. Z. J. Public Health* 36 (3) (2012) 208–211.
- [13] N. Reilly, D. Kingston, D. Loxton, K. Talcevska, M. Austin, A narrative review of studies addressing the clinical effectiveness of perinatal depression screening programs, *Women Birth* 33 (1) (2020) 51–59.
- [14] K. Moss, N. Reilly, A. Dobson, D. Loxton, L. Tooth, G. Mishra, How rates of perinatal mental health screening in Australia have changed over time and which women are missing out, *Aust. N. Z. J. Public Health* 44 (4) (2020) 301–306.
- [15] Y. Hauck, G. Kelly, M. Dragovic, J. Butt, P. Whittaker, J.C. Badcock, Australian midwives' knowledge, attitude and perceived learning needs around perinatal mental health, *Midwifery* 31 (1) (2015) 247–255, <https://doi.org/10.1016/j.midw.2014.09.002>.
- [16] H. Makregiorgos, L. Joubert, I. Epstein, Maternal mental health: pathways of care for women experiencing mental health issues during pregnancy, *Soc. Work Health Care* 52 (2–3) (2015) 258–279.
- [17] C. Viveiros, E. Darling, Perceptions of barriers to accessing perinatal mental health care in midwifery: a scoping review, *Midwifery* 70 (2019) 106–118.
- [18] S. Ginja, K. Jackson, J.J. Newham, et al., Rural-urban differences in the mental health of perinatal women: a UK-based cross-sectional study, *BMC Pregnancy Childbirth* 20 (2020), 464, <https://doi.org/10.1186/s12884-020-03132-2>.
- [19] M. Galbally, S. Watson, M. Coleman, P. Worley, L. Verrier, V. Padmanabhan, A. Lewis, Rurality as a predictor of perinatal mental health and well-being in an Australian cohort, *Aust. J. Rural Health* 00 (2022) 1–14.
- [20] K. Francis, J. Mills, 'Sustaining and growing the rural nursing and midwifery workforce: understanding the issues and isolating directions for the future', *Collegian* 18 (2) (2011) 55–60.
- [21] M. Statz, M. Bristow, 'Addressing perinatal mood and anxiety disorders (PMADs) in rural places: a knowledge infrastructure', *Wellbeing, Space Soc.* 4 (2023) <https://doi.org/10.1016/j.wss.2023.100131>.
- [22] M. Carroll, C. Downes, A. Gill, M. Monahan, U. Nagle, D. Madden, A. Higgins, Knowledge, confidence, skills and practices among midwives in the republic of Ireland in relation to perinatal mental health care: the mind mother's study, *Midwifery* 64 (2018) 29–37.
- [23] StataCorp. 2021. Stata Statistical Software: Release 17. College Station, TX: StataCorp LLC.
- [24] Australian Institute of Health and Welfare. Family, domestic and sexual violence [Internet]. Canberra: Australian Institute of Health and Welfare, 2023 [cited March 2023]. Available at: (<https://www.aihw.gov.au/reports/domestic-violence/family-domestic-and-sexual-violence>).
- [25] L. Andreu-Pejó, M.J. Valero-Chillerón, V.M. González-Chordá, D. Mena Tudela, A. Cervera Gasch, Integrative review of the literature on screening for gender-based violence during pregnancy: Barriers, facilitators, and tools, *Nurs. Health Sci.* 24 (3) (2022) 564–578, <https://doi.org/10.1111/nhs.12967>. (<https://pubmed.ncbi.nlm.nih.gov/35726481/>).
- [26] Campo M. Domestic and family violence in pregnancy and early parenthood Australian Institute of Family Studies. Commonwealth of Australia 2015 [cited March 2023]. Available at (https://aifs.gov.au/sites/default/files/publication-documents/cfca-resource-dv-pregnancy_0.pdf).
- [27] S. Sigurdardottir, S. Halldorsdottir, Persistent suffering: the serious consequences of sexual violence against women and girls, their search for inner healing and the significance of the #MeToo Movement, *Int. J. Environ. Res. Public Health* 18 (4) (2021) 1849. DOI:10.3390/ijerph18041849.
- [28] R. Brunton, R. Dryer, Child sexual abuse and pregnancy: a systematic review of the literature, *Child Abus. Negl.* 111 (2021), 104802, <https://doi.org/10.1016/j.chiabu.2020.104802>.
- [29] M. Noonan, J. Jomeen, R. Galvin, O. Doody, Survey of Midwives' perinatal mental health knowledge, confidence, attitudes and learning needs, *Women Birth* 31 (6) (2018) e358–e366.
- [30] A. Higgins, C. Downes, M. Monahan, A. Gill, S.A. Lamb, M. Carroll, Barriers to midwives and nurses addressing mental health issues with women during the perinatal period: the mind mothers study, *J. Clin. Nurs.* 27 (9–10) (2018) 1872–1883, <https://doi.org/10.1111/jocn.14252>.
- [31] K. Chin, A. Wendt, I.M. Bennett, A. Bhat, Suicide and maternal mortality, *Curr. Psychiatry Rep.* 24 (4) (2022) 239–275, <https://doi.org/10.1007/s11920-022-01334-3>.
- [32] P. Jarret, Student Midwives' knowledge of perinatal mental health, *Br. J. Midwifery* 23 (1) (2015) 32–39.
- [33] D. Fox, K. Solanki, G. Brown, C. Catling, V. Scarf, A. Sheehy, L. Musgrave, J. Margetts, T. McEwen, P. Abela, K. Baird, Perinatal mental healthcare: developing skills in midwifery students, *Women Birth* 36 (2) (2023) 167–170, <https://doi.org/10.1016/j.wombi.2022.11.005>.
- [34] L. Legere, K. Wallace, A. Bowen, K. McQueen, P. Montgomery, M. Evans, Approaches to health-care provider education and professional development in perinatal depression: a systematic review, 239, *BMC Pregnancy Childbirth* 17 (1) (2017) 24, <https://doi.org/10.1186/s12884-017-1431-4>.
- [35] T. Postelnik, R. Robertson, A. Jury, H. Kongs-Taylor, S. Hetrick, C. Tuason, Lived experience and clinical co-facilitation of a mental health literacy programme: qualitative exploration of satisfaction and factors supporting effective delivery, *J. Ment. Health Train. Educ. Pract.* 17 (3) (2021) 288–303.
- [36] L. Byrne, A. Stratford, L. Davidson, The global need for lived experience leadership, *Psychiatr. Rehabil. J.* 41 (1) (2018) 76–79, <https://doi.org/10.1037/prj0000289>.
- [37] S. Karbouniaris, M. Boomsma-van Holten, A. Oostindier, P. Raats, C. Prins-Aardema, A. Weerman, et al., Explorations on the use of lived experiences by psychiatrists: facilitators and barriers, *Ment. Health Soc. Incl.* 27 (1) (2023) 66–80.
- [38] Byrne L., Wang L., Roennfeldt H., Chapman M., Darwin, L., Castles C., et al. National Lived Experience Workforce Guidelines. National Mental Health Commission 2021 [cited March 2023]. Available at (https://www.mentalhealthcommission.gov.au/getmedia/a33cce2a-e7fa-4f90-964d-85dbf1514b6b/NMHC_Lived-Experience-Workforce-Development-Guidelines).
- [39] J. Fenwick, J. Toohill, V. Slavin, D. Creedy, J. Gamble, Improving psychoeducation for women fearful of childbirth: evaluation of a research translation project, *Women Birth* 31 (1) (2018) e389–e399.
- [40] M. Reed, J. Fenwick, Y. Hauck, J. Gamble, D. Creedy, Australian Midwives' experience of delivering a counselling intervention for women reporting a traumatic birth, *Midwifery* 30 (2) (2014) 269–275.