Effectiveness of resilience training intervention on psychological capital of the underprivileged widowed women of Fasa City, Iran

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Abstract

Introduction: Women heads of households (widows or divorcees) are vulnerable groups in society who face various psychological problems and have less resilience than other women. Therefore, the present study was conducted to determine the effectiveness of resilience educational intervention on the psychological capital of poor widows in Fasa city, south Iran.

Materials and Methods: In this quasi-experimental study, 120 widows covered by Imam Khomeini Relief Foundation were selected by a simple random sampling method based on a random Efron algorithm (Efron coin) and randomly assigned into two interventions and control groups (60 people each) in the second half of 2021. About 8 training sessions on resilience and psychological capital were held for the experimental group through training clips, audio transmissions, and podcasts. Data were collected using demographic characteristics forms, widowers’ resilience assessment questionnaires, and Luten’s psychological capital scale for testing and control before and two months after the intervention. Data were analyzed with Chi-square test, independent and paired t-test using SPSS V. 26 software.

Results: There were differences between the two groups at pretest in demographic variables and psychological capital and its subscales, and resilience and its subscales ($P\geq0.05$). But two months after the educational intervention, a statistically significant increase was observed in the experimental group in these variables compared to the control group ($p<0.05$). It indicates that there was an improvement in the outcomes from pretest to post-test within the intervention and no change in the outcomes over time within the control group.

Discussion and Conclusion: Using a resilience-based educational approach as a novelty of this research to promote psychological capital and resilience can increase resilience and psychological capital in widows. Then, considering the positive effect of this educational approach and the low cost of this intervention, it seems that the implementation of such interventions should be included in the plans related to widows.

Keywords: Training, Widowed women, Resilience, Psychological capital
Resilience is often considered a favorable psychological structure that affects the perception of the people from well-being [13] and is considered an important and influential factor on the persons’ adjustability in the experience of deprivation and death of the husband [11]. Resilience is the dynamic process of adjustment and positive coping with unpleasant and bitter experiences in life [14, 15], which is not only resistant against damages or threatening conditions and the active and constructive involvement of the person in the environment. Since Resilience is the dynamic process of adjustment and positive coping with unpleasant and bitter experiences in life. Resilient persons have less feeling of loneliness and frustration, show better tolerance against problems, and have excellent function against difficulties and incompatibilities and will be increased by social support [15, 16]. Various studies indicated that resilience improvement could promote mental health, well-being, and psychological; capital in widowed women [6]. Psychological capital is a positive psychological state and a realistic and flexible approach to life, which is defined by four components: hope (will, dynamism and strategy), self-efficiency (self-esteem and belief to the realization of the goals and responsibilities), resilience (restoration, resurrection, going beyond the problems) and optimism (upbeat attribution style regarding the events and positive future expectation). Luthans believes that when these components are synthesized, forming a high-level structure which is called psychological capital with trying to change stressful situations [17–19].

Meanwhile, the results indicated that training improves resilience and its positive effect on the health and well-being of people [20]. However, no study has been conducted regarding the effectiveness of these components on widowed women. Then, given that head of household women (divorced or widowed) are one of the vulnerable strata of society due to social, economic, cultural, and employment situations and are faced with various psychological problems such as daily stress, inability to express emotions and, consequently, physical and mental problems [2], their level of resilience is lower compared to other women [15]. Ignoring this group of women causes several problems, such as pessimism, absurdity and meaninglessness, and dissatisfaction with life. Therefore, low resilience and not using safe coping strategies cause these women to turn to corruption and deviation and bring educational problems for their children and the prevalence of mental disorders throughout society [20].

Additionally, training as a factor in promoting divergent skills has long been used in various interventions [9]. Numerous educational interventions have been implemented to increase psychological capital and resilience in individual or group programs focusing on their subscales [21]. Most interventions have confirmed the positive effect of education on resilience and psychological capital as well [22]. Then it is necessary to choose and apply practical training and therapeutic interventions in the new vision and novelty to decrease their problems in different to previous studies; therefore, the current study aims to determine the effectiveness of training intervention of resilience on psychological capital of the underprivileged widowed women of Fasa City (the south Iran) in the second half of 2021.
**Methodology**

**Population and sample size**
This quasi-experimental study was conducted to determine the effectiveness of interventional training of relevance on the psychological capital of underprivileged widowed women who are widow, householder, and low-income from Fasa city, south Iran in 2020. The understudied population was widowed women under the coverage of Imam Khomeini Relief Foundation of Fasa city, south Iran. According to the confidence level of 95%, power 99% and the level of significance 0.05, the design effect size of the study model is 0.83, and with a standardized squared score of 0.33 in similar study [17], the sample size with 10% dropout was 120 widows. Sampling was done by simple random method. At first, the list of widows under the auspices of Imam Khomeini’s relief committee in Fasa city (2091 widows) was extracted and defined as the ID number variable in the software and entered into PASS software version 15. Their Random Allocation is based on Efron’s Biased Coin algorithm, which is a restrained randomization method; Search iterations were performed by determining one hundred times and 60 people in each group and a total of 120 people were selected. No samples were excluded in the follow up.

**Inclusion and exclusion criteria**
Inclusion criteria for the study were having age above 50 years, reading and writing literacy, at least five years history of widowhood, access to the smartphone, and living in Fasa city. Exclusion criteria of the study include dissatisfaction with participating in the study, being absent more than one session from training classes, and stressful events occurring such as death and lack of family members, accidents, or disease.

**Research design**
Firstly, after taking a license from the university’s ethical committee and after conducting the required coordination and taking related licenses, a list of widowed women 50 years old and above was provided by the confirmation of the CEO of Relief foundation of Fasa city. Samples were selected based on the inclusion criteria of the study. Necessary explanations regarding the present study were provided by telephone. After taking informed consent, they were included in the study, and questionnaires were submitted to them. Eight training sessions of 60 min were held about resilience and psychological capital for the experimental group. Considering the existence of COVID-19, only one in-person session was held at Relief foundation of the City for introduction, completing the questionnaire, and providing preliminaries. The remaining seven sessions were held virtually using training clips, sending voices, podcasts, and so on. Also, to achieve the total number of employees in each group and attract employees and provide satisfaction, the researcher donated internet charging packages, encouraged older widows to participate, and offered the samples one free mobile SIM card. To observe the principle of educational justice, equal access to health services, and rules of medical ethics, training sessions of the intervention group were held for the control group, too, after the completion of the study (See Additional file 1 for more details).

**Instrumentation**
Data collection tools include demographic specifications (age, underlying disease, level of literacy, income independence, number of children, etc.) and a questionnaire to assess widowed women's resilience and Luthans’s psychological capital scale. West and his colleagues designed the Widowhood Resilience Scale in 2019. This questionnaire includes 12 questions and six subscales (perseverance: items 1 to 6, social support: items 7 to 10, living at present: items 11 to 15, Help-seeking: items 16 to 18, consistency: items 19 to 20, future perspective: items 23 to 25). It has to be answered in five points on the Likert scale (strongly agree, agree, no opinion, disagree, strongly disagree) and scores on this scale vary between 25 and 125 [23]. The Yarelahi and her colleagues’ study in 2022 among Iranian samples has indicated to reliability of this instrument with Cronbach Alpha 0.86, ICC ≥ 0.82, and criterion-related validity was more than 0.75 (Yarelahi et al. in press).

Luthans has designed a psychological capital questionnaire. This questionnaire includes 24 questions and four sub-scales (self-efficacy: items 1 to 6, hope: items 7 to 12, resiliency: items 13 to 18, optimism: items 19 to 24). Each sub-scale includes six items and subject answers to each item in 6 points Likert’s scale (strongly agree to disagree strongly). To obtain psychological capital’s score, first, we gained the scale of each sub-scale separately and the response rate of this study was 100%. We then considered the sum of the total score of psychological capital [24]. Both experimental and control groups completed questionnaires before and two months after intervention in person and by telephone. Also, The Hashemi Nosratabad and his colleagues’ study in 2011 among Iranian samples has indicated to reliability of this instrument with Cronbach Alpha 0.82, ICC ≥ 0.80 [25].

**Ethical consideration**
It is worth mentioning that Code has approved this study of Ethics No. IR.SUMS.REC.1399.1024 at Shiraz University of Medical Sciences. To observe ethical considerations in this study, the aims, importance, and necessity of conducting this research plan were explained...
to the subjects. They were justified, and their consent was obtained. Given the unique social status of widowed women, and it does not create a sense of pity for them, samples were assured that information would be kept confidential.

Statistical analysis
Data analysis was conducted using SPSS 22 software at a significant level of 0.05. To explain qualitative data, mean, standard deviation, and for qualitative data frequency, percentage, and independent t-statistical test, paired t-test and Chi-Square were applied. First, the normality of quantitative data was examined using the Kolmogorov–Smirnov test \((P \geq 0.5)\). The datasets generated during and/or analysed during this research are available from the corresponding author on reasonable request. Additionally, the pretest data were also considered the baseline for the intervention evaluation. The assumptions for using independent and paired t-tests and Chi-square i.e. scale of measurement, random sampling, normality of data distribution, adequacy of sample size, and equality of variance in standard deviation were aobtained in the study.

Results
The average age of subject women at the time of widowhood was 50.20 ± 2.77 and 50.91 ± 2.95 in experimental and control groups, respectively. According to an independent t-test, no significant difference was seen between the two groups in age \((P = 0.064)\) and age at the time of widowhood \((P = 0.174)\). 44.66% of the widowed women in the experimental group and 51.66% in the control group were affected by a disease that in both groups, blood pressure, diabetes, and heart diseases have the highest frequency. The categorical variables of demographic information in both control and experimental groups was assessed using the Chi-Square test, and no significant differences were seen between both groups (see Table 1).

Before the training intervention, there was no significant difference between the two experimental and control groups in the amount of psychological capital and its sub-scales. But two months after the training intervention, a significant increase was seen in the experimental group regarding the psychological capital and its sub-scales compared to the control group (see Table 2).

According to the Table 2, Cohen’s d as effect size coefficient indicates the high effectiveness of the intervention in this study, which had a higher effect coefficient belonging to total score of Resilience among older widows (Cohen’s d = 6.24).

Discussion
The current study assessed the effectiveness of a training approach based on resilience in the widowed women covered by the Imam Khomeini Relief Foundation of Fasa city. This study indicated that experimental and control groups did not significantly differ from the demographic variables’ perspectives. Lack of difference between the study groups from demographic variables’ perspective indicated that stages of the study, including sampling, were conducted with high and appropriate accuracy, and the confounding effect and demographic variables were controlled. Therefore, attribution of observed changes in the experimental group is empowered.

**Table 1** Comparing demographic characteristics of widowed women in both control and experimental groups

| Variable               | Experimental group | Control group | P-value* |
|------------------------|--------------------|---------------|----------|
|                        | n   | %   | n   | %   |        |
| **Education**          |     |     |     |     |        |
| Literacy for reading   | 5   | 8.3 | 4   | 6.6 | 0.229  |
| and writing            |     |     |     |     |        |
| Under diploma          | 47  | 78.3| 54  | 90  |        |
| Diploma                | 8   | 13.3| 2   | 3.34|        |
| **Occupation**         |     |     |     |     |        |
| Housewife              | 36  | 60  | 39  | 65  | 0.706  |
| Employed               | 24  | 40  | 21  | 35  |        |
| **Number of children** |     |     |     |     |        |
| Daughter               |     |     |     |     |        |
| 5 and less             | 42  | 70  | 38  | 63.34| 0.439 |
| 6 and more             | 18  | 30  | 22  | 36.66|        |
| Son                    |     |     |     |     |        |
| 5 and less             | 28  | 46.66 | 30  | 50  | 0.715  |
| 6 and more             | 32  | 53.35| 30  | 50  |        |
| **Status of life**     |     |     |     |     |        |
| With children          | 51  | 85  | 55  | 91.66| 0.255 |
| Alone                  | 9   | 15  | 5   | 8.32 |        |
| **Duration of widowhood** |     |     |     |     |        |
| Less than 1 year       | 6   | 10  | 10  | 16.66| 0.185 |
| 1–2 years              | 25  | 41.66| 16  | 26.67|        |
| 3–5 years              | 29  | 48.34| 34  | 56.67|        |

* Chi-square statistical test
The current study results indicated that two months after the intervention, the average score of psychological capital and its sub-scales (hope, resilience, optimism, and self-efficiency) increased significantly in the experimental group compared to the control group. This finding supports the implementation of resilience training interventions to promote psychological capital in widowed women. By increasing psychological capital, the individual can delineate new goals and try to achieve her goals with higher motivation, making more optimistic attributions about herself, experiences, and the future. The person can generate more favorable judgments about herself and her abilities and increase her resilience in facing difficulties and misfortunes with more strict feedback and strategies under stressful situations [26]. Promoting psychological capital in the increasing population of widowed women can help this group experience a healthier and happier life [27]. Studies by Vahidian et al. [28] and Vale et al. [29] reported increased psychological capital after the training intervention, respectively, in the group of female nurses and female teachers, which is congruent with the current study.

Align with the current study, the study results of Che-sak et al. [30] indicated that resilience-based intervention has effectively promoted cases such as hope, happiness, and resilience. Although contrary to the current study, the target group of this study was not widowed women and did not consider specifically psychological capital. It confirms the positive effect of resilience training intervention. People who experience high hope experience lower negative emotional reactions than people with low hope. One reason is that people with high hope compared to those having low hope have the highest capacity to find alternative paths toward their initial goals [31]; with the increased cognitive resilience flexibility raised in the individual, her persistence increases. Instead of

| Variable                  | Groups                     | Before intervention Mean ± SD | After intervention Mean ± SD | Student's t-test^a | Effect size: Cohen's d | P^*       |
|---------------------------|----------------------------|------------------------------|-----------------------------|------------------|------------------------|-----------|
| Self-efficiency           | Experimental (n = 60)      | 18.2 ± 1.8                   | 19.1 ± 3.4                  | 0.884            | 0.64                   | 0.001     |
|                           | Control (n = 60)           | 18.2 ± 1.9                   | 18.3 ± 1.9                  | 0.870            | 0.05                   | 0.184     |
|                           | Student's t-test^b         | 0.870                        | 0.875                       | –                | –                      | –         |
|                           | Effect size: Cohen's d     | –                            | –                           | 0.29             | –                      | –         |
|                           | P^**                       | 0.962                        | 0.001                       | –                | –                      | –         |
| Optimism                  | Experimental (n = 60)      | 21 ± 1.05                    | 23.7 ± 1.5                  | 0.856            | 0.81                   | 0.001     |
|                           | Control (n = 60)           | 21.1 ± 2.3                   | 21.4 ± 1.7                  | 0.842            | 0.15                   | 0.167     |
|                           | Student's t-test^b         | 0.590                        | 0.687                       | –                | –                      | –         |
|                           | Effect size: Cohen's d     | –                            | –                           | 1.84             | –                      | –         |
|                           | P^**                       | 0.973                        | 0.001                       | –                | –                      | –         |
| Psychological capital     | Hope                       | Experimental (n = 60)         | 18.1 ± 2.1                  | 25.6 ± 2.7       | 0.870                  | 0.98      | 0.001     |
|                           | Control (n = 60)           | 18.03 ± 2.1                  | 17.7 ± 2.3                  | 0.856            | – 0.19                 | 0.132     |
|                           | Student's t-test^b         | 0.420                        | 0.570                       | –                | –                      | –         |
|                           | Effect size: Cohen's d     | –                            | –                           | 2.83             | –                      | –         |
|                           | P^**                       | 0.132                        | 0.001                       | –                | –                      | –         |
|                           | Resilience                 | Experimental (n = 60)         | 20.3 ± 2.1                  | 25.4 ± 2.07      | 0.620                  | 2.44      | 0.001     |
|                           | Control (n = 60)           | 20.4 ± 1.4                   | 20.5 ± 1.9                  | 0.491            | 0.06                   | 0.145     |
|                           | Student's t-test^b         | 0.684                        | 0.687                       | –                | –                      | –         |
|                           | Effect size: Cohen's d     | –                            | –                           | 2.46             | –                      | –         |
|                           | P^**                       | 0.145                        | 0.001                       | –                | –                      | –         |
|                           | Total                      | Experimental (n = 60)         | 77.3 ± 6.6                  | 81.9 ± 7.8       | 0.856                  | 0.63      | 0.001     |
|                           | Control (n = 60)           | 77.9 ± 5.6                   | 78.3 ± 5.7                  | 0.842            | 0.07                   | 0.159     |
|                           | Student's t-test^b         | 0.772                        | 0.978                       | –                | –                      | –         |
|                           | Effect size: Cohen's d     | –                            | –                           | 0.52             | –                      | –         |
|                           | P^**                       | 0.159                        | 0.001                       | –                | –                      | –         |

^a Independent student t-test

^b Paired student t-test, DF ≥ 51
inactive confrontation in facing stressful events, uses more active, concentrated, and task-oriented confrontations [32].

The current study results in optimism and self-effi-
ciency sub-scales are consistent with the study of Mol-
hari et al. [33]. By applying effective coping strategies
such as reassessment and problem-solving, Optimis-
tic individuals adjust better to mental pressures [34].

Furthermore, by increasing self-efficiency, the confi-
dence of the person in her abilities increases, fear of
failure decreases in her, and this thinking grows in the
person that she can control the events that affect her
life [35]. Diagan et al. indicated the positive role of psy-
chological capital in the empowerment of women [36].

Studying various studies and the current study results
indicated that the promotion of psychological capital

### Table 3 Comparison of the resilience and its sub-scales in two experimental and control groups, before and 2 months after training intervention

| Variable                  | Groups            | Before intervention Mean ± SD | After intervention Mean ± SD | Student’s t-test* | Effect Size: Cohen’s d | P*   |
|---------------------------|-------------------|------------------------------|------------------------------|------------------|------------------------|------|
| Perseverance              | Experimental (n = 60) 17.3 ± 1.8                  | 23.3 ± 1.3                  | 2.35                         | 3.82             | 0.001                  |
|                           | Control (n = 60)   17.8 ± 1.9                  | 17.4 ± 1.8                  | 2.78                         | 0.21             | 0.262                  |
|                           | Student’s t-testb | 3.45                         | 4.02                         | -                | -                      |
|                           | Effect size: Cohen’s d | 0.001                       | 0.262                        | -                | -                      |
| Social support            | Experimental (n = 60) 10.8 ± 1.7                  | 15.8 ± 0.8                  | 1.281                        | 3.76             | 0.001                  |
|                           | Control (n = 60)   11 ± 1.7                   | 10.7 ± 1.7                  | 1.305                        | -0.17            | 0.223                  |
|                           | Student’s t-testb | 2.65                         | 2.48                         | -                | -                      |
|                           | Effect size: Cohen’s d | -                           | 3.84                         | -                | -                      |
|                           | P**               | 0.001                        | 0.224                        | -                | -                      |
| Resilience                | Experimental (n = 60) 15.5 ± 1.4                  | 19.6 ± 1.3                  | 1.442                        | 3.1              | 0.001                  |
|                           | Control (n = 60)   18.8 ± 1.6                  | 15.4 ± 1.4                  | 1.435                        | -2.26            | 0.263                  |
|                           | Student’s t-testb | 1.457                        | 1.414                        | -                | -                      |
|                           | Effect Size: Cohen’s d | -                           | -3.11                        | -                | -                      |
|                           | P**               | 0.001                        | 0.263                        | -                | -                      |
| Help-seeking              | Experimental (n = 60) 9.1 ± 1.3                  | 12.6 ± 0.8                  | 1.442                        | 3.24             | 0.001                  |
|                           | Control (n = 60)   9.1 ± 1.3                  | 9.4 ± 1.4                   | 1.435                        | 0.22             | 0.961                  |
|                           | Student’s t-testb | 1.571                        | 1.171                        | -                | -                      |
|                           | Effect size: Cohen’s d | -                           | -2.81                        | -                | -                      |
|                           | P**               | 0.001                        | 0.972                        | -                | -                      |
| Consistency               | Experimental (n = 60) 9.1 ± 1.9                  | 14.9 ± 1.2                  | 1.428                        | 3.65             | 0.001                  |
|                           | Control (n = 60)   9.3 ± 2.03                 | 9.08 ± 1.9                  | 1.421                        | -0.12            | 0.972                  |
|                           | Student’s t-testb | 1.414                        | 1.507                        | -                | -                      |
|                           | Effect Size: Cohen’s d | -                           | -3.66                        | -                | -                      |
|                           | P**               | 0.001                        | 0.954                        | -                | -                      |
| Future perspective        | Experimental (n = 60) 10.1 ± 1.2                  | 12.3 ± 0.8                  | 1.171                        | 2.16             | 0.001                  |
|                           | Control (n = 60)   11.1 ± 1.2                  | 10.9 ± 1.1                  | 1.297                        | 0.942            | -                      |
|                           | Student’s t-testb | 1.283                        | 1.671                        | -                | -                      |
|                           | Effect size: Cohen’s d | -                           | -0.17                        | -                | -                      |
|                           | P**               | 0.001                        | 0.532                        | -                | -                      |
| Total                     | Experimental (n = 60) 72.05 ± 4.1                | 98.7 ± 4.3                  | 2.251                        | 6.24             | 0.001                  |
|                           | Control (n = 60)   72.7 ± 4.01                | 72.8 ± 4.02                 | 1.260                        | 0.02             | 0.155                  |
|                           | Student’s t-testb | 2.281                        | 2.281                        | -                | -                      |
|                           | Effect size: Cohen’s d | -                           | -6.43                        | -                | -                      |
|                           | P**               | 0.001                        | 0.537                        | -                | -                      |

* Independent student t-test

b Paired student t-test, DF ≥ 48
could empower widowed women who are vulnerable groups in different dimensions of life [37]. According to the results of this study and its comparison with other studies, it can be concluded that training intervention on resilience can be effective in the improvement of some skills such as self-efficiency and cases such as well-being and the quality of life. What differentiates this study from others is the application of resilience-based training to improve psychological capital in widowed women.

The current study results indicated that after two months of intervention, the average scores of resilience and its subscales (perseverance, social support, leaving in the present, help-seeking, future perspective) had increased significantly in the experimental group compared to the control group, which indicated the effectiveness of training intervention on the improvement of the resilience in widowed women.

The results of the present study indicated that two months after the intervention, the average score of resilience and its sub-scale (perseverance, social support, living in the present, help-seeking, future perspective) increased significantly in the experimental group compared to the control group, which indicated the effectiveness of the training intervention on the improvement of resilience of the widowed women. The study of Mahdavian Far et al. [38] conducted a group intervention to improve resilience in the divorced head of household women. This study, likewise, the results of the current study indicated that training intervention has been effective in promoting resilience in women's heads of house. The difference between this study and the current study is that the target group of this intervention was divorced women. The intervention was done as group therapy, while in the present study, widowed women were under the group training intervention. Asad O Lah Toisarkani et al. [39] conducted two training interventions for the mother students to improve their resilience. The type of training intervention applied in this study had no significant effect on the resilience of the target group.

Meanwhile, unlike the current study, mothers under the intervention were not widowed. Likewise, the current studies, Mahaffey et al. [40] and Yoosefi Lebni et al. y[41] arranged and conducted a training intervention based on resilience. Unlike the current study, the target group of this study, which was widowed women, was health workers in disasters. However, the study results to resilience-based training intervention can effectively promote some behaviors of a healthy lifestyle, which can be known to align with the results of the current study.

Conclusion
Totally, the results of the study indicated that using resilience-based training intervention for the promotion of psychological capital and resilience could improve resilience and psychological capital in widowed women. Therefore, given the positive effects of this training approach and the low cost of this intervention, it seems better to include in the planning related to the widowed women. The central message is that Resilience-based educational approach to promote psychological capital and resilience, could lead to increase resilience and psychological capital in widows. Therefore, considering the positive impact of this educational approach and the low cost of this type of intervention, it seems that it is better to include the implementation of such interventions in the health policy planning of widows’ everyday’s life.

Limitations and recommendations
A limitation of this study is that it has been done virtually among widowed women covered by Imam Khomeini Relief Foundation of Fasa City in south Iran due to the holding of distance learning courses in all non-profit and public NGOs across the country. Also, widowed women with cognitive and somatic disorders were excluded from the study. The findings cannot be generalized to all widowed women. On the other hand, considering the COVID-19 pandemic, it was required to hold the training courses virtually, which may change the study results compared to holding the sessions in person. One of the strengths of this study is the concurrent attention to two components of resilience and psychological capital, which has received less attention in other studies and using resilience-based training intervention on the improvement of psychological capital in widowed women.

Supplementary Information
The online version contains supplementary material available at https://doi.org/10.1186/s12905-022-01886-9.

Acknowledgements
This study was adopted from the master’s thesis of Mr. Karimpour and has been conducted with the financial support of the research deputy of Shiraz university of medical sciences (Plan No.: 23853), who herewith kindly appreciated. Meanwhile, I acknowledge the intimate cooperation of the women who participated in this study.

Author contributions
All authors contributed to the study’s commencement and coordination, collected data, and drafted the manuscript. LK, LGh, MHK, and AA participated in data collection, analysis, and writing of the manuscript. LK, LGh and MHK
participated in the study's supervision, interpretation of data, and revising the manuscript. All authors read and approved the final manuscript.

Funding
All of the funds of the present study (including the funds for performing teaching sections) were provided by the vice-chancellor of research at Shiraz University of Medical Sciences.

Availability of data and materials
The datasets used and analyzed during the current study are available from the corresponding author on request. The data are not publicly available due to privacy or ethical restrictions.

Declarations

Ethics approval and consent to participate
This study was approved by the Ethics Committee of Shiraz University of Medical Sciences by ethical code number IR.SUMS.REC1399.1024. Informed written consent to participate was obtained from all women. Women participated in the study voluntarily, and their scores remain confidential. The study was conducted in accordance with the principles of the Declaration of Helsinki.

Consent for publication
Not applicable.

Competing interests
The authors declare that they have no competing interests.

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Received: 11 February 2022   Accepted: 15 July 2022
Published online: 21 July 2022

References
1. Office of Social Damage Reduction. The role of professional and technical skills training in empowering female head of household as a social hazard: Deputy of Education Ministry of Labor and Social Affairs; 2011.
2. Sohrabi F, Khandani M, Aazami Y, Khandjani E, Shariﬁ PN, Froghi Negherd E. The effectiveness of the Stress immunization program on Coping with stress Strategies, emotion regulation strategies and mental health in female-headed households covered by the Welfare Organization. J Sabzevar Univ Med Sci. 2019;26(4):431–44.
3. Cooney TM, Dunne K. Intimate relationships in later life: current realities, future prospects. J Fam Issues. 2001;22(7):838–58.
4. Population and Housing Censuses. Statistical Center of Iran 2020 [Available from: https://www.amar.org.ir/english/Population-and-Housing-Censuses; 2020.
5. Haghi S, Haghtalab T, Asgari M. The effectiveness of group-based cognitive training based on assumptions and rules on the attitude toward the nonsense of life and hardness of female households with low-quality life. Res Clin Psychol Couns. 2018;8(1):103–23.
6. Carr D, Bodnar-Deren S, Uhlenberg P. Gender aging and widowhood: international handbook of population aging. New York: Springer Publishing; 2009.
7. Hahn EA, Cichy KE, Almeida DM, Haley WE. Time use and well-being in older widows: Adaptation and resilience. J Women Aging. 2011;23(2):149–59.
8. Ng P, Ho W-C, Tson A, Young DK. Coping with bereavement of widows in the Chinese cultural context of Hong Kong. Int Sociwork. 2016;59(1):115–28.
9. Pereng-Chiello P, Spahn S, Höpflinger F, Carr D. Cohort and gender differences in psychosocial adjustment to later-life widowhood. J Gerontol Ser B: Psychol Sci Soc Sci. 2016;71(4):765–74.
10. Parker L, Ryani I, Nolan B. The stigmatisation of widows and divorcees (janda) in Indonesia, and the possibilities for agency. Indonesia Malay World. 2016;44(128):27–46.
11. Niswade J. Social neglect and oppression of widows in rural India: Need for social, economic and policy implications. Enabling gender equality: Future generations of the global world. Emerald Group Publishing Limited; 2015.
12. Arzemendi BJ, O’Conor M-F. What is “normal” in grief? Australian Crit Care. 2015;28(2):58–62.
13. Hendrickson ZM, Kim J, Tol WA, Shrestha A, Kafie HM, Luelit NP et al. Resilience among Nepali widows after the death of a spouse: ‘That was my past and now I have to see my present’ Qual Health Res. 2018;28(3):466–78.
14. Bennett KM. How to achieve resilience as an older widower: turning points or gradual change? Ageing Soc. 2010;30(3):369–82.
15. Martin AJ, Marsh HW. Academic resilience and its psychological and educational correlates: A construct validity approach. Psychol Schools. 2006;43(3):267–81.
16. Asazi A, Ghasemi S. Comparison the effectiveness of solution-focused therapy, cognitive-behavior therapy and acceptance and commitment therapy on depression and quality of life in divorced women. 2017; 8:29-100365.
17. Naemi A. The effect of resiliency training on mental health, optimism and life satisfaction of female-headed households. Positive Psychol Res. 2015;1(3):33–44.
18. King BM, Carr DC, Taylor MG. Depressive symptoms and the buffering effect of resilience on widowhood by gender. The Gerontologist. 2019;59(6):1122–30.
19. Luthans F. Psychological capital: Implications for HRD, retrospective analysis, and future directions. Hum Resource Dev Q. 2012;23:1–8.
20. Bockorny K, Youssef-Morgan CM. Entrepreneurs’ courage, psychological capital, and life satisfaction. Front Psychol. 2019;10:789.
21. Avdeenko A, Gilling MJ. International interventions to build social capital: evidence from a Field experiment in Sudan. Am Poli Sci Rev. 2015;109(3):427–49.
22. Khandjani M, Sohrabi F, Aazami Y. The effectiveness of resilience and stress management program on psychological well-being, meaning of life, optimism, and satisfaction of life in female-headed households. Iran J Psychiat Nurs. 2016;6:1(1–11).
23. West CL, Dreeben SJ, Busing K. The development of the widowhood resilience scale. OMEGA-J Death Dying. 2011;83(4):958–75.
24. Luthans F, Avolio BJ, Avey JB, Norman SM. Positive psychological capital: Measurement and relationship with performance and satisfaction. Personnel Psychol. 2007;60(3):541–72.
25. Hashemi NT, Babapur KJ, Bahadon KJ. Role of psychological capital in psychological wellbeing by considering the moderating effects of social capital. Soc Psychol Res Winter. 2012;1(4):123–44.
26. Mokhtari A, Abedi M. The effectiveness of intervention based on psychological capital on hope, optimism, resilience, and self-efficacy among patients with depression. J Psychol Sci. 2021;19:09).1411–22.
27. Sarkar SM, Dhar BK, Crowely SS, Ayittey FK, Gazi M. Psychological adjustment and guidance for ageing urban women. Ageing 2021;1–9.
28. Vahidian Z, Nooruan K, Vahidian E, Rouin-Tan S. Teaching life skills on psychological well-being and psychological capital in nurses of Shahid Beheshti Hospital of Yasuj. Armaghane Danesh. 2020;25(2):301–12.
29. Vahidian Z, Nooruan K, Vahidian E, Rouin-Tan S. Teaching life skills on psychological well-being and psychological capital in nurses of Shahid Beheshti Hospital of Yasuj. Armaghane Danesh. 2020;25(2):301–12.
30. Chesak SS, Khalsa TK, Bhagra A, Jenkins SM, Bauer BA, Sood A. Stress management and resiliency training for public school teachers and staff: a novel intervention to enhance resiliency and positively impact student interactions. Complement Ther Clin Pract. 2019;37:32–8.
31. Snyder C, Lehman KA, Kluck B, Monsson Y. Hope for rehabilitation and its future. Phys Ther. 1997;77:1005–13.
33. Da S, He Y, Zhang X. Effectiveness of psychological capital intervention and its influence on work-related attitudes: daily online self-learning method and randomized controlled trial design. Int J Environ Res Public Health. 2020;17(23):8754.
34. Seligman ME, Rashid T, Parks AC. Positive psychotherapy. Am Psychol. 2006;61(8):774.
35. Mazaheri M, Bahramian SH. Prediction of psychological well-being based on the positive and negative affection and coping self-efficacy. Posit Psychol Res. 2016;1(4):1–14.
36. Digan SP, Sahi GK, Mantok S, Patel PC. Women’s perceived empowerment in entrepreneurial efforts: the role of bricolage and psychological capital. J Small Bus Manage. 2019;57(1):206–29.
37. Van Boekel L, Cloin J, Luijkx K. Community-dwelling and recently widowed older adults: effects of spousal loss on psychological well-being, perceived quality of life, and health-care costs. Int J Aging Hum Dev. 2021;92(1):65–82.
38. Mahdavianfard R, Sepeshi Shamlou Z, Zahed H. The effectiveness of life review therapy on loneliness and resilience in divorced single parent mothers. J Woman Family Stud. 2019;7(2):137–55.
39. Asadolah Tooyserkani M, Payvastegar M, Banijamali SS, Dehshiri G. Comparing the effects of positive psychotherapy and self-review on the well-being and resilience in the students as mothers. Posit Psychol Res. 2017;3(3):1–16.
40. Mahaffey BL, Mackin DM, Rosen J, Schwartz RM, Taioli E, Gonzalez A. The disaster worker resiliency training program: a randomized clinical trial. Int Arch Occup Environ Health. 2021;94(1):9–21.
41. Yoosefi Lebni J, Mohammadi Ghareshghani MA, Soofizad G, Irandoost SF. Challenges and opportunities confronting female-headed households in Iran: a qualitative study. BMC Womens Health. 2020;20(1):1–1.

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