



Horticultural therapy program for middle-aged women's depression, anxiety, and self-identify

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ABSTRACT

Objectives: The objective of this study was to investigate the effect of a horticultural therapy program on reducing middle-aged women's depression and anxiety and improving their self-identity.

Design and Setting: Participants were 36 women aged 40–59 years who attended the D Culture Center in Incheon, South Korea (control, n = 18; experimental, n = 18).

Intervention: The study was conducted in July–August 2017; the experimental group participated twice/week for 12 sessions.

Main Outcome Measures: The Menopause Symptom Index, Self-rating Depression Scale, State-Trait Anxiety Inventory, and Dignan Ego-identity Scale were used pre- and post-test. Independent sample t-tests and matching sample t-tests were performed to verify pre-evaluation homogeneity between groups; to determine the changes in depression, anxiety, and ego identity before and after the program; and to compare the efficacy between the groups, respectively.

Results: Depression and anxiety scores were significantly lower ($p < 0.001$) and self-identity was significantly higher ($p = 0.003$) among the experimental group compared to the control. The control group showed no significant changes in study variables.

Conclusions: The horticultural therapy program was effective at decreasing depression and anxiety and improving self-identity in middle-aged women.

1. Introduction

The global point, one-year and lifetime prevalence of depression are 12.9%, 7.2% and 10.8% respectively.¹ According to medical statistics information in South Korea, the number of depressed patients in 2015 was about 12% higher than in 2011, and women accounted for 67.7% of these. Women aged 50–55 and 55–60 years displayed the highest depression rates compared to other age groups.² Commonly, middle-aged women feel a sense of futility and loss after their child rearing role is complete.³ Accompanied by menopause symptoms, various physical disabilities (e.g. sleep disorders), and psychological problems, middle-aged women may display low self-esteem and depression.⁴ Specifically, 89% of women aged in their 50s are experiencing menopausal symptoms,⁵ which can impact individuals, families, and social organizations.⁶

The average total cost of patients with depression is US\$7638 per patient-year and indirect costs (e.g. unemployment and loss of productivity) dominated the total costs.⁷ The spending on health insurance

for depression increased 1.2 times between 2007 and 2011, and the spending on all mental and behavioural disorders doubled during this period: 4.4% of all healthcare costs in 2011 were due to mental health problems.⁸ Antidepressants can improve depressive symptoms and enhance occupational functioning.⁹ However, continued use of antidepressant medication may lead to various side effects such as anxiety, nausea, weight gain, insomnia, etc.¹⁰ Some researchers proposed to use drugs with addiction potential (e.g. ketamine) to treat depression and lead to serious side effects (e.g. urinary incontinence)¹¹ and ethical concerns.¹² As a result, there has been an increase in number of non-pharmacological treatment programs in recent years.¹³ Previous programs targeting middle-aged women's depression and anxiety include the following: The Mindfulness Meditation Program,¹⁴ Literally Drawing Programs,¹⁵ Dance Movement Therapy,¹⁶ Laughter Therapy Program,¹⁷ REBT Group Counselling,¹⁸ Foot Reflexology,¹⁹ Mandala Art Therapy,²⁰ Horticultural Therapy,²¹ and Schema Therapy Program.²² These have shown effects on reducing depression and anxiety and improving self-identity. In addition, horticultural plants have been

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shown to alleviate anger and negative emotions and promote self-control as well as also reducing depression and anxiety.^{23,24}

Further, Kohut's Self-Psychology, which is an intervention model involving deep introspection, allows individuals to discover an inner-self that they did not know, thereby reducing depression and anxiety and promoting self-identity and self-esteem.²⁵ The lower the self-identity, the higher the depression and anxiety experienced by middle-aged married women.²⁶ Kohut's self-psychological studies include Woman's Experience of Cohesive Self on the Crisis of Divorce,²⁷ Self-psychological Art Therapy,²⁸ Psychoanalysis of Shame and Narcissism,²⁹ and Corrective Counselling.³⁰ Kohut's self-psychology has been widely used since the beginning of counselling psychology and used as a treatment for pathological narcissism and adolescents' narcissistic personality disorder.^{31–33} In addition, Kohut's self-concept was used in psychodynamic psychotherapy.³⁴

However, there is a lack of research on horticultural therapy for depression and anxiety related to a psychological intervention model among menopausal middle-aged women. In previous studies, it was suggested that research should be actively conducted through appropriate intervention models or techniques in the field of counselling psychology or nursing to maximize the effects of horticultural therapy and guide of designing horticultural therapy program²¹; therefore, this study investigated the effects of a horticultural therapy program based on Kohut's self-psychotherapy on decreasing middle-aged women's depression and anxiety and improving their self-identity.

2. Methods

2.1. Participants

Participants were 36 women aged 40–59 years who attended D Culture Center in Incheon, South Korea. For recruitment, program details including inclusion criteria (i.e. married middle-aged women who did not receive professional hospital treatment or medication due to depression or anxiety) were posted on a bulletin board at D Cultural Center. The 36 participants recruited were randomly divided into two groups: experimental (n = 18) and control (n = 18).

This study was approved by the Bioethics Committee of Konkuk University (no. 7001355-201706-HR-189).

2.2. Horticultural therapy program

The program was conducted twice/week from July–August 2017 for 12 sessions (average 1 h/session). Participants performed horticultural therapy program in groups of 4–5 people. The attendance rate was 100% with two trained horticultural therapists. Main horticultural activities in the horticultural therapy program were planting plants, making crafts with plants, flower arrangements, etc. (Table 1).

The program was based on Kohut's self-psychology. Kohut emphasized the establishment of a 'healthy self' as a robust mental structure, and it is important to have self-object experience, to coalesce the fragmented self³⁵. Therefore, the program was structured to promote this experience for one's inherent self. Table 1 shows the contents of 12 sessions in the horticultural therapy program. An example of the horticultural therapy program (e.g. the 11th session) presents in the Fig. 1.

2.3. Evaluation and analyses

2.3.1. Self-rating Depression Scale (SDS)

The SDS was used to measure depression. It was developed by Zung.³⁶ The use of SDS alone has been reported to be a useful method for the evaluation of treatment since the probability of predicting the treatment of depression is 87%. The sub-items in the SDS are core depressive, cognitive, anxiety, somatic, and none. The standardized Korean version,³⁷ which is reliable and valid was used. The SDS is answered using a 4-point Likert scale: 'not at all = 1 point',

Table 1
Horticultural therapy program based on Kohut's self-psychology.

Session	Horticultural activity	Plant materials used	Therapeutic approach based on Kohut's self-psychology
1	Hydroponics	Peperomia	< Initial stage > Self-expression
2	Planting plants	Rosemary	
3	Planting plants	Fatsia japonica	
4	Making pressed flowers	Marguerite, Lobelia	< Middle stage > Healthy self-construction
5	Flower arrangement	Rose, Sea lavender, Chrysanthemum	
6	Flower arrangement	Ranunculus asiaticus, Rose	< Later stage > Healthy relationship with others
7	Planting plants	Hoya carnosa	
8	Making terrarium	Sander's dracaena	
9	Dish garden	Assemble-planting succulents	
10	Planting plants	Peace lily	
11	Making lunch box with edible flowers	Pansy, Marigold	
12	Flower arrangement	Lisianthus, Bupleurum	

'sometimes = 2 point', 'usually = 3 point', and 'always = 4 points'. Total scores range 20–80 points: 10–49 points = normal range, 50–59 points = mild depression, 60–69 points = severe depression, and > 70 points = severe depression requiring immediate treatment. This scale is reliable: Cronbach's $\alpha = 0.83$ in Jang et al.,³⁸ Cronbach's $\alpha = 0.84$ in Ko et al.,³⁹ and Cronbach's $\alpha = 0.84$ in the present study.

2.3.2. State-trait anxiety inventory (STAI)

The STAI was used to measure anxiety. It was developed by Spilberger and Gorsuch⁴⁰ and standardized in Korean by Hanh et al.⁴¹ It comprises 40 items measuring anxiety at the current moment: 20 measuring state anxiety and 20 measuring trait anxiety. Each item is measured using a 4-point Likert scale from 'not at all = 1 point' to 'very much, yes = 4 points' (score range = 20–80; higher scores indicate more anxiety). This scale is reliable: Cronbach's α s in Hahn et al.^{41,42} were 0.89 and 0.90, respectively for trait anxiety and 0.93 and 0.92, respectively for state anxiety. Further, for the total scale, Cronbach's $\alpha = 0.91$ in Lee et al.⁴³ and Cronbach's $\alpha = 0.88$ in this study.

2.3.3. Self-identity scale

To measure self-identity, the Dignan Ego-identity Scale,⁴⁴ which was adapted by Seo⁴⁵ was used. Following Lee,⁴⁶ a 20-item that were appropriate for middle-aged women among the subareas of Park's Korean version of the scale was used.⁴⁷ The sub-items in the scale are intimacy, initiativeness, goal orientation, identity moratorium, identity confusion, and self-acceptance. Responses were made using a 5-point Likert scale: 'not at all = 1 point' to 'certainly yes = 5 points' (range = 20–100; higher scores indicating higher self-identity). The questionnaire comprised 9 positive and 11 negative items, which were reversed. This scale is reliable: Cronbach's $\alpha = 0.78$ in a study of 800 middle-aged women aged 40–60 years,⁴⁸ Cronbach's $\alpha = 0.86$ in Song and Lee,²⁶ and Cronbach's $\alpha = 0.96$ in this study.

2.3.4. Data analyses

Independent samples *t*-tests were performed ($p < 0.05$) to verify pre-evaluation homogeneity between groups. Paired *t*-tests were performed ($p < 0.05$) to examine group changes in depression, anxiety, and ego identity before and after the program. Data analyses were performed with SAS ver. 9.4 (SAS Institute Inc., Cary, NC, USA).

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