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Analysis on Consciousness Structure of HOSPICE Patients and Effectiveness of the Horticultural Therapy

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Abstract

This study was conducted on hospice patients to identify the cognitive structure of hospice patients with a horticultural therapy. 49 patients and carers(22 males and 27 females) from Feb. 17 2016 to Feb. 22, 2017 and 115 patients and carer(61 males and 54 females) at B Hospital from Jan. 7, 2016 to Dec. 28, 2017, and 170 patients and carers(99 females and 334 females) at C Hospital from Jan. 4, 2017 to Dec. 20, 2017 were analyzed. According to this study, love(42.66%), hope(30.54%), gratitude(13.17%), happiness(10.03%) and self-reflection(2.54%) were listed in order. Both gender showed the highest level of love, followed by hope, gratitude, happiness and self-reflection according to effect analysis of horticultural therapy by gender. In consciousness structure of hospice patient, the expression of love to family was most frequently expressed, followed by hope, gratitude, happiness and self-reflection. The hope of hospice patients was examined lower than that of carers, but self-reflection of patients was found to be higher than the average.

[Keywords] Hospice Patients, Horticultural Therapy, Carers, Consciousness Structure, Self-Reflection

1. Introduction

In 1998, spiritual concept was added to the World Health Organization's definition of health, defining "health is not only disease-free or in a frail condition, but also a dynamic and complete state of physical, mental, social and spiritual well-being." [1]. According to data collected through the National Cancer Registration Statistics Project by Ministry of Health and Welfare and the national cancer center, the number of survivors on Jan. 1, 2016 who got cancer since 1999 were about 1.71 million, which is one in thirty-one of Koreans. Breast cancer is said to be on a steady rise since 1999 [2]. Cancer patients suffer from a variety of psychological and social difficulties in addition to physical problems during diagnosis and treatment, and domestic studies show that 43.2 to 61.2 percent of cancer patients under treatment were in depression [3]. Subject of hospice means not only just the pain of physical pain but also social,

spiritual and spiritual pain. Various kinds of pain are closely related, and hospice subjects experience many stages of psychological change [4]. When comparing hospice usage internationally (as of 2011), U.S. (52%), U.K. (46.6%), Canada (40.8%), Taiwan (39%), Japan (11%) and Korea (5.6%) lagged far behind other countries. Comparing internationally based on the World 'Quality of Death' index report, United Kingdom (93.9%) ranked first among 80 countries in the world (as of 2015) while Taiwan (83.1%) ranked sixth, United States (80.8%) ranked ninth, Canada (77.8%) ranked eleventh, Japan (76.3%) ranked fourteenth, and Korea (73.7%) ranked eighteenth [5]. Psychological and social approaches to disease are essential because individual's psychological and social functions become causes of the diseases and at the same time have significant effects on the treatment process and outcome [6]. Hospice patients face mental, physical, social and

spiritual crisis, so to alleviate these pain, there are doctors, nurses, ministers, social worker pharmacists, physical therapists, nutritionists, etc. of the hospice multidisciplinary team, and the development of nursing intervention programs consisting of non-professional volunteers and carers[7].

Horticultural therapy which uses plant is a process promoted by experts trained to improve human physical, cognitive, psychological and social adaptations using plant and horticultural activities[8]. Human brains are taken by 87% of visualization, and with looking at indoor plants, we can see that they have therapeutic effects just by looking because of decreased delta waves in the frontal and left temporal regions of the brain, and increased alpha waves in the occipital regions[9]. Horticulture therapy is characterized more naturally than other treatments, and it minimizes the burden on the patient itself due to a gradual transition[10]. Horticultural therapy, in which the subject is close to nature, has a characteristic of regression to nature, and horticultural therapy using plants helps patients and carers to realize participation of life while still they are alive, and makes hospice patients to approach most fundamental mind by feeling the emotion that they are close to nature. Families can keep close relationships with hospice patients and keep their beautiful memories in photo[11]. Horticultural therapy has been recognized as a new medical technique for cognitive meditation therapy that helps physical and mental health(No. 668 Cognitive Mediation Therapy). According to the research data from horticultural therapy, Son Ki-chul(1999) reports that it has been used as a way to improve disability and to treat, rehabilitate the disabled who adapt to the environment, improving their quality of life, helping them with physical and mental health, and alleviating anxiety and tension[12]. Park Jong-hyun, Shin Young-sook, Kim Mi-sook, Shin Hye-sook, and Choi Byung-jin(2012) say that participation in the horticultural therapy program with people who are in cerebral palsy made them to acquire self-esteem, self-confidence on their own, and also positive way of thinking due to emotional stability[13]. Cho Tae-ok(2014) reports that

horticultural therapy makes schizophrenic patients to recognize self-value, self-respect, and to maintain better relationship by respecting others[14]. Yoo Chun-sook(2014) identified the effectiveness of reducing depression and improving life satisfaction of mild demetia elderly in nursing home in a prior study[15]. Choi Ae-ja (2016) reported positive effects on improving confidence, life satisfaction, interpersonal relationships in her prior study of effects of horticultural leisure program for the improvement of life satisfaction among the elderly in rural area[16]. Meditation therapy for hospice patients was introduced at the Catholic University of Korea's hospice education institute in 2006, and the results of domestic and foreign research related to hospice raw method are as follows. Tak Young-sook(2004) found that the effect of the application of horticulture therapy using flower arrangement reduced patients and family' stress mainly on terminal cancer patients, and improved self-esteem, lowered depression[17]. Kim Kyung-hee(2014) had positive effect on stress reduction by applying flower color harmonization horticulture therapy program for terminal cancer patients[18]. Lee Sang-mi(2015) reports that indoor horticultural therapy program was time for late-stage cancer patients to recognize, encourage themselves, present themselves, and express gratitude to patients or other families through various flower roles depending on carer's mood and energy[19]. Son Ki-chul, Cho Moon-kyung, Song Jong-yeon, Kim Soo-yeon, and Lee Son-sun(2006) reported that in reality, frequency and time in horticultural therapy is more influential in treatment than overall period of time[20], while Song Mi-ok (2010) reported that in the development and effectiveness of the horticultural therapy nursing meditation program for hospice patients, increase in number of times per week and shorter period is more effective than lesser number of times per week and longer period[21].

Jeong Gwan-sook(2011) reported on the journal "effects of self-esteem and quality of life on cancer patients by horticultural therapy" that horticultural activities can be used for alternative method in clinical site by alleviating stress level, anxiety, depression, and

improving self-esteem, and quality of life[22]. Kim Mi-ran(2008) once suggested that horticultural therapy programs can be used to improve self-esteem in hospice patients[23]. Kim Kyung-hee(2006) suggested that horticultural therapy programs have contributed to relief of the symptoms of hospice patients by contributing their effects on serum cortisol concentration, pain, anxiety and depression[24]. Kwon Yoon-hee(2011) reported positive effects on depression and stress in hospice patients[25], while Kim Jong-nam (2010) reported positive effects on the quality of sleep due to the emotional stability of horticultural therapy for hospitalized hospice patients[26]. In a prior study of hope expression of wanted nursing, Park Eun-mi(2009) said that the concept of a word that Korean and American thinks which is related to hope association was bright, light, and wish related to the future[27]. Likewise, similar to most of the preceded studies, the application results of the original method of terminal patients under horticultural therapy were investigated, such as physiological, psychological response, self-esteem, quality of life, sleep, patient's depression and stress, but this study mainly focuses on analyzing hospice patient's consciousness structure caused by effectiveness of the hospital environment, effectiveness of the subject, and the program by using horticultural therapy using plants, therefore increasing the effect, application methods of horticultural therapy of academic theory and social contribution.

2. Methods

2.1. Research subject

The gender of the subjects of this study were 182 males and 152 females, with 84 spouses of patients, 14 parents, 125 children, 11 siblings and 100 patients.

2.2. The horticultural therapy program and operation

The program was conducted in the program room and in the hospital room as a personal method(1 : 1) when the patient, caregiver, and one main horticulture therapist(forestal

therapist, horticulture therapist), one assistant horticulture therapist(nurse, horticulture therapist), and one volunteer (music therapist). The process of collective horticulture in the program room was carried out in the program room with one main horticulture therapist(a forest therapist, a gardener), one assistant gardener(a nurse, a gardener), and one volunteer(a music therapist), and the original method program is as shown in Table 1 of <Table 1>.

Table 1. Horticultural therapy program.

Number	Program	Number	Program
1	Spring flower arrangement	22	Lumora gosari
2	Hyacinth hydroponics	23	Summer, let's be friends
3	Making a fragrance cup	24	Soil hydroponics
4	Soap flowers puppy	25	Hanging in the air
5	Tomorrow Is hope	26	Sunflower
6	Easter basket	27	Cool Scent cup
7	Gypsum aromatic	28	Decora Indian bushbaby
8	Pressed flower hopebox	29	Chrysanthemum basket
9	Success flower bouquet	30	Toffee gift
10	The world of color	31	Small soup decoration
11	Carnation basket	32	Kernels soil hydroponics
12	Spring flower decoration	33	Love plants
13	Hydroponics	34	Happy tree
14	Positive floral decoration	35	Autumn flower arrangement
15	Back off from the heat	36	Carnivorous terrarium

16	Flavoured pouch	37	Chiklaman flowerpots
17	Summer flower decoration	38	Mini Flower decoration
18	Animal toppies-cable animals story sharing	39	A coffee-flavored cup
19	Hydrophobic	40	Christmas leases
20	Multicolored colors	41	Christmas trees
21	Pulsed flower expression	42	New year's card creation

2.3. Data processing

The collected data were calculated on average and standard deviation for each item using Excel and SPSS Windows(version 25.0) statistics programs, and the conscious structure and effect of hospice patients were analyzed using ANOVA and Cross-Tabulations.

3. Results

3.1. General characteristic of horticultural therapy participants

The subjects who participate in a horticultural theory program and express themselves in letters and pickets are shown in <Table 2>.

Table 2. General characteristics of people who participate in horticultural therapy program(Unit: %).

Characteristics	Classification	Number of participants(%)
Hospital A, D city, 2016	Male	22(6.58)
	Female	27(8.08)
Hospital B, D city, 2016	Male	61(18.26)
	Female	54(16.16)
Hospital C, D city, 2016	Male	99(29.64)
	Female	71(21.25)
The sum of the sexes of	Male	182(54.49)

the hospital		
the hospital	Female	152(45.50)
	Parent	14(4.19)
	Children	125(37.42)
	Sibling	11(3.29)
	Patient	100(29.94)
	Total	334(100)

3.2. General characteristic of horticultural therapy participants

What the hospice patients wanted to say consisted of love(42.66%), hope(30.54%), gratitude(13.17%), happiness(10.03%), and self-reflection(2.54%) by analyzing the consciousness structure of the hospice patient based on the probability that it will be reminded as a key factor extracted from the expression of the language.

3.3. Analysis of the effect of the horticultural method on hospice patients

1)Analysis of the effects of hospital environment

The results of the analysis of the effects of hospital environment after participation in the horticultural method program are shown in <Table 3>.

Table 3. Analysis of the effect of hospital environment(Unit: %).

Effect by factor hospital	Love	Happiness	Gratitude	Hope	Reflection	Percentage
2016 A hospital	41.84	13.27	12.24	31.63	1.02	100
2016 B hospital	46.09	9.13	13.04	24.78	4.78	100
2017 C hospital	40.59	9.71	13.53	34.12	1.47	100
Average	42.66	10.03	13.17	30.54	2.54	100

2)Analysis of the effects of the horticultural method program participants

The results of the analysis of the effects of

the participants after participation in the horticultural method program are shown in <Table 4>. After participating in the horticultural method program, the effects of each factor were analyzed and the statistical significance difference ($p < .01$) was found in the hope and self-reflection <Table 5>, <Table 6>. Hope showed that siblings were significantly higher than patients ($F=4.065$, $p=0.003$) and patients were significantly more likely to reflect ($F=4.073$, $p=0.003$) than siblings.

Table 4. Effect analysis of participants of horticultural therapy program (Unit: %).

Effect by factor hospital	Love	Happiness	Gratitude	Hope	Reflection	Percentage
2016 A hospital	41.84	13.27	12.24	31.63	1.02	100
2016 B hospital	46.09	9.13	13.04	24.78	4.78	100
2017 C hospital	40.59	9.71	13.53	34.12	1.47	100
Average	42.66	10.03	13.17	30.54	2.54	100

Table 5. The Effect of hope analysis according to the subject of the horticultural therapy program (Unit: %).

Subjects	Number	Average	Standard deviance	F	p
Spouse	84	36.31	39.842	4.065	0.003
Parents	14	35.71	41.271		
Children	125	33.20	40.133		
Siblings	11	54.55	41.560		
Patients	100	19.00	31.166		
Average	334	30.54	38.885		

Table 6. The effect of self-reflection analysis according to the subject of the horticultural therapy program.

Subjects	Number	Average	Standard deviance	F	p
Spouse	84	0.60	5.455	4.073	0.003
Parents	14	0.00	0.000		
Children	125	0.80	6.299		

Siblings	11	0.00	0.000		
Patients	100	7.00	22.496		
Average	334	2.54	13.461		

3) Analysis of the effects according to the horticultural method program

The results of the analysis of the effects of the horticultural method program are shown in <Table 7>. The results of the effectiveness analysis according to the horticultural program of hope showed that the fragrance was significantly higher than natural flower program as shown in <Table 8> ($F=2.760$, $p=0.028$) ($p < .05$).

Table 7. Effect analysis according to horticultural therapy program (Unit: %).

Effect by factor subjects	Love	Happiness	Gratitude	Hope	Reflection	Percentage
Craft	45.24	13.10	5.95	29.76	5.95	100
House-plant	40.19	11.68	8.88	36.92	1.87	100
Natural flower	45.68	8.64	17.28	24.69	1.85	100
Fragrance	18.18	4.55	22.73	54.55	0.00	100
Average	42.66	10.03	13.17	30.54	2.54	100

Table 8. Effect analysis of hope according to the horticultural therapy program (Unit: %).

Program	Number	Average	Standard deviation	F	p
Craft	42	29.76	35.025	2.760	0.028
Foliage	107	36.92	41.966		
Natural flower	162	24.69	36.648		
Fragrance	11	54.55	35.032		
Average	322	30.54	38.885		

4) Analysis on the effectiveness of each gender in the horticultural method program

The results of the analysis of effects by participation in the horticultural method program are shown in <Table 9>. The results of the effect analysis of the participation in the method of reflection show that men are significantly more likely to be woman($F=7, 712, p=0.006$), as shown in <Table 10>(p<.01).

Table 9. Effect analysis by gender in the horticultural therapy program(Unit: %).

Effect by factor Subjects	Love	Happiness	Gratitude	Hope	Reflection	percentage
Male	43.68	8.79	13.46	28.02	4.40	100
Female	41.45	11.51	12.83	33.55	0.33	100
Average	42.66	10.03	13.17	30.54	2.54	100

Table 10. Self-reflection effect analysis by gender in the horticultural therapy program(Unit: %).

Gender	Number	Average	Standard deviation	F	p
Male	182	4.40	17.665	7.712	0.006
Female	152	.33	4.056		
Average	334	2.54	13.461		

4. Discussion

The results of consciousness structure on hospice patients and effect of horticultural therapy of participants which are 100 hospice patients, 84 spouses, 14 parents, 125 children and 11 siblings at A Hospital in 2016, B Hospital in 2016 and C Hospital in 2017(in total 334 people) are as follows.

Based on the first factor's result, which is love, the patient's wife complained that the patient was unforgivable with a lot of hatred and resentment toward the patient. Kim Chun-kyung, Lee Soo-yeon, Lee Yoon-joo, Jeong Jong-jin, and Choi Woong-yong(2016) said, "The limbic system of the human brain controls emotions and directly affects heart rate, blood pressure, breathing, memory, stress, and hormonal balance and its fine flavoured particles are absorbed into the skin

through pores and affect the treatment of diseases through sweat glands[28]. After the third, fourth, fifth, and sixth sessions, the patients gradually felt sorry for the patients as they got worse, and the volunteers and their guardians shared with them. He said, "I should love the patient's remorse and apology, and now hatred melts," adding, "I love you more than hate." The way of expressing support for patients and carers was positive and happy even though they cried. Those who decorated flowers or received flowers were the healing abilities of plants that made people smile happy with a big smile. A study conducted by Stephanie Brown of the University of Michigan found that helping others not only restores sensitivity of performance but extends one's life span. Nursing is a matter of great stress, as spouse should care every aspect of treatment and ultimately be responsible for the life of the spouse. It may be because of an increased sensitivity of one's ability of performance. Taking care of plants also allows them to live longer.

In a study, senior citizens in nursing homes who were responsible for caring for the plant pot in their room lived longer than those who had the plant pot taken care of by the nursing home staff. Perhaps it might be the similar reasons in case that a coward turns into a warrior when he becomes a parent. A child is a moral handler who transforms his mother and father into powerful moral actors[29]. It was consistent with the results of a study by Tak Young-sook(2004) that she improved the self-esteem of terminally ill cancer patients by touching plants directly, smelling and caring for them, feeling the responsibility and the value of life that she did, and expressing and acting on her own flower decorations[17]. As pain and despair grow, the secretion of endorphins and enkephalin in the brain decreases and the secretion of cholera increases. As the pain grows larger with these changes in neurochemicals[30].

Although the power of hope has reduced hope to pain and despair, patients and carers in the hospice ward have come to believe that hope is just as important a factor in life as the oxygen we breathe. Kim Dal-sook(1996) have studied chronic patients and nurses who

were hospitalized in U.S[31]. to understand the concept of hope among American patients and nurses in the journal of Chungnam University, which is about a cross-cultural study on the notion of hope as a former nursing factor. While American patients' concept of hopes are altruistic and broad such as "world peace" and "great growth of young people," the concept of hope in Korea has been examined to be personal such as "health," "happiness" and "success in social life," and the hope of this study has emerged with similar results(love, affection, gratitude, hope, self-reflection, etc) even though it does not offer hope in the verbal expressions of patients and carers after horticultural therapy program. In a book titled "The Power of Hope" by Jerome Gruffman, a professor of hematology at Harvard University, said, "Hope is the rising emotion that you experience when you see the path to a better future with the eyes of your spirit. Hope gives you a courage to open your eyes and face your own reality, and the ability to overcome that reality. It says that even without body's hope, spirit's hope can last forever [30]. Parents aged 80 or older are said to have a high male authority since it was a difficult time to live, therefore the expression of love for family was poor, and they were not be able to express their love and gratitude to their parents. Love is said to be sometimes awkward expression but cherished expression. The meaning of this study is that although there was a lack of linguistic expression studies in the preceded study and difficulties in generalization of measurements by questionnaire, it examined the effects of the analysis of the cognitive structure of hospice patients and effect of horticultural therapy by organizing the notes that were written on the patient's letters and pickets that were intended to decorate, decorate, and convey to the other person. It is believed that the horticultural therapy program can be used as an important program for emotional and psychological stability of hospice patients and carers, and it should be continue to develop its appropriate measurement system to support carers who participated in horticultural therapy program.

5. Conclusion

Factors affecting the analysis of the effects of the cognitive structure and the horticulture therapy on hospice patients are as follows. Love(42.66%)($F=0.627$, $p=0.535$), Hope (30.54%)($F=0.2012$, $p=0.135$), Audit(13.17%)($F=0.037$, $p=0.964$), Happiness(10.03%)($F=0.473$, $p=0.64$) and Reflection factors (2.54%)($F=2.466$, $p=0.086$).

1)The results of the analysis of the effects of hospital environment showed that love (41.84%, 46.09%, and 40.59%) were the highest in A, B hospitals in 2016 And C hospital in 2017. Although the three hospital environments were slightly different, all three hospitals showed the highest level of love, followed by hope, gratitude, happiness and reflection. The analysis of the effects of hospital environment showed no statistical significance difference.

2)The results of the effectiveness analysis by the program subjects showed that love(47.00%, 45.24%, 39.20%, 35.71%) was the highest for the patient's spouse and child parents, and hope(54.55%) was the highest for the brothers.

3)An analysis of the effects of horticulture programs showed that love was the highest in the craft, foliage plant, real flower program, and hope was the highest in the fragrance program. The results of the analysis of the effects of the method program indicated a statistical significant difference($p<.05$) in the hope.

4)Analysis of the effects on the gender of participants in the program showed that love(43.68%, 41.45%) is the highest for both male and female. After the program, the men's expression of self-reflection(4.40%) appeared to be higher than women's expression of self-reflection(0.33%). Analysis results based on the gender of the program participants indicated a statistical significant difference($p< 0.01$) in the reflection.

Utilizing the five elements of life force and vision, touch, smell, hearing, and taste of plants, horticulture therapy utilizes scent, color, shape, size, cropping, planting, planting,

tearing, stroking, and interacting with trees. Based on the above study, the first key factor was love, which confirmed that the patient's consciousness was filled with expressions of family love. The patient, spouse, children, parents, etc. all expressed love as the most important factor, the second key factor was hope, which confirmed that patients, spouses, children and parents were holding the line of hope until the end. In the case of brothers, hope was the highest. In the case of sibling, hope appeared highest and expressed gratitude, happy heart, remorse, and sorry mind. Therefore, it is believed that the making patients' last precious time a memory by horticultural therapy can be recommended for hospice patients and guardians as an alternative method of mediating between their conscious structure and exhaustion.

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