Developing and validating an instrument to assess women’s empowerment in dealing with domestic violence in Iran: a mixed-methods study protocol

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ABSTRACT

Introduction Despite the emphasis on empowerment in interventions supporting women against domestic violence and ending spousal abuse, there is still no standard and accurate instrument to evaluate women’s empowerment in this field. This study proposes a protocol to fill this gap by developing and psychometrically testing a standardised instrument for assessing women’s empowerment in dealing with domestic violence (WEDDV).

Methods and analysis This study will be conducted in Iran in a mixed method with a sequential exploratory design (qualitative–quantitative). In the first phase, qualitative methods will be used to generate items, rank and identify essential items for WEDDV conceptualisation. The data collection method in this phase includes semi-structured face-to-face interviews with married women, a review of related literature, and a fuzzy Delphi method with participants with work experience and expertise about violence against women. Qualitative data analysis will be done using a content analysis strategy and MAXQDA 2020 software. In the second phase of the study, the psychometric properties of the instrument, including face, content and construct validity, and the instrument’s reliability will be evaluated. Also, the psychometric features of the COSMIN checklist will be used in the design of this instrument.

Ethics and dissemination This study protocol has been approved by the Research Ethics Committee of Shahid Beheshti University of Medical Sciences with code (IR. SBMU.PHNS.REC.1400.011). The findings will be published in prestigious journals and presented at national and international conferences. We hope that these results can provide a practical framework for planning and organising domestic violence interventions for policy-makers, researchers and women’s health and counselling service providers.

INTRODUCTION

Domestic violence against women is one of the most widespread human rights violations and a vital issue worldwide, with significant implications for women’s health.1 The WHO recognised violence against women as a ‘hidden global epidemic’2 and estimated that one-third of married women are affected by physical or sexual violence from their sexual partner at least once in their lifetime.3 Additionally, according to the UN Women Report (2013), violence severely influences women’s overall well-being and prevents them from fully participating in society.4 According to the World Bank estimate, the number of disability-adjusted life-years due to violence is nine million per year. Also, globally, domestic violence is as much a cause of death and
disability among women aged 15–49 as cancer and is more of a cause of disability in women’s health than car accidents and malaria combined.5

Studies related to the incidence of domestic violence in Iran estimate the rate of abuse and mistreatment of women from 30% to 90%.6 7 Also, a national study conducted in 28 provinces shows that 66% of Iranian families have experienced domestic violence at least once.8

In recent decades, the primary prevention of violence against women,9 especially their empowerment, has been emphasised as one of the successful measures in this field,10 and an effective way to end spousal abuse11 and domestic violence against women.12 13 Advocates of the violence against women movement also support the development of empowerment-based interventions to reduce the adverse effects of violence against women and mention it as the primary goal of their services.14 Evidence also indicates that the experience of intimate partner violence (IPV) in women is related to their empowerment variable,15 and that women without empowerment are more exposed to IPV than empowered women in society.15 16

Domestic violence researchers have identified key elements of the empowerment construct, associated outcomes and consistent practices with it. These studies themselves reflect tensions in the conceptualisation that obscure consensus on the defining characteristics of this construct and, in turn, prevent clarity and consistency across programmes. Hence, a clear definition of empowerment and its dimensions will lead to the development of standard criteria for research and evaluation.17

Compiling these criteria based on the cultural context of Iranian society will help us provide services according to women’s biological, cognitive and psychosocial structures. Furthermore, it will help fill the literature gap and lay the foundation for comprehensive interventional research promoting women’s health. In this regard, the lack of specific criteria for evaluating the women’s empowerment in dealing with domestic violence (WEDDV) prompted us to design and validate a scientific and practical instrument exclusively for Iran using quantitative and qualitative methods. It is hoped that this instrument can provide a solid structure for women’s empowerment interventions in the area of domestic violence.

OBJECTIVE
Empowerment is a way of envisioning how people living with the effects of social injustice can transform their lives and improve their psychological and material well-being.18 Therefore, to empower women in the face of domestic violence, we will identify the dimensions of women’s empowerment using qualitative interviews and a literature review and create a standard instrument to measure the WEDDV.

METHODS AND DESIGN
Study design
This study employs a sequential mixed-methods approach, integrating qualitative and quantitative phases (figure 1). This method is employed when the researcher lacks knowledge of the most important concepts for the study and there is no suitable measurement instrument for the concept they want to study.19

In the first phase, a qualitative study will be conducted to gather essential items for the development of the study instrument. The findings from the qualitative phase, along with an extensive review of the existing literature, will be used to construct the primary instrument. Then, to assess the completeness, ambiguity and redundancy of the instrument items, a fuzzy Delphi approach will use. After implementing the fuzzy Delphi method (FDM) and making necessary adjustments, the designed instrument will proceed to the second phase of the study. In this phase, the validity and reliability of the instrument will be examined to ultimately develop a valid and reliable instrument that takes into consideration the sociocultural context of Iran, about the empowerment of women in dealing with domestic violence.

The research team comprises individuals with extensive experience in qualitative research, experts specialising in the fields of education and health promotion, and epidemiologists who serve as programme designers and implementers. This project was initiated in December 2022 and is divided into two distinct phases.

Phase 1, which spans the first 6 months of the project, focuses on qualitative data collection and analysis, as well as the development of the initial version of the instrument.

Phase 2, scheduled to commence in June 2023 and conclude in November 2023, entails conducting the quantitative study. This phase aims to evaluate the psychometric properties of the instrument.

It is important to note that the questionnaire will be developed in the Persian language, which is the most common language among all Iranians. This choice ensures its accessibility to a broader audience.

The instrument development steps, which are summarised in figure 2, follow the following procedure:

PHASE I
A qualitative study
Aim
This stage aims to extract a set of items for instrument development and formulate a conceptual framework for WEDDV. This step applies conventional content analysis and fuzzy Delphi analysis to analyse the data.

Figure 1 Explanatory sequential mixed-method diagram of the study.
Participant selection
In this phase of the study, the sampling process is carried out purposefully and theoretically to achieve maximum variation. Two distinct groups of individuals are chosen to participate in this phase.

Participants in interviews
A representative sample of women from both the general population and those referred to social emergency centres and psychotherapy clinics is selected on a voluntary basis, taking into account the maximum diversity in demographic characteristics such as age, occupation, educational and economic status. For the sample to be representative of the studied community, social emergency centres, healthcare centres and psychotherapy clinics in two large cities in the centre and west of Iran are considered as the focus of the study. Predictably, we can expect that by conducting 20–30 in-depth interviews with the participants, we will reach data saturation and no new code will be extracted.20

Participants in fuzzy Delphi
At least 12–20 experts with different backgrounds in health education and health promotion, psychology, health sociology and psychiatry will be invited to participate in the fuzzy Delphi.

Inclusion/exclusion criteria
The inclusion criteria for experts include possessing sufficient expertise and knowledge in the domain of domestic violence and empowering women, having a history of research activity in the field of violence against women, or possessing a minimum of 3 years of work experience with abused women. The inclusion criteria for women include being at least 18 years old, being married, living with the current spouse for at least 6 months, having direct or indirect experience of domestic violence, willingness to participate in the study and sharing experiences. They also need to be Iranian. It is worth noting that the prerequisite for entering this study for all participants, including experts and married women, is mastery of the Persian language.
DATA COLLECTION
Data in this stage will be collected using inductive (face-to-face, in-depth and semi-structured interviews) and deductive (literature review) methods.

Interviews are conducted by an experienced and proficient researcher in qualitative research and the Persian language. They continue until data saturation is reached, indicating the absence of new themes or insights. An interview guide will be used for the interviews. This guide will be prepared through the consensus and consultation of the research team specialised in qualitative research, health and psychology. After obtaining informed written consent from the participants and explaining the objectives of the study to the participants, the researcher will interview them at a suitable time and place, and all the interviews will be recorded and transcribed verbatim. Each interview will be conducted for a maximum of 60 min, and participants can withdraw from the study at any time if they do not wish to continue cooperation.

Topics that will be explored in the interviews include women’s perceptions of empowerment, domestic violence against women, and suggestions for how to increase WEDDV. The subsequent questions will be asked according to the participants’ answers to these questions and also based on the interview guide. Since qualitative data analysis begins after the first interview and simultaneously with data collection, new information extracted in this process can be added to the guide in subsequent interviews.

Questions like, ‘What do you mean by this?’ ‘Can you explain?’ ‘How did you feel about that?’ It will be used for further exploration.

The participants’ non-verbal messages, such as emphasis, silence, crying and sighing, will also be documented. At the end of each interview, participants will be allowed to discuss what was not covered. After the completion of each interview, that interview is transcribed and prepared for content analysis. Research team members independently review the content of per interviews.

After conducting the qualitative study, through a literature review, we will search for existing tools to clarify the concept and dimensions of WEDDV and evaluate them to use or adapt to the identified items.

QUALITATIVE STUDY DATA ANALYSIS
Conventional content analysis
The data analysis will be conducted using the conventional content analysis methodology, following the five-step approach proposed by Graneheim and Lundman. These steps provide a comprehensive framework for analysing the data and extracting meaningful insights.

1. Transcribing recorded interviews accurately, including spoken words, pauses, non-verbal cues and emotions.
2. Familiarisation with interview data is achieved by reading transcripts, identifying themes and listening to audio recordings for additional nuances.
3. Determining the analysis unit for interview data, such as individual responses, paragraphs or entire interviews, based on research objectives.
4. Developing a code-management system to classify and code interview data, comparing primary codes extracted according to their similarities and differences, and classifying the codes into more comprehensive groups.
5. Interpreting findings by analysing patterns, themes and relationships within the coded data and determining the main categories of the classes. To facilitate the process of storing, managing, coding and performing the main steps of the research, the 2020 MAXQDA qualitative data analysis software is used.

Quantitative accuracy procedures in the quantitative stage
The reliability, stability, confirmability and transferability criteria introduced by Lincoln et al will be employed to maximise the accuracy of findings in qualitative content analysis.

Fuzzy Delphi technique
The FDM is the modified and enhanced version of the classical Delphi technique. This method is a powerful approach used to ensure the accuracy of extracted factors, rank items based on their completeness, ambiguity and repetition, and ultimately reach a consensus among experts. The FDM allows experts to express their opinions using linguistic variables such as ‘very likely’, ‘likely’, ‘uncertain’, ‘unlikely’ or ‘very unlikely’. These labels indicate their degree of agreement or disagreement with a statement. To analyse these opinions, fuzzy sets are used. Fuzzy sets allow for the classification of views into different levels of membership, facilitating a more nuanced comprehension of agreement. By assigning membership values to each linguistic variable, the FDM captures the strength of agreement or disagreement expressed by experts. To reach a consensus, the FDM employs fuzzy arithmetic operations to aggregate the fuzzy sets provided by multiple experts. These operations help to combine and compare the fuzzy sets, ultimately determining the overall level of agreement or consensus among the experts involved. The theoretical framework for implementing the FDM is shown in figure 3.

This method will be performed in the following four steps:

Choosing experts and explaining the problem to them
Preparing a questionnaire and sending it to the experts
Gathering experts’ opinions and analysing them (fuzzy calculations)
Classification of answers and announcement of agreements

Is the consensus well done? 
(The difference between two consecutive averages)

No

Yes

Preparing a report from the Delphi process and sending the results to the experts

Figure 3 The theoretical framework of fuzzy Delphi method implementation.
Step 1: Collecting the opinions of the decision-making group: After determining the dimensions and items of the primary tool, a fuzzy Delphi questionnaire will be used to get the opinions of experts.

Step 2: Setting fuzzy triangular numbers: After picking or developing the appropriate fuzzy spectrum, experts’ opinions will be collected and turned into fuzzy triangular numbers, and the fuzzy average for each criterion will be determined separately.

Step 3: Defuzzification: Defuzzing of Delphi values will be calculated using the surface centre (gravity centre) method to determine the value that shows the agreement of experts.

Step 4: Selection of threshold severity and criterion screening: Suitable items can be distinguished from others by setting a minimum threshold level. This process continues until the experts’ disagreement between the two stages is less than the minimum threshold.

PHASE II
Quantitative study: psychometric evaluation of the instrument
Aim
This phase aims to evaluate the psychometrics of the instrument by determining the validity (face, content and construct) and reliability analysis, to reach a valid and reliable instrument for measuring the WEDDV.

Participants selection
To conduct a comprehensive psychometric analysis of the instrument, two distinct groups of participants need to be involved.

To evaluate the face validity and construct validity, it is necessary to recruit married women who meet the specific entry criteria outlined in the initial phase of the study. These women will be randomly selected from women referring to the social emergency and urban and rural healthcare centres located in the areas under investigation.

For assessing the content validity of the instrument, the involvement of experts who possess expertise in qualitative research and tool making, particularly in the field of women’s empowerment and health promotion, is vital. To identify suitable experts, a thorough review of the scientific resumes and professional experience of specialists in research and academic institutions will be carried out. Specialists who meet the determined inclusion criteria and express their willingness to participate will be invited to contribute to the evaluation of the content validity of the instrument.

DATA ANALYSIS
SPSS V.18 software will be used for data analysis. The data will be analysed by implementing statistical tests of the K-S, Pearson correlation, exploratory factor analysis, Cronbach’s alpha model, intraclass correlation coefficient (ICC) and Rasch analysis. A maximum error of 5% is acceptable for all tests. A maximum error of 5% is acceptable for all tests.

Validity assessment
Face validity
Face validity will be evaluated in two quantitative and qualitative ways. In the qualitative evaluation, face-to-face interviews will be conducted with a total 15 married women. Their opinion is asked about the difficulty, appropriateness and ambiguity for each of the questions. In quantitative evaluation, the item impact measurement technique will be used. A 5-point Likert scale will be used for each item in the instrument, and 15 married women will be required to rate each item from 1 (‘least important’) to 5 (‘most important’). If the impact score for each item is more than 1.5, that item is considered suitable for further analysis and will be retained.

Content validity
Content validity will be done in both qualitative and quantitative ways. To evaluate the qualitative content validity, the corrective comments of 10 experts will be received in writing regarding the grammar adaptation, use of appropriate words, the suitable placement of words and appropriate scoring.

Quantitative content validity will be also assessed by two methods: content validity ratio (CVR) and content validity index (CVI). Experts evaluate the necessity of items on a 3-point Likert scale to calculate CVR. The total CVR score will be compared in terms of acceptability using the Lawshe table and based on the number of experts. Since 10 experts will be present in this research, items whose CVR value is more than 0.62 will be accepted.

CVI will be calculated using the item-CVI (I-CVI) and the instrument scale level-CVI (S-CVI). Experts will be asked to rate the relevance of the items on a 4-point scale from 1 (not relevant) to 4 (completely relevant). I-CVI will be calculated by dividing the number of experts who give each item a score of 3 and 4 by the total number of experts participating in the panel. CVI values of 0.78 or more will be considered acceptable. The mean I-CVIs for all items will be evaluated by the S-CVI through mean scores for the CVI. S-CVI values greater than 0.9 indicate that it will be acceptable.

Construct validity
Factor analysis will be used to calculate construct validity because it is the most practical method for designing a questionnaire and reducing multiple variables to dimensions and structures. According to the literature, at least 5–10 times the number of answered questions is needed to find the psychometric meaning at this stage. Therefore, according to the usual response rate between 60% and 70%, about 450–500 completed questionnaires can provide the possibility of accurate instrument testing. Since there are approximately 40 items in the designed instrument, about 1100 married women should take part in this stage and complete about 670–570 questionnaires.
Before performing any statistical method, the presence of outliers in the data (‘ceiling’ and ‘floor’ effects) using the criteria determined by Terwee et al., checking the normality of the data distribution will be done using the Shapiro-Wilk normality test.

Before extracting the factors, the suitability of the respondents’ data will be evaluated for factor analysis. These tests include Kaiser-Meyer-Olkin’s (KMO) measure of sampling adequacy and Bartlett’s test of sphericity. The KMO index of more than 0.5 is considered suitable for factor analysis, and Bartlett’s sphericity test must be significant (p<0.05). To calculate the correlation matrix between variables, an eigenvalue greater than 1 and a factor load equal to or greater than 0.4 will be applied. At this stage, the variables that have the highest correlation are placed in one factor.

Reliability assessment

Internal consistency and stability will be used to verify the instrument’s reliability. For internal consistency, correlations between items are checked, and Cronbach’s alpha values are calculated for the entire instrument and its subscales. Values greater than 0.7 will be acceptable. Stability is estimated with the ICC using the test–retest technique on data from a subsample of respondents who complete the instrument twice within a 2-week interval. ICC values of 0.8–0.7 are considered adequate stability.

In addition to the classical reliability methods, Rasch analysis will be followed to determine which items fit the hierarchical unidimensional structure. Also, the psychometric properties described in the COSMIN checklist will be applied during the psychometric process of the instrument.

Developing a scoring system for the instrument

The instrument items will be scored using a 5-point Likert scale from the lowest 1 to the highest 5. Once the weight of each item has been determined, a standard scoring scale will be used from 0 to 100. The raw scores of the instrument will be converted to a score of 0–100 using the following formula.

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\text{Transformed score} = \left(\frac{\text{actual raw score} - \text{lowest possible raw score}}{\text{possible raw score range}}\right) \times 100
\]

Patient and public involvement

There was no direct patient or public involvement during protocol development.

ETHICS AND DISSEMINATION

This mixed study protocol with the code (IR.SBMU. PHNS.REC.1400.011) has been approved by the Research Ethics Committee of Shahid Beheshti University of Medical Sciences. This research will be conducted based on international health research regulations and ethical guidelines for sharing and research exploitation of public data produced in Iran’s health system. The rights of the participants will be respected by measures such as obtaining oral or written informed consent to participate in the study, permission to take notes or audio recordings, deletion of audio files after the research and anonymity of all questionnaires. Participants are assured that participation in the research is optional, and they can withdraw from the study at any time.

Approvals related to the use of the study findings will also be obtained from the women participating in the study. The results of this study will be presented in prestigious national and international journals, as well as in presentations at conferences with researchers, healthcare professionals and consumers. Furthermore, we anticipate that these findings can provide a practical blueprint for policy-makers, researchers, and women’s health and counselling service providers to formulate strategies and implementation of interventions against domestic violence.

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Contributors

MMA, MG, AR and HS conceptualised the study protocol and participated in its design. MMA and AR prepared the first draft of this manuscript. All authors contributed significantly to the critical revision of drafts, improved methodology, and content, and advised on this manuscript’s study design and revision. All authors read the final manuscript and gave final approval to publish the manuscript.

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Competing interests

None declared.

Patient and public involvement

Patients and/or the public were not involved in the design, conduct, or reporting, or dissemination plans of this research.

Patient consent for publication

Not applicable.

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