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The Effects of Horticultural Therapy on the Well-Being and Hope of Women in Rural Korea

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Abstract

Purposes: Horticultural therapy (HT) is an enjoyable and accessible method of recreation that readily lends itself to a variety of healthful lifestyle activities. HT is valued for its physical, cognitive, social, emotional, and recreational benefits. This study was designed to examine the effects of HT on the psychological well-being and hope of rural women.

Methods: HT consists of three stages: establishing credibility (sessions 1-3), well-being and interpersonal relationships improvement (session 4-22), and maintenance (sessions 23-24). Participants consisted of 45 women from rural Korea, of which 21 were assigned to the experimental group and 24 to the control group. The experimental participants attended 24 sessions of HT.

Results: Two groups undergone the program had a significant difference in the psychological well-being and hope.

Conclusions: The findings of this study show that HT has positive effects on psychological and emotional health, and can be utilized as an intervention to help rural women.

Keywords: Horticultural therapy; Rural women; Well-being; Hope

Introduction

The rural population of Korea is 3.43 million, accounting for 7.3 % of the total population. In 2010, the estimated rural population was 2.96 million, of which 1.51 million (51 %) are female [1].

In spite of the current situation of mechanized agriculture, fewer people working make the farmworks very dependent on rural women. In addition, they increase the hardship of rearing children, supporting parents-in-law due to aging of rural area, doing housework, and fulfilling the role of a wife [2].

Due to these multiple roles, rural women have experienced increasingly more frequent health problems compared to those who live in metropolitan areas [3]. Specifically, rural women have higher incidences of depression, anxiety, low self-esteem, and stress, as well as physical illnesses, such as arthritis and heart disease [3,4]. Furthermore, rural women often do not have sufficient time to nurture their children, and they lack confidence in their ability to parent. They have less income and cultural exposure in comparison to their metropolitan counterparts, resulting in a lower quality of life [5].

The quality of life encompasses the concept of well-being and hope. Well-being is defined as how satisfied an individual is with his or her own life [6]. Hope is the belief that one's situation may improve [7,8]. People who have a strong sense of well-being and hope are able to cope with stress and engage in relationships, and they typically have the motivation necessary to reach their goals [9]; however, the excessive burdens placed on rural women can negatively affect their psychological health by lowering their quality of life [4,10]. In order for rural women to improve their physical, psychological, and social health, it is necessary to implement activities that will positively affect these women's lives.

Recently, from a study investigating several activities for their effects on quality of life and cultural benefits on rural women, horticultural therapy (HT) is emerging due to its use of natural flowers and plants, and engages all of the sensory systems, and it has been used for the treatment of mental illnesses since 1879 [11]. HT is also a popular and accessible method of recreation that readily lends itself to a variety of healthful lifestyle activities [12].

In many Korean studies, the results of HT for teenagers showed that it decreases stress, depression, and anxiety [13], and improves achievement of goals and confidence [14], relieves depression, and improves self-esteem [15]. An overseas study [16] also stressed that viewing plants through windows can be very effective in promoting emotional stability and recovery from illness. In another study, 59 patients with coronary heart disease were treated with HT, which improved mood in these participants [12]. The results of these studies indicated that HT provides psychological benefits to its participants by stimulating interest in plants, improving social confidence, and promoting positive thinking [17-19].

Currently, it is used by the general public, as well as in residential facilities for people with mental illness, elderly patients with dementia, delinquent adolescents, and prisoners [20,21]. The field of use of HT, however, has not been studies of the use of HT for rural Korean women. The aim of this study of HT was to develop a practical system that positively affects the quality of life, such as increasing the well-being and hope, of rural Korean women.

Methods

Study design

A quasi-experimental design with a nonequivalent control group was used in a pre-post test. The independent variable is 24 sessions of HT, with sessions lasting 90 minutes at a frequency of twice a week. The dependent variable consists of psychological well-being and hope, as shown in Figure 1.

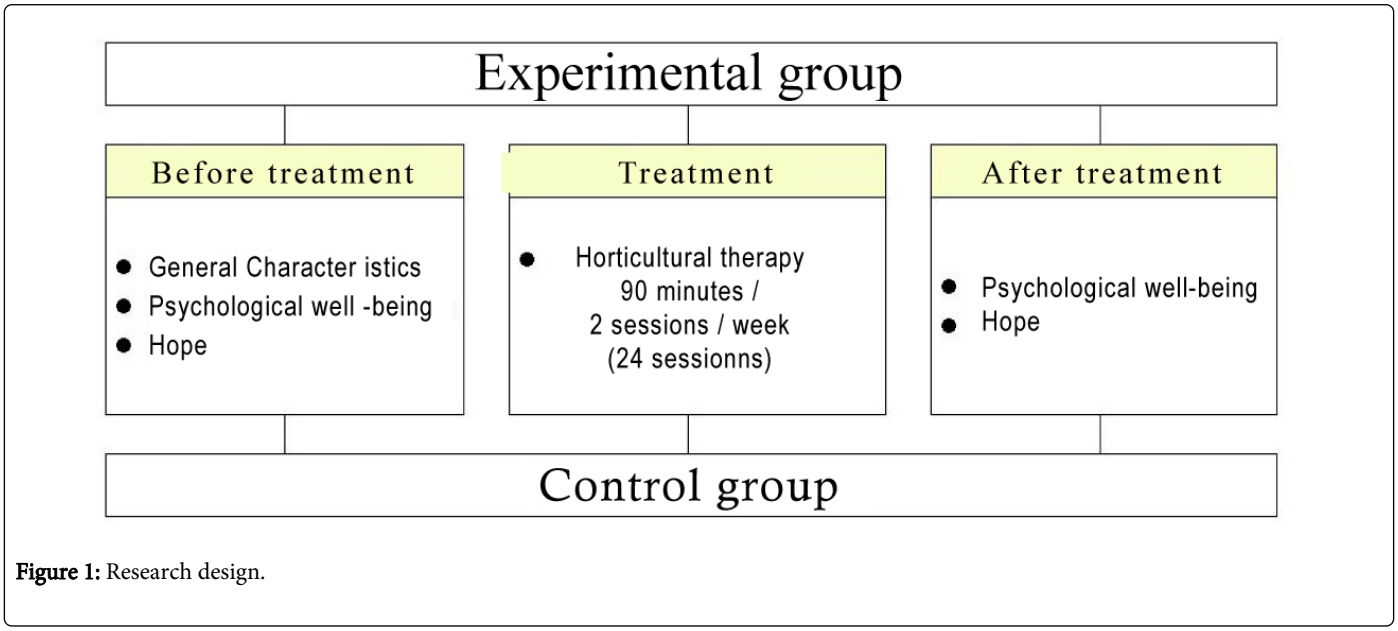

Figure 1: Research design.

Participants

The participants were subjected to simple randomization using a random number of individuals recruited from the women's development center located in B district, J province, South Korea. The inclusion criteria for this study comprised the following: (a) women in a rural area, (b) 35-55 years old, (c) who was married, bereaved, or divorced, (d) were capable of understanding the information in the questionnaires and the objectives of the study, (d) gave consent to participate. The exclusion criteria were the following: (a) sensory deficits, (b) mental or physical disorders, and (c) participation in a similar intervention in the past.

G-power analysis program was used to calculate the power of the study. With 21 women in each group, the power of this study was .70 based on a medium effect size of .50 and a type 1 error of 0.05.A total of 50 women were initially recruited and randomly assigned to either an experimental or control group (25 women in each). In the experimental group, two women dropped out due to domestic problems, and two due to physical problems. In the control group, one woman dropped out because of domestic problem. The final number of participants was 21 in the experimental group and 24 in the control group, creating participation rates of 84% and 96% for the experimental and control group. Finally those in the control group were able to participate in the horticultural therapy after the study was completed.

Treatment: Horticultural Therapy

The experiment was conducted over the course of 12 weeks, with two 90-minute HT sessions per week, for a total of 24 sessions. The contents of the program are shown in Table 1. HT was designed to help participants experience fulfillment from horticultural activities and be proud of their accomplishments.

Stage	Session	Contents	Form	Purpose
Establishing credibility	1	Introduction to horticulture and self-introduction with name card	individual	Motivation for horticultural study and improvement in understanding team members
	2	Viewing flowers		Motivation and self representation about horticultural
	3	Drinking herbal tea	group	Decreasing stress and increasing comfort
Improving well-being and relationships	4	Bulbous plant plantation	group	Mind tranquility, stimulating senses, decreasing stress, and increasing social skills through interpersonal relationships
	5	Grass doll topiary and seeding		Importance of lives, increasing self-sufficiency, and decreasing psychological stress

	6	Making a rose basket		Building relationships, stimulating senses, and increasing self-presentation
	7	Making a flower bag		Stimulating senses and well-being, increasing self-sufficiency
	8	Water culture (tomato)		Mind tranquility, stimulating senses, comforting stresses, mind tranquility, and increasing social ability through interpersonal relationships
	9	Barbola		Increasing achieving sentiment through expectancy and interest
	10	Rosemary cottage		Causing curiosity and psychological well-being
	11	Plant transportation		Positive consideration improvement and strengthening active action
	12	Making a dish garden		Increasing positive thinking through expectancy and interest, increasing self-esteem through self-sufficiency, increasing self-representation, and expectancy for life value
	13	Man doll topiary		Planning for future, increasing self-sufficiency and satisfaction, and increasing positive thinking
	14	Making a fleshy plant garden		Stimulating senses, recognizing life value, improving self-esteem, hope, and psychological well-being through repetition
	15	Making a cactus garden		Finding hope through volition and expectancy for life
	16	Making a circular artificial flower lease		Value of life, increasing positive thinking, increasing self-sufficiency, and decreasing stress
	17	Growing chrysanthemums		Forming interpersonal relationships, stimulating senses, increasing positive emotions, and psychological well-being
	18	Making a corsage	individual	Forming interpersonal relationships, psychological well-being, and self-representation
	19	Group making a frame with dried flowers	group	Self-representation, increasing social skills through interpersonal relationships
	20	Cultivating sprouts		Forming interpersonal relationships, improving motivation, and psychological well-being
	21	Making a collection flower arrangement		Forming interpersonal relationships, improving self-representation, and increasing positive emotions
	22	Orchid-planting in volcanic stone		Forming interpersonal relationships, psychological well-being, and hope
Maintenance	23	Making an invitation letter with a barbola card(card with decoration of colored flowers)	group	Increasing positive thinking, self-satisfaction, psychological well-being, and forming interpersonal relationships
	24	Drawing a flower picture and displaying it		Increasing positive thinking and self-awareness through establishment and maintenance of interpersonal relationships

Table 1: Horticultural Therapy Schedule.

HT consists of the following three stages: (a) establishing credibility (sessions 1-3), (b) well-being and interpersonal relationships improvement (session 4-22), and (c) maintenance (sessions 23-24).

(a) Establishing Credibility through HT (sessions 1-3)

In the credibility-establishment stage, overall orientation for HT was conducted. To stimulate interest in HT, flower appreciation and an herbal tea was served to participants. The purpose of the HT was to motivate participants about life.

Sensory stimulation, improving social skills via relationships, and promoting emotional stability were the main goals. The purpose of HT is to help participants become attuned to their senses, improve their level of comfort, and relieve stress.

(b) Improving well-being and relationships through HT (sessions 4-22)

To improve the participants' sense of well-being, the participants were asked to recall activities from historic rural life. HT provides opportunities to interact with nature, which revitalizes expressive skills and benefits physical and emotional well-being. The purpose of this stage was to help participants feel hopeful for a new life.

(c) Maintenance stage of HT (sessions 23-24)

In the maintenance stage of HT, participants sent invitation letter with barbola card their friends and family in order to maximize the effect of the program by encouraging themselves with a sense of accomplishment and social relationship.

Procedure

Before the intervention began, we collected baseline data from the study participants that included general characteristics, a sense of well-being, and hope. The intervention group was provided with HT for 12 weeks. Post-test data, which included senses of well-being and hope, were collected after completion of the intervention.

Measures

Psychological well-being was measured using a self-reported questionnaire, the Psychological Well-being Scale (PWBS), developed by Ryff [22] and modified for use in Korea by Kim, Kim, and Cha [23]. The questionnaire included 46 items scored in a 5- point Likert- type scale. The items included self-acceptance, positive relationships with others, autonomy, environmental mastery, purpose in life, and personal growth dimensions. Higher scores indicated higher levels of well-being. Using Chronbach's α reliability measure, Kim et al. [23] achieved a Cronbach's α of 0.71. The Cronbach's α achieved in this study was 0.83.

Hope was measured using a self-reported questionnaire, the Dispositional Hope Scale (DHS), developed by Snyder et al. [24] and translated into Korean (K-DHS) by Kang [25]. Based on personal traits, the K-DHS consists of the following three content areas: 4 items for pathway thinking, 4 items for agency thinking, and 4 items for filter thinking. There were 12 items scored on a 4-point Likert-type scale. Higher scores indicated higher levels of hope. Using Chronbach's α reliability measure, Kang [25] achieved a Cronbach's α of 0.82. The Cronbach's α achieved in this study was 0.83.

Data Analysis

SPSS PC (14.0) for Windows was used for data analysis. Demographic data were analyzed using descriptive statistics. The Chi-square test and Fisher's exact test were used to determine homogeneity of general characteristics of the experimental group in comparison to the control group. An independent t-test was used to compare differences between the groups' pre-test and post-test outcomes.

Ethical Considerations

Ethical approval was obtained from the institutional review board of the affiliated institution (IRB-1-015). The participants were assigned to either the experimental group or the control group based on their preferences. All study participants were given both verbal information of the study, where a voluntary participation, guarantee of anonymity, free will of withdrawal from the participation, and no disadvantage upon withdrawal were explained. Upon both verbal and written consents from the women, data was collected.

Results

General characteristics of the participants

The characteristics of the experimental and control groups are shown in Tables 2 and 3. Two groups at pre-test had no significant differences in general characteristics, well-being and hope.

Categories		Exp.(n=21)	Cont. (n=24)	χ2	p
		n(%)	n(%)		
Age (yr)	39-45 46-55	3 (14.3) 18 (85.7)	2 (8.3) 22 (91.7)	0.402	.652
Religion	Yes None	15 (71.4) 6 (28.6)	10 (41.7) 14 (58.3)	4.018	.071
Education level	Middle school High school	9 (42.9) 12 (57.1)	8 (33.3) 16 (66.7)	0.432	.552
Monthly income (US $)	< 1000 1000-2000 2000	7 (33.3) 11 (52.4) 3 (14.3)	6 (25.0) 12 (50.0) 6 (25.0)	0.925	.675
Marital state	Married Others	20 (95.2) 1 (4.8)	21 (87.5) 3 (12.5)	0.828	.611
Occupation	Yes None	8 (38.1) 13 (61.9)	8 (33.3) 16 (66.7)	0.111	.765

Table 2: Homogeneity Test for General Characteristics of Participants (N=45).

Variables	Exp.(n=21)	Cont. (n=24)	t	p
	Mean ± SD	Mean ± SD		
Psychological well-being	3.07 ± 0.71	2.98±0.20	0.56	.576
Hope	3.45 ± 0.34	3.40±0.32	0.46	.645

Table 3: Homogeneity Test for Outcome Variables at Baseline(N=45).

Exp.=Experimental group; Cont.=Control group

Psychological Well-being

The psychological well-being score in the experimental group increased from 3.07 to 3.56 after treatment. The score for the control group was equal from 2.98 to 2.98. After implementation of HT, the experimental group's psychological well-being was significantly higher than the control group's (t=-2.01, p=.049), as shown in Table 4.

Variables	Pre-test	Post-test	Difference	t	p
	M±SD	M±SD	M±SD		
Psychological well-being					

Exp.(n=21)	3.07 ± 0.71	3.56 ± 0.61	-0.52 ± 1.27	-2.01	.049
Cont..(n=24)	2.98 ± 0.20	2.98 ± 0.20	0.00 ± 0.10		
Hope					
Exp.(n=21)	3.45 ± 0.34	3.61 ± 0.33	-0.16 ± 0.33	-2.18	.042
Cont..(n=24)	3.40 ± 0.32	3.39 ± 0.34	0.01 ± 0.18		

Table 4: Changes of Outcome Variables between the Experimental and Control Group (N=45).

Hope

The hope score in the experimental group increased from 3.45 to 3.61 after treatment. The score for the control group decreased from 3.40 to 3.39. After implementation of HT, the experimental group's hope was significantly higher than the control group's (t=-2.18, p=.042), as shown in Table 4.

Discussion

Compared to women who live in metropolitan areas, rural women have an isolated lifestyle and comparatively more stress. This study investigated the effect of HT on well-being and hope in rural women, wherein it found that HT was very effective in improving well-being and hope in rural women.

HT is defined by the American Horticultural Therapy Association [26] as "a process utilizing plants and horticultural activities to improve the social, educational, psychological, and physical adjustment of persons, thus improving their body, mind, and spirits. HT uses gardening, plants, floral materials, and vegetation to stimulate clients' interest in their surroundings and to promote the development of leisure or vocational skills" [27]. In a meta-analysis of HT [28] in Korea, HT was determined to be a meaningful program since it is within the range of an effective size of 0.93, based on the standard established by Cohen [29]. In addition, the effective size of the independent variable was significant in regard to the outcomes of improved self-esteem, anxiety, and depression. Moreover, our study investigated psychological variables, such as well-being and hope, which had not been previously investigated. It has been reported that HT has a greater impact on adults, wherein groups of 4-6 or 11-20 for 21-25 sessions optimally maximize benefits to well-being and hope [28,30]. Our study was performed with a 21-subject group, and the experiments were conducted over 24 sessions.

The results of this study found that well-being, the first endpoint of the study, was significantly increased in the HT group. This result was consistent with a previous study conducted by Ha [11] , which reported that HT improves well-being by reducing physical and psychological stresses on elderly women. Söderback et al. [19] reported that, as a result of providing HT to 46 patients with brain damage, emotional, cognitive, and/or sensory motor functions were improved and socialization, health, well-being, and life satisfaction were increased.

Psychological well-being encompasses self-acceptance, positive relationships, autonomy, and control over one's environment, life purpose, and personal development. Results of the present study agree with the results of Lee, Hwang, Song, and Son's study [31], which reported that HT was effective to improve life purpose, self-identity and self-esteem for in middle-aged women.

In this study, the hope of the experimental group increased significantly. Most studies have focused on the use of HT in cancer patients [8,32] (Shin and Park, 2007; Sock and Jung, 2006). Since our study focused on rural women with hope as an endpoint and a comparable study does not exist, it is impossible to compare results; however, hope, social support, and quality of life have meaningful relations [8,33] . HT provides a great opportunity to improve hope and self-esteem by presenting achievements to family members at the end of the program.

In the view of nursing research, this research is meaningful in that it provides basic data derived from systemically executed positive intervention via the setting up study templates in psychological intervention. In the view of nursing practice, HT was proven to improve rural women's well-being and hope, such that it can be applied as a nursing intervention. In the view of nursing education, in practice, students can be directed to settle health problems with HT as a nursing process, and such a program can be contained within the curriculum.

Limitation of the study

Participants were recruited from an agricultural development institute located in B district, J province, Korea. It is unlikely that this population represents all women in the rural areas of Korea which limits the generalization of the results. This study should be repeated on a larger scale with a randomly-selected sample of women from different populations in order to develop a protocol appropriate for nursing intervention. For rural women who have limited cultural exposure, HT is an enjoyable and accessible method of recreation; therefore, more systematic, longitudinal research into this promising therapeutic intervention is justified and necessary.

Conclusions

The extraordinary workload of rural women often has a negative effect on their psychological health, causing a lack of sense of well-being and hope. HT has beneficial psychological effects, like stimulating interest in nature, improving social confidence, and promoting positive thinking. This study found that HT enhances well-being and hope in rural women. Through relationships developed during HT among participants and between participants and the researchers, interpersonal relationships, positive sentiments, and self-expression improved. These findings suggest that HT can be very beneficial to improving the quality of life of women in a rural community setting.

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