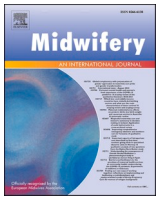
Midwifery 136 (2024) 104089

Contents lists available at ScienceDirect

Midwifery

journal homepage: www.elsevier.com/locate/midw



Evaluation of the effectiveness of a video-based educational intervention on perinatal mental health related stigma reduction strategies for healthcare professionals: A single group pre-test-post-test pilot study

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ARTICLE INFO

Keywords:
Perinatal mental health
Stigma
Educational video
Healthcare professionals
Pre and post-test

ABSTRACT

Background: Healthcare professionals have a role to play in reducing perinatal mental health related stigma.
Aim: To assess the effectiveness of a video-based educational intervention developed to provide guidance to healthcare professionals on perinatal mental health related stigma reduction strategies.
Design: A single group pre-test-post-test pilot study with no control group.
Setting(s): A university affiliated maternity hospital in Ireland
Participants: A convenience sample of registered midwives, nurses and doctors ($n = 60$) recruited from October 2020-January 2021.
Intervention: A twenty-minute video-based educational intervention.
Methods: Respondents ($n = 60$) completed a pre-test (time point one) and post-test (time point-two) questionnaire, and a three-month follow-up post-test questionnaire (time point-three) ($n = 39$). The questionnaire included the Mental Illness Clinicians' Attitudes Scale, Reported and Intended Behaviour Scale, Reynolds Empathy Scale and open-ended questions. Wilcoxon Signed Rank Test was selected to evaluate the pre-test post-test scores.
Results: The difference in mean Mental Illness: Clinicians' Attitudes-4 scores were statistically significant between time points one and three ($z = 3.27$, df=36, $P = 0.0007$) suggesting more positive attitudes towards people with mental health conditions after the intervention. The mean total score for the Reported and Intended Behaviour Scale increased from 18.7 (SD 1.87) at time point one to 19.2 (SD 1.60) at time point two ($z = -3.368$, df=59, $P = 0.0004$) suggesting an increase in positive intended behaviours towards those with mental health issues immediately following the intervention. These findings were also corroborated by responses to open-ended survey questions.
Conclusions: Further research with a larger sample of healthcare professionals evaluated over a longer period would provide further evidence for the sustainability of the intervention.
TweetableAbstract: : A video-based intervention can increase healthcare professionals' knowledge of perinatal #mentalhealth related stigma reduction strategies @Journal. Link to article

Introduction

Perinatal mental health conditions are among the commonest morbidities of the perinatal period (pregnancy and the first postpartum year) with approximately 10–20 % of women experiencing mental ill-health during this time (National Institute for Health and Care Excellence (NICE), 2014). Women may experience the spectrum of perinatal mental health including perinatal depression, anxiety, post-traumatic stress disorder and postpartum psychosis. These conditions can affect the mother's perinatal mental well-being, with symptoms that range from

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https://doi.org/10.1016/j.midw.2024.104089
Received 22 October 2023; Received in revised form 24 June 2024; Accepted 30 June 2024
Available online 2 July 2024

sadness, anxiety, insomnia, and irritability to loss of self-esteem, guilt, and shame (Oates, 2015; Sperlich, 2020). In the United Kingdom and Ireland, suicide remains a leading cause of maternal death in the first year after a pregnancy (Knight et al., 2023, 2021).

A multifactorial range of issues may impact adversely on a woman's perinatal mental health including biological changes, obstetric complications, stressful life events, and lack of social support (Kulkarni, 2010). Screening for risk factors for mental health conditions and for current symptoms of perinatal depression and anxiety is part of routine practice in most countries. Research, however, shows that many women do not disclose their symptoms and therefore, identification of women with perinatal mental health needs remains lower in pregnancy than in non-pregnant populations. For example, Bauer et al.'s (2014) survey reported that 30 % of women withheld negative feelings from healthcare professionals. Two systematic reviews (Denis and Chung-Lee, 2006; Megnin-Viggars et al., 2015) suggested that a lack of women -centred perinatal care, and insufficient perinatal mental health specific knowledge among healthcare professionals contributed to delays in women's disclosure of psychological distress. Other barriers include beliefs around motherhood, mental health related stigma, fear of being judged as an unfit mother, losing parental rights, and the perceived negative attitudes to mental health held by family, friends, and healthcare professionals (Megnin-Viggars et al., 2015; De Jacq et al., 2016; Dolmen et al., 2013). Disclosing perinatal mental health distress means asking for help and can challenge a woman's' view of how she is coping which may be linked with perceptions of 'good' mothering. Women may feel pressurised to conform to the maternal ideal of motherhood, which may be internalised by women and being seen as a 'bad mother' may lead women to self-silence (Button et al., 2017).

It is important that women have access to early interventions to combat the potentially negative impact of untreated perinatal mental health conditions. Poor perinatal mental health may affect family relationships, long-term maternal mental health and child behavioural and cognitive development outcomes (Sperlich, 2020; Stein et al., 2014; Wyatt et al., 2015). The 'Specialist Perinatal Mental Health: Model of Care for Ireland was published by the Health Service Executive (HSE) in 2017. This resulted in the establishment of a specialist perinatal mental health network which aims to provide timely access to high quality mental health care (HSE, 2017). Similar specialist services are available in other countries including the United Kingdom (NICE, 2014) and Australia (Austin and Highet, 2017) in recognition that general mental health services are not suitable for women in the perinatal period. One element of access to care is acceptability and refers to cultural and social factors that impact on how acceptable perinatal mental health services are to women (Levesque et al., 2013; Viveiros and Darling, 2018).

Despite recent perinatal mental health public awareness campaigns, fear of being stigmatised continues to influence the acceptability of specific services (Viveiros and Darling, 2018). Evidence suggests that some women will not access services because of the stigma they associate with such services and because of the perceived stigma associated with the diagnosis and treatment of a perinatal mental health condition (Viveiros and Darling, 2018; Megnin Viggars et al., 2015; Noonan et al., 2018).

Mental health-related stigma is a global, complex, and multifaceted challenge (Gronholm et al., 2017) which has been defined and categorised by various authors. One categorisation is the action-orientated view which studies who (or what) gives or receives stigma (Gronholm et al., 2017). The Lancet Commission on ending stigma and discrimination in mental health (Thornicroft et al., 2022) identifies four different types of stigmas: self -stigma, stigma by association, public stigma, and structural discrimination. While Gronholm et al. (2017) outline a fifth type, provider-based stigma i.e., prejudice and discrimination by occupational groups designated to care for persons with mental health conditions. Provider based stigma consists of three separate but related components. The first two components are a lack of knowledge of the spectrum of mental health conditions, and negative emotional reactions towards persons with perinatal mental health conditions (i.e., prejudice). The third component refers to discriminatory behaviour towards women with perinatal mental health conditions (Gronholm et al., 2017). For the woman self-stigma can manifest itself in several ways including self-judgement, concern about judgements from others, symptom normalisation, and anxiety around consequences of stigmatisation (Button et al., 2017).

The attitudes of healthcare professionals who are engaged in perinatal mental health care provision is an important consideration in the context of national and international initiatives aimed at addressing stigma associated with mental health issues (Linden and Kavanagh 2012; Noonan et al., 2017, 2018).

Positive attitudes and beliefs held by healthcare providers can result in supportive and inclusive behaviours towards women and their families such as normalisation conversations around perinatal mental health and inquiring about the woman's mental health at every antenatal and postnatal visit. However, negative attitudes among healthcare professionals may adversely impact on the therapeutic relationship, mitigate against women disclosing emotional and psychological distress, seeking timely and appropriate professional help and lead to stigmatisation and its consequences (Linden and Kavanagh, 2012; Noonan et al., 2018). Societal attitudes of stigma towards perinatal mental health can be pervasive and impact the attitudes of staff and organisational culture (Stangl et al., 2019). Cultural and environmental values and behaviours that adversely impact on individual attitudes must be addressed as neglect to do so inevitably influences care provision (Zomorodi and Lynn, 2010). This in turn may hinder the assessment process, causing secondary victimisation by the healthcare system (Raynor et al., 2020).

Healthcare professionals in contact with women during the perinatal period can help reduce the barrier and impact of stigma on women (Henderson et al., 2014; Gras et al., 2015). This can be achieved through the provision of holistic woman-centred perinatal care that fosters conditions conducive to disclosure of perinatal mental health concerns, and by acting as advocates for women and their families (Buist et al., 2015). Limited research has examined healthcare professionals' attitudes to women who experience perinatal mental health conditions (Jones et al., 2012; Hauck et al., 2015; Noonan et al., 2017, 2018). A recent review (Noonan et al., 2018) reported examples of midwives' who did not document a woman's mental health history or refer women to mental health services to protect the woman from being labelled with a perinatal mental health condition. Similarly, Bayrampour et al. (2018) identified fear of stigmatising the woman and concerns that a diagnosis of a mental health condition may burden the woman, deterred midwives from making appropriate referrals. Studies found that limited access to optimal perinatal mental health education may be a factor that contributes to stigmatisation and unhelpful attitudes conveyed by healthcare professionals. Therefore, educational interventions need to look beyond increasing knowledge solely and include an affective component that has the potential to combat healthcare professionals' own tendencies to stigmatise (Li et al., 2015; Fonti et al., 2016; Legerer et al., 2017; Noonan et al., 2017).

Stigma reducing interventions include 'protest' against stigma, educational interventions, contact with patients with mental health conditions or combinations of these strategies (Gronholm et al., 2017). Anti-stigma interventions and training have been found to be effective in changing healthcare professional knowledge, attitudes and promote positive behaviour towards persons with mental health conditions (Gronholm et al., 2017; Hanisch et al., 2016; Henderson et al., 2014; Corrigan et al., 2012). Evidence for small to moderate significant impacts including increased stigma-related knowledge and more positive intended behaviour for both mass media campaigns and targeted group interventions have been reported (Gronholm et al., 2017). Tailored strategies targeting the workplace may offer a promising route to addressing stigma. The most common anti-stigma interventions for health professionals are educational approaches (Gronholm et al., 2017; Henderson et al., 2014). Improved attitudinal outcomes, have been

reported post these interventions (Henderson et al., 2014). While a systematic review and network meta-analysis reported contact-based interventions as the most effective anti-stigma interventions for healthcare professionals (Gronholm et al., 2017).

To our knowledge there have been no previous published studies evaluating specifically designed anti-stigma educational video-based interventions targeted at healthcare professionals caring for women with perinatal mental health needs. Our study set out to address this gap through the development and evaluation of a video -based educational intervention designed to educate healthcare professionals on stigma reducing strategies. Perinatal mental health specialist services are only recently established in Ireland and the research team identified this as the most feasible anti stigma strategy. Video based interventions have been reported as effective in addressing mental health related stigma (Janoušková et al., 2017; Winkler et al., 2017). Video based interventions using dynamic video content reduce cognitive load, capture viewer attention, increase learner engagement leading to higher recall and retention of information and improved learning efficiency (Forbes et al., 2016). Furthermore, they are an effective, convenient, financially viable media tool that can be easily scaled up to reach a wide audience (Janoušková et al., 2017).

This study therefore aimed to assess the effectiveness of an educational video-based intervention designed to educate healthcare professionals on stigma reducing strategies. We aimed to evaluate changes in healthcare professionals' attitudes, empathy and intended behaviour towards women with perinatal mental health conditions following the intervention.

Methods

Study design

A single group, pre-test post-test pilot design with no control group was conducted from October 2020 to January 2021 to assess the effectiveness of a twenty-minute video-based intervention. The study is reported in accordance with the STrengthening the Reporting of OBservational studies in Epidemiology (STROBE) checklist (von Elm et al., 2008) for cross-sectional studies (see Supplementary material file 1). Ethical approval was granted by the associated health service ethics committee (Ref no: 107/19).

Participants and setting

The study was conducted in a large urban university publicly funded stand-alone maternity hospital in the Republic of Ireland and was opened to all healthcare professionals who care for women who experience perinatal mental health needs in the maternity unit. This included doctors, midwives, nurses, psychologists, dieticians, physiotherapists. Members of the specialist perinatal mental health team who were involved in the development of the video were excluded from participating in the study. A self-selected convenience sample of registered midwives, nurses, and Non-Consultant Hospital Doctors (a term used in Ireland to refer to Senior House Officers, Registrars, Senior Registrars, Specialist Registrars) employed in the study site were recruited to the study. A Participant Information Leaflet was distributed to ward managers and promoted on staff notice boards, via email and information about the study was provided at Clinical Midwife Manager meetings and at ward level. Potential participants were given time to read the information and request further information about the study. Participants who self-selected signed a written consent form.

Video intervention

This video is available on https://www.ul.ie/nursing-midwifery/perinatal-mental-health-related-stigma-reduction-strategies. The video content was developed by the research team and was based on evidence from the literature including websites of national and international anti-stigma campaigns, evidence from practice, expertise within the collaborative team which included the specialist perinatal mental health team and Patient and Public Involvement (PPI) input. A PPI group consisting of four women with lived experience of perinatal mental health conditions reviewed the video and provided feedback which was incorporated into the final edition. The video was constructed and produced by the authors, aided by technical expertise provided by an audio-visual technician (KJ). The video was shown to five healthcare professionals and twenty postgraduate mental health nursing students before and after revision. The group were asked to comment on educational content, audio, and picture quality, subtitling and language. The video intervention was changed in response to this feedback and the post revision version deemed satisfactory. The literature, PPI group and research team agreed on four key areas of focus within the video, consisting of:

- Challenging myths to increase understanding,
- Normalisation (myth busting, antidote to stigma),
- Having conversations around perinatal mental health (modelling a person-centred approach to promote perinatal mental health awareness), and
- Emphasis on language as a means of anti-stigma awareness to correct myths, disconfirm stereotypes and promote mental health awareness.

Role play and voice over text were strategies used to deliver key messages.

Measures: questionnaires

Quantitative measures in the form of pre-test and post-test intervention questionnaires were used to capture healthcare professionals' attitudes, behaviour, and empathy towards women with perinatal mental health needs.

Mental Illness: Clinicians' Attitudes Scale (MICA-4) (Kassam et al., 2012) was used to assess healthcare professionals' attitudes towards people with severe mental illness. This 16-item scale has good internal consistency (Cronbach's alpha = 0.72) (Gabbidon et al., 2013). Total scores range between 16 and 96 and a higher score corresponds to more negative stigmatising attitudes held by a healthcare professional towards persons with severe mental illness and the speciality of psychiatry (Gabbidon et al., 2013).

The Reported and Intended Behaviour Scale (RIBS) (Evans-Lacko et al., 2011) was used to assess mental health-related reported and intended behavioural discrimination and has good internal consistency (Cronbach's alpha = 0.85) (Evans-Lacko et al., 2011). The first four items on the scale assess the prevalence of behaviour in four different contexts (1) living with, (2) working with, (3) living nearby, and (4) continuing a relationship with someone with a mental health condition. Items 5–8 on the scale enquire about intended or future behavioural discrimination against people with mental health conditions. Healthcare professionals intended behaviour is a component of healthcare provider stigma and is mainly determined using self-report scales that measure behavioural intentions (Thornicroft et al., 2022).

Reynolds Empathy Scale (RES) (Reynolds 2000) was used to assess levels of empathy. This scale consists of 12 items rated on a seven-point rating scale and has excellent internal consistency (Cronbach's alpha = 0.90) (Reynolds, 2000). Half of the items (1, 3, 5, 7, 9, and 11) are considered to be "high empathy", and the other half (2, 4, 6, 8, 10, and 12) to be "low empathy". Empathy is acknowledged as an external expression of internal attitudes and increased levels of empathy are linked to decreased levels of stigma (Benster and Swerdlow, 2020).

Demographic information was collected to gain insight into participants' age, gender, education, qualifications, current area of practice and contact with women who had perinatal mental health needs.

Data collection

Participants were asked to complete the pre-test questionnaire (Time point one, T1) prior to the screening of the video (20 min duration) which was organised in the hospital clinical education centre during lunch breaks to facilitate viewing by participants. Participants were provided with three hard copies of the questionnaire which took 10–20 min to complete. Respondents were required to self-report the extent of their agreement or disagreement with statements on Likert scales (MICA-4, RIBS, RES). Open-ended questions (see Table 1) were included on the pre-test questionnaire which facilitated participants to expand on their perspectives of caring for women with perinatal mental health needs. The post intervention questionnaire was completed immediately after viewing the video (Time point two, T2) and had additional questions which examined participants' evaluation of the video-based intervention and to gauge the potential impact of the video on respondent's clinical practice. The questions sought information on evidence of mental health stigma in practice, video content, mode of delivery of information, to what extent their views, and practice would change because of viewing the video, what had been most beneficial about the video and why, and their recommendations to improve the training/video. Participants were asked to complete the same questionnaire three months after viewing the video (Time point three, T3). A unique identifier was attributed to each survey pack to maintain anonymity and to enable participant's pre-test post-test survey responses to be matched for the purpose of analysis.

Data analysis

Data was analysed using the Statistical Package for Social Sciences (SPSS) version 26.0 (IBM, Armonk, NY, USA). Descriptive statistics were used to analyse and present demographic variables. The mean, standard deviation, and mean difference (95 % confidence intervals) were calculated for all intervention outcomes. Wilcoxon Signed Rank Test was selected to evaluate the pre-test post-test scores for difference in the Mental Illness: Clinicians' Attitudes Scale (MICA-4), Reported and Intended Behaviour Scale (RIBS), and Reynolds Empathy Scale (RES) scores between time point one and time point 2 and 3. Statistical significance was set at $p < 0.05$ and statistical guidance was provided by a statistician.

Analysis of data from open ended questions was guided by Braun and Clarke's (2006, 2022) six-step process of thematic analysis and undertaken by two researchers (SA, MN). Free text responses to open-ended survey questions were transferred into NVivo (Version 12) to identify shared meanings, experiences, thoughts, or behaviours across the dataset. Two researchers (MN, SA) conducted all the initial coding from all free text responses to three open-ended questions which captured respondents' perspectives of perinatal mental health related stigma in clinical practice at T1 and the respondents changes to their attitude and practice following the video-based intervention captured at T2 and T3. All responses captured at T1-T3 were read several times to become familiar with the data which was followed by line-by-line preliminary inductive open coding. In the next stage, codes were compared, refined and new codes generated. Patterns in the data that captured respondents' perspectives were identified. Final themes and categories were reviewed and refined by all researchers to ensure themes represented the content of the data.

Table 1
Demographics.

Variable name	Variable categories	N (% of full sample)
Age	20–29	15 (25 %)
	30–39	18(30 %)
	40–49	19(31.6 %)
	50–55	8(13.3 %)
Gender	Male	1 (1.6 %)
	Female	59 (98.4 %)
Education	Diploma	3(5 %)
	Degree	26(43.3 %)
	Postgraduate Diploma	20(33.3 %)
	Masters	11(18.3 %)
Qualifications held	Registered Midwife	16 (26.7 %)
	Registered General Nurse	10(16.7 %)
	Registered Psychiatric Nurse	1(1.7 %)
	Dual Qualified nurse and midwife	31 (52.7 %)
	Non-consultant hospital doctors	2 (3.3 %)
Current area of practice	Rotate between areas	10 (16.6 %)
	Antenatal	15 (25 %)
	Intranatal	14 (23.3 %)
	Postnatal	8 (13.3 %)
	Neonatal Intensive Care Unit	1 (1.7 %)
	Other	12 (20 %)
Contact with women with perinatal mental health needs	Very often/ frequently	43 (71.7 %)
	Sometimes	14 (23.3 %)
	Rarely/Never	3(5 %)

Results

Participant characteristics

Healthcare professionals ($n = 100$) were invited to take part in the study and sixty healthcare professionals viewed the video and completed the pre-test and immediate post-test questionnaires. Thirty-nine completed a three- month follow up post-test questionnaire (Fig. 1) and this lower response rate at time point three can be explained by the context of recruitment which occurred during the second COVID-19 lockdown when public health restrictions were in place at the study site.

Participant characteristics are summarised in Table 1. Most participants (98.4 %, $n = 59$) were female and just under half were experienced midwives (45 %, $n = 27$), with ten years or more clinical experience. A total of 28 % ($n = 17$) of participants had completed a specialist perinatal mental health education course in the previous 6–12 months (31 %, $n = 5$), past 1–3 years (50 %, $n = 8$) or within the last 3–5 years (18.8%, $n = 3$). Participants worked in a variety of clinical settings in the maternity unit and most participants (71.7 %, $n = 43$) worked with childbearing women who experience a mental health condition very often/frequently. When asked if they had personal experience of mental health issues, almost half of participants were living with someone with a mental health issue (46.7 %, $n = 28$), living near someone with a mental health issue (24.3 %, $n = 29$), were working with someone who had a mental health issue (55 %, $n = 33$), or were a close friend of someone with a mental health issue (68.3 %, $n = 41$)

Outcome measures

Table 2 presents total pre-test post-test and follow up intervention scores for the Mental Illness: Clinicians' Attitudes Scale (MICA-4), Reported and Intended Behaviour Scale (RIBS), and Reynolds Empathy Scale (RES) together with mean differences and 95 % confidence intervals. A decrease in Mental Illness: Clinicians' Attitudes Scale MICA 4 scores and an increase in Reported and Intended Behaviour Scale and Reynolds Empathy Scale scores were reported following the intervention.

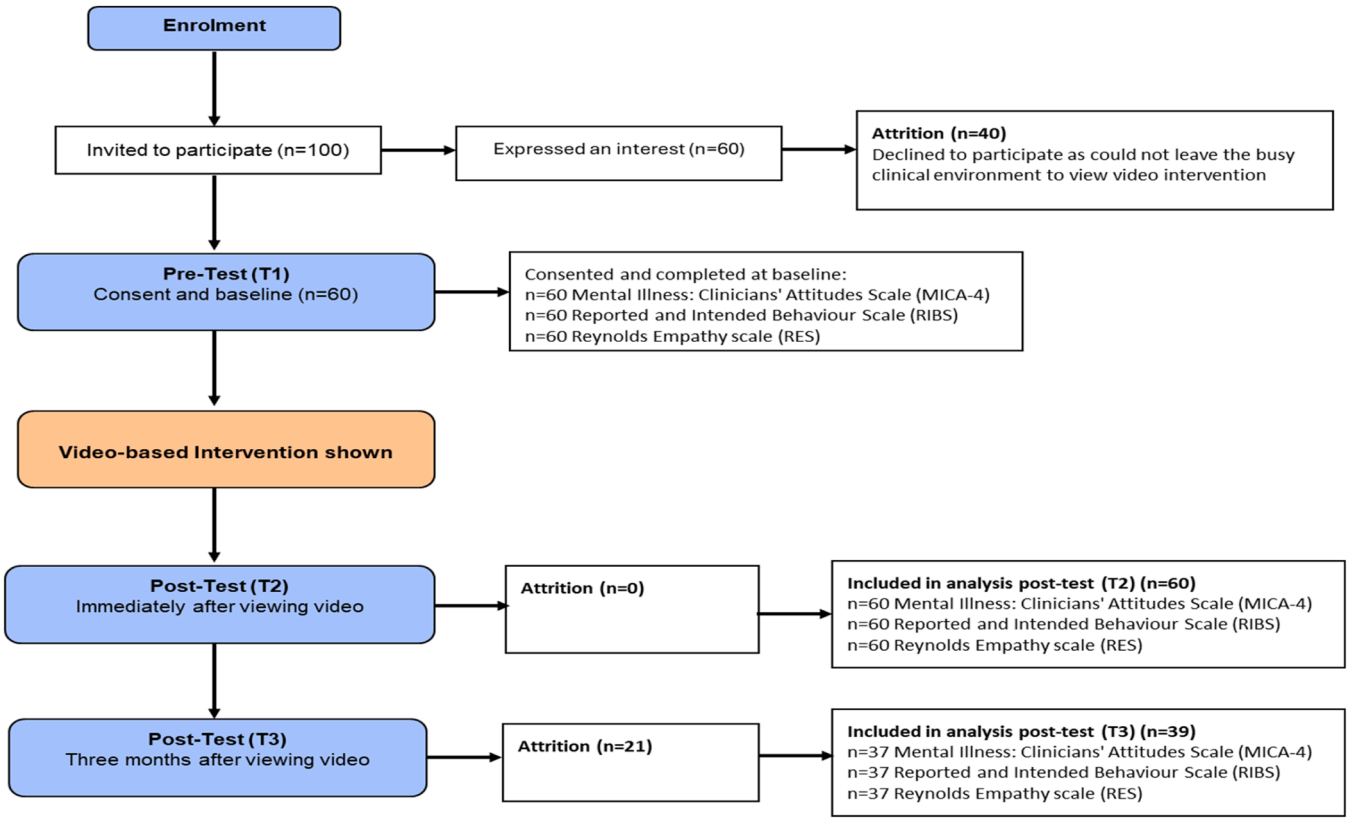

Fig. 1. Study recruitment flow diagram.

Table 2
Wilcoxin Signed rank test from Pre to Post interventions outcome scores at baseline (T1), immediately after the intervention (T2) and at 3 month follow up (T3).

Attribute	Instrument	Pre-test Score T1 M (SD)	Post-test Score T2 M (SD)	Post-test Score T3 M (SD)	T1 to T2 raw mean difference (95 % conf. interval) (SD)	*Wilcoxon signed-rank test Z value (P-value) T1 and T2*	T2 to T3 raw mean difference (SD)	*Wilcoxon signed-rank test Z value (P-value) T2 and T3*	T1 to T3 raw mean difference (SD)	Wilcoxon signed-rank test Z value (P-value) T1 and T3
Attitudes to Perinatal Mental Health Problems	Mental Illness: Clinicians' Attitudes Scale (MICA-4)	(n = 60) 32.15 (6.95)	(n = 60) 28.00 (7.41)	(n = 30) 27.32 (6.54)	4.15 (7.18)	z = 3.943 (P = 0.0001)	−1.03 (6.51)	z = −0.551 (P = 0.5880)	3.95 (6.27)	z = 3.27 (P = 0.0007)
Empathy	Reynolds Empathy scale (RES)	(n = 60) 65.95 (9.39)	(n = 60) 68.81 (9.79)	(n = 39) 69.27 (8.23)	2.866667 (7.413837)	z = 3.368 (P = 0.0006)	.162 (8.89)	z = −1.496 (P = 0.1369)	−2.11 (7.74)	z = −1.49 (P = 0.17)
Mental health-related reported and intended behavioural discrimination	Reported and Intended Behaviour Scale (RIBS)	(n = 60) 18.7 (1.87)	(n = 60) 19.2 (1.60)	(n = 39) (18.81 1.81)	−0.5 (1.11)	z = −3.368 (P = 0.0004)	−1.86	z = 0.81 (P = 0.4235)	−0.351 (1.34)	z = −1.37 (P = 0.19)

*P, 0.05.

Attitudes

A Wilcoxon signed-rank test was selected to compare differences in the Mental Illness: Clinicians' Attitudes-4 scale scores between time point one, two and three (Table 2). Overall, there was a statistically significant decrease in the mean scores between time point one (n = 60) and time point two (n = 60) suggesting an increase in positive attitudes towards persons with mental health issues (z = 3.94, df =59, P = 0.0001). The difference in mean Mental Illness: Clinicians' Attitudes-4 scores at time point two and time point three was not statistically significant (z=−0.551, df=36, P = 0.58), however, the difference between time points one and three was statistically significant (z = 3.27, df=36, P = 0.0007) suggesting more positive attitudes towards people with mental health conditions in the 1–3-month period post the intervention.

The data showed a greater reduction in mean Mental Illness: Clinicians' Attitudes-4 scores for participants (55 %, n = 33) qualified less than 10 years (3.29, P = 0.05) compared to those qualified longer than 10 years (4.84, (P = 0.00) and participants not living with someone with a mental health condition 3.75(P = 0.01) compared to participants living with a person who experiences mental health issues (4.06 (P = 0.00)). At all three-time points participants (83.3 %, n = 50) considered that working within the mental health arena was as respected as other areas of health and social care. Furthermore, 91.7 % (n = 55) of participants disagreed with the statement they would use the terms "*crazy*" "*nutter*" *mad*" to describe people with a mental illness to colleagues'

time point one, and this increased to 98.3 % ($n = 59$) at time point two a and to 100 % ($n = 37$) at time point three. The full results from the Mental Illness: Clinicians' Attitudes-4 data are detailed in Table 2.

Mental health-related reported and intended behavioural discrimination

Participants were also asked about their personal experience of mental health and 46.7 % ($n = 28$) of participants acknowledged living with someone with a mental health condition, 68.3 % ($n = 41$) reported having a close friend with a mental health condition, 55 % ($n = 33$) a neighbour with a mental health condition and 55 % ($n = 33$) indicated that they had worked with someone with a mental health condition. Table 2 shows the Wilcoxin signed ranks tests used to measure the intended behaviour of participants. The mean total score for the Reported and Intended Behaviour Scale increased from 18.7 (SD 1.87) at time point one to 19.2 (SD 1.60) at time point two ($z = -3.368$, df=59, $P = 0.0004$) suggesting an increase in positive intended behaviours towards those with mental health issues immediately following the video intervention. The mean score at time point three (18.81 (SD 1.81)) was not statistically significant ($P = 0.42$ and $P = 0.19$).

Empathy

Mean increases in Reynolds Empathy Scale scores following the intervention (65.96 at time point one, 68.81 at time point two and 69.27 at time point three) suggest an increase in empathy (Table 2). The increase at time point- two immediately following the intervention was statistically significant ($z = -3.368$, df=59, $P = 0.0006$) while the increase at time point three was not ($z = -1.49$, df= 36, $P = 0.17$). Wilcoxon signed rank tests were utilised to explore the effect of the intervention for different groups within the sample. The Reynolds Empathy Scale score increased by 4.06 ($P = 0.00$) in the group of participants (53 %, $n = 32$) not living with someone with a mental health condition following the intervention, while only by 2.89 ($P = 0.02$) for the group living with someone with a mental health condition. The data suggests that there was a greater increase post-intervention in Reynolds Empathy Scale scores for participants (28 %, $n = 17$) who had previously completed continuous professional development (65.11 pre-test compared to 69.11 post) relevant to perinatal mental health compared to those that had not undertaken continuous professional development (66.28 pre-test compared to 68.64 post-test). However, this increase was not statistically significant for the former group ($P = 0.31$) but was for the latter ($P = 0.00$), indicating the intervention was more effective for those with no previous relevant continuous professional development.

Evaluation of video-based intervention

Participants were asked for feedback on the video based educational resource at time point two and three. Most participants described the content of the video as clear, concise and an effective educational strategy. Most respondents (88 %, $n = 53$) were satisfied with the content and level of the video while 3.3 % ($n = 2$) felt the content was too basic, 3.3 % ($n = 2$) felt the video was too long and 8.3 % ($n = 5$) felt the music in the background too loud and distracting at times. When asked which part of the video was most effective in changing their perspective and understanding of perinatal mental health related stigma, 30 % ($n = 18$) referred to the role play scenarios, 16 % ($n = 10$) mentioned the importance and power of language and 5 % ($n = 3$) referred to the commentary that highlighted the partner's perspective. Participants were asked for suggestions to improve the intervention and while 20 % ($n = 12$) of the respondents felt that it could not be improved on, 6.6 % ($n = 4$) suggested more education/ study days and 5 %, ($n = 3$) annual follow up sessions. Other suggestions were more input from the women and their partners (3.3 %, $n = 2$), more interactive activities (6.6 %, $n = 4$), additional role play scenarios (6.6 %, $n = 4$), shorten length of video (3.3 %, $n = 2$) and 28.3 % ($n = 17$) left this question blank. When asked if their practice would change because of watching the video most participants said that it would in some way (63 %, $n = 38$) while 14 % ($n = 8$) said it would not change and the remainder of participants left this question blank.

Pre-intervention

Thirty of the sixty participants who completed the pre intervention questionnaire responded to three open ended questions concerning evidence of perinatal mental health stigma in clinical practice. Three themes (see Table 3) were identified from data analysis at time point one which were: Language and labelling around perinatal mental health; Prejudice care towards women with perinatal mental health needs; and Abdicating responsibility.

Language and labelling around perinatal mental health

Participants encountered some healthcare professionals that used inappropriate and, in some instances, language that may be considered offensive to describe and label women with perinatal mental health conditions:

> "Crazy" "OTT" (004) "Mad, loony" (059), "Head case" (076), "The "anxious" Lady, "depressed woman room two" (077), "the use of words like "nutter" (086).

Furthermore, participants reported that "*Information about a woman filtered through before she was even on the ward" (080).*

Prejudice care towards women with perinatal mental health needs

Participants reported that a diagnosis of a perinatal mental health condition resulted in the women's physical symptoms being ignored or dismissed in some cases:

> "The woman's physical symptoms attributed to previous history of mental health" (076) "Symptoms being dismissed and downplayed, "she's just anxious, she's always like that" (016).

Seven participants observed that women who had been diagnosed with a perinatal mental health condition were treated differently than other women in the care setting and expected emotional transitions associated with motherhood were attributed to mental health issues:

> "Attributing many women's emotional upset postnatally to being part of their mental health issues rather than trying to help her just the same as a woman not suffering from mental health issues" (013).

> "Patients with mental health diagnosis or those residing in mental health units/long stay accommodation being treated differently in terms of their physical health needs" (021).

Abdicating responsibility

Participants reported that some midwives felt that they had no responsibility to provide psychological care to women under the care of the perinatal mental health team. Women were considered:

> "Not our problem. She is with the perinatal mental health team so let them come and deal with her" (013).

Table 3
Themes from analysis of open-ended survey questions.

Themes (T1) Pre- Intervention: Evidence of perinatal mental health stigma	Themes (T2 and T3) Post-intervention: Changes to healthcare professionals' attitudes and practice following the video-based intervention
Language and labelling around perinatal mental health Prejudice care towards women with perinatal mental health needs. Abdicating responsibility	Language awareness Improving listening skills

"Staff separating out what they feel is "mental health work" for the mental health team" (012).

Post-intervention

Participants were asked at time point two ($n = 60$) and time point three ($n = 39$) how their attitude and practice would change following the video-based intervention. Two themes (see Table 3) were identified across the two time points: language awareness and improving listening skills.

Language awareness

Participants described an increased awareness of the importance of appropriate language use when referring to women with perinatal mental health conditions following the intervention:

"Seeing the different stigma acted out in real life scenarios, I will pay more attention to it in the future and make an effort if I have a student to explain to them that this is not the norm and to avoid speaking about people in that way (013)

"Will be very mindful now of how I speak to a woman or how I speak about a woman" (027)

"To ensure I do not engage in discussions that stigmatises mental health and hopefully have the knowledge and courage to reduce stigma that does occur" (079),

"I feel that I have been able to effectively care and support women with perinatal mental health needs, but I will now be more aware of my language" (098).

Participants recalled that the role play scenario of hand over in the video prompted increased awareness and appeared reflective of practice experience.

"The role-play of clinical handover really has made me aware of how we speak" (016),

"The video, giving handover-using words of stigma and giving out if a woman is frequently ringing bell for help" (101) and

"Showed importance of use of language at handovers" (087).

Improving listening skills

Participants reported that the video-based intervention helped them to recognise the importance of listening to the woman and responding empathically to each woman's individual psychological distress:

"I will ask a woman in future "how can I help you" something simple but will give the woman control and know that I am listening and, in a position, to help and be supportive" (098),

"Will be more open and listen to women, provide help and support" (101)

"Will keep trying to ensure patients feel they are heard" (012).

Discussion

Findings from this pilot study suggest that a brief video-based educational intervention on stigma reduction strategies had a positive impact on healthcare professionals' empathy and intended behaviour immediately following the intervention, a finding corroborated by qualitative data from analysis of the open-ended survey questions. Furthermore, respondents reported more positive attitudes towards women with perinatal mental health conditions in the three-month period post the intervention.

The literature acknowledges that healthcare professionals practicing in all areas of healthcare stigmatise and discriminate against persons with mental health conditions (Henderson et al., 2014; Noonan at al., 2018; Vendsborg et al., 2013). Respondents in this study reported overall positive attitudes towards persons with perinatal mental health needs pre intervention. However, analysis of the pre-test questionnaire open-ended questions identified the use of stigmatising language in practice, with findings from the post intervention questionnaires indicating that participants were less likely to use stigmatising terms after the intervention.

Language can play a powerful role in influencing clinicians' attitudes and behaviour and can exacerbate stigma (Kelly and Westerhoff, 2010a, Kelly at al., 2010b; Thorton et al., 2022). Therefore, language is a particularly important area to focus on for any educational intervention. Self-awareness of stigmatising language and behaviour can support healthcare professionals to optimise their communication around mental health and ensure the provision of truly non-judgemental, woman centred care (Jomeen, 2017). Handover is seen as an important opportunity for destigmatizing perinatal mental health. Doyle and Cruickshank (2012) found that health care professionals who handover care from one shift to the next can transfer stigma and labelling of patients. Participants commented on the scenario of handover as an effective component of the video that increased their awareness of the importance of effective communication during clinical handover.

Furthermore, consideration needs to be given to how midwives communicate and engage with women as this may influence disclosure of psychological distress. The video-based educational intervention addressed the importance of normalising conversations about mental health through creating an open and honest space in which women feel comfortable talking about their mental wellbeing. The evidence acknowledges that disclosure of perinatal mental health concerns is more likely to occur if the woman interacts with a midwife who is non-judgemental and compassionate (Button et al., 2017). Participants identified the importance of listening to women's perinatal mental health concerns in their post intervention open-ended questionnaire responses. This is important as Higgins et al. (2018) contends that when healthcare professionals initiate perinatal mental health conversations, they are concomitantly telling women they are open to listening to their story.

There was an increase in self- reported positive intended behaviours towards those with mental health issues immediately following the video intervention. A change in behaviour after an intervention designed to reduce stigma and/or discrimination related to mental illness is likely to have the most beneficial impact on individuals and therefore, the assessment of behaviour changes is seen as an essential component of an evaluation study (Evans Lacko et al., 2011). Furthermore, a statistically significant increase in respondent's empathy score immediately after the intervention was reported which was sustained at three months following the intervention. This is notable as other studies have found that while empathy may increase directly post an intervention (Bonvicini et al., 2009; Kelm et al., 2014) it generally diminishes over time (Hojat et al., 2009). However, few studies have performed a follow-up assessment of improvements in empathy (Hart et al., 2006; Nosek et al., 2014; Yang et al., 2014). Empathy is a fundamental quality in any therapeutic relationship and is acknowledged as a complex concept which is difficult to measure (McKenna et al., 2020; Bas-Sarmeito et al., 2017; Cunico et al., 2012; Ançel, 2006). It has been suggested however, that it is possible to develop empathic competence through educational interventions (Bas-Sarmeito et al., 2017; Ancel, 2006) which is congruent with the findings of this study. This study found a higher empathy score in participants who had not previously completed perinatal mental health continuous professional development following the intervention. However, this was not statistically significant. Respondents who had completed relevant education may already have been exposed to some of the topics in the video.

Participants reported physical symptoms were attributed to the woman's mental health, in some instances, within their practice areas. This finding is consistent with the literature where symptoms of life-

threatening complications have been attributed to mental health conditions in women with for example anxiety disorders or psychosis even though these women are more likely to experience life threatening complications (Howard and Khalifeh, 2020). The misattribution of physical symptoms to pre-existing mental illness is known as diagnostic overshadowing (Henderson et al., 2014). This may lead to adverse consequences and outcomes for women such as delays in their treatment and increased morbidity and mortality (Henderson et al., 2014).

Overall, participants reported that a video based educational intervention was an effective educational strategy, a finding consistent with the literature (Forbes et al., 2016; Henderson et al., 2014; Janoušková et al., 2017). Survey respondents identified role play scenarios as the most effective component of the educational intervention. Indeed, Higgins et al. (2018) identified an urgent need to include strategies such as role play and video design into perinatal mental health education interventions to enable healthcare professionals to develop skills to open conversations on perinatal mental health within short timeframes that characterise first and subsequent encounters with women in maternity settings. Five participants felt the video was too long which may reflect the limited time that healthcare professionals have to engage with education in the context of resource challenged clinical environments (Higgins et al., 2018). These findings suggest that short educational videos that incorporate role play scenarios may be an effective educational intervention targeting healthcare professionals working in maternity settings. In addition, we recommend that future interventions are co-designed, developed and evaluated by women with lived experience of perinatal mental health conditions.

Healthcare professionals working in perinatal services require continuous professional development opportunities that go beyond addressing knowledge and assessment skills and support midwives to consider their own attitudes to mental health (Noonan et al., 2018; Higgins et al., 2016a,b). Education needs to address how personal beliefs about mental health can potentially create tensions and influence practice (Jomeen, 2017). Access to regular education and training has the potential to effect higher knowledge and confidence levels and more positive attitudes towards mental health (Coates and Foureur, 2019; Viveiros and Darling, 2018).

Strengths and limitations

This study took place during the COVID-19 pandemic and access to the study site was restricted making data collection and follow up challenging. Time constraints on the clinical site meant it was difficult for participants to view the video-based educational intervention. In addition, a short follow-up period of three months provides limited data related to sustained changes to practice.

The intervention was developed with input from specialist perinatal mental health services and service users. A combination of valid and reliable Likert scales and open-ended survey responses enabled the research to capture comprehensive feedback on the effectiveness of the video intervention. It is acknowledged that self-report questionnaires are associated with social desirability responses (Keln et al., 2014). Furthermore, a small convenience self-selected sample recruited from one maternity unit limits the generalisability of findings. In addition, 39 out of 60 respondents completed the post questionnaire at T3. The content of the video intervention had multiple components and future research is needed to examine which component (challenging myths vs. anti-stigma awareness) via which method (role plays versus voice-over text) is most effective in reducing stigma. Additionally, further research is needed to examine whether this intervention changes clinicians' behaviour in practice as this current study relies on self-reported changes in intended behaviour. Despite these limitations this study provides preliminary evidence for the effectiveness of a video-based educational intervention to increase healthcare professionals' knowledge of perinatal mental health sigma reduction strategies.

Conclusions and clinical implications

The findings of this research suggest that an educational video intervention on stigma reduction strategies for healthcare professionals can foster positive attitudes, empathy and changes in intended behaviour towards women who experience perinatal mental health conditions. Perinatal mental health educational resources for healthcare professionals can benefit from the inclusion of an affective component that supports clinicians to consider their own mental health attitudes and how personal beliefs and attitudes may affect care provision. Educational interventions targeting stigma need to be repeated at regular intervals to ensure retention of information and sustained improvement. Furthermore, healthcare professionals need opportunities and support to explore how language choices may influence feelings, attitudes, and beliefs around mental health and affect women living with mental health conditions. Further research is required to explore educational interventions for healthcare professionals as one component of stigma reduction. Further research is also warranted to explore if time since completing specialist perinatal mental health education affects attitude scores allowing recommendations to be made in relation to refresher training and updates.

Video interventions may benefit from service user input and interactive components including role play that demonstrates optimal practice in caring for women with perinatal mental health conditions. Such interventions should be of short duration to reflect the limited time healthcare professionals have to engage in learning and be provided frequently to increase recall of key messages. Further evaluation of the video-based educational intervention with a larger sample of healthcare professionals involving more than a single study centre is recommended to confirm the effectiveness of the intervention.

CRediT authorship contribution statement

Maria Noonan: Writing – review & editing, Writing – original draft, Supervision, Project administration, Methodology, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Melissa Brown:** Writing – review & editing, Writing – original draft, Validation, Software, Resources, Methodology, Investigation, Formal analysis, Conceptualization. **Maria Gibbons:** Writing – original draft, Validation, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Teresa Tuohy:** Writing – original draft, Methodology, Formal analysis, Conceptualization. **Kevin Johnson:** Writing – review & editing, Methodology, Formal analysis, Conceptualization. **Carmel Bradshaw:** Writing – review & editing, Writing – original draft, Methodology, Formal analysis, Conceptualization. **Sylvia Murphy Tighe:** Writing – original draft, Methodology, Formal analysis, Conceptualization. **Sandra Atkinson:** Writing – review & editing, Methodology, Formal analysis, Conceptualization. **Louise Murphy:** Writing – review & editing, Methodology, Conceptualization. **Mas Mohamad:** Writing – review & editing, Methodology, Formal analysis, Conceptualization. **Mendinaro Imcha:** Writing – review & editing, Methodology, Conceptualization. **Niamh O'Dwyer:** Writing – review & editing, Methodology, Conceptualization. **Annmarie Grealish:** Writing – review & editing, Writing – original draft, Validation, Supervision, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgments Statement

The authors would like to thank all the healthcare professionals who

volunteered to participate in this study, the healthcare professionals who contributed to the role play scenarios in the video and the service users for their input into the video and for reviewing the final video resource. We also wish to acknowledge Dr Ali Sheikhi our colleague at University of Limerick for providing his guidance and expertise in statistical analysis.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.midw.2024.104089.

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