

Evaluation of the impact of an online educational program on midwives' preparedness to respond to intimate partner violence: the STOIPV pre-post study

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Abstract

Background Exposure to intimate partner violence (IPV) during pregnancy is associated with adverse outcomes for maternal and infant health. Evidence indicates that midwives face challenges in routine enquiry for and referring to IPV cases during pregnancy. This study aimed to evaluate the impact of the STOIPV online educational program on Greek Cypriot midwives' knowledge, attitudes, preparedness for routine IPV enquiry during pregnancy, and their perceptions of organisational barriers to implementing IPV enquiry.

Methods Approximately 49% of registered midwives in the Republic of Cyprus (RC) ($n=171$) participated in the 6-hour educational program. Among these participants, 103 completed the pre- and post-intervention questionnaire, which assessed knowledge, attitudes, preparedness, and perceptions of workplace organisational barriers related to routine IPV enquiry during pregnancy.

Results Most participants worked in private maternity clinics (55.3%) and held a postgraduate degree in midwifery (49.5%). Approximately one third (35.9%) of the participants had not received any prior training on routinely enquiring about IPV during pregnancy, and 41.8% reported reluctance to ask questions about IPV due to concerns about embarrassing women. The main barriers to routine IPV enquiry during pregnancy included the presence of partners during consultations and language barriers among immigrant women. There was a significant increase in participants' preparedness for routine enquiry of IPV in pregnancy after the intervention, with mean preparedness scores increasing from 3.48 (SD=0.94) to 4.14 (SD=0.66) on a 5-point scale ($p<.001$). Additionally, participants' knowledge of pregnancy-related IPV, measured as the mean percentage of correct answers, increased significantly from 58.0% pre-intervention to 65.9% post-intervention ($p<.001$).

Conclusion The STOIPV program improved participants' knowledge and preparedness for routine IPV enquiry during pregnancy. Future longitudinal studies are recommended to assess the sustainability of these outcomes, examine whether the training increases the proportion of clinical encounters in which IPV routine enquiry is completed, and explore collaborative training approaches that support a multidisciplinary response to IPV within healthcare settings.

Keywords IPV Education · Midwives · Intimate partner violence · pregnancy · Educational Intervention

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Background

According to World Health Organization [1] one in three women has experienced physical or sexual violence by an intimate partner. Intimate Partner Violence (IPV) affects women, irrespective of age, financial status, religion, ethnicity, sexual orientation, or educational level. IPV survivors may experience long-term effects, including psychological distress, permanent physical injuries, and chronic health issues [2].

IPV is also present during pregnancy and is associated with a higher risk for low birth weight, preterm birth [3–5], postpartum depressive symptoms [6–9], reduced breastfeeding in the year following birth [10] and even stillbirth [6, 11].

The severe consequences of IPV during pregnancy highlight the need for preventive measures, including routine IPV enquiry during antenatal visits and the establishment of robust referral systems [12]. Since midwives often maintain regular contact with pregnant women, they are in a key position to address sensitive pregnancy-related issues, including IPV. The frequent interaction between midwives and pregnant women may create rapport, making women more likely to disclose exposure to IPV [13].

However, evidence suggests that midwives may lack confidence or feel inadequately prepared to assess IPV risk [14], and may not be fully informed about procedures and resources to support women exposed to IPV [15]. Additional barriers to pregnancy-related IPV enquiry include time constraints, midwives' concerns about offending women and lack of robust referral pathways and skills to manage disclosure of IPV [16, 17]. According to Branjerdporn et al. [18], women who disclose IPV may feel judged by midwives about not leaving the abusive relationship, revealing both women's reluctance to consent to violence assessment and midwives' limited understanding of the complexities and risks involved in leaving an abusive relationship.

To encourage positive attitudes and adequate IPV enquiry skills among midwives, Baird et al. (2018) [19] suggested that training programs should challenge common misconceptions about IPV and enhance midwives' knowledge and preparedness for routine IPV enquiry in clinical settings, including maternity care settings. These programs are also recommended to include detailed, comprehensive information on local support services, and emphasize best practices for IPV enquiry and response. Moreover, it is suggested IPV-related education should be integrated into midwifery education, focusing on the impact of IPV on pregnancy, childbirth, birth outcomes, and access to antenatal care [20]. Few educational programs specifically address IPV in pregnancy [21]. Most programs cover subjects related to raising awareness of IPV, defining its forms, exploring gender roles and the impact of IPV on women's health, outlining referral systems, and explaining country-specific laws on IPV.

In RC, IPV is addressed under general legislation concerning violence within the family, namely "The Violence in the Family (Prevention and Protection of Victims) Law of 2000 (Law 119(I)/2000)". However, there are currently limited national statistics available specifically for Cyprus, and therefore reliable and up-to-date prevalence estimates could not be included in this study. In clinical practice, no routine enquiry IPV is conducted during pregnancy, as there are no established maternity care guidelines that mandate or recommend systematic IPV enquiry. Regarding higher education, the only midwifery program in Cyprus is offered at postgraduate level following a nursing degree, and IPV has been included in recent years as a teaching unit within the courses Midwifery 1: Normal Pregnancy, Puerperium, Neonate and Reproductive/Sexual/Women's Health.

The STOIPV program is an online educational intervention designed to improve midwives' knowledge, attitudes, and preparedness regarding IPV identification and response during pregnancy. It was developed in response to the identified gap in structured IPV training within midwifery education. This study set out to evaluate the impact of the STOIPV online educational program on Greek Cypriot midwives' knowledge, attitudes, and preparedness for routine IPV enquiry during pregnancy, as well as their perceptions of organisational barriers to implementing IPV enquiry.

Method

Design

A pre-post intervention quantitative evaluation study design was used. Specifically, participants' knowledge, attitudes, and preparedness for routine IPV enquiry during pregnancy were assessed two weeks before the implementation of an online educational program (educational intervention), as well as two weeks after its implementation.

Educational intervention

The educational intervention was based on the structure and content of the one-day “STOPIPV” training program by Baird et al. (2018) [19]. The program was further enriched, with additional topics identified through a scoping review on the characteristics and themes of educational programs on IPV during pregnancy for midwives and midwifery students by the present research team [22] and culturally adapted by a panel of experts to ensure relevance to the Cypriot maternity care context, including alignment of terminology, clinical examples, and referral pathways with local practice and sociocultural norms. Finally, the educational intervention covered the following topics: (a) introduction to the program, (b) understanding why women remain in violent relationships, including family-specific challenges, (c) the midwife's role in record-keeping, a key-focus of the study by Baird et al. (2018) [19], (d) safety protocols and referral procedures for IPV survivors, (e) the role of the national NGO on violence and domestic violence prevention, particularly in supporting pregnant women exposed to IPV/ domestic violence, and its coordination with police, and other organizations, (f) clinical scenarios on IPV education, and (g) simulation scenarios to develop communication skills within IPV context, with focus on establishing rapport, promoting safety and engaging with respect and empathy.

The training was delivered by a group of experts from various backgrounds, encompassing academics, members of NGOs working in violence prevention and gender issues and police officers. It lasted 6 h and was held online via the ZOOM platform due to restrictions related to the COVID-19 pandemic. Participants had the opportunity to ask questions and interact with educators and peers throughout the training.

Sampling & data collection on the effectiveness of the educational intervention

All registered midwives in the RC were invited to participate in the study. The following inclusion criteria were applied: (a) being a registered midwife (b) employment in a public or private maternity hospital/clinic, where midwives do not have a specific role in antenatal care, as maternity care in Cyprus is primarily based on the obstetric care model (c) comprehension of the Greek language, as the educational program was delivered in Greek and (d) provision of electronically signed informed consent. In total, 348 midwives (202 employed in public maternity units across 5 hospitals, and 146 in the private sector) were invited to attend the training program. An email was sent to participants by the Cyprus Council of Nursing and Midwifery informing about the purpose and procedures of the study (dates, training content, trainers) along with the consent form, asking them to participate in the training program (educational intervention) by registration on the webpage www.stopipv.com.cy.

The first part of data collection occurred during registration, when participants were asked to complete the pre-intervention questionnaire online. This took place two weeks before the start of the training in June 2021. The second part of data collection also occurred online, two weeks after completion of training. At this point, participants received an email requesting them to complete the post-intervention questionnaire.

Measurement tools: pre and post intervention questionnaires

Data collection was conducted using the Domestic and Family Violence (DFV) training assessment questionnaires developed by Baird et al. (2018) [19], which is a validated data collection tool, with permission obtained in

advance. Both parts of the questionnaire were translated from English to Greek using the standard forwards-backwards method and culturally validated by a panel of experts that included academics, a registered psychologist, a social worker, and an NGO expert on gender-based violence. The pre-intervention assessment questionnaire included 5 sections. Section **Background** included demographics, educational level, working status, area of practice, type and date of prior IPV education. Section **Method** encompassed 15 items with 5-point Likert responses (1 = strongly disagree to 5 = strongly agree) about workplace factors supporting routine enquiry. Section **Results** aimed to gather respondents' reports on their preparedness to conduct routine enquiry and provide support to women experiencing IPV. Participants rated their preparedness using a five-point Likert scale, where 1 indicated "unsure," 2 "not at all prepared," 3 "minimally prepared," 4 "moderately prepared," and 5 "well prepared". Section **Discussion** included a set of questions assessing knowledge about IPV issues, with responses categorized as true, false, or do not know. In Sect. **Conclusions**, midwives' attitudes towards investigating and practical care of women experiencing IPV were examined by a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). The post-intervention assessment questionnaire included the same 5 sections, along with a set of questions regarding the evaluation of the program.

Data analysis

Descriptive statistics were used to summarize participants' characteristics. For each scale included in the questionnaire, items were reverse scored where necessary to ensure consistency in score direction. Composite total and subscale scores were then calculated by summing the relevant items. Frequencies and descriptive measures, including means, standard deviations, and score ranges, were used to describe the data. A paired-samples t-test was conducted to compare pre- and post-intervention mean scores for knowledge, attitudes, and preparedness to undertake routine IPV enquiry. Data analysis was performed using IBM SPSS Statistics, and statistical significance was set at $p < .05$.

Ethical considerations

Approval for the study was obtained from the Cyprus National Bioethics Committee (EEBK EPI 2020.01.137) and the Postgraduate Committee of the Department of Nursing, Cyprus University of Technology. The invitation pack included an information sheet explaining the purpose of the study, potential risks and benefits, and assured confidentiality of the information collected, as well as the voluntary nature of participation, emphasizing that participants could withdraw from the study at any time without any consequences. To preserve anonymity, no names or personal identifiers were collected in the questionnaires, and participants were assured that their data would be reported only in aggregate form. However, each participant was assigned a unique code used to match responses between the pre- and post-intervention questionnaires. A consent form was also provided, and participants were requested to return it signed within two weeks prior to the start of the educational intervention. The consent form also stated that a certificate of attendance would be issued only to those who (a) fully attended the program and (b) completed both the pre- and post-training questionnaires.

Given the sensitive nature of the topic of intimate partner violence, support resources and referral information were made available throughout the training. In addition, participants were encouraged to contact the facilitators if any content caused emotional distress or discomfort. A Professor of Mental Health Nursing was part of the training team and had a key role in addressing psychological distress, providing immediate support when needed, and ensuring that appropriate guidance was available for participants who might have been affected by the content. Participants who did not complete the post-intervention questionnaire were not actively contacted for follow-up, to maintain voluntary participation and avoid any perception of pressure or coercion.

Results

A total of 171 midwives participated, representing approximately 49% of all registered midwives in the Republic of Cyprus - a substantial proportion of the national midwifery workforce and participated in online training (educational intervention). Of these, 103 midwives completed both the pre- and post-intervention questionnaires and were included in the final analysis (Table 1), corresponding to a completion rate of 60.2%. The sample was predominantly female (99%), with only one male (1%) participant. Most participants worked in private maternity hospitals/clinics (55.3%), and the average work experience was 8.85 years ($SD = 8.84$). Approximately half of the participants held a Master's degree in Midwifery (49.5%), while the remaining had a Bachelor's degree (33.0%), a postgraduate diploma (12.6%), or a PhD (1%).

Regarding previous training on IPV in pregnancy, 35.9% ($n=37$) reported no relevant training, while 35% ($n=36$) had attended a lecture on the topic. Only 2.9% reported training through a skills-based workshop, while none had received in-hospital training on IPV. Other sources of information on the subject included watching relevant DVDs or participating in online courses, with 15.5% ($n=16$) having read a hospital violence policy/protocol. Among those who reported receiving some form of training on the topic, the average training duration

Table 1 Demographics

		N	Valid Percentage
Gender	Male	1	1.0%
	Female	102	99.0%
	Total	103	100.0%
Highest educational qualification	Certificate	0	0.0%
	Diploma	0	0.0%
	Degree	34	33.0%
	Postgraduate Diploma	13	12.6%
	Master's Degree	51	49.5%
	PhD	1	1.0%
	Other	4	3.9%
	Total	103	100.0%
Work status	Full Time	83	80.6%
	Part Time	7	6.8%
	Casual Work	13	12.6%
	Total	103	100.0%
Area of practice	Private sector	57	55.3%
	Public sector	46	44.7%
	Total	103	100.0%
Type of prior training about IPV	None	37	35.9%
	Read hospital policy	16	15.5%
	Watched a DVD	9	8.7%
	Attended a lecture or talk	36	35.0%
	Hospital training (½ day)	0	0.0%
	Attended a skills-based workshop (1 or more days)	3	2.9%
	Completed an online training module	1	1.0%
	Other	1	1.0%
	Total	103	100.0%
How recent was this education/ training about IPV?	Within the last month	6	5.8%
	Within the last 6 months	9	8.7%
	Within the last year	16	15.5%
	Between 2–5 years	23	22.3%
	More than 5 years ago	8	7.8%
	I don't remember/ No training	41	39.8%
	Total	103	100.0%

was 2.24 h (SD=3.47). Almost half of these participants received their training more than two years before the current intervention.

Workplace factors affecting routine enquiry about IPV in pregnancy

The participants responded to 15 questions related to workplace culture and the routine enquiry of IPV in pregnancy (Table 2). More than half of the participants (54.3%, $n=56$) reported that they are encouraged in their workplace to enquire about IPV. A slightly larger percentage (55.4%, $n=57$) stated that they felt supported by their managers to enquire about IPV, and 54.3% ($n=56$) felt similarly supported by their colleagues. However, a slightly smaller percentage (46.6%, $n=48$) reported feeling supported by gynecologists.

In terms of feeling supported to make appropriate referrals for women experiencing IPV, 47.6% ($n=49$) agreed or strongly agreed, though a notable 34% ($n=35$) expressed uncertainty. Regarding familiarity with IPV management protocols in clinical settings, 34.9% ($n=36$) felt familiar, 37.9% ($n=39$) neither agreed nor disagreed, and 27.2% ($n=28$) disagreed with this statement. Interestingly, there is no standardized protocol or policy on IPV across hospitals in the RC, raising questions about the provided responses.

When asked whether personal experiences of violence influenced participants' motivation to enquire about IPV, 34% ($n=35$) were uncertain, while 30.1% ($n=31$) agreed. Similar findings emerged regarding concerns about personal safety when enquiring about IPV, with 29.1% ($n=30$) reporting uncertainty, 25.2% ($n=26$) agreeing, 25.2% ($n=26$) disagreeing, and 16.5% ($n=17$) strongly disagreeing. Participants also expressed concerns about potentially offending women or negatively affecting therapeutic relationship through routine IPV enquiry, with 41.7% ($n=43$) agreeing or strongly agreeing, 28.2% ($n=29$) disagreeing, and 30.1% ($n=31$) neither agreeing or disagreeing.

Regarding obstacles to conducting IPV enquiry, 60.2% ($n=62$) reported that partner's presence during visits posed a significant barrier, as did language barriers among immigrant women, reported by a similar percentage.

Table 2 Perceptions of workplace factors

	Strongly disagree		Disagree		Unsure		Agree		Strongly agree	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Policies/practices										
My workplace encourages me to respond to IPV	13	12.6%	11	10.7%	30	29.1%	36	35.0%	13	12.6%
I am familiar with hospital policies and guidelines in regard to routine enquiry and management of IPV.	11	10.7%	23	22.3%	33	32.0%	29	28.2%	7	6.8%
I am familiar with the protocol for dealing with IPV in my clinical area.	11	10.7%	17	16.5%	39	37.9%	30	29.1%	6	5.8%
I felt supported by medical colleagues.	7	6.8%	12	11.7%	36	35.0%	37	35.9%	11	10.7%
I felt supported by my manager.	8	7.8%	12	11.7%	26	25.2%	42	40.8%	15	14.6%
I felt supported by my peers.	6	5.8%	9	8.7%	32	31.1%	40	38.8%	16	15.5%
I am supported to make appropriate referrals for women experiencing IPV.	8	7.8%	11	10.7%	35	34.0%	39	37.9%	10	9.7%
Experiences										
Sometimes my own personal experience of violence interferes with routine enquiry.	13	12.6%	20	19.4%	35	34.0%	31	30.1%	4	3.9%
Sometimes my concern about personal safety interferes with routine enquiry.	17	16.5%	26	25.2%	30	29.1%	26	25.2%	4	3.9%
Fear of offending a woman interferes with routine enquiry.	8	7.8%	21	20.4%	31	30.1%	36	35.0%	7	6.8%
Obstacles										
Presence of a partner at the interview interferes with routine enquiry.	10	9.7%	7	6.8%	24	23.3%	32	31.1%	30	29.1%
Language barriers (e.g. non –English speaking) interfere with routine enquiry.	4	3.9%	8	7.8%	29	28.2%	33	32.0%	29	28.2%
My practice setting allows me adequate time to respond to disclosures of IPV.	18	17.5%	21	20.4%	38	36.9%	20	19.4%	6	5.8%
I am too busy to participate in multidisciplinary team meetings to manage IPV cases.	15	14.6%	26	25.2%	42	40.8%	17	16.5%	3	2.9%
There is adequate private space in my workplace for me to enquire about IPV with women.	25	24.3%	24	23.3%	33	32.0%	14	13.6%	7	6.8%

Regarding the adequacy of time provided to address IPV, and the availability of multidisciplinary team support for managing such cases, only 5.8% and 2.9% respectively agreed. Approximately 36.9% and 40.8%, respectively, expressed uncertainty or even disagreement (17.5% and 14.6%, respectively).

The availability of adequate private space for IPV enquiry was also assessed, with 32.0% ($n=33$) expressing doubt about this, while 47.6% ($n=49$) disagreed or strongly disagreed that such private spaces were available in their workplace.

Knowledge about IPV

Participants' knowledge of IPV was assessed before and after the educational intervention (Table 3). The mean percentage of correct responses increased across several key knowledge items after the intervention. Specifically, the mean correct response rate for "Reasons for concern about IPV should not be included in a woman's handheld notes if she does not disclose the violence" increased by 12.6% mean difference ($m.d.$) = 12.6%, $t(102)=2.18$, $p = .032$). The mean correct response rate for "Midwives should not pressure women to acknowledge they are living in a violent relationship", increased by 11.7% ($m.d. = 11.7\%$, $t(102)=2.63$, $p = .010$). The mean correct response for "Strangulation injuries are rare in cases of IPV" increased by 18.4% ($m.d. = 18.4\%$, $t(102)=2.94$, $p = .004$). The mean correct responses for the statement "Even if a child is not in immediate danger, I still have a responsibility to report an instance of a child witnessing IPV to the Hospital Social Worker", increased by 10.7% ($m.d. = 10.7\%$, $t(102)=2.75$, $p = .007$). Similarly, the mean correct responses for the response "I have a responsibility to contact services in the community to establish a referral", increased by 10.7% ($m.d. = 10.7\%$, $t(102)=2.94$, $p = .004$). For all other items, there were not statistically significant differences in the mean percentage of correct responses before and after intervention, at the 5% level.

The overall knowledge score post-intervention was statistically significantly higher than pre-intervention ($M=7.8$, $t(102)=4.29$, $p < .001$). After the intervention, the mean percentage of correct responses ($M=65.9\%$, $SD=13.1\%$) was significantly higher than before the intervention ($M=58.0\%$, $SD=15.7\%$).

Table 3 Pre-post correct knowledge responses about IPV

Question	Pre		Post		m.d.	p
	Mean	S. D.	Mean	S. D.		
Alcohol consumption is the greatest single predictor of intimate partner violence	21.4%	41.2%	27.2%	44.7%	5.8%	<0.001
There may be good reasons why a woman stays in an abusive relationship	95.1%	21.6%	96.1%	19.4%	1.0%	<0.001
Reasons for concern about IPV should not be included in a woman's medical notes if she does not disclose the violence	45.6%	50.1%	53.4%	50.1%	7.8%	0.124
Reasons for concern about IPV should not be included in a woman's hand-held notes if she does not disclose the violence	53.4%	50.1%	66.0%	47.6%	12.6%	<0.001
When asking women about IPV, midwives should use words such as "abused" not "battered"	61.2%	49.0%	56.3%	49.8%	-4.9%	<0.001
Midwives should not pressure women to acknowledge they are living in a violent relationship.	13.6%	34.4%	25.2%	43.7%	11.7%	<0.001
Survivors of IPV are able to make appropriate choices about how to handle their situation	26.2%	44.2%	35.0%	47.9%	8.7%	<0.001
Midwives should not pressure women to acknowledge they are living in a violent relationship.	70.9%	45.7%	81.6%	39.0%	10.7%	0.171
Survivors of IPV are at greater risk of injury when they leave the relationship	47.6%	50.2%	50.5%	50.2%	2.9%	0.013
Strangulation injuries are rare in cases of IPV.	54.4%	50.1%	72.8%	44.7%	18.4%	0.004
Allowing partners or friends to be present during a woman's history and physical exam ensures safety for an IPV victim.	68.0%	46.9%	78.6%	41.2%	10.7%	0.131
Even if a child is not in immediate danger, I still have a responsibility to report an instance of a child witnessing IPV to the Hospital Social Worker	86.4%	34.4%	97.1%	16.9%	10.7%	0.007
I have a responsibility to contact services in the community to establish a referral.	85.4%	35.4%	96.1%	19.4%	10.7%	0.041
Specialist training is needed to support women experiencing IPV	83.5%	37.3%	86.4%	34.4%	2.9%	0.598
Total correct knowledge responses	58.0%	15.7%	65.9%	13.1%	7.8%	<0.001

Preparedness to undertake routine IPV enquiry

Before the intervention, participants self-assessed their overall preparedness to conduct routine IPV enquiry at a mean score of 3.48 ($SD=0.94$) on a 1–5 scale. A paired-samples t-test showed a significant increase in the mean preparedness score after the educational intervention ($M=4.14$, $SD=0.66$) compared to the score before ($M=3.48$, $SD=0.94$; $t(102)=7.23$, $p < .001$) (Table 4). Overall, the mean score across all twelve items related to preparedness increased significantly, for routine IPV enquiry after intervention, each at a 1% level of significance.

The highest mean increase post-intervention was in “*identifying IPV indicators based on women’s history*” ($m.d. = 0.83$, $t(102)=7.18$, $p < .001$). The smallest mean increase was in “*compliance with the mandatory reporting requirements*” ($m.d. = 0.56$, $t(102)=4.85$, $p < .001$).

Attitudes about IPV

The mean scores decreased in a favorable direction after the intervention (Table 5) for the following statements: “*If a woman does not acknowledge abuse, there is very little I can do to help*” ($m.d. = -0.27$, $t(102)=2.18$, $p = .023$), “*Screening for IPV is likely to cause offence to women*” ($m.d. = -0.41$, $t(102) = -3.40$, $p = .001$), and “*Midwives do not have the skills to support women experiencing IPV*” ($m.d. = -0.24$, $t(102) = -2.08$, $p = .040$). These findings suggest that the intervention positively influenced key attitudes towards supporting women experiencing IPV, especially regarding midwives’ roles and capabilities in IPV screening and support. However, certain entrenched beliefs about personal responsibility and traditional roles remained largely unchanged. Overall, the difference in the mean attitude score before and after the intervention was not statistically significant ($m.d. = -0.05$, $t(102) = -0.76$, $p = .449$).

Discussion

The present study is among the few worldwide to address education on IPV during pregnancy, demonstrating an increase in participants’ preparedness to conduct routine IPV inquiry. Furthermore, this work aligns with prior research that highlights the importance of IPV training in equipping midwives to document incidents, support victims, and facilitate access to necessary services [21, 23]. Nevertheless, the findings of this research showed that attitudes toward IPV enquiry among participants showed no significant change, suggesting a need

Table 4 Pre-Post intervention preparedness to undertake routine enquiry IPV

	Pre		Post		m.d.	p
	Mean	S.D	Mean	S.D		
Ask questions about IPV	3.33	1.02	4.13	0.79	0.80	0.010
Appropriately respond to disclosures of abuse	3.38	1.06	4.06	0.79	0.68	0.001
Identify IPV indicators based on a woman’s history	3.58	1.07	4.41	0.72	0.83	0.046
Document my assessment of IPV in a way that ensures the woman’s safety	3.45	1.09	4.25	0.74	0.81	0.032
Help a woman assess her degree of danger	3.49	1.15	4.13	0.79	0.64	0.022
Make appropriate and safe referrals for the woman to other agencies	3.44	1.14	4.04	0.84	0.60	0.009
Help a woman experiencing IPV to create a safety plan	3.43	1.11	3.92	0.88	0.50	0.062
Make appropriate and safe referrals for the woman to other agencies	3.58	1.21	4.18	0.87	0.60	<0.001
Comply with the mandatory reporting requirements for IPV	3.50	1.15	4.08	0.81	0.58	0.005
Comply with the mandatory reporting requirements	3.53	1.18	4.10	0.77	0.56	0.001
Gather the necessary information to identify IPV as the underlying cause of a woman’s injuries (e.g., bruises, fractures, etc.)	3.69	1.13	4.28	0.78	0.59	<0.001
Discuss with a woman from a different cultural/ethnic background	3.41	1.10	4.12	0.92	0.71	<0.001
Total Preparedness	3.48	0.94	4.14	0.66	0.66	<0.001

Table 5 Paired samples t-test for attitudes about IPV

	Pre		Post		m.d.	p
	Mean	S. D.	Mean	S. D.		
If a woman does not acknowledge abuse, there is very little I can do to help	2.83	1.10	2.55	1.02	-0.27	0.023
It is important to ask all women about abuse in their relationships	3.56	0.90	3.73	0.98	0.17	0.147
It is possible to identify IPV without asking women about it	3.67	0.91	3.85	0.81	0.18	0.079
Women who abuse alcohol or other drugs are likely to have a history of IPV	3.62	0.90	3.68	0.88	0.06	0.595
Women experiencing abuse have the right to decide if midwives should intervene	3.64	0.98	3.49	1.09	-0.16	0.300
If women remain in the relationship after repeated episodes of violence, they must accept responsibility for that violence	2.97	1.12	2.98	1.11	0.01	0.940
Midwives do not have time to assist women experiencing IPV	2.27	1.10	2.11	1.10	-0.17	0.215
If a woman refuses to discuss the abuse, midwives can only treat the woman's injuries	2.55	1.05	2.53	1.08	-0.02	0.874
Women who are experiencing abuse could leave the relationship if they want to	3.55	1.17	3.71	1.23	0.16	0.253
Midwives do not have the knowledge to support women experiencing IPV	2.63	1.08	2.42	1.08	-0.21	0.092
Screening for IPV is likely to cause offence to women	2.92	1.06	2.51	1.01	-0.41	<0.001
Women who choose to step out of traditional roles are a major cause of IPV	2.90	0.96	2.85	1.09	-0.05	0.688
Midwives do not have the skills to support women experiencing IPV	2.52	1.09	2.28	0.99	-0.24	0.040
Some ethnic groups view violence against women as acceptable	3.25	1.17	3.32	1.21	0.07	0.642
Intimate partner violence is a crime and should not be tolerated	4.42	1.12	4.58	0.96	0.17	0.248
Attitudes (factor)	3.15	0.52	3.11	0.47	-0.05	0.449

for ongoing training that incorporates empathy, comprehensive IPV care, and practical strategies beyond factual knowledge [24].

Further evidence suggests that educational interventions on IPV may positively influence routine enquiry and referral practices among midwives, particularly when training is combined with institutional support and clear clinical pathways [16]. Previous studies [14, 15] involving midwives have reported increased confidence and frequency of IPV enquiry following targeted training programs. Nevertheless, improvements in knowledge and preparedness do not always translate into sustained behavioral change in clinical practice. In addition, it has been shown that structural barriers, including lack of appropriate conditions, limited time, insufficient screening tools, and absence of clear procedures and referral pathways, may continue to hinder routine enquiry IPV even after training completion [25].

This limited change in attitudes underscores that, although education is a necessary condition, it is not sufficient on its own to transform deeply rooted beliefs [26]. Attitudinal change requires continuous, experiential, and repetitive learning, alongside a supportive clinical practice environment in which healthcare professionals feel safe and confident to apply newly acquired knowledge [19]. Furthermore, the online format of the STOIPV program may have influenced participant engagement and the overall effectiveness of the intervention. It is possible that face-to-face training, incorporating greater interaction, discussion, and experiential learning opportunities, could have resulted in higher post-intervention participation rates and more substantial attitudinal changes. Future implementations of the program may therefore benefit from integrating more interactive components, blended learning approaches, and reflective exercises to further strengthen participants' engagement and attitudes toward IPV enquiry.

The present findings also confirm previous data showing that midwives and healthcare professionals report a lack of IPV training, or if trained, this was to a minimal extent [24]. Despite the establishment of well-defined competencies in midwifery education including gender-based violence topics, most midwifery educational institutions have deprioritized or excluded IPV-focused modules [27]. Indeed, research on integrating IPV topics into midwifery and nursing programs shows that academics cite barriers, such as overloaded curricula and a shortage of skilled faculty members to teach IPV-related content [28]. Despite these barriers and academics' reluctance to provide IPV-related education, short yet well-structured programs have proven to significantly increase participants' knowledge and awareness [29]. Such findings highlight the potential effectiveness of concise training sessions in raising awareness about IPV and equipping midwives with critical information and tools for their roles.

Nevertheless, data show that the more knowledge and skills healthcare professionals acquire, the more confident they feel in identifying and managing IPV [30].

Data from one study highlights that a supportive work environment among midwives and colleagues and clear clinical guidelines may positively affect preparedness to routinely enquire and manage IPV [31]. Protocols and clinical guidelines suggesting at least one prenatal visit alone for pregnant women would enable midwives to effectively conduct IPV enquiry [32]. Currently, lack of standardized protocols in many Mediterranean and southeastern European countries, including the RC, is linked with inconsistencies in how IPV in pregnancy is managed, often varying across maternity units, even in the same country. Without relevant guidelines, protocols and robust education midwives report concerns about personal safety and embarrassing women by bringing up sensitive topics, including IPV during pregnancy.

Interestingly, a significant portion of participants herein expressed uncertainty or reluctance regarding routine IPV enquiry, due to personal experience with violence, confirming previous findings [33, 34].

Strengths and limitations

The study's greatest strength is that it provided a unique opportunity for a large number of Greek Cypriot midwives to receive training on a topic previously unexplored in their professional education, thereby filling an important gap in midwifery training. However, despite completing the training, many participants did not respond to the post-intervention questionnaire, which may introduce non-response bias and limit the interpretability and generalizability of the findings, as no comparative analysis was conducted between those who completed both assessments and those who did not.

The study also had several limitations. First, the relatively small population of Greek Cypriot midwives may limit the generalizability of the program's effectiveness. Furthermore, the primarily obstetrician-led model of antenatal care in Cyprus, where midwives do not have a dedicated role exclusively in antenatal care, should be considered when interpreting the findings as it may limit their representativeness in relation to midwives' preparedness for IPV enquiry. Second, the post-intervention questionnaire was administered only two weeks after the training, which may not accurately reflect long-term retention of knowledge or sustained changes in practice. Finally, due to the COVID-19 lockdown, the educational program was conducted online; in-person training might have offered a more comprehensive and impactful experience for participants.

Future research should aim to expand similar educational programs and evaluate their effectiveness over a longer period. It would also be valuable to qualitatively explore midwives' perspectives on barriers to IPV enquiry and to design intervention studies assessing the effectiveness of IPV management strategies.

Conclusions

The "STOIPV" online program significantly improved Greek Cypriot midwives' knowledge and preparedness for routine IPV enquiry. Despite existing barriers, the present findings underscore the importance of a supportive environment for enquiring about IPV in maternity settings.

Future research steps will focus on the sustainability of these programs in the long term. This will allow to explore collaborative training programs that include midwives, physicians, social workers, and other healthcare professionals to support a multidisciplinary approach to IPV within healthcare settings. Furthermore, future research will investigate whether improvements in knowledge and preparedness translate into changes in clinical practice, including increased rates of routine IPV enquiry during antenatal care and greater confidence in responding to disclosures. Future work should also examine whether these educational interventions lead to increased referral of women experiencing IPV to appropriate support services and improved uptake of these services by women.

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Authors' contributions E.M. conceived the study, developed the methodology, conducted the investigation, curated the data, performed formal analysis, and wrote the original draft. C.K. contributed to the conceptualization, methodology, investigation, and data curation. M.K. contributed to the data curation and writing—review and editing. N.M. contributed to the data curation and writing—review and editing. E.H. contributed to the data curation, writing—review and editing, and supervision. All authors reviewed the manuscript except CK.

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Declarations

Ethics approval and consent to participate This study was approved by the Cyprus National Bioethics Committee, approval number [EEBK EPI 2020.01.137]. Written informed consent was obtained from all participants prior to their inclusion in the study.

Consent for publication Written consent for publication was obtained from all the participants involved in this study.

Competing interests The authors declare no competing interests.

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