Family Medicine & Primary Care Review 2023; 25(2): 197–211, https://doi.org/10.5114/fmpcr.2023.127681

REVIEWS

ISSN 1734-3402, eISSN 2449-8580

A systematic review of various interventions on domestic violence in pregnant women

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A – Study Design, **B** – Data Collection, **C** – Statistical Analysis, **D** – Data Interpretation, **E** – Manuscript Preparation, **F** – Literature Search, **G** – Funds Collection

Summary **Background.** Domestic violence comes in various forms, such as psychological, verbal, sexual, etc., and during pregnancy it has many complications, including maternal and foetal.
Objectives. This study aimed to investigate a variety of interventions performed concerning domestic violence and its dimensions in pregnant women in a systematic review.
Material and methods. The databases of Scopus, PubMed, SID and Web of Science were searched for the observational and interventional studies published in Persian and English examining interventions in domestic violence cases in pregnant women. The used keywords were "Domestic violence, Intervention, Pregnancy and other areas of violence". Unrelated and common cases were eliminated from 6,056 retrieved studies, and finally, the remaining articles consisted of 1, 6 and 11 articles concerning emotional, psychological and social interventions, respectively, along with 7 review articles.
Results. Studies have shown that most interventions are related to the emotional, psychological and social domains. The principles of interpersonal psychotherapy and rehabilitation counselling were emphasised in the psychological domain. In the social domain, most of the reviewed interventions indicated that researchers' efforts and the type of interventions were mostly based on social support, which is based on the structure and framework ranging from one's family level to society. Social applications of increasing women's health and safety were introduced through increasing effective interaction with healthcare providers, increasing the adoption of safety behaviours and improving providers' ability to detect domestic violence.
Conclusions. According to the reviewed studies, an integrated care system should be used that can encompass all effective factors in preventive interventions and continuous and effective care.
Key words: domestic violence, pregnancy, women.

Asadi N, Rad AM, Masoumi SZ, Kazemi F, Khodaveisi M. A systematic review of various interventions on domestic violence in pregnant women. *Fam Med Prim Care Rev* 2023; 25(2): 197–211, doi: https://doi.org/10.5114/fmpcr.2023.127681.

Background

Domestic violence (DV) is the most prevalent form of violence against women. Violence committed by a couple against each other or their child is called DV. DV is a behavioural pattern imposed on an intimate person through the use of fear, threats and annoying behaviour to apply power and control in three possible forms: psychological, sexual, physical, and controlling behaviours by the spouse and or other associates [1]. The World Health Organization (WHO) indicates that 16–52% of women experience violence by their partners, with 28% and 18–67% of women in developed and developing countries, respectively, reporting physical abuse at least once. According to global statistics, about 90% of DV victims are women, and the other 10% are men [2]. The issue of violence against women (VAW) is extensive in all countries worldwide, but exactly accurate statistics are not available due to lack of reporting, non-registration or underestimation. Women themselves are also involved in this statistical problem because they sometimes suffer from such a problem for years but do not dare to talk about it with anyone; hence, the real rate of violence seems to be higher than the reported figures [3].

The most prevalent forms of violence against women are verbal and psychological abuse. Sexual, economic and physical abuses were reported in subsequent order, respectively. The most common forms of verbal-psychological abuse in families are the assignment of children affairs to the wife (52%), strong reaction during opposition (40%), decision-making without consultation (34%), humiliation that ridicules or humiliates someone or behaviours making a person feel helpless, entrapped or in danger.

Sexual abuse has often occurred through the expectation from women to satisfy men at any time (53%), the excessive libido of men (44%) and abandonment of the wife after a man's satisfaction (26%). Physical abuse was reported in the form of pushing/throwing (6%), kicking/punching (5%) and twisting the arm/pulling hair (5%). The most common cases of economic abuse in families were the prevention of women by men from participating in economic decision-making (25%), achieving financial independence (19%) and spending family income on others. Other aspects of violence include emotional, social or

religious violence [4]. Nonetheless, the unpaid participation of women in the production of home and health services and care for children and the elderly, among others, are also included in these forms of violence in the WHO report [5]. Various factors such as poverty, addiction, psychiatric disorders, female gender and alcohol and drug addiction have been found to be effective in the occurrence of DV. All forms of verbal, physical and financial violence are associated with the economic status of the family, being more common among the labour class with lower economic conditions. Other factors affecting the occurrence of DV include low education, rented house and living with an unemployed and alcohol-addicted spouse [6].

Although all women are at risk, some groups are at higher risk, including adolescents, women with low socio-economic status and pregnant women. According to the WHO report, more than 45% of pregnant women reported a history of DV, and misbehaviour continues during pregnancy in most of such women. Pregnancy and the subsequent transition to the parental role can disturb the balance and peace of a couple and change the previous communication pattern [7].

Pregnancy alone imposes a lot of psychophysical stresses on a person, and consequently, its association with other stressors (e.g. violence) can adversely influence the foetus and mother; these complications can increase maternal and neonatal mortality and morbidity. Research has shown that abused women are 3.3 times more inclined to depression than other women [8]. Except for preeclampsia, the prevalence of DV is higher than that of all major medical conditions diagnosed through routine prenatal screening. Although DV includes a wide range of social problems of mothers and their children, many DV-exposed women are not identified by care systems. However, the contradictions in the statistics can be caused by differences in the definition and mothers' perceptions of violence, the employed tools and differences in the socio-cultural environment [9]. Therefore, the experience of violence and annoyance in pregnant women and the implementation of preventive programmes deserve serious and promising attention, and this important issue has unfortunately been concealed from the view of some societies. This has been declared by the WHO as a health priority, and all countries worldwide are requested to design and implement programmes to identify and address this problem [10].

VAW and its prevention methods have so far been examined in various interventions, some of which suggest that the use of psychoanalytic training for men and women are significantly effective in reducing the rate of violence against women. Legal and supportive educational strategies, such as family empowerment to increase coping skills with a spouse's violence, have been reported to be helpful. Reinforcement of premarital education and reconsideration of laws include approaches to prevent physical VAW. Improvement of public awareness and education when encountering the challenges of this transition has also been considered to be effective to reduce this phenomenon [11]. To prevent and solve this problem, studies have shown that women's attitudes toward VAW need a radical change, as well as an increase in the level of self-efficacy and empowerment in women. It is also suggested to provide women and health centre staff with the necessary education on the spousal abuse for empowerment of women and in screening this problem. The results of this study and similar studies indicate that providing solutions to reduce the phenomenon of VAW requires extensive in-depth analyses and research [12]. Therefore, the present study reviews the studies conducted on various interventions to reduce DV.

Material and methods

Inclusion criteria, data sources and search strategy

To achieve various interventions on DV during pregnancy, all conducted research, including observational and interventional studies (cohort, case-control, reviews and cross-sectional) and the databases of Scopus, PubMed, SID and Web of Science were searched using the following keywords:

- Domestic violence (Family violence);
- Intervention (Method, Study, Methodology, Procedure, Techniques);
- Pregnancy (Gestation);
- Psychological violence (Psychological Resilience, Psychological Theory, Phenomena Psychological, Psychological Model, Mental Model, Psychological Adaptation, Coping Behaviour, Coping Skill, Adaptive Behaviour, Psychological Technique, Psychotherapy, Cognitive Behavioural Therapies);
- Sexual violence (Sexual Dysfunction, Sexual Disorders, Sexual Arousal Dysfunction, Sexual Arousal Disorders, Sexual Aversion Dysfunction, Sexual Aversion Disorders, Abstinence Sexual, Sexual Health);
- Verbal violence;
- Emotional violence (affective);
- Social violence;
- Physical violence;
- Economical violence.

In this review study, the individual domains of economic, verbal, emotional, psychological, social, sexual and physical forms of violence studied previously were first searched by combining the relevant keywords in each of the databases, respectively. In a preliminary review, the titles and summaries obtained from 6,056 studies were reviewed by the researcher to match the areas related to the study with the following conditions: 1) all intervention studies that examined the types of interventions concerning DV in pregnant women, and 2) articles published in English and Persian with available full texts, regardless of the status and year of publication. Finally, 25 out of 143 reviewed articles remained in this review study after eliminating unrelated and duplicate articles, as well as those with only available abstracts (Figure 1). The full texts of the obtained articles were used to extract the required information in a table consisting of the authors, year of publication, place of implementation, type of study, sample size and research results.

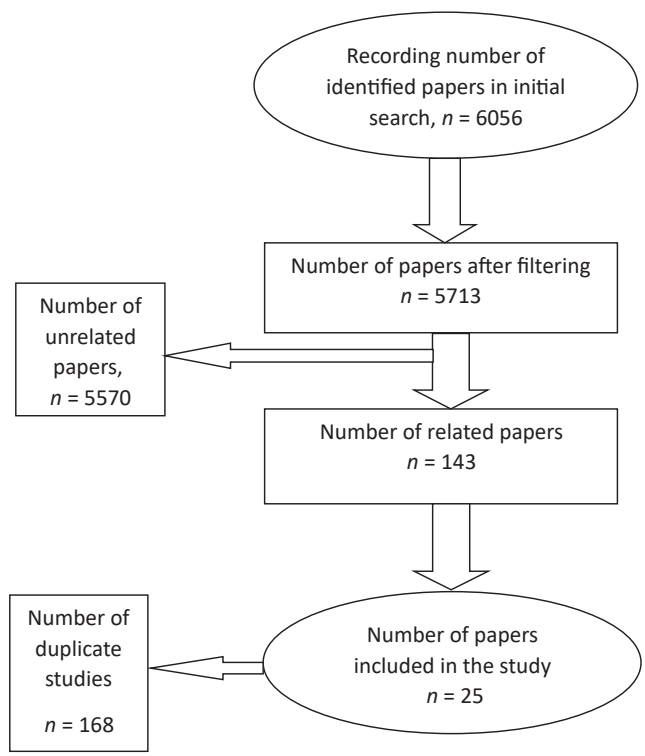

Figure 1. PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) flow

Screening strategy and quality appraisal

The quality of studies was evaluated based on the Newcastle Ottawa Statement (NOS) checklist [13], examining the following items in the studies (cohort, case-control and cross-sectional).

Accordingly, the quality of studies was divided into good, medium and poor.

- Good quality: three or four stars in the **selection**, one or two stars in the **comparison** and two or three stars in the **consequence** sections.
- Medium quality: two stars in the **selection**, one or two stars in the **comparison** and two or three stars in the **consequence** sections.
- Poor quality: zero or one star in the **selection**, zero in the **comparison** and zero or one star in the **consequence** sections.

Ethical approval

This research was approved by the Ethics Committee of the Hamadan University of Medical Sciences under code IR.UMSHA.REC.1398.854.

Results

Studies on violence against pregnant women were searched and categorised in 7 domains of emotional, economic, physical, psychological, verbal, social and sexual violence based on the interventions. However, several domains were common in many studies, which were categorised in 1 domain and excluded from another depending on the type of intervention. After excluding unrelated and shared items, the final remaining articles consisted of those on emotional intervention (1 article), psychological intervention (6 articles), social interventions (11 articles) and review articles (7 articles). The interventions conducted in the reviewed articles are briefly described below.

In this study, DIL (daughter-in-law) and MIL (mother-in-law) met with an experienced counsellor at the clinic for 1 h. If necessary, appointments were made during non-clinical hours, and the mothers' health and mental health were evaluated during pregnancy. They were advised to contact the project manager in the event of any threat to their safety or health due to their participation or for other reasons. According to the results, young women who were victims of DV could use the experiences of their MILs as a facilitator in debates and disputes [14] (Table 1).

The review of the interventions revealed 6 interventions in psychology that provided education mostly based on psychological-behavioural theories.

In the first intervention, sessions were presented simultaneously with prenatal care according to the risks that threatened the participant (DV, depression, etc.). At each session on pregnancy, assignments were prepared to reinforce the women's intervention, and a counsellor was assigned to each clinic to counsel the spouses of the participating women. The effect of the intervention was evaluated through telephone interviews, assessment of biomarkers and medical records. Telephone interviews were done in the second and third trimesters and after delivery. A social worker directly assisted mothers to access the resources required by society, and the research focused on the empowerment of women to access resources rather than relying on a social worker [15].

The second intervention used the principles of interpersonal psychotherapy (IPT), with an emphasis on strengthening support and social support for women undergoing DV. The IPT-based intervention consisted of four 60-min sessions four weeks before delivery, followed by a 60-min "as a booster" session two weeks after delivery. This intervention aimed to improve important interpersonal relationships, change expectations about them, help build or improve their social support networks and dominate their role in the transition to the maternal role [16].

In this category, another intervention employed a rehabilitation counselling model, during which the assaulted women can purify their emotions during educational sessions and use strategies, such as stress management and problem-solving techniques, to improve and support their psychological health. Due to the specific psychological conditions that are experienced in DV, this strategy will play a substantial role in moderating the situation. Another item used in this model was supportive counselling, in which one of the main points of intervention was empathetic and non-judgmental listening, the same as the previous intervention mentioned above [17].

CTS engagement tactics were used in the fourth intervention, in which the frequency of high-risk behaviours of one's partner during the past year was measured using the main CTS scale. An intervention based on the women's empowerment protocol, including safety counselling, selection and problem-solving methods, was then designed to strengthen the independence and control of abused women. A component of empathy was added to the empowerment protocol that emphasised the acceptance and perception of women's feelings and helped them to positively evaluate themselves and their feelings [18].

The fifth clinical trial study with a target group of married men investigated the effect of an intervention called CHARM, which was based on a theoretical framework including Social Cognition Theory (SCT) and Theory of Gender and Power (TGP). Three counselling sessions on gender, culture and family plan-

Table 1. Studies on emotional interventions

Author	Year	Title	Type of article	Sample size	Interventions and results
Suneeta Krishnan et al. [14]	2012	Minimising risks and monitoring safety of an antenatal care intervention to mitigate domestic violence among young Indian women: The Dil Mil trial	Randomised Clinical Trial	Bengaluru, India adult (18–30 year old) married, pregnant women (DILs) with a history of DV and their MILs. n: 30	• An educational programme was implemented based on the principles of participatory learning and practice, in which role-playing and discussions were held separately and jointly to strengthen the knowledge, skills and social support of participants. • Education to interact with participants in a respectful manner to facilitate the disclosure of domestic conflict and violence. • Employees seeking signs of emotional distress and emotional support for women undergoing violence.

ning + gender equality (FP + GE) were presented by service providers to married men (sessions 1 and 2) and couples (session 3) over 3 months, and the impact of the intervention was assessed on attitudes toward IPV and its application in men. The SCT assumes that behaviour most probably changes when the individual perceives positive outcomes for participation in the behaviour, feels the ability to engage and control the behaviour and has an environment supporting the behaviour. TGP is a social structural theory assuming that the dynamics of power based on intrinsic gender can facilitate men's control over sexual decisions and reproduction, and some men may even use violence due to social norms. Therefore, counselling that can influence gender equality and normative beliefs in men, particularly if the counsellor is a reliable man, can be useful when using contraceptives in safer and violence-free relationships [19].

Unlike the previous interventions, other factors besides DV were examined in the last psychological-behavioural intervention during prenatal and postpartum care to reduce smoking, exposure to second-hand smoke in the environment, depression and intimate partner violence during pregnancy, thus improving pregnancy outcomes. A clinical trial based on structural intervention and the stage of the woman's readiness for behaviour change was based on the empowerment theory. In this intervention, information was first provided on the types of abuse and the cycle of violence. Depression intervention was implemented based on the cognitive-behavioural theory (CBT) by focusing on mood management, increasing enjoyable activities and improving positive social interactions. A complete intervention for a specific risk required eight prenatal sessions. Intervention activities lasted 15–35 min on average in each session, in which the experienced danger was first determined by the woman. The intervention on intimate partner violence focused on safety behaviours based on a structural intervention developed by Parker et al. Based on this theory, follow-up was done by telephone interviews in the second and third trimesters of pregnancy (22–26 and 36–38 weeks of pregnancy, respectively) and 8–10 weeks after delivery. In this intervention, information was provided on the types of abuse and the cycle of violence. Besides this, the participants were provided with a safety plan and a list of community resources with addresses and telephone numbers [20] (Table 2).

Table 2. Studies on psychological interventions

Author	Year	Title	Type of article	Sample size	Interventions and results
Siva Subramanian et al. [15]	2012	An Integrated Randomised Intervention to Reduce Behavioural and Psychosocial Risks: Pregnancy and Neonatal Outcomes	Case-control	Intervention: 510 Usual care: 515	This intervention aimed to reduce the behavioural and psychosocial risk in 1,025 low-income pregnant women of African-American nationality who were divided into two groups of intervention and routine pregnancy care. 8 prenatal sessions were performed at each routine antenatal care visit and lasted 35–55 min, depending on the number of examined risks (smoking or associates smoking, depression, DV). However, at least 4 sessions were considered to be "sufficient" given the amount of material that could be covered during this course.
Caron Zlotnick et al. [16]	2011	An interpersonally based intervention for low-income pregnant women with intimate partner violence: a pilot study	Case-control	3 Rhode Island sites: 2 primary care clinics and 1 private OBGYN clinic. Intervention (*n* = 28) Control (*n* = 26)	The following measures were performed at the time of entry, 5–6 weeks after entry, 2 weeks after delivery and 3 months after delivery: 1. Corrected Tactical Scale (CTS2) to evaluate physical, psychological and sexual assaults. 2. At 3 months postpartum, the longitudinal interval follow-up test (LIFE), a standard short interview to evaluate the presence of a depressive disorder and PTSD. 3. Using the Edinburgh Postpartum Depression Scale EPDS to measure the degree of depression. 4. The Davidson Trauma Scale as a 17-item measurement assessing the individual symptoms of PTSD on a 5-point frequency and intensity scale. 5. The history of trauma was assessed using the A criterion of the PTSD module.
Diksha Sapkota et al. [17]	2019	Counselling-based psychosocial intervention to improve the mental health of abused pregnant women: a protocol for a randomised controlled feasibility trial in a tertiary hospital in eastern Nepal	A 2-arm parallel-RCT with a nested qualitative study	Koirala Institute of Health Sciences Sample of 140 women at 24 to 34 weeks of pregnancy	The intervention was performed in 3 sessions of 30–40 min, and some of the employed strategies include stress management, problem-solving techniques, supportive counselling as empathetic listening, counselling with women non-judgmentally, training to make informed decisions and facilitating strategies. Follow-up was performed at 4-6 weeks after the intervention and 6 weeks after delivery.

Table 2. Studies on psychological interventions

Author	Year	Title	Type of article	Sample size	Interventions and results
Agnes Tiwari et al. [18]	2005	A randomised controlled trial of empowerment training for abused Chinese pregnant women in Hong Kong	Randomised Clinical Trial	110 Chinese pregnant women with a history of abuse by their intimate partners	The one-on-one interview lasted about 30 min. At the end of the intervention, each woman received a brochure to support the provided information. Standard care for violated women was provided to those in the control group, which included a business card the size of a wallet containing information on community resources for abused women, including a shelter hotline, law enforcement, social services and non-governmental organisations.
Anita Raj et al. [19]	2016	Cluster Randomised Controlled Trial Evaluation of a Gender Equity and Family Planning Intervention for Married Men and Couples in Rural India	Randomised Clinical Trial	1,081 couples recruited from 50 geographic clusters (25 clusters randomised to CHARM and a control condition)	The effect of CHARM intervention on the use of contraceptive methods and unwanted pregnancies and on attitudes toward IPV and its application in men, including the importance of making decisions about appropriate family planning, mutual communication and marital interaction (including no violence of spouses in meetings of men).
Michele Kiely et al. [20]	2010	An Integrated Intervention to Reduce Intimate Partner Violence in Pregnancy A Randomised Controlled Trial	Randomised Clinical Trial	1,044 women during pregnancy and postpartum (n: 521) and usual care (n: 523)	Interventions were performed during routine pregnancy visits by interveners (social workers or psychologists) in clinics. The intervention activities, which generally address the risks identified in each session, lasted for 15–35 min on average. The danger experienced by the woman was raised at each intervention session, irrespective of previous risks. The intervention on intimate partner violence focused on safety behaviours and was based on a structural intervention developed by Parker et al. Based on this theory, the follow-up occurred by telephone interviews in the second and third trimesters of pregnancy (22–26 and 38–38 weeks of pregnancy, respectively) and 8–10 weeks after delivery.

Most of the interventions reviewed in this study were based on the social domain, among which there were interventions that offered solutions to the prevention of DV.

A descriptive study by Helton and Snodgrass revealed that pregnancy care professionals could interrupt the cycle of violence at three levels of prevention. Strategies provided for primary prevention include education on beating (including the issue of DV in parental and childbirth education classes), promotion of legal changes to increase the punishment for beating and reduction of inequality for women, designing programmes for families at risk of violence and assessing the extent of the problem and providing education to the community on this problem. This indicates that special rules should be added to existing rules, in addition to educating people in the society. The secondary prevention cases include screening women for beating, discussing abuse with male clients, providing early diagnosis and crisis intervention for battered women and children and encouraging consultation with medical specialists for violent men. The third level of prevention includes the referral of battered women to shelters, counselling with family members, legal associations, police offices, counselling services to provide better services to battered women and providing ongoing care and follow-up for battered women involved in court procedures [21].

The next study, Safe Mom and Safe Baby (SMSB), was an interdisciplinary clinical programme that primarily aimed to increase women's health and safety by increasing effective interaction with healthcare providers, increasing acceptance of safety behaviours and improving the ability of interdisciplinary providers to identify DV and influence health policy at the local and state levels. The most important action of this programme is one's self-empowerment provided to the individual after entry into the programme, crisis intervention, emotional support in various healthcare systems and special safety strategies [22].

A clinical trial called MOSAIC was performed with the support of individuals called "mentor mothers" for abused women or those at risk of abuse. The intervention tried to find out whether or not non-professional support, such as listening and non-judgmental friendship, creating a trustable relationship, etc., could be useful in the event of violence. This relationship includes listening, support and non-judgmental friendship, maintaining weekly contact and support through phone calls and home visits, helping to develop safety strategies tailored to women's conditions, creating a trustable relationship and modelling a sense of hope, providing information and support to parents and helping one access community services (in particular DV services) and resources for women and their children.

The mentor mother was employed, selected and trained through local newspapers, volunteer networks, advertisements and radio. A programme coordinator accompanied the mentor to visit abused women and to facilitate their understanding of roles and responsibilities, boundaries and goals. It was found that this programme would lead to the reduction of partner violence and depression among pregnant women and reinforcement of the general health of women at risk along with their children. An effective counselling and multidisciplinary intervention was implemented among pregnant women to reduce smoking, depression and DV. The women in the intervention group learned appropriate verbal and non-verbal behaviour

when dealing with DV, and the results showed better self-confidence and, consequently, reaction [23].

In most of the reviewed interventions, the researcher's effort and the type of intervention were mostly based on social support, which is variable from one's family level to society depending on the type of structure and framework. According to a qualitative study, emotional support was the most common form of support received by most participants. Moreover, social support from the family includes emotional support, practical support, information and/or mediation. Besides this support in the family, other noteworthy solutions included structural interventions such as providing legal aid in child custody cases, helping women towards financial independence, creating communication campaigns to address the stigma of divorce, legal aid for women who prefer to stay married and providing advice on dealing with social marital problems [23].

In addition to the performed interventions, it is noteworthy to examine the presence of a nurse or trained staff in one's home, and its effectiveness in reducing the incidence of DV was compared with routine prenatal care in the next intervention. The women in the intervention group were visited at home by a trained nurse about 10 times during pregnancy, with 20 cases in the first and 20 cases in the second years after delivery. The mothers were also contacted using SMS, telephone and social media. Structured home visits were examined in all 6 domains (maternal health status, child health and safety, maternal personal development, mother as role model, mother relationships with partner, family and friends and the use of support institutes). If possible, the spouse or father of the child was present at each home visit. All women were interviewed privately 3 times at home during the 28th and 32nd weeks of pregnancy and 24 months after birth. The prevalence of IPV was measured using the revised Conflict Tactics Scale (CTS2) at 32 weeks of gestation and 24 months after birth. Nurses monitored the home environment to identify risk factors for IPV and observe the presence/absence of IPV. In the control group, women received routine care, including prenatal healthcare provided by a midwife or gynaecologist [25].

In this intervention, the couple jointly participated in the intervention. Structured questionnaires were initially delivered to male participants. After beginning and randomisation, the intervention was performed with the intervention group. Follow-up surveys were conducted with men and their current partners after 4 months and again 16 months of the intervention. The women were then asked questions about their experiences with IPV. Male and female interviewees received ethics and safety training. In this intervention, a curriculum was used for 15 sessions concerning gender and power, fatherhood, couple communication and decision-making, IPV, care, child growth and the involvement of men in reproductive and maternal health [26].

The next study employed the role of nurses and health workers in the prevention or reduction of the DV rate, implemented under the Nurse-Family Partnership (NFP) programme. This programme is a series of triple preventive interventions in the NFP programme, in which the nurses conducting the project are trained specifically on the topic of DV. Participants enrolled for 20 months and were followed up for 1–2 years. In this experiment, the intervention consisted of 3 main components: nurse education and DV screening assessment, secondary prevention for those who reported DV and a primary preventive component for all participants. The first component was the intervention group nurses who were trained specifically on DV in the NFP programme. The second part was a secondary prevention intervention in women who reported to their nurse that they were experiencing DV, and the third part was an intervention based on a skill training programme that was implemented among all women who received the intervention [27].

The Adelante intervention was among the most different interventions consisting of several components of empowerment and related educational intervention as a general strategy to engage the community and create awareness, promotion and mobile-based advertising, including SMS and web/weblog-based narrative stories, in which the challenges faced by the youth and the ideals are visualised in the characters of the film. This clinical trial, called "webnovel", is a 6-part web-based series that follows the lives of 2 teenagers. The young participants engaged in narrative storytelling involving brainstorming on topics and experiences currently affecting young people, resulting in a digital product containing prevention messages prepared by the target audience. Online activities are a useful alternative when young people cannot be physically present and seem to be more like entertainment and less like a health class. Therefore, it can be used as an effective method to communicate prevention messages [28].

The next intervention used the McFarlane & Parker protocol, which was presented in the form of brochures and booklets for women subjected to DV during pregnancy by their husbands. Participants completed a 15-item safety assessment questionnaire and then received a prevention and intervention protocol. The intervention was performed in 3 periods, and each session lasted about 20 min: first at the time of enrolment, and twice at equal durations throughout pregnancy. The researchers examined the cycle of violence and individual behaviours that are associated with increasing the risk to women. Components of a safety programme were examined for each woman, including safety behaviours such as methods of supplying money, extra keys and important documents. They were then trained about appropriate information and strategies [29].

The term "mentor mothers" was used in another trial in which mentor mothers were employed by healthcare providers from the Violent Women's Shelter Centre or family physicians. The support of mentor mothers included 1 h of weekly visits for 4 months, active non-judgmental listening and support, building a trustable relationship, and women empowerment. Visits occurred at home, in the family or in any other place where the mother felt safe and convenient. The "mentor mothers" were trained for 10 days on 4 important topics: 1) providing safety behaviours, 2) expanding social support to drive off the isolation of mother and child, 3) matching depression symptoms and accepting professional help, and 4) the effect of observing violence on children and accepting help for children [30].

In the next study, the target group was healthcare staff. The intervention aimed to increase the ability of these people to respond appropriately to abused people. The applied measures include: 1) intensive training (21 h) of selected staff to support and consult physicians and patients as needed; 2) training of all clinical and non-clinical staff; 3) preparation of training materials to prevent primary and secondary IPV, including brochures and posters describing healthy and unhealthy relationships and abuse; 4) development of quality improvement strategies and implementation of policies and procedures needed by all staff and specialist physicians to identify and prevent IPV; 5) A 4-h workshop on IPV, talking to IPV survivors and interactive training in clinical skills, intervention and primary prevention in physicians, nurses and medical assistants [31] (Table 3). 7 systematic review studies also investigated various interventions against domestic violence in pregnancy (Table 4).

Table 3. Studies on social interventions

Author	Year	Title	Type of article	Sample size	Interventions and results
Anne Stewart Helton et al. [21]	1987	Battering During Pregnancy: Intervention Strategies	Randomised clinical trial	–	Primary prevention strategies include education on beating (including the issue of DV in parental and childbirth education classes), promoting legal changes to increase the punishment for beating and reduce the inequality of women, designing programmes for violence-exposed families and assessing the extent of the problem to provide community education on the problem. Secondary prevention includes screening women for beating, discussing with male clients about abuse, providing early diagnosis and crisis intervention for battered women and children and encouraging violent men for counselling with health specialists. The third prevention includes referring battered women to shelters, counselling with family members, legal associations, police offices, and shelters, counselling services to provide better services to battered women, and providing ongoing care and counselling for battered women involved in court procedures.
Alice Kramer et al. [22]	2012	Safe Mom, Safe Baby A Collaborative Model of Care for Pregnant Women Experiencing Intimate Partner Violence	Randomised clinical trial	–	The most important action of this programme is empowerment. After entry into the programme, the participant is provided with crisis intervention, emotional support in various healthcare systems and specific safety strategies to implement the intervention.
Angela J Taft et al. [23]	2009	MOSAIC (Mothers' Advocates in the Community): protocol and sample description of a cluster randomised trial of mentor mother support to reduce intimate partner violence among pregnant or recent mothers	Randomised clinical trial	Maternal and child health (MCH) nursing services in disadvantaged suburbs of Melbourne, Australia. 165 women in each trial arm with individual randomisation.	In this intervention, the researcher tried to find out whether or not non-professional support, such as listening and non-judgmental friendship, building a trustable relationship, etc., could be applicable in the event of violence. A 12-month relationship, abbreviated as MOSAIC, was implemented on mentoring, counselling and communication with individuals called "mentor mothers" for abused women or those at risk of abuse.
Geofrey Sigalla et al. [24]	2018	"Staying for the children": The role of natal relatives in supporting women experiencing intimate partner violence during pregnancy in northern Tanzania – A qualitative study	Qualitative study	18 participants who experienced physical IPV during pregnancy were purposefully selected from a group of 1,111 pregnant women.	Family social support: The types of provided support were emotional support, practical support and information and/or mediation. Emotional support was the most common form of support received by most participants. Examples of structural interventions include providing legal aid in child custody cases, helping women towards financial independence, conducting communication campaigns to address the stigma of divorce, legal aid for women who prefer to stay married and providing advice on procedures to deal with marital problems.
Jamila Mejdoubi et al. [25]	2013	Effect of Nurse Home Visits vs. Usual Care on Reducing Intimate Partner Violence in Young High-Risk Pregnant Women	Randomised controlled trial	460 pregnant women up to 28 weeks of pregnancy	In the intervention group, the women received about 10 home visits during pregnancy by a trained nurse in the first and second years (each for 20 cases) of the child's life. In the control group, the women received routine pregnancy care.

Table 3. Studies on social interventions

Author	Year	Title	Type of article	Sample size	Interventions and results
Kate Doyle et al. [26]	2018	Gender-transformative Bandebereho couples' intervention to promote male engagement in reproductive and maternal health and violence prevention in Rwanda	Randomised controlled trial	intervention (*n* = 575 couples) or control group (*n* = 624 couples)	Structured questionnaires were initially delivered to male participants. After the beginning and randomisation, the intervention was implemented with the intervention group. Follow-up surveys were done with men and their current partners 4 months and again 16 months after the intervention. The women were then asked questions about their experiences with IPV. Male and female interviewees received ethics and safety training. In this intervention, a curriculum was used in 15 sessions on gender and power, fatherhood, couples' communication and decision-making, IPV, care, child growth and men's involvement in reproductive and maternal health.
Lynette Feder Phyllis et al. [27]	2018	An Intimate Partner Violence Prevention Intervention in a Nurse Home Visitation Program: A Randomised Clinical Trial	Randomised clinical trial	238 pregnant women from Multnomah County	The role of nurses and health workers in the prevention or reduction of DV was used in several interventions, one of which is the implementation of the NFP+ programme. This programme is a series of a triple preventive intervention programme in the Nurse-Family Partnership (NFP) Programme in which the nurses conducting the project were trained specifically on the topic of DV.
Elizabeth Andrade et al. [28]	2015	Victor and Erika Webnovela: An Innovative Generation @ Audience Engagement Strategy for Prevention	Randomised clinical trial	Character development (*n* = 20) and creative development of episodes (*n* = 14)	Adelante intervention includes several components of empowerment and related educational intervention: a general strategy to engage the community to create knowledge, promotion and mobile-based advertising, such as SMS programmes and web-based narrative stories. The challenges faced by young people and ideals are visualised in the characters of the film.
Judith McFarlane et al. [29]	1998	Safety Behaviours of Abused Women After an Intervention During Pregnancy	Prospective, stratified cohort	A total of 132 pregnant women referred to the General Obstetrics Clinic were subjected to pregnancy violence	Based on the protocol of McFarlane & Parker (1994), a brochure was designed for this intervention, and each intervention session lasted about 20 min.
Maartje JW Loeffen et al. [30]	2011	Implementing mentor mothers in family practice to support abused mothers: Study protocol	Randomised clinical trial	–	Mentor mothers were educated about 1) providing safety behaviours, 2) expanding social support to overcome the isolation of mother and child, 3) matching with depressive symptoms and accepting professional aids, 4) the impact of violence observated on children and accepting aids for their children.
L. Kevin Hamberger et al. [31]	2014	Effects of a Systems Change Model to Respond to Patients Experiencing Partner Violence in Primary Care Medical Settings	Randomised clinical trial	–	A 4-h workshop comprising information on IPV, talking to IPV survivors and interactive training in clinical skills, intervention and primary prevention (physicians, nurses and medical assistants).

Table 4. Review of systematic review studies

Author	Year	Title	Type of article	Sample size	Interventions and results
Diksha Sapkota et al. [17]	2019	Interventions for domestic violence among pregnant women in low- and middle-income countries: a systematic review protocol	Systematic review protocol	Review of MEDLIN databases, CINAHL, Scopus, Embase, Web of Science	Screening for DV with comprehensive therapeutic interventions, such as counselling, psychotherapy and home visits, showed promising results. The use of brief psychological therapies, including cognitive-behavioural therapy and psychotherapy, led to increased self-esteem and reduced symptoms of depression and general anxiety in abused women. The effects of advocacy interventions, including counselling, empathetic listening and focusing on social support, among women who experienced abuse were evaluated in a study (2015). The study concluded that although the support of rights appears to reduce violence and improve health outcomes, the magnitude and consistency of these benefits were not clear. Another systematic study (2015) reviewed 19 randomised controlled trials (RCTs) to evaluate their effectiveness. Home intervention, including support services for women, could effectively reduce violence in the short term, but there was no evidence of the stability of this change in the long run.
Carol Rivas [32]	2015	Advocacy Interventions to Reduce or Eliminate Violence and Promote the Physical and Psychosocial Wellbeing of Women Who Experience Intimate Partner Abuse	Systematic review	A review of 11 clinical randomised studies and 2 quasi-experimental studies	This review focused on secondary and tertiary interventions to evaluate a wide range of interventions to help women. They reviewed 11 randomised clinical interventions and 2 quasi-experimental interventions in the field of advocacy interventions, including straightforward interventions, such as providing support, treatment or improving the response of professionals with whom they communicate (e.g. introducing screening protocols or providing training and education on partner abuse in DV services). Advocacy interventions concentrate on the concept of empowerment. Talking with a woman through potential solutions instead of being prescriptive and telling her what to do, helping women achieve the goals set by them rather than guiding and setting goals for them and helping them understand their situation and reaction thereto. The goals of advocacy programmes are multifaceted and may include helping abused women to access services, guiding them through the safety planning process and improving physical or mental health.
Kathryn Howell et al. [33]	2017	The unique needs of pregnant, violence-exposed women: A systematic review of current interventions and directions for translational research	Systematic review of current interventions	–	This study reviewed 3 types of studies on DV in pregnancy. The first category of interventions aimed to reduce DV, including one-session screening, counselling or supportive counselling, psychological training and improving safety behaviours. The second category of interventions aimed at reducing the psychological effects of DV, which is only one intervention rooted in social support as the primary mechanism for positive behaviour change. In their 4-session treatment model based on interpersonal psychotherapy, they showed that changing relationships in women could increase mental health and reduce the risk of isolation. The third category was integrated care programmes targeting both mental health and harassment, including empowerment of mothers in the society, and the fourth category of interventions was about intergeneration risk regarding the birth of a healthy baby and the mother's relationship with the next generation.

Table 4. Review of systematic review studies

Author	Year	Title	Type of article	Sample size	Interventions and results
Heidi Nelson et al. [34]	2012	Screening Women for Intimate Partner Violence: A Systematic Review to Update the U.S. Preventive Services Task Force Recommendation	Systematic review	–	Case management consisted of an evaluation and care programme, and women were provided with a video of abuse and continued access to a nurse case manager. All participants were given ID cards with safety and misuse detection information, including telephone numbers for national and local sources. Some interventions include: • Prenatal behavioural counselling was performed for 4–8 sessions, up to 2 sessions after delivery. IPV counselling focused on safety behaviours and information on community resources. • A wallet-sized referral card with a safety programme and IPV service resources. The 20-min nurse case management protocol includes the preparation of a brochure with a 15-item safety programme, supportive care, anticipated guidance and guided referral. • Counselling intervention comprised educating patients about reproductive coercion and presenting information about local IPV and sources of assault.
An-Sofie Van Parys et al. [35]	2014	Intimate Partner Violence and Pregnancy: A Systematic Review of Interventions	A Systematic review of interventions	Review of a protocol study	• Integrated cognitive-behavioural intervention immediately before or after routine delivery care (2–8 sessions of 235 min and a maximum of 2 sessions after delivery). • All groups at 6, 12, 15, 21 and 24 months of age received free screening of children. The home visit programme pursues 3 broad goals: (1) to improve maternal and foetal health during pregnancy, (2) to improve the health of children, and (3) to boost the personality of mothers. • Helped women by promoting adaptive behaviours, improving their relationships with key family members and promoting the use of needed health and human services. • Women receive a card and are supported by non-professional mentor mothers for up to 12 months, including non-judgmental support, assistance in developing safety strategies, a trustable relationship, information and assistance in referral to community services. • Empowerment intervention: a one-on-one 30-min session (at registration) consisting of counselling on safety, selection, problem-solving and empathy, followed by presenting an information empowerment brochure after the session. • The intervention consisted of four 60-min sessions during 4 weeks before delivery and one empowerment session during the 2 weeks after delivery. The content of these sessions was based on the principles of interpersonal psychotherapy with an emphasis on social support. • Professionals who offer services to enhance child health, improve family functioning, and decrease risk-taking behaviors such as IPV and accessing community resources conduct home visits. The goal of these visits is to reduce child abuse. • Empowerment intervention: Abuse assessment, referral card (a list of service provider agencies to abused women) and social worker support (including a 30-min support counselling session with safety training and counselling by a trained social worker).

Table 4. Review of systematic review studies					
Author	**Year**	**Title**	**Type of article**	**Sample size**	**Interventions and results**
					• Receiving a referral card containing an individual care programme for providing emotional support, evaluating basic needs, assessing safety issues, discussing family concerns and presentation of training. • A 15-minute interactive multimedia intervention, which includes a doctor film and consultation, is designed to provide simulated risk reduction messages. The intervention also involves a discussion with a prenatal healthcare provider who seeks to impart basic principles and motivational interviewing techniques. • Among these 9 studies, 3 studies investigated the effectiveness of the home visit programme and assessed experts and mentor mothers (lay mothers who were trained to visit at home, provide support and counselling to peers); participants were followed up for 1–9 years. 6 other studies evaluated the effectiveness of a type of supportive counselling, from one 30-min session to six 60-min sessions or access to a nurse (NCM). Most interventions were specifically designed to target IPV as the main target, but some were part of a larger, multifaceted intervention in which IPV was a parallel target. The most promising results identified by this review are home visit programmes and multidisciplinary counselling interventions.
Jenifer M Gierisch et al. [36]	2013	Intimate Partner Violence: Prevalence Among U.S. Military Veterans and Active Duty Servicemembers and a Review of Intervention Approaches			• 2 SRs with behavioural interventions for female victims with routine care and control groups. • One of the SRs examined CBT for male wrongdoers who committed IPV against their female partners. • One SR evaluated short, advocacy and intensive interventions for female victims against routine care and control conditions. • Screening interventions including support, ongoing training and immediate access to services to increase IPV recognition. • Tested behavioural interventions including home visits, nurse management and counselling interventions with source card or mentor support. • Advocacy interventions include training and support to strengthen legal, housing and financial counseling, access and use of community shelters, emergency housing, psychological interventions and safety planning (12 h during the course) for women working in DV shelters.
Shayesteh Jahanfar et al. [37]	2013	Interventions for preventing or reducing domestic violence against pregnant women	Protocol		• There are some interventions to prevent violence against pregnant mothers. A study by Sharps (2008) revealed that home visit programmes would most probably improve pregnancy and infant outcomes. • Numerous studies indicate that interventions, such as holding cards with listed social resources, spending time in a shelter, individual counselling and home social support programmes, alone or in combination, lead to a reduction in physical abuse after 6, 12 and 18 months in comparison to people who have received no interventions. • For women, both screening and intervention programmes lead to referrals of identified individuals to appropriate healthcare specialists or support agencies.

According to our reviews on the quality of articles, 25 articles were assigned to a good quality class.

Discussion and conclusions

As discussed in the literature review, DV, in particular spousal abuse, is a widespread phenomenon in communities and a health priority, particularly in primary health care. Research has shown the role of biological, genetic, psychological, social, cultural and spiritual factors in the formation of DV. Therefore, an integrated care system should be used in preventive interventions and continuous and effective care that can cover all effective factors. The phenomenon of VAW is a complex and multifaceted issue, thus, the related coping strategies must cover different aspects and must be used in a harmonised manner [38].

The total number of studies reviewed here can be summarised in the 4 following groups.

The first group includes studies on strategies for better understanding, evaluation and investigation of violence, strategies to facilitate the disclosure of types of violence, providing non-professional support such as active listening, friendly communication and making a trustable relationship with the abused mother. This leads to better identification and gaining more trust from the mother to express violence [39].

In an intervention called MOSAIC (Mothers' Advocates in the Community), the researcher sought to realise whether or not unprofessional support, such as listening and non-judgmental friendship, building a trustable relationship, etc., could be beneficially used in the event of violence. After a 12-month relationship, it was found that this programme would reduce partner violence among pregnant women, mitigate depression and improve the general health of at-risk women and their children [23].

The second group of interventions is those with an emphasis on safety behaviours, behaviours for intervention and control in crisis situations, including various types of telephone follow-ups, home visits and communication and consultation with nurses, trained people and social emergencies, creating safe shelters to provide safety behaviours.

A group of interventions on spousal abuse are called "crisis intervention", the common forms of which include early interventions by police teams and victim assistance units, assessment and diagnosis in the hospital emergency ward, electronic technology to support injured women exposed to imminent danger, specific interventions by crisis lines and shelters for battered women and short-term treatment of victims' children. Among these short-term interventions on spousal abuse, the most promising interventions include 24-h crisis lines of support groups, shelters for abused women and psychotherapy, particularly with a cognitive-behavioural approach [40].

A review by Gordon on 12 outcome-oriented studies to evaluate the effectiveness of interventions conducted by community-based social services, crisis lines, women's groups, the police, clergymen, physicians, psychologists and lawyers showed that crisis lines, women's groups, social workers and psychologists were found to be very helpful, whereas the police, clergymen and lawyers were not helpful to women. This is the main reason that intervention in the health system was the main priority in the prevention of spousal abuse, in the health sector and in this study.

In developed countries, crisis centres and shelters for abused women are the cornerstones of programmes for DV victims. Most of these centres in Europe and the United States were founded by female activists but are now mostly managed by professionals and receive government assistance [41]. The 1980s and 1990s witnessed a wave of legal reforms related to the physical and sexual abuse of spouses. The number of countries that enacted these laws increased in subsequent years and is still on the rise. Most of these reforms include the criminalisation of physical, sexual and psychological abuses by spouses, applied either through the enactment of new laws or the revision of previous laws. The underlying message of these laws is that DV is a crime and is not tolerated by society.

The role of nurses and health workers in the prevention or reduction of the DV rate has been used in several interventions, one of which is the implementation of the NFP programme, where the nurses conducting the project are trained specifically on DV. According to the results, the education of health workers and nurses about training mothers will be effective in secondary prevention in women who have experienced violence [42].

The third group of interventions includes various educational programmes that improve the knowledge and skills of mothers and spouses to reduce or prevent violence. These training types include stress management, problem-solving and decision-making skills, making reciprocal relationships, marital problems and interactions, teaching ethics and safety to men and examining depression and PTSD, as well as training on clinical intervention and prevention skills for medical staff. This category of intervention is related to the primary or secondary prevention of domestic VAW. Interventions on women to increase their level of health are done with strategies such as gaining women's support and psycho-educational and therapeutic counselling in women. Most of the reviewed interventions are focused on teaching psychological techniques and life skills [43].

In a study by Basharpoour et al., one of the interventions focused on women is self-defence training skills, which is used as a tool to prevent violence between couples. Learning and exercising physical, social and cognitive skills provides women with the psychophysical readiness to cope with potential assault. Self-defines training techniques for women are practical, simple and effective in normal conditions so that all women can use them regardless of age, previous experience or physical strength.

Training self-defence skills can reduce the consequences of psychophysical violence by increasing women's defensive power and lowering the frequency of DV, thus, they can better use problem-solving strategies and improve their marital adjustment. According to the passive/dependent behaviour theory in the aetiology of VAW, the woman learns that having independence or courage increases male anger and violence because the man is violent, controlling and jealous. Training self-defence skills can interrupt this vicious cycle and reinforce the defence strategy against men, which in turn can indirectly affect adjustment [44].

Taghizadeh et al. provided evidence that among the components of problem-solving, self-confidence and personal control factors were lower in DV-exposed pregnant women than those not exposed to DV. Obviously, these women experience severe psychological/emotional stress at times of DV crisis, which affected their lack of problem-solving skills. Stress is considered the most important factor in the assessment of the problem-solving skills of abused women. Walker attributes the maintained violent relationship of women to their lack of problem-solving skills. In violent relationships, women are apparently unable to produce and choose effective solutions (brainstorming) to use in problematic situations and usually respond with inappropriate behaviours; this cycle of inappropriate behaviour and response reduces their problem-solving skills. However, training problem-solving skills is used as part of the intervention method for the treatment of abused women because financial, emotional and medical assistance cannot sufficiently help abused women in dealing with serious interpersonal issues such as violence [45].

A study by Abolghasem Seyedan emphasised stress management skills as a cognitive-behavioural strategy in both cognitive and behavioural aspects, which acts as a shield against negative events. This method increases one's evaluation and judgment, and people learn to make decisive decisions instead of impulsive ones, identify their strengths and weaknesses and enables them to resolve conflicts with others [46].

The fourth group, i.e. supportive interventions, includes social support, family emotional support, emotional support in the health system, providing legal assistance in issues related to children, assistance in financial independence, presentation of

knowledge via brochures and information cards including contact numbers and social service information for times of crisis and creation of support groups (e.g. mentor mother) for support counselling.

Our review shows that other people living together with young women at risk of DV can be used as a supportive role to reduce the associated risks. As an example, such an intervention was implemented in India in the form of the Dil Mil programme, in which mothers-in-law who lived with young pregnant women were used to reduce DV. This was achieved by implementing an educational programme based on the principles of participatory learning, in which role-playing and discussion were held separately and jointly to improve the knowledge, skills and social support of the participants. According to the results, it can be concluded that young women who experience DV can use the experiences of their mothers-in-law to accept help from them as a facilitator in disputes in cases of direct experience [14].

The home visit programme is also a series of programmes that can be used to reduce the prevalence or even prevent the occurrence of DV. The presence of a trained nurse seems to be effective in the mother's health status, personality development and, consequently, her relationship with her partner, which will in turn lead to remarkable outcomes. These include increasing listening and negotiation while disputing and reducing stress and communication regulation strategies that will reduce physical conflict [17].

The use of educational-supportive intervention has a positive and significant impact on the reduction of the psychological distress of pregnant women experiencing violence. Inclusion of a supportive dimension to educational intervention and providing a safe environment following individual intervention may effectively reduce the level of psychological distress. Khalili et al. concluded that a significant reduction in the psychological distress score of pregnant women might be due to the effectiveness of the supportive dimension and the practice of revelation and discharge of emotion techniques, reflective listening in pregnant women, valuation of self and personal values and acceptance of women's perceptions and feelings by a trustworthy person in a psychologically safe environment [47]. Golmakani et al. claimed that training life skills, providing appropriate social support and increasing the communication skill levels of couples could be some strategies that would effectively reduce the harm caused by spousal violence in the family [48].

To increase the level of awareness and capacity of different groups of health workers, including psychiatrists, physicians, psychologists, counsellors, psychiatrists and paramedics, further training seems necessary to help victims of violence. The health sector has a special potential to deal with VAW, as many women refer to this sector at some time in their lives. This potential is not put into action for two reasons, one of which is the labelling of women and fear of revealing their distress, and the other is the small number of physicians, nurses and other healthcare workers equipped with the necessary skills to intervene in spousal abuse. Considering what was mentioned above about the multidimensional aetiology of violence and, on the other hand, given the potential of the health network, especially the efficiency of the primary healthcare network, an intervention model has been proposed to prevent spousal abuse based on the health network and primary health care. This provides necessary training on the criteria of spousal abuse to health centre staff to empower them and screen this problem [12].

To reduce spousal abuse and prevent DV, Boalhari states that the national document and support plan in abuse prevention should be widely supported by the Ministry of Health and the High Council of Health so that all related organisations implement measures to prevent DV. Constant information presentation to governmental and non-governmental institutions, obliging staff to record and report DV and making people aware of the existence of psychiatric, psychological and help centres to familiarise them with training on life skills, particularly in vulnerable families and groups, will lead to more support for spousal abuse programmes among families involved in this problem. It is also necessary to take actions to raise awareness and familiarise the public with instances of DV and the rights of women, children and the elderly [39]. Comprehensive support for victims of DV will not be possible without the active participation of volunteer groups, scientific societies and charities, as well as the presence of social workers and family counsellors. To effectively prevent and combat domestic violence (DV), it is recommended that executives and national planners include minimum measures in their agenda. These measures should include providing support to the needy, legal and judicial support for victims of violence, updating ineffective family laws, and enhancing the knowledge and skills of judges and other staff in the justice department, as well as the police and enforcement agents [49, 50].

Conclusions

This systematic review study examineed interventions to combat domestic violence in pregnant women. The interventions were carried out in the emotional, psychological and social domains. Using the results of this study, it is possible to deal with domestic violence in countries where the rate of violence is high, especially among pregnant women. In future research, it is better to investigate the effect of each intervention on domestic violence in pregnant women.

Acknowledgments. The present study is the outcome of a research thesis approved by the Hamadan University of Medical Sciences. Thus, the authors would like to express their heartiest gratitude to the Research Department of the Hamadan University of Medical Sciences (NO. 140004012641).

Abbreviations: DV – Domestic Violence; IPV – Intimate Partner Violence; WHO – World Health Organization.

Source of funding: This work was financed from funds of the Hamadan University of Medical Sciences. The research officials of Mashhad University of Medical Sciences supported the financial costs of this study.
Conflict of interest: The authors declare no conflicts of interest.

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Tables: 4
Figures: 1
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Received: 21.10.2022
Reviewed: 23.11.2022
Accepted: 19.01.2023

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