Effects of positive psychology interventions on happiness in women with unintended pregnancy: randomized controlled trial

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ABSTRACT
Background: Undesirable effects Negative feelings among women with unintended pregnancies may have undesirable effects on pregnancy. However, little is known about the effect of positive feelings and protective factors on prenatal mental health of pregnant women. The aim of the present study was to determine the effect of positive psychology-based interventions (PPI) on the happiness of women with unintended pregnancies.

Methods: This randomized controlled trial that included 40 women with unintended pregnancies was conducted between March and July 2017. The subjects were randomly assigned to receive 10 weekly training sessions based on positive psychology (PPI) (N = 20) or routine prenatal care (N = 20). All subjects received usual prenatal care. The level of happiness and its five domains were measured in three time points: at baseline, immediately after completing the intervention, and 45 days after the end of the intervention. The happiness was assessed using the Oxford Happiness Inventory (OHI).

Results: In the intervention group, the mean total OHI score increased from 31.3 (at baseline) to 42.5 (after completing ten sessions of PPI), and the increase remained statistically significant at a 45-day follow-up (39.8); P = 0.001. However, the total OHI score did not change significantly during the follow-up (P = 0.339). Satisfaction with life, self-esteem, and subjective well-being improved significantly after the interventions, whereas the increases observed in the scores of positive mood and self-efficacy dimensions were not significant.

Conclusion: PPIs can improve happiness and its dimensions among women with unintended pregnancies. It is suggested that healthcare planners help women with unplanned pregnancies adapt by formulating strategies to hold training courses with a positive psychology approach and recognize and promote their positive aspects and strengths.

1. Introduction
Pregnancy is considered a transitional stage to accept a new role and responsibility for women that requires psychological preparation [1, 2, 3]. However, facing an unplanned/unintended pregnancy and refusing to accept it can lead to unpleasant consequences during pregnancy [4, 5]. In other words, the nature of unintended pregnancy may impact the adaptation to the pregnancy [6]. Worldwide, it is estimated that 44% of pregnancies are unintended [7].
Thus, unintended pregnancy is considered a major issue threatening the reproductive health of women and imposing an appreciable socioeconomic burden on individual and society [8]. Women with unintended pregnancies show significant differences in healthy behaviors [4]. Women with unintended pregnancy have been shown to be more exposed to suicide and depression [6], poor nutrition during gestation [9], mental health issues, having low birth weight infants, and delayed onset of prenatal care [8, 10].
One of the actions of women with unintended pregnancies is to perform illegal and unsafe abortions [8, 11]. Psychological issues have been reported as a reason that why women with unintended pregnancies did not decide for doing an abortion when initiating early prenatal care [12].
Undesirable effects of negative feelings among women during their pregnancies have been studied [13, 14, 15]. However, few evidence

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exists regarding the effect of positive feelings and protective factors on the prenatal mental health [16, 17].

Studies have shown that the mother's emotional response to pregnancy and her level of happiness has very significant effects on her decision to continue the pregnancy and adopt healthy behaviors [18, 19, 20]. A strong relationship has been reported between the level of happiness and the onset of prenatal care and pregnancy outcomes such as low birth weight and infant death [21]. Limited evidence exists about the effectiveness of psychological interventions for mothers with an unplanned pregnancy. Perceived social support, for example, has been implicated in a former study to be more common in women with stress towards their pregnancy [22].

Considering the benefits of having a happy life for people, especially pregnant women [21], psychologists and researchers have attempted to develop approaches to increase happiness in people's lives [23] to change their cognitive and emotional structures and provide a more positive and adaptive attitude towards life events [24]. One of these approaches is positive psychology, which suggests three paths to a pleasurable, meaningful, and engaging life to achieve happiness [18, 19, 20, 25, 26]. This approach reduces mental disorders and has a positive effect on happiness by developing planned activities to promote positive emotions, cognitions, and behaviors [27, 28].

Unintended pregnancy is one of the important issues in reproductive health that may adversely affect the happiness of women. Unintended pregnancy has been associated with depression in women, and these women may experience disappointment and stress during pregnancy [29]. Therefore, studying psychological methods to improve happiness in such populations can be promising. The aim of the present study was to determine the effect of positive psychology-based interventions (PPI) on the happiness of women with unintended pregnancy. As such, we hereby examined the hypothesis that a brief period of positive psychology intervention (PPI) may increase the happiness of women with an unintended pregnancy.

2. Methods

2.1. Design and participants

This research was designed as a randomized controlled trial. Among patients seeking care from health centers of the Kermanshah city, Iran, between March and April 2017, we consecutively recruited 40 married women with an unintended pregnancy. Pregnancy was defined as unintended if it was "unwanted" in which the couple had no desire to have children or a "mistimed" pregnancy in which pregnancy occurred earlier than the time the couple desired. Exclusion criteria were gestational age >20 weeks, a past medical history of infertility or any organic or psychiatric disorder, vaginal bleeding, and history of illicit drug addiction by pregnant women or their husbands. Additionally, those who missed more than 2 sessions of the interventions, lost to follow-up, or the pregnancy terminated before the interventions were completed were not included in the final analyses.

2.2. Randomization

Participants were randomly assigned to two groups of intervention (N = 20) and control (N = 20). Random allocation was carried out using a simple randomization method in such a way that letters A and B were written on separate pieces of paper 20 times and then placed in a container. Participants were asked to remove a piece of paper from the container. Selected papers were not returned to the container. The selected letters A and B were assigned to the intervention and control groups, respectively. In order to avoid possible bias at all stages, the questionnaires were distributed and collected by a person other than the researcher team members.

2.3. Measurements

Demographic and reproductive data were obtained from all participants. These included age, employment status, level of formal education, gestational age, number of children, Kind of unintended pregnancy (unwanted/unplanned), husband's intention to the pregnancy, the interval between the two recent pregnancies, and contraception method(s).

Happiness was measured using the 29-item Oxford Happiness Inventory (OHI). There are five dimensions to happiness, including "satisfaction with life", "self-esteem", "self-efficacy", "subjective well-being", and "positive mood" [30]. This inventory consists of four-choice items scored as follows: A: 0, B: 1, C: 2, and D: 3. Thus, the possible total score range is 0–87, with higher scores indicating a greater level of happiness. The normal score for this inventory is between 40 and 42 [31]. Information about internal consistency, reliability, and construct validity of the Persian translation of the instrument has been provided by Liahaifar et al. [32]. The OHI has been studied previously in several studies enrolling the Iranian populations, such as healthcare students [33] and nurses [34].

2.4. Interventions

In addition to routine prenatal care, the intervention group underwent PPI for ten sessions (one session per week for 70–90 min) in healthcare centers. The women in the intervention group were divided into four groups (10 participants in each group). During the sessions, PPIs were taught to the participants. Since positive psychology sessions are task-oriented, participants were presented with a set of tasks in each session. The content of the sessions included procedures to solve these tasks (Table 1). The intervention and training were carried out using lectures, group discussions, and questions and answers. To achieve this goal, we used teaching aids, such as video projectors, videos, pamphlets, and book introductions. Finally, the two groups were re-evaluated immediately after the intervention, and the third evaluation (follow-up) was performed after 45 days (Figure 1).

2.5. Statistical analysis

Descriptive indices including frequency (percentage) and mean (standard deviation, SD) were used to report categorical and continuous variables, respectively. The Shapiro-Wilk test was used to test the normal distribution of OHI scores at each measurement (baseline, post-intervention, and on day 45) separately in the studied groups. A repeated measures ANOVA (or Friedman test, as applicable) was used to compare OHI total score and scores of the five dimensions (i.e., satisfaction with life, self-esteem, self-efficacy, subjective well-being, and positive mood) at three measurements in each group separately. To compare OHI scores and its subscale scores at each time point between the two groups (time-by-time analysis), independent samples t test or Mann-Whitney test was used.

2.6. Ethics

The study was conducted according to the principles of the Declaration of Helsinki revised in 2008. The study was approved by the Ethical Committee of Kermanshah University of Medicine Science, Kermanshah, Iran (approval number KUMS.REC.1395.717) and was recorded in the Iranian Registry of Clinical Trials (IRCT2017030714333N70). Written informed consent was provided by all participants.

3. Results

The mean age in the intervention and control groups were respectively 30.1 and 29.8 years. The mean time passed since the last pregnancy
was 2.2 years in the intervention group and 2.9 years in the control group. None of the participants were in their first pregnancy. Baseline characteristics of the participants are reported in Table 2. As observed, baseline characteristics are well balanced between the two groups.

As shown in Table 3, the mean total score of OHI as well as its five dimensions did not differ significantly between the two groups. However, immediately after the administration of the PPIs, a significant difference was detected in OHI total score and its five subscales in a way that the scores were higher in the intervention group compared to the control group. This significant difference between the groups continued after 45 days of follow-up of the participants. In the intervention group, the mean total OHI score increased from 31.3 to 42.5, and the increase remained statistically significant at a 45-day follow-up (39.8) in comparison to the baseline.

When we examined dimensions of the OHI, the analyses showed that satisfaction with life (P = 0.006), self-esteem (P = 0.003), and subjective well-being (P = 0.02) improved in the intervention group. On the other hand, the overall difference in self-efficacy was not significant, and
Table 2. Baseline demographic characteristics of two groups of pregnant women with unintended pregnancy.

| Variable                                      | Intervention group (N = 20) | Control group (N = 20) | All participants (N = 40) |
|-----------------------------------------------|-----------------------------|------------------------|---------------------------|
| Occupation                                    | Employee 4 (20%)            | 6 (30%)                | 10 (25%)                  |
|                                               | Housewife 16 (80%)          | 14 (70%)               | 30 (75%)                  |
| Education                                     | High school Diploma or lower| 15 (75%)               | 15 (75%)                  | 30 (75%)                  |
|                                               | College/university 5 (25%)  | 5 (25%)                | 10 (25%)                  |
| Number of children                            | Less than 3 15 (75%)        | 16 (80%)               | 31 (78%)                  |
|                                               | 3 or more 5 (25%)           | 4 (20%)                | 9 (23%)                   |
| Current unintended pregnancy form             | Mistimed 12 (60%)           | 10 (50%)               | 22 (55%)                  |
|                                               | Unwanted 8 (40%)            | 10 (50%)               | 18 (45%)                  |
| Desire of husbands to continue pregnancy      | Yes 6 (30%)                 | 5 (25%)                | 11 (28%)                  |
|                                               | No 14 (70%)                 | 15 (75%)               | 29 (73%)                  |
| Contraception                                 | Pharmacological methods 8 (40%) | 8 (40%) | 16 (40%)                   |
|                                               | Other methods 12 (40%)      | 12 (60%)               | 24 (60%)                  |
| Age, year*                                    | 30.1 (±8.8)                 | 29.8 (±7.9)            | 29.9 (±8.3)               |
| Gestational age, week*                        | 14.1 (±3.6)                 | 13.7 (±3.3)            | 13.9 (±3.4)               |
| Time interval since the previous pregnancy, year* | 2.2 (±1.8)               | 2.9 (±2.9)            | 2.5 (±2.4)                |
| Monthly income, million Tomans*               | 1.8 (±0.8)                  | 2.2 (±0.9)            | 2.0 (±0.9)                |

* The results are presented as mean (±standard deviation).

Table 3. Mean total score of the Oxford Happiness Inventory and its five subscales in the positive psychotherapy intervention (PPI) and control groups at baseline, immediately following the intervention (post-PPI), and 45 days later.

| Variables                       |Baseline| P value*| Post-PPI| P value*| Day 45| P value*| P value*|
|--------------------------------|--------|---------|---------|---------|-------|---------|---------|
| OHI total score                | PPI 31.3 (1.47) | 0.925 | 42.5 (1.7) | 0.001 | 39.8 (1.6) | 0.001 | 0.001 |
| Control                        | 31.7 (1.8)    |        | 31.2 (1.6) |       | 30.8 (1.7) |       | 0.339 |
| Satisfaction with life         | PPI 0.82 (0.10) | 0.643 | 1.31 (0.07) | 0.001 | 1.18 (0.08) | 0.009 | 0.006 |
| Control                        | 0.77 (0.09)   |        | 0.72 (0.08) |       | 0.80 (0.08) |       | 0.848 |
| Self-esteem                    | PPI 1.10 (0.06) | 0.369 | 1.43 (0.08) | 0.008 | 1.37 (0.07) | 0.003 | 0.003 |
| Control                        | 1.10 (0.06)   |        | 1.12 (0.06) |       | 1.02 (0.06) |       | 0.236 |
| Self-efficacy                  | PPI 1.07 (0.08) | 0.880 | 1.36 (0.09) | 0.014 | 1.21 (0.08) | 0.121 | 0.244 |
| Control                        | 1.08 (0.07)   |        | 1.07 (0.06) |       | 0.99 (0.08) |       | 0.938 |
| Subjective well-being          | PPI 0.90 (0.07) | 0.516 | 1.61 (0.07) | 0.012 | 1.30 (0.07) | 0.020 | 0.026 |
| Control                        | 1.32 (0.07)   |        | 1.36 (0.06) |       | 1.05 (0.08) |       | 0.275 |
| Positive mood                  | PPI 1.15 (0.08) | 0.759 | 1.38 (0.05) | 0.008 | 1.30 (0.07) | 0.037 | 0.080 |
| Control                        | 1.18 (0.08)   |        | 1.03 (0.1) |       | 1.05 (0.08) |       | 0.286 |

* The results are presented as mean (standard deviation); OHI = Oxford Happiness Inventory; PPI = positive psychology intervention; * Between-group significance; Y represents within-group significance level in PPI and control groups.

Despite an increased score in the positive mood dimension, the difference did not reach a significant level. The OHI total score and its dimensions remained nearly constant across baseline, post-PPI time point, and 45 days later in the control group (Table 3).

4. Discussion

One of the main goals of positive psychology is to develop interventions to promote well-being and happiness, except for the self-efficacy dimension; therefore, the present study evaluated the effectiveness of this approach in promoting happiness in women with unintended pregnancy.

We observed that PPIs can improve happiness and its dimensions among women with unintended pregnancies, and that the improvement could last for 45 days. Several studies demonstrated the efficacy of PPIs such as setting personal goals [35, 36], counting blessings [37, 38, 39], practicing kindness [38], expressing gratitude [39, 40], and using personal strengths to improve well-being and alleviate depressive symptoms [39]. Such interventions are usually provided in a self-help format. Sin and Lyubomirsky, in a meta-analysis, reported that PPIs significantly enhance well-being and decrease depressive symptoms. They added that items such as depression, self-selection, age of participants, as well as the format and duration of the interventions can affect the success of PPIs. As such, they concluded that clinicians may consider incorporating positive psychology techniques into their everyday clinical practice, particularly for treating highly motivated clients who are depressed and are relatively older. They also recommended that PPIs should be delivered as individual (versus group) therapy and for relatively longer periods of time [27].

Boiler et al. conducted a meta-analysis to determine the effectiveness of PPI in general population and individuals with particular psychosocial problems. They concluded that PPIs could effectively enhance subjective and psychological well-being and help reducing depressive symptoms [26]. Lyubomirsky and Layous have attempted to develop a positive-activity model to explain under what conditions performing positive intentional activities enhance happiness. They suggested that positive activities increase positive emotions, thoughts, and behaviors; all of which enhance well-being. According to their model, features of positive activities increase positive emotions, thoughts, and behaviors; all of which enhance well-being. They concluded that an optimal person-activity similarity (i.e., the overlap between positive activity and characteristics of a person) predicts improvement in well-being [25].

We observed that the improvement in the happiness sustained up to 45 days after the interventions were completed. Few studies have investigated the long-term effectiveness of the PPIs, and they were all...
prone to the high attrition rates at follow-up. At follow-up from three to six months, PPIs have been shown to have small but still significant effects on subjective well-being and psychological well-being. These observations indicate that effects were partly sustained over time [26]. Woodworth et al. also questioned the sustainable effectiveness of this approach. The researchers stated that the application of interventions based on this approach does not always cause changes in the well-being level, and the effectiveness of using these interventions as a sustainable self-help tool is called into question [41]. Considering the results of the present study regarding the unsustainable effect of PPIs on the self-efficacy dimension, integrating this program with routine pregnancy care for a longer period seems necessary.

4.1. Strength and limitations

The strength of the current study lies in its within-group nature. Several former studies have made between-group comparisons; such designs may not necessarily illustrate changes that occur among individuals [41]. Some limitations to our study merit mentioning. First, our study was not directly designed to investigate the effectiveness of the PPIs on improving the outcome of unintended pregnancies. Therefore, it remains to be clarified if PPIs annihilated negative psychological effects of unintended pregnancy. However, based on the findings of the current study, such improvement could be hypothesized, and our findings now can rationalize conducting further researches appropriately designed to address this topic directly. Second, our follow-up period was relatively short. The current study, however, was designed to investigate the effectiveness of the PPIs to improve happiness among women with unintended pregnancy. The length of the follow-up might make sense if looked upon in light of the fact that pregnancy is not a long period of time. Third, our study sample might have not had statistical power large enough to capture trivial improvement that might have occurred in the self-efficacy. Therefore, we decided not to perform further subgroup analyses to explore the possible contribution of covariate factors in the level of happiness of the participants.

In the present research, some possible variables affecting the research results, such as psychological disorders, were not identified, and personality traits were not evaluated in both groups due to the lack of cooperation by psychiatrists. However, participants were asked about their history of mental diseases and were excluded from the study if they had any of them. Also, considering that the present research was conducted in the city of Islamabad and in the specific Kurdish social and cultural context, the results may not be generalizable in other societies with different socio-cultural conditions.

5. Conclusions

We observed that PPIs can improve happiness measured by OHI and its dimensions among women with unintended pregnancy and that the improvement could last for about 45 days. According to the results, it is suggested that healthcare planners take one step beyond paying exclusive attention to the frequency and severity of disease and mortality indicators while providing health care to pregnant women, especially in the case of unplanned pregnancies. They should help women with unplanned pregnancies adapt to unintended conditions experienced as well as promote their self-care and pregnancy health in this vulnerable group by formulating strategies to hold training courses with a positive psychology approach as well as recognizing and promoting their positive aspects and strengths.

Declarations

Author contribution statement

Zahra Rastad, Marzieh Kaboudi: Conceived and designed the experiments; performed the experiments; contributed reagents, materials, analysis tools or data; wrote the paper.

Mohsen Golmohammadian: conceived and designed the experiments; wrote the paper.

Amir Jalali, Bijan Kaboudi: analyzed and interpreted the data; wrote the paper.

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Data availability statement

Data included in article supplementary material/referenced in article.

Declaration of interests statement

The authors declare no conflict of interest.

Additional information

No additional information is available for this paper.

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References

[1] S.E. Perry, M.J. Hockenberry, K.R. Alden, D.L. Lowdermilk, M.C. Cashion, D. Wilson, Maternal Child Nursing Care-E-Book, Mosby, 2017.
[2] J.A. Moville, C.G. Huerta, Health Promotion in Nursing (Book Only), Cengage Learning, 2012.
[3] S.S. Ricci, T. Kyle, Maternity and Pediatric Nursing, Lippincott Williams & Wilkins, 2009.
[4] C. McCrosy, S. McNally, The effect of pregnancy intention on maternal prenatal behaviours and parent and child health: results of an Irish cohort study, Paediatr. Perinat. Epidemiol. 27 (2) (2013) 208–215.
[5] J.D. Gipson, M.A. Koenig, M.J. Hindin, The effects of unintended pregnancy on infant, child, and parental health: a review of the literature, Stud. Fam. Plann. 39 (1) (2008) 18–38.
[6] A.A. Abajobir, J.C. Maravilla, R. Alati, J.M. Najman, A systematic review and meta-analysis of the association between unintended pregnancy and perinatal depression, J. Affect. Disord. 192 (2016) 56–63.
[7] J. Bearak, A. Popinchalk, L. Alkema, G. Selgh, Global, regional, and subregional trends in unintended pregnancy and its outcomes from 1990 to 2014: estimates from a Bayesian hierarchical model, Lancet Global Health 6 (4) (2018) e380–e389.
[8] M. Yazdkhasti, A. Pourreza, A. Pirak, F. Abdi, Unintended pregnancy and its adverse social and economic consequences on health system: a narrative review article, Iran. J. Public Health 44 (1) (2015) 12.
[9] L. Fourn, S. Ducic, L. Seguin, Risk factors associated with low birth weight: a multivariate analysis, Cahiers d’études et de Recherches Francophones/Sante 9 (1) (1999) 7–11.
[10] Z. Karaçan, K. Önel, E. Gerekç, Effects of unplanned pregnancy on maternal health in Turkey, Midwifery 27 (2) (2011) 288–293.
[11] D.A. Grimes, J. Benzon, S. Singh, M. Romero, B. Ganastra, F.E. Okonofua, et al., Unsafe abortion: the preventable pandemic, Lancet 368 (9550) (2006) 1908–1919.
[12] T.M. Hulsey, M. Laken, V. Miller, J. Ager, The influence of attitudes about unintended pregnancy on use of prenatal and postpartum care, J. Perinatol. 20 (8) (2000) 513–519.
[13] A. Buist, N. Gotman, R.A. Yonkers, Generalized anxiety disorder: course and risk factors in pregnancy, J. Affect. Disord. 131 (1–3) (2011) 277–285.
[14] C. Dankel Schetter, Psychological science on pregnancy: stress processes, biopsychosocial models, and emerging research issues, Annu. Rev. Psychol. 62 (2011) 531–558.
[15] A.C. Huizink, P.G. Robles de Medina, E.J. Mulder, G.H. Visser, J.K. Buitelaar, Stress during pregnancy is associated with developmental outcome in infancy, JCPP (J. Child Psychol. Psychiatr.) 44 (6) (2003) 810–818.
[16] G. Como, E. Eichemendy, M. Espinoza, R. Herrero, G. Molinari, A. Carrillo, et al., Effect of a web-based positive psychology intervention on prenatal well-being: a case series study, Women Birth 31 (1) (2018) e1–e8.
[17] K. O'Leary, The Effect of Positive Psychological Interventions on Psychological and Physical Well-Being during Pregnancy, University College Cork, 2015.

[18] K. Barton, M. Redshaw, M.A. Quigley, C. Carson, Unplanned pregnancy and subsequent psychological distress in partnered women: a cross-sectional study of the role of relationship quality and wider social support, BMC Pregnancy Childbirth 17 (1) (2017) 1–9.

[19] P. Hagstrom, S. Wu, Are pregnant women happier? Racial and ethnic differences in the relationship between pregnancy and life satisfaction in the United States, Rev. Econ. Houesh. 14 (3) (2016) 507–527.

[20] S.M. Blake, M. Kiely, C.C. Gard, A.A. El-Khorazaty, N.D. Initiative, Pregnancy intentions and happiness among pregnant black women at high risk for adverse infant health outcomes, Perspect. Sex. Reprod. Health 39 (4) (2007) 194–205.

[21] C.S. Hartnett, Are Hispanic women happier about unintended births? Popul. Res. Pol. Rev. 31 (5) (2012) 683–701.

[22] K. Barton, M. Redshaw, M.A. Quigley, C. Carson, Unplanned pregnancy and subsequent psychological distress in partnered women: a cross-sectional study of the role of relationship quality and wider social support, BMC Pregnancy Childbirth 17 (1) (2017) 44.

[23] Comparing the effectiveness of Fordyce's cognitive-behavioral approach and social skills training approach on increasing High school students' happiness in Isfahan, in: A. Abedi, A. Hevrat (Eds.), Proceedings of the 3rd International Conference of Teaching and Learning, INTI International University, 2011.

[24] S. Narmashiri, M. Raghibi, M. Mazaheri, Effect of Fordyce happiness training on the emotion regulation difficulties in the adolescents under support of social welfare, Int. J. Psychol. Behav. Res. 1 (2) (2006) 73–82.

[25] S. Lyubomirsky, K. Layous, How do simple positive activities increase well-being? Curr. Dir. Psychol. Sci. 22 (1) (2013) 57–62.

[26] L. Bolier, M. Haverman, G.J. Westerhof, H. Riper, F. Smit, E. Bohlmeijer, Positive psychology interventions: a practice-friendly meta-analysis, BMC Publ. Health 13 (1) (2013) 119.

[27] N.L. Sin, S. Lyubomirsky, Enhancing well-being and alleviating depressive symptoms with positive psychology interventions: a practice-friendly meta-analysis, J. Clin. Psychol. 65 (5) (2009) 467–487.

[28] M.M. Dowlatshadi, S.M. Ahmadi, M.H. Sorbi, O. Beïki, T.K. Razavi, R. Bidaki, The effectiveness of group positive psychotherapy on depression and happiness in breast cancer patients: a randomized controlled trial, Electron. Physician 8 (3) (2016) 2175.

[29] J.R. Steinberg, L.R. Rubin, Psychological aspects of contraception, unintended pregnancy, and abortion. Policy insights from the behavioral and brain sciences 1 (1) (2014) 239–247.

[30] M. Argyle, M. Martin, J. Crossland, Happiness as a function of personality and social encounters. Recent Advances in Social Psychology: an International Perspective, 1989, pp. 189–203.

[31] M. Fooladchang, S. Hassanzadeh, The Effectiveness of Emotional Regulation on Happiness and Self-Efficacy of Female-Headed Households, 2015.

[32] M.J. Liaghatdar, E. Jafari, M.R. Abedi, F. Samiee, Reliability and validity of the Oxford Happiness Inventory among university students in Iran, Spanish J. Psychol. 11 (1) (2008) 310.

[33] S. Feizi, M. Naziri, H. Bahadori, M. Hosseini Amiri, H. Mirhosseini, The relationship between spiritual well-being and happiness among healthcare students: application of the spiritual health questionnaire for the Iranian population, Heliyon 6 (11) (2020), e05448.

[34] S. Javanmardnejad, R. Bandari, M. Heravi-Karimooi, N. Rejeh, H. Sharif Nia, A. Montazeri, Happiness, quality of working life, and job satisfaction among nurses working in emergency departments in Iran, Health Qual. Life Outcome 19 (1) (2021) 112.

[35] L. Green, L. Oades, A. Grant, Cognitive-behavioral, solution-focused life coaching: enhancing goal striving, well-being, and hope, J. Posit. Psychol. 1 (3) (2006) 142–149.

[36] K.M. Sheldon, T. Kasser, K. Smith, T. Share, Personal goals and psychological growth: testing an intervention to enhance goal attainment and personality integration, J. Pers. 70 (1) (2002) 5–31.

[37] R.A. Emmons, M.E. McCallough, Counting blessings versus burdens: experimental studies of gratitude and subjective well-being. J. Pers. Soc. Psychol. 84 (2) (2003) 377–389.

[38] K. Otake, S. Shimai, J. Tanaka-Matsumi, K. Otsui, B.L. Fredrickson, Happy people become happier through kindness: a counting kindnesses intervention, J. Happiness Stud. 7 (3) (2006) 361–375.

[39] M.E. Seligman, T.A. Steen, N. Park, C. Peterson, Positive psychology progress: empirical validation of interventions, Am. Psychol. 60 (5) (2005) 410.

[40] K.M. Sheldon, S. Lyubomirsky, How to increase and sustain positive emotion: the effects of expressing gratitude and visualizing best possible selves, J. Posit. Psychol. 1 (2) (2006) 73–82.

[41] R.J. Woodworth, A. O’Brien-Malone, M.R. Diamond, B. Schütz, Happy Days: positive Psychology interventions effects on affect in an N-of-1 trial, Int. J. Clin. Health Psychol. 16 (1) (2016) 21–25.