Psychotherapy for Postpartum Depression in Iranian Women: A Systematic Review and Meta-Analysis

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Abstract

Background: Postpartum depression (PPD) is a type of disorder could have serious effects on the mother, the baby, and other family members, given the contradictory results of the previous studies about the effect of education programs, aim of the present study was to evaluate the effect of educational programs on postpartum depression in Iranian women.

Materials and Methods: English electronic information databases such as Medline (via PubMed), Scopus, ISI Web of Science, EMBASE, and Cochrane Library were searched until February 2018. In addition, Iran doc, Barakatskns, Magiran, Medlib, SID, and google scholar were searched using equivalent keywords in Persian until February 2018. Cochrane Q test (p<0.05 as statistically significant), and I2 index were used to evaluate heterogeneity. Funnel plot and Egger's regression were conducted to detect publication bias.

Results: The finding of the Meta –analysis indicate that education interventions was found to be more effective and could significantly improve postpartum depression (Standard Mean division (SMD) =1.44; P<0.001; Confidence Interval [CI] =0.595 to 2.40; Heterogeneity p<0.001; I2=87%). The funnel plot appears asymmetric with an outlier study. However, this finding was not confirmed by Egger's test that was nonsignificant (p=0.262), and show no asymmetry. The level of depression was lower in women receiving problem-solving skills in compared to who received no intervention (SMD =1.83; P<0.001); the level of depression showed a significant boredeline decline in women receiving Mindfulness-based Cognitive Therapy compared to those who did not receive intervention (SMD =1.20; P=0.089).

Conclusion: Based on the finding of the current meta-analysis, it can be said that educational programs that teaches Mindfulness-based cognitive and problem-solving skills can improve of postpartum depression.

Key Words: Iran, Depression, Educational Program, Meta-analysis, Postpartum, Women.

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1- INTRODUCTION

Postpartum depression (PPD) is a type of disorder that affects some women within the first 2 to 6 weeks following childbirth. Symptoms may include crying episodes, despondency, mood swings, feelings of worthlessness and inability to perform maternal role (1-3). Postpartum depression is a common disorder, affecting 10 to 30% of childbearing women (4-6). In a meta-analysis, a total of 41 studies met the inclusion criteria. The pooled prevalence of PPD in Iran was reported to be 25.3% (95% Confidence Interval [CI]: 22.7% -27.9%)(7). Psychological problems such as PPD account for more than 12.5% of referrals to women's healthcare centers (8). The cause of PPD has not been specifically determined so far (9-12). Some researchers consider this disorder as a response to hormonal imbalance after childbirth, particularly the loss of estrogen, estradiol, tryptophan, and endorphin, as well as elevated levels of prolactin and cortisol (1, 13, 14).

Other possible reasons could include disturbed adjustment of sleep and diet, and the baby's helplessness (1, 15, 16). Postpartum depression could have serious effects on the mother, the baby, and other family members, which leads to resultant complications for the mother-child relationship, and adversely affects the growth and development of the infant (5, 17-20). It can also cause behavioral, social and emotional problems in such children. In some severe cases of this disorder, depressed mother has been reported to even commit infanticide. In fact, the PPD has a significant negative impact on all aspects of the quality of life of the mothers. Women affected by the PPD may experience different problems in their social activities, individual performance, and household chores, exerting a negative influence on the mood of other family members. According to previous studies, depressed women's spouses are often more

likely to develop depression as well, which increases marital conflicts (16, 21-26). Studies and evidences demonstrate that psychological and educational interventions are effective in reducing postpartum depression, and can improve the quality of life of the mothers without having any negative influence or complication (1). Given the contradictory results of the previous studies about the effect of education programs on the postpartum depression, the inadequacy of the educations available for the mothers, the high prevalence of this disorder in Iran, and the adverse effects of depression on health of the mothers, of the family and of society, we aimed to conduct the present meta-analysis in this regard. The aim of the present study was to evaluate the effect of educational programs on postpartum depression.

2- MATERIALS AND METHODS

2-1. Method

To perform the systematic review, English electronic information databases such as Medline (via PubMed), Scopus, ISI Web of Science, EMBASE, and Cochrane Library were searched without publication date restrictions until February 2018, 2018. Following keywords were used to identify articles related to the effect of education program on postpartum depression (PPD). English keywords were used to search databases: "Depression", "Intervention", "Iran", "Postpartum" "Psychotherapy", and "Women".

In addition, IranDoc, Barakatkns, Magiran, Medlib, Google Scholar, Magiran, and SID were searched using equivalent keywords in Persian till to February 2018. Also, the references of the relevant articles were investigated to find further related articles. Two authors independently reviewed the titles and abstracts of the articles. If the subject was relevant, the full text article was extracted, and reviewed by the

authors. Finally, articles meeting inclusion criteria were evaluated.

2-2. Inclusion criteria

Studies were included into systematic review if they had the following criteria:

- Experimental study (Quasi-experimental or clinical trials),
- Reported severity of postpartum depression with validated instrument tool,
- Used a psychotherapeutic intervention.

2-3. Data extraction

Two authors independently extracted following data based on a pre-defined checklist designed by authors: name of first author, year of publish, region of study (city), Measurement tool, whether randomization was done or not, whether randomization technique was suitable or not, a number of participants in intervention and control group, level of depression complaints, age, comparability of the treatment and control groups, design, and major relevant findings.

2-4. Quality assessment of the included studies

Studies quality was by two reviewers assessed using the Oxford Center for Evidence-based Medicine checklist for therapeutic studies (http://www.cebm.net/index.aspx?o=5653. Accessed in March 2013).

2-5. Statistical analyses

The main effect size was calculated as standardized difference in means (SMD). We reported the results based on a random effects model because high heterogeneity across studies. Cochrane Q test (p<0.05 as statistically significant), and I^2 index were used to evaluate heterogeneity. We also conducted a funnel plot and Egger's regression to detect publication bias.

3- RESULTS

Table.1 shows the characteristic of five studies included in current study (*Please see the end of paper*). Process of selection of included studies in the education interventions met analysis was shown in **Figure.1**.The finding of the Meta –analysis indicate that education interventions was found to be more effective and could significantly improve postpartum depression (Standard Mean division (SMD) =1.49; P=0.001; 95%CI= 0.595 to 2.40, at five trial studies (1, 8, 27-29). However, Heterogeneity across studies were very high (p<0.001; I^2=87%). The funnel plot is shown in **Figure.2**.

We performed sensitivity analysis to detect potential source (outlier study) of heterogeneity. However, heterogeneity continued to remain after excluding one by one study. Also, sensitivity analysis indicated the robust of meta-analysis by showing similar SMD before and after excluding one by one study. We also performed subgroug analysi by type of intervention because of high heterogeneity.

At current systematic review, two studies (Parsa et al. and Nasiri et al.) assessed the effect of problem-solving skills on postpartum depression. Level of depression was lower in women receiving problem-solving skills in compared to who received no intervention (SMD =1.83; P<0.001; 95% CI= 1.43 to 2.33) (1, 28).

Heterogeneity was 0% among studies that assessed effect of Problem-solving skills on postpartum depression. In Ghadam pour et al. and Abad et al.'s studies, level of depression showed a significant boredeline decline in women receiving Mindfulness-based Cognitive Therapy incompared to those who did not receive intervention (SMD =1.20; P=0.089; 95% CI= 2.58 to 1.73) (17, 29). Heterogeneity was I^2=83% among studies that assessed effect of Mindfulness-based cognitive on postpartum depression.Subgroup analysis

showed that typ of intervention (Mindfulness-based cognitive Therapy vs. Problem-solving skills) might be the source of heterogeneity. Naddap et al. conducted a Quasi-experimental. They divided subjects into two equal groups to receive Group psychotherapy (n=15) and control group (n=15). Post partum depression improved significantly in group psychotherapy compared to control group (27). Pooled effect sizes were larger in studies assessed the effect of Problem–solving skill traning compared to Mindfulness –basees cognitive therapy (p<0.001). We made a funnel plot to evaluate publication bias (**Figure.5**). The funnel plot appears asymmetric with an outlier study. However, this finding was not confirmed by Egger's test that was non-significant (p=0.262), and show no asymmetry.

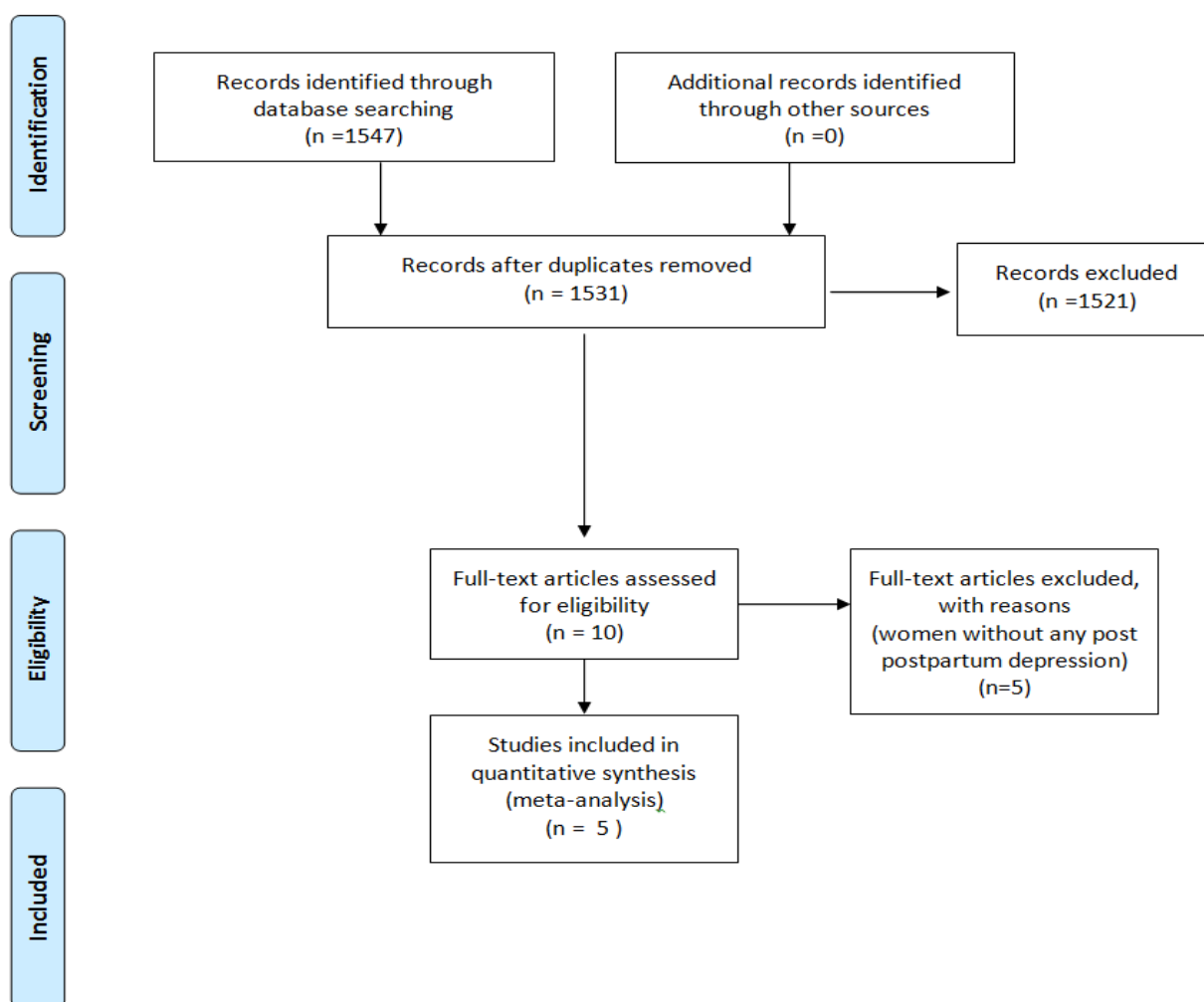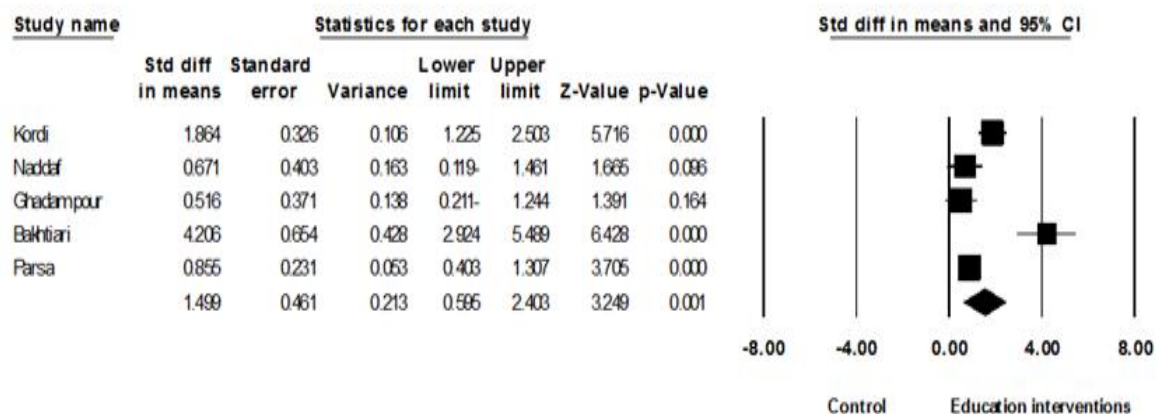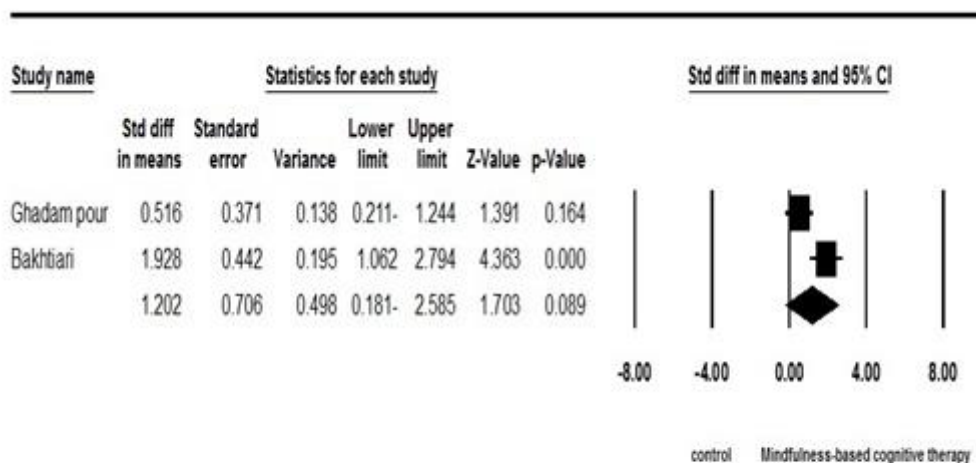**Fig.1**: Flowchart of included studies.

Study name	Std diff in means	Standard error	Variance	Lower limit	Upper limit	Z-Value	p-Value
Kordi	1.864	0.326	0.106	1.225	2.503	5.716	0.000
Naddaf	0.671	0.403	0.163	0.119-	1.461	1.665	0.096
Ghadampour	0.516	0.371	0.138	0.211-	1.244	1.391	0.164
Bakhtiari	4.206	0.654	0.428	2.924	5.489	6.428	0.000
Parsa	0.855	0.231	0.053	0.403	1.307	3.705	0.000
	1.499	0.461	0.213	0.595	2.403	3.249	0.001

Meta Analysis

Fig.2: Effects of educational programs on postpartum depression. The horizontal lines denote the 95% confidence interval, ■ point estimate (size of the squarecorresponds to its weight); ♦, combined Overall effect of treatment.

Study name	Std diff in means	Standard error	Variance	Lower limit	Upper limit	Z-Value	p-Value
Ghadam pour	0.516	0.371	0.138	0.211-	1.244	1.391	0.164
Bakhtiari	1.928	0.442	0.195	1.062	2.794	4.363	0.000
	1.202	0.706	0.498	0.181-	2.585	1.703	0.089

Meta Analysis

Fig.3: Effects of Mindfulness-based cognitive Therapy programs on postpartum depression. The horizontal lines denote the 95% confidence interval, ■ point estimate (size of the squarecorresponds to its weight); ♦, combined Overall effect of treatment
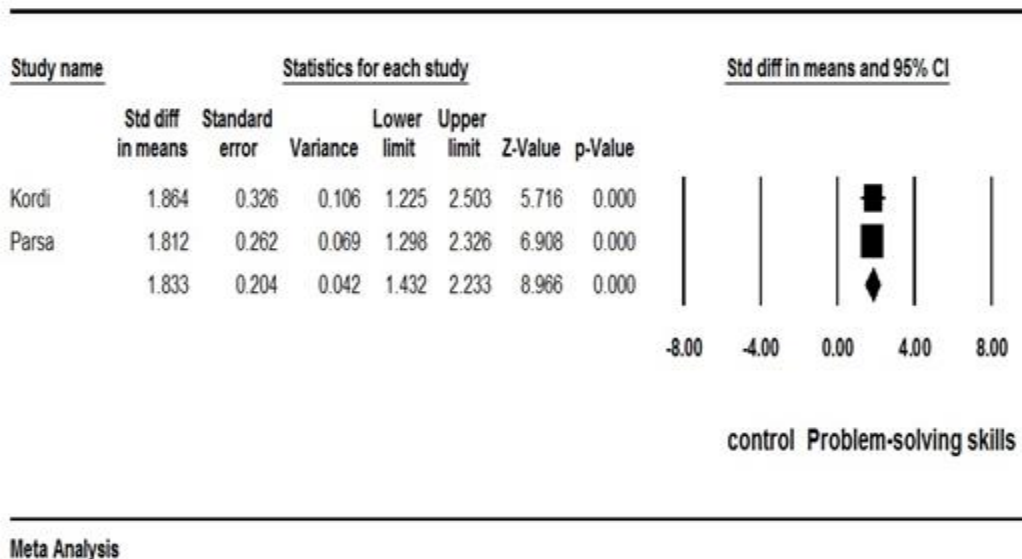
Study name	Statistics for each study							Std diff in means and 95% CI
	Std diff in means	Standard error	Variance	Lower limit	Upper limit	Z-Value	p-Value	
Kordi	1.864	0.326	0.106	1.225	2.503	5.716	0.000	
Parsa	1.812	0.262	0.069	1.298	2.326	6.908	0.000	
	1.833	0.204	0.042	1.432	2.233	8.966	0.000	

Meta Analysis

Fig.4: Effects of problem-solving skills programs on postpartum depression. The horizontal lines denote the 95% confidence interval, ■ point estimate (size of the squarecorresponds to its weight); ♦, combined Overall effect of treatment
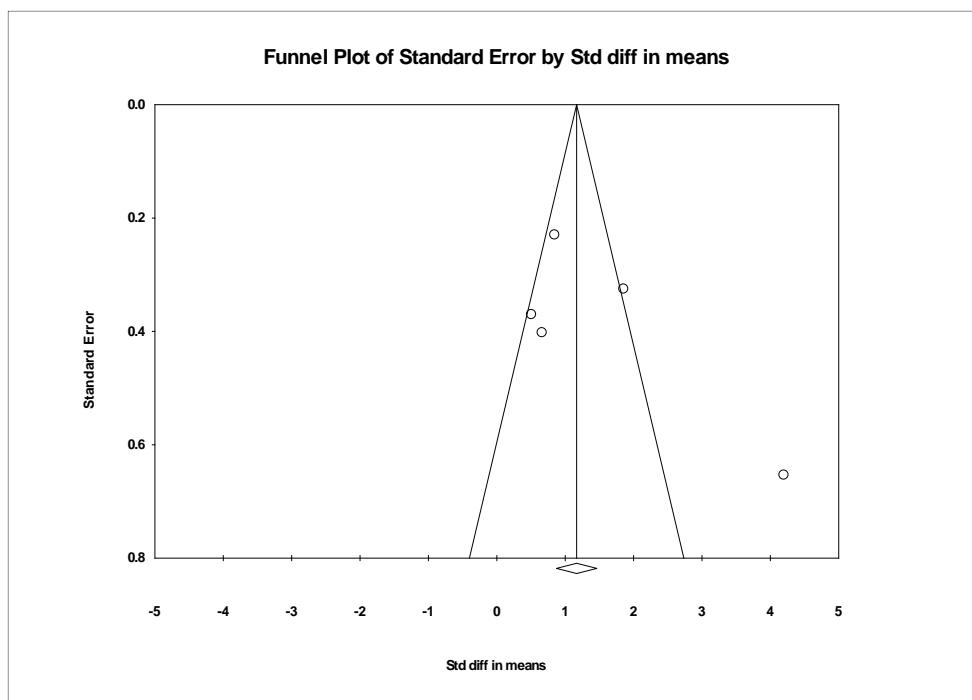

CI: Confidence interval; SMD: Standardized mean difference.

Fig.5: Funnel plot of results from included published studies on the effects of education program on postpartum depression.

4- DISCUSSION

To best our knowledge, this is the first meta-analysis assessed the effect of psychotherapy treatment for postpartum depression. Five studies were included into meta-analysis. Two studies used Problem-solving skills (1, 28); one study utilized Group psychotherapy (27) and two studies used mindfulness-based cognitive therapy (17, 29). In Kordi et al., depressive symptoms decreased significantly in problem-solving skills group compared to control group (28). In Naddaf et al., post partum depression improved significantly in group psychotherapy compared to control group (27). In Ghadam pour et al.'s study, the Beck Depression Inventory-II (BDI-II) decreased significantly in Mindfulness-based cognitive therapy group compared to control group (17).

In Bakhtiari et al.'s study BDI decreased significantly in mindfulness-based cognitive group compared to control group (29). In Parsa et al.'s study , based on Edinburgh scale, postpartumdepression improved significantly in Problem-solving skills group compared to control group. According to forest plot, three studies showed educational program were effective in decreasing severity of depression (1, 28, 29). In contrast in two studies, severity of postpartum depression decreased non-significantly. Discrepancy between studies may be related to difference in content from training programmers, sample size, severity of depression, different instrument tool and setting. After of combination of the result of five studies in a meta-analysis, educational intervention was found to be more effective and could significantly improve postpartum depression.

4-1. Limitation of study

This systematic review had several limitations that need to be noted and discussed. The first limitations are large heterogeneity among studies that may be due to different instrument tool, content from training programmers, difference in severity of depression, difference in sample size and setting. The second, some of studies did not provide the information of education session. Third limitation, Higgins (30) suggested that a minimum of ten studies need to conduct a meta-regression. Therefore, the number of studies included in the systematic review was too small to perform a Meta regression to detect whether severity of depression impact on the result of meta-analysis. However, sensitivity analysis showed no impact of severity of depression on result. Fourth limitation, most of studies included into meta-analysis had a small sample size that larger sample size must be considered in future study. Fifth, the fact that all the studies performed in Iran may limit the generalizability of the finding of the meta-analysis to other countries. Last, despite of that fact that we performed a comprehensive search, but it is possible that some of studies be missed length of the systematic review is all studies used validated and reliable instrument tool. Also, studies were well-designed and descripted base on consort guideline.

5- CONCLUSIONS

Based on the finding of the current meta-analysis, it can be said that educational programs that teaches Mindfulness-based cognitive and Problem-solving skills, can improve postpartum depression. Psychotherapy and educational intervention can offer as an alternative to pharmacotherapy particularly for women who are concern about side effect of herbal and chemical drugs.

6- CONFLICT OF INTEREST

All the authors declare that they have no conflict of interest.

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Table-1: Characteristics of 5studies included in our systematic review.

Author, City, Year, Reference	Design	Age	Level of complaints and measurment tool	Measurment tool	Type of interventions	Participants Intervention	randomization /Suitable randomization technique	Basel Comparability of the treatment and control groups	Major relevant findings
Parsa et al. Hamadan of Iran, 2016 (1)	Randomised controlled trials (RCTS)	Age ranage 19-23 years	10-15 scores based on Edinburgh scale	Edinburgh Scale	Problem-solving skills /Eight sessions weekly	Intervention (n=41) and control (n=41)	Yes/no	Yes	Edinburgh Scale improved significantly in intervention group compared to control group.
Ghadam pour et al., Tabrize of Iran, 2016 (17)	Quasi-experimental	26 years	High depression according to BDI	Beck Depression Inventory-II	Mindfulness-based cognitive Therapy Eigh sessions (two sessions a week)	Intervention (n=15), and control (n=15)	Convenience method/no	Yes	Beck Depression Inventory-II decreased significantly in intervention group compared to control group.
Naddap et al., Mashhad of Iran, 2012, (27)	Quasi-experimental	23.29 years	Edinburgh Scale ≥10 Mild-modrate depression	Edinburgh Scale	Group psychotherapy ten session, control/ no intervention	Intervention (n=13), and control (n=13)	Yes/no	Yes	Edinburgh Scale improved significantly in intervention group compared to control group.
Kordi et al., Mashhad of Iran, 2012 (28)	Randomised controlled trials (RCTS)	Intervention =25.8 years; Control group=25.7 years	Edinburgh Scale ≥10 Beck Depression1 between 4 to 28	Edinburgh Scale	Problem-solving skills /six sessions of 45-50 min; control/ no intervention	Intervention (n=26), and control (n=28)	Yes/no	Yes	Depressive symptoms decreased significantly in problem-solving skills group compared to control group.
Bakhtiari et al., Esfahan, of Iran, 2012 (29)	Experimental	Intervention group =24 years, and control group=26 years	At least 5-7 scoresbased on Beck depression inventory (BDI)	Beck depression	Mindfulness-based cognitive Therapy Eigh sessions weekly	Intervention (n=15) and control (n=15)	Yes/no	Yes	BDI decreased significantly in intervention group compared to control group.