The Effect of Positive Horticultural Therapy on the Self-respect, Personality and Talent of Elderly Women

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Abstract

The purpose of the study was to investigate the effect of positive horticultural therapy (PHT) on the self-respect and the personality and talent in elderly women. Elderly women were divided into 2 groups as the control and the experimental group, which performed a positive horticultural therapy program for eight weeks. The results were summarized as follows: self-respect was recognized in all factors of 'Self-confidence, cooperative mind, optimistic mind, satisfaction, self-respect, presence, positive outlook, accomplishment, and sense of excellence' Positive horticultural therapy programs were positively related to improving self-respect and quality of life of the elderly women ($p < .01$). The personality and talent score of the experimental group was higher than that of the control group in all factors: '[t]he pursuit of meaning, personal relationships, reliability, sincerity/acceptance, compassion, sympathy, being earnest, responsibility, self-awareness, altruism, respect and praise for others, and grace' ($p < .01$). Also it can be confirmed that it has a positive effect on the mental, physical, and social lives of the elderly women. Therefore, positive horticultural therapy with horticultural therapy and positive psychology, be confirms that the above results are very useful for improving the self-respect and quality of life in elderly women; also, it can be suggested that the above results are very useful for improving self-respect or quality of life of various objects.

Key words : *positive psychology, personality strength, self-esteem, therapeutic horticulture*

I. Introduction

As elderly people experience various physical, psychological, and social changes, they feel a great sense of isolation and anxiety, and become more isolated in social relationships. In particular, elderly women face various psychological problems caused by financial instability after retirement and by changes in their roles in society and family, and such accumulated problems result in many physical, financial, and psychological issues including feelings of loneliness and alienation, and a fear of death (Go et al., 2001; Gwon, 2016; Han, 1998; Kim, 1981; Seong, 1997).

Rapid social changes such as urbanization undermine people's self-esteem, and the development of urban civilization starts to be recognized just as a means to maintain the social system, making people feel isolated and emotionally weak (Heo, 2003; Relf, 1981). Such phenomena happen to general people, and especially to the elderly population.

Kim (1999) pointed out that a wide range of programs were provided to improve the quality of life of the elderly, but that such welfare programs for the elderly mostly focused on either educational programs such as computer and English or recreational programs such as body exercise, yoga, and singing.

Recently, various horticultural therapy programs have been developed and provided to increase the psychological stability of the elderly and their desire to live through eco-friendly horticultural activities such as planting. Hwang (2002) and Jung et al. (2001) found that horticultural therapy programs improved the psychological, emotional, social, and cognitive abilities of the elderly. In another study, it was found that positive horticultural therapy programs stimulated and developed the positive aspects of humans through various gardening activities and that creative horticultural activities combined with positive psychology, effectively improved people's quality of life and particularly promoted their creative sense of accomplishment, positive emotions and interpersonal relationships (Lee, 2008).

Joo (2010) reported that positive horticultural therapy was effective to enhance people's sense of responsibility by achieving

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personal goals or shared goals of groups, to create positive relationships by building sympathy and supportive relationships with others through various approaches, and thus to improve their interpersonal relationships, sociality and personality. However, there have been few studies on specialized therapy programs combined with positive psychology to restore the psychological, emotional and social relationships between humans and plants, and between humans and other humans.

In this study, the “6 virtues and 24 character strengths” suggested by Seligman (2011) were divided into internal and external elements, and internal character strengths including love, mercy, compassion, grace, altruism, etc. were defined as “personality,” and external character strengths including teaching, healing, aiding, nurturing, etc. as “talent” expressed as external behaviors.

Thus, this study aimed to examine the effect of integrated positive horticultural therapy, provided to build relationships between humans and plants, on the self-respect, personality, and talent of elderly women.

II. Methods

1. Subjects and methods

In this study, a horticultural program was provided after acquiring written consent from individual participants and permission from the Institutional Review Board (IRB) of Dankook University (IRB No. DKU 2016-07-006). The program was provided for elderly women who were aged over 65 and members of I Church located in Goyang-si, Gyeonggi-do, Korea. The status of the self-respect, personality, and talent of participants was surveyed by a professional horticultural therapist (2nd grade certification issued by the Korean Horticultural Therapy Association) through one-to-one interviews before and after conducting the program. In this study, a total of 40 participants were divided into two groups as shown in Table 1: 20 people as the control group (intact group) and 20 people as the experimental group (treatment group).

Those in the experimental group participated in 8 sessions of the positive horticultural therapy (PHT) program: once a week, 90~120 minutes per session. The PHT program was supported and intervened with the positive emotion, engagement, relation-

ships, meaning, and achievement categories of Seligman (2011), and the program was led by one 1st-grade horticultural therapist, and one 2nd-grade horticultural therapist (Joo, 2010).

2. Plans and contents of PHT

The PHT used in this study was conducted to stimulate and develop the positive aspects of humans and to improve their quality of life by restoring their self-respect, personality, and talent. To do so, participants were supported to build positive emotions, and positive interpersonal relationship skills between groups, to feel a sense of accomplishment through engagement, and to have a positive view toward life by inspiring them. In detail, first, participants repeatedly experienced positive emotions through horticultural activities. Second, they were had higher interest in and felt the pleasure of engaging in horticultural activities with various species of plants. Third, plants and horticultural activities were used as a medium to build their interpersonal relationship skills for better communication within family and other groups. Fourth, they were encouraged to have a higher hope for life and higher self-esteem through the meaning of the cycle of plants. Last, they felt a sense of accomplishment and had higher confidence through the results and outcomes of horticultural activities and plants. The program used in this study was designed with the therapeutic and educational concept model to enable participants to be in the happiest and healthiest state by inducing them to engage voluntarily in various new horticultural activities (Joo, 2010; Seligman, 2011; Woo, 2014) (Figure 1). In particular, this PHT program (Table 1) was composed and executed by comprehensively integrating the results of the preliminary interview survey on their psychological and physical characteristics.

3. Assessment tools

In this study, the following assessment tools were used to measure changes in the self-respect, personality and talent of elderly women. “Self-respect” was composed of 9 sub-factors including a sense of excellence, self-respect, accomplishment, satisfaction, presence, cooperative mind, optimistic mind, positive outlook, and self-confidence. “Personality and talent” were composed of 12 sub-factors including being earnest, grace, sympathy, compassion, responsibility, reliability, self-awareness,

Table 1. Positive horticultural therapy (PHT) combined with the positive psychology.

Week	Program	Contents	Intervention for happiness experience	Expectation effectiveness
1	Making name tags using dry-flower	<ul style="list-style-type: none"> • Activity introductions. • Thinking about the meaning of ones name. • Decorate with dried flowers. • Carefully press Korean paper. • Introduce oneself with ones name tag. 		<ul style="list-style-type: none"> • The meaning for the recreation of the life. • Feeling with ones own consciousness and emotion. • Enjoy the flow through expressing oneself with dry flowers. • Having a good relationship with the colleagues through the project process. • Pride achievement and experience sharing with the project output.
2	Making pot flower in earthenware	<ul style="list-style-type: none"> • Remember of the thankful person. • Express oneself by drawing or writing. • Put in the culture soil into pots. • Transplant into flowerpots. • Decorating pots by use of the moss. • Sharing the opinions for the management skill. 		<ul style="list-style-type: none"> • Improving the positive emotions through the planting. • Enjoy the flow through expressing oneself by painting or writing on the earthenware pot. • Achieve the positive relationship by the co-operation with the others. • Enhance the positive emotion and the family communication through planting.
3	Making flavor pockets	<ul style="list-style-type: none"> • Imagine ones own fragrance through the smell of the coffee fragrance. • Fill coffee beans into a sack. • Finishing with decorative flowers. 	Positive emotion ↑↓	<ul style="list-style-type: none"> • Improving positive emotions through the ones coffee fragrant. • Enjoying the flow with treating the coffee beans into the small paper filter. • Enjoying positive emotions through helping each other.
4	Making flower arrangements in cups	<ul style="list-style-type: none"> • Remember of the time for ones prime of the periods. • Dip floral foam in water. • Have a scent of each kind of flower. • Introduce flower arrangement skill. 	Joy of flow ↑↓ Positive relationship ↑↓	<ul style="list-style-type: none"> • Encouraging positive emotions through the fragrance of various flowers. • Enhance the self-esteem and confidence through thinking of your prime age. • Sharing the community spirits through the project process. • Increasing the vocabulary ability by learning the name of the flowers.
5	Making fans using dry-flower	<ul style="list-style-type: none"> • Sharing the memories for the summer related images. • Discuss about the dried flowers and the cool fan. • Decorate with dried flowers. 	Pursuit of meaning ↑↓	<ul style="list-style-type: none"> • Enhance the concentration and the creation ability through the project activity. • Forming the intimacy by using the fan each other. • Let them get accomplishment mind with the output.
6	Making flower baskets	<ul style="list-style-type: none"> • Remember of the thankful person. • Writing down the major point for the person. • Making a flower basket. • Present with the appraisal for the colleague, one by one. 	Accomplishment	<ul style="list-style-type: none"> • Enhance the self-confidence with the concept of doing ones best, instead of the comparing with others. • Enhance the self-esteem and the positive emotion through the praise of the creative activity. • Motivation with the interest and the challenge for new project.
7	Making grass dolls	<ul style="list-style-type: none"> • Memorize the most happiness moments. • Express ones face with the nose, eyes, and the mouth by use of the grass doll. • Discuss ones opinion for the management of the grass doll each others. 		<ul style="list-style-type: none"> • Enhance positive emotion through the expression of ones figure. • Give the name of each doll and call the name in order to enhance the self-existence. • Increase the concentration ability through learning new project activity.
8	Making praising bouquets	<ul style="list-style-type: none"> • Decide the person who receive the bouquets. • Introduction for the spiral-han-ried method of the bouquets. • Discuss about the meaning of the birth flower. • Trimming of the tree leaves and thorns. 		<ul style="list-style-type: none"> • Inspiration of the positive emotion on the bouquets producer with the expectation of the pleasure for the receiver of the gift, • Promote the personal relationship through the forming the trust by co-operation each others. • Encourage and praise with the giving present of the output.

altruism, respect and praise for others, sincerity and acceptance, pursuit of meaning, and personal relationships.

To measure the level of self-respect, the positive self-respect scale developed by Rosenberg (1965) was used. The scale was composed of 9 questions, and each question was evaluated with a 5-point Likert scale as follows: 1=strongly disagree, 2=disagree, 3=not sure, 4=agree, and 5=strongly agree. The reliability of the scale was Cronbach's $\alpha=.89$, indicating the scale was a suitable tool for social science research. It was known that the higher the score of the self-respect assessment, the higher self-respect the person has (Kim, 2003; Kim, 2004; Son, 2015).

To measure the level of personality and talent, the 12-question simplified version of the 240-question assessment questionnaire developed by Seligman (2014) was used. The reliability of the questionnaire was Cronbach's $\alpha=.93$, indicating that it was a suitable tool for social science research. The questionnaire was also evaluated with the same Likert scale used to measure self-respect. The higher the score, the stronger personality and talent the person has (Seligman, 2011; Woo, 2014).

The homogeneity of the self-respect, personality, and talent of the control and experimental groups, and the levels before

and after participating in the PHT program were statistically analyzed using an independent samples t-test. The data of the two groups before and after the program were compared using SSPS (Statistical Package for Social Science) ver. 21.0, and a paired t-test was used to statistically compare the data.

III. Results and Discussion

1. Homogeneity test of PHT program participants

The average age of participants in the control and experimental groups before participating in the PHT program was 72~73 years. The results of the homogeneity test on the self-respect, personality, and talent of the two groups did not show any statistically significant difference, and thus it was possible to assume that the two groups were identical (Table 2).

2. The effect of the PHT program on self-respect

The results of the independent samples t-test on all the variables in the control and experimental groups before the PHT program showed no statistically significant difference ($p>.05$). However, the results of the t-test on all the sub-

Fig. 1. Concept of applying positive horticultural therapy (PHT).

Table 2. Homogeneity test in the score of self-respect and personality and talent between the control and the experiment groups.

Factor	Control group	Experiment group	T	p-value
Age	71.85±7.46 ^z	72.60±5.29		
Self-respect	22.65±2.78	20.60±4.47	1.754	.089 ^{NS}
Personality and talent	27.40±3.74	29.55±4.17	1.720	.095 ^{NS}

^zMean±Standard deviation.

^{NS}Non significant at $p<.05$ by independent t-test.

factors of self-respect in the two groups after the PHT program showed highly statistically significant differences ($p < .01$). The results of the paired samples t-test on all the sub-factors in the experimental group after the PHT program were higher than those before the PHT program, and there were statistically significant differences before and after the program ($p < .01$).

The results of all the sub-factors in the experimental group were significantly higher than those in the control group, in the order of sense of excellence, self-respect, accomplishment, satisfaction, presence, cooperative mind, optimistic mind, positive outlook, and self-confidence, as shown in Table 3. In total, the result of the self-respect of the experimental group greatly increased from 20.60 ± 4.47 before the PHT program to 38.45 ± 2.76 after the PHT program compared to that of the control group.

In particular, the result of “sense of excellence” of the experimental group showed the highest increase from 1.65 ± 0.59 before the PHT program to 4.45 ± 0.51 after the PHT program, followed by “accomplishment” from 1.55 ± 0.60 to 4.20 ± 0.60 , and self-respect from 1.65 ± 0.75 to 4.25 ± 0.64 . These results confirmed that the PHT program was highly effective to improve the self-respect of elderly women, and that all the sub-factors had a positive impact on it. According to Joo (2010), when providing PHT programs for those who were diagnosed with diseases, or those who went through medical incidents, their interest in and hope for life, and their sense of confidence and accomplishment can be improved by their positive emotions, pleasure from engaging in activities, smooth interpersonal relationships, and creativity. In this study, it was also found that the PHT program had a highly positive impact

Table 3. Effect of positive horticultural therapy (PHT) on self-respect in elderly women.

Item	Group	N	Before	Independent t-test ^z (p-value)	After	Independent t-test ^y (p-value)	Paired t-test ^x (p-value)
Sense of excellence	Control	20	1.85 ± 0.67	.322 ^{NS}	2.20 ± 0.52	.001 ^{**}	.090 ^{NS}
	Experimental	20	1.65 ± 0.59		4.45 ± 0.51		.001 ^{**}
Self-respect	Control	20	2.00 ± 0.65	.080 ^{NS}	2.20 ± 0.83	.001 ^{**}	.330 ^{NS}
	Experimental	20	1.60 ± 0.75		4.25 ± 0.64		.001 ^{**}
Accomplishment	Control	20	1.90 ± 0.79	.123 ^{NS}	2.30 ± 0.57	.001 ^{**}	.008 [*]
	Experimental	20	1.55 ± 0.60		4.20 ± 0.60		.001 ^{**}
Satisfaction	Control	20	2.30 ± 0.73	.451 ^{NS}	2.55 ± 1.10	.001 ^{**}	.330 ^{NS}
	Experimental	20	2.15 ± 0.49		4.15 ± 0.37		.001 ^{**}
Presence	Control	20	1.85 ± 0.88	1.000 ^{NS}	1.95 ± 0.69	.001 ^{**}	.694 ^{NS}
	Experimental	20	1.85 ± 0.81		3.45 ± 0.60		.001 ^{**}
Cooperative mind	Control	20	2.70 ± 0.57	.105 ^{NS}	2.55 ± 0.83	.001 ^{**}	.481 ^{NS}
	Experimental	20	2.25 ± 1.07		3.65 ± 0.49		.001 ^{**}
Optimistic mind	Control	20	2.70 ± 0.57	.402 ^{NS}	2.90 ± 0.91	.001 ^{**}	.297 ^{NS}
	Experimental	20	2.50 ± 0.89		3.75 ± 0.44		.001 ^{**}
Positive outlook	Control	20	2.60 ± 0.68	.582 ^{NS}	2.65 ± 0.75	.001 ^{**}	.748 ^{NS}
	Experimental	20	2.45 ± 1.00		3.70 ± 0.47		.001 ^{**}
Self-confidence	Control	20	2.65 ± 0.59	.221 ^{NS}	2.65 ± 0.81	.001 ^{**}	1.000 ^{NS}
	Experimental	20	2.40 ± 0.68		3.60 ± 0.50		.001 ^{**}
Total	Control	20	22.65 ± 2.78	.089 ^{NS}	24.90 ± 6.16	.001 ^{**}	.059 ^{NS}
	Experimental	20	20.60 ± 4.47		38.45 ± 2.76		.001 ^{**}

^zp-value between the control group and the experimental group, before treatment by use of the independent t-test.

^yp-value between the control and the experimental, after treatment by use of the independent t-test.

^xp-value on the difference before and after the treatment within group by the paired t-test.

^{NS}Non significant; * $p < .05$; ** $p < .01$.

on the self-respect of elderly women, and, in particular, that the program improved their quality of life significantly. The results coincided with other earlier studies. For instance, Lee (2012) reported that elderly women compared their life with the cycle of plants, and became more confident in their existence and life while growing plants and seeing the life cycle of plants (Lee, 2012). The results were also similar to those of other earlier studies that both healthy and unhealthy elderly people became more emotionally stable and had a higher sense of accomplishment through activities of touching and arranging flowers and plants (Han et al., 2009; Kim and Yoo, 2010; Yoon and Kim, 2009).

The experimental group showed the smallest increase in the sub-factor of “presence” from 1.85 ± 0.81 before the PHT program to 3.45 ± 0.60 after the PHT program. The results indicated that experiences of participating in the PHT program in person and sharing their skills with others gave an opportunity to feel their presence to elderly people who had experiences of farming and eco-friendly life in their younger days (Yoon et al., 2009).

3. The effect of the PHT program on personality and talent

The results of the independent samples t-test on all the variables in the control and experimental groups after participating in the PHT program showed no statistically significant difference ($p > .05$). However, the results of the t-test on most of the variables in the experimental group after participating in the PHT program were higher than those in the control group, showing statistically significant differences ($p < .01$), except the sub-factor of “personal relationships” which had no statistically significant difference between the control and experimental groups ($p > .05$). The results of the paired samples t-test on all the factors in the experimental group showed a statistically significant difference ($p < .01$). However, the results of the sub-factors of “pursuit of meaning” and “reliability” in the control group were slightly higher after the PHT program than before the PHT program ($p < .05$), but the results of the sub-factors of “responsibility” and “altruism” were lower after the PHT program than before the PHT program ($p < .05$).

The results of all the sub-factors of personality and talent in the experimental group were higher than those in the control

group, in the order of being earnest, grace, sympathy, compassion, responsibility, reliability, self-awareness, altruism, respect and praise for others, sincerity and acceptance, pursuit of meaning, and personal relationships as shown in Table 4. In total, the score of the personality and talent of the experimental group greatly increased from 29.55 ± 4.17 before the PHT program to 44.60 ± 3.1 after the PHT program.

In particular, the sub-factors of “being earnest” and “responsibility” are associated with teamwork, civic awareness and a sense of justice, and in particular the result of “being earnest” showed the highest increase from 2.65 ± 0.93 before the PHT program to 4.75 ± 0.44 after the PHT program. These results were similar to those of earlier studies that mentally and physically weakened elderly people who no longer played social roles could strengthen their roles within plant-human, or human-human groups, become more open to interactions with members and more eager to perform their duties, improve their sociality, and have a higher sense of reward and self-respect (Cho, 2006; Lee and Sim, 2004; Lim, 2010; Yoon, 2001; Zajicek, 1997).

The result of the sub-factor of “grace” in the experimental group increased from 2.75 ± 1.16 before the PHT program to 4.75 ± 0.44 after the PHT program, the second highest following “being earnest.” The sub-factor of “sympathy,” meaning kindness, love and affection to humanity, showed a significantly high increase both in the control and experimental groups from 2.20 ± 0.83 before the PHT program to 3.85 ± 0.49 after the PHT program. These results were similar to those of the study of Park and Yoo (2007) that horticultural activities enabled people to recognize the value of life, to be more considerate to living things, and to put themselves in others’ position with positive thinking. These results showed that the PHT program had positive effects on elderly women through activities of caring for plants.

The sub-factors of “pursuit of meaning” meaning sociality and “reliability” meaning honesty also showed a significant increase after the PHT program, which indicated that such PHT programs were effective to encourage people to form positive emotions through creative activities using various plants, to improve their sociality and positive interpersonal relationships with others through positive horticultural therapy, and to feel grateful to others and have a higher hope for their

life through vital and recreative horticultural activities. In particular, these results were similar to those of a study on positive psychology that found that horticultural activities stimulating five senses allowed people to discover their present ego and enjoy a meaningful and happier life with positive attitudes (Woo, 2014).

In this study, it was found that the PHT program had a positive impact on the personality and talent of elderly women, positively healing their sense of physical and mental isolation through eco-friendly horticultural activities.

Meanwhile, close and positive interpersonal relationships with family members and other groups play an important role in improving elderly women's satisfaction with their life, and these close relationships not only enhance their ability to understand themselves, but also build confidence to overcome negative situations such as stress and a sense of isolation. Activities used in this program such as making flower pots using earthenware, making flower arrangement in cups, making grass dolls, and making name tags and fans with pressed flowers strengthened a sense of closeness with others (Table

Table 4. Effect of positive horticultural therapy (PHT) on personality and talent in elderly women.

Item	Group	N	Before	Independent t-test ^z (p-value)	After	Independent t-test ^y (p-value)	Paired t-test ^x (p-value)
Being earnest	Control	20	2.40±0.94	.404 ^{NS}	2.40±0.68	.001**	1.000 ^{NS}
	Experimental	20	2.65±0.93		4.75±0.44		.001**
Grace	Control	20	2.20±1.01	.118 ^{NS}	2.20±0.77	.001**	1.000 ^{NS}
	Experimental	20	2.75±1.16		4.75±0.44		.001**
Sympathy	Control	20	1.85±0.88	.203 ^{NS}	1.90±0.64	.001**	.748
	Experimental	20	2.20±0.83		3.85±0.49		.001**
Compassion	Control	20	2.00±0.73	.833 ^{NS}	1.70±0.57	.001**	.055
	Experimental	20	2.05±0.76		3.55±0.51		.001**
Responsibility	Control	20	2.25±0.72	.668 ^{NS}	1.60±0.75	.001**	.002**
	Experimental	20	2.15±0.75		3.65±0.59		.001**
Reliability	Control	20	2.70±0.92	.080 ^{NS}	3.05±0.94	.001**	.005*
	Experimental	20	3.20±0.83		4.60±0.68		.001**
Self-awareness	Control	20	2.20±1.06	1.000 ^{NS}	2.40±0.94	.002**	.104 ^{NS}
	Experimental	20	2.20±0.70		3.15±0.37		.001**
Altruism	Control	20	2.10±0.72	.832 ^{NS}	1.60±0.60	.001**	.014*
	Experimental	20	2.05±0.76		3.00±0.00		.001**
Respect / praise for others	Control	20	2.80±0.77	.070 ^{NS}	2.70±1.08	.001**	.606 ^{NS}
	Experimental	20	3.30±0.92		4.25±0.55		.001**
Sincerity / acceptance	Control	20	2.35±0.99	.595 ^{NS}	2.20±0.70	.001**	.379
	Experimental	20	2.20±0.77		3.05±0.39		.001**
Pursuit of meaning	Control	20	2.15±0.81	.125 ^{NS}	2.55±1.00	.007**	.002**
	Experimental	20	2.60±0.99		3.35±0.75		.001**
Personal relationships	Control	20	2.40±0.99	.508 ^{NS}	2.10±0.79	.059 ^{NS}	.055 ^{NS}
	Experimental	20	2.20±0.89		2.65±0.99		.009**
Total	Control	20	27.40±3.74	.095 ^{NS}	26.40±4.48	.001**	.192 ^{NS}
	Experimental	20	29.55±4.17		44.60±3.1		.001**

^zp-value between the control group and the experimental group, before treatment by use of the independent t-test.

^yp-value between the control and the experimental, after treatment by use of the independent t-test.

^xp-value on the difference before and after the treatment within group by the paired t-test.

^{NS}Non significant; * $p < .05$; ** $p < .01$.

4). Such activities were found to contribute to providing an opportunity to witness changes in plants and create the cycle of plants from birth to death to re-birth (Lewis, 1996), and to improve people's sociality to respect the value of life and others such as sub-factors like pursuit of meaning, personal relationships, sympathy, acceptance, altruism, respect for others, and grace (Cho, 2006; Davis, 1994; Lee et al., 2000; Lee and Sim, 2004).

The result of the sub-factor of "personal relationships" increased from 2.20 ± 0.89 before the PHT program to 2.65 ± 2.65 after the PHT program, indicating the smallest statistically significant difference among other sub-factors. These results were similar to those of Son et al. (2006) that found that rediscovering people's own role in a group increased their sociality, and in particular had a positive impact on the sociality of elderly women.

The effects of the PHT program used in this study were comprehensively analyzed, and it was found that all the sub-factors of the personality and talent of elderly women including "being earnest, grace, sympathy, compassion, responsibility, reliability, self-awareness, altruism, respect and praise for others, sincerity and acceptance, pursuit of meaning, and personal relationships" showed very positive results in the experimental group after the PHT program. Thus, it is believed that such PHT programs will be very effective to improve the self-respect and the quality of life of various groups of people as well as elderly women.

IV. Conclusions

The PHT program was provided for elderly women, and the effects of the PHT program on the self-respect, personality, and talent of participants were as follows.

All the sub-factors of self-respect including "sense of excellence, self-respect, accomplishment, satisfaction, presence, cooperative mind, optimistic mind, positive outlook, and self-confidence" showed statistically positive differences ($p < .01$), indicating that the PHT program had a positive impact on the self-respect and the quality of life of elderly women.

All the sub-factors of personality and talent including "being earnest, grace, sympathy, compassion, responsibility, reliability, self-awareness, altruism, respect and praise for others, sincerity

and acceptance, pursuit of meaning, and personal relationships" in the experimental group after the PHT program showed much higher results than in the control group ($p < .01$), indicating that the PHT program also had a positive impact on the mental, physical and social abilities of elderly women.

As shown above, this study found that the PHT program combining horticultural therapy and positive psychology was very effective to strengthen the self-respect and personality of elderly women, and that it could be very useful to improve the self-respect and the quality of life of various groups of people.

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