



Effects of REBT Applied Horticultural Activity Program on Irrational Beliefs, Job-Seeking Stress, and Career Maturity of University Students

Hyun-Soo Jo¹, Yu-Bin Lee¹, Yong-Hyun Kim^{1,2}, and Moo-Ryong Huh^{1,2*}

¹Department of Horticulture, Gyeongsang National University, Jinju 52828, Korea.

²Institute of Agriculture & Life Science, Gyeongsang National University, Jinju 52828, Korea.

ABSTRACT

The purpose of this study was to investigate the applicability of rational emotive behavior therapy(REBT) technique to the horticultural activity program as a method of reducing irrational beliefs and job-seeking stress, and improving career maturity through the change of irrational beliefs. The subjects were 30 university students with irrational beliefs, 15 of them in the control group and 15 in the experimental group. The horticultural therapy program was carried out in total 10 sessions once a week for one and a half hours. For irrational beliefs, the experimental group showed a significant decrease ($p=.002$) in the total score after the program, but the control group showed an insignificant change ($p=.529$). Total job-seeking stress score was decreased significantly in the experimental group ($p=.002$) after the program, whereas it was increased in the control group ($p=.023$). For the career maturity, the experimental group showed a significant increase ($p=.008$) in the total score, whereas the control group showed a significant decrease ($p=.028$). Therefore, it can be found that REBT applied horticultural activity programs are helpful for reducing irrational beliefs and job-seeking stress and improving career maturity for young adults.

Keywords: agro-healing, green care, plant mediated therapy, social farming

Introduction

College years are when students finally decide on their career path and undergo the process of preparing and adapting to it by carrying out various activities to improve their competencies such as GPAs, licenses, extracurricular activities, etc. (Kwon and Oh, 2015). Despite such various activities for career preparations, the problem of the present times is that they are not guaranteed to get a job, which causes many college students to lose the will to find jobs or give up on it (Kang and Kang, 2018). Career problems are caused by external factors from the society and environment to which individuals belong and internal factors such as irrational beliefs, and they can more serious without re-

solving the issues of internal factors even when the external factors are resolved.

Dysfunctional cognitive factors are variables considered important as internal factors of individuals in career. Irrational beliefs are a typical dysfunctional cognitive factor, affecting judgment with rigid, inflexible thinking by exaggerating and distorting an individual's external environment and reality (Moon, 2017; Kang and Kang, 2018). These irrational beliefs cause self-destruction internalized in individuals, belittlement of others, evasion of thinking, repeated indolence and mistakes, lack of patience, and decreased potential for growth (Park, 2018). In fact, irrational beliefs turned out to be a negative factor for career preparations and decisions of college students, and thus reducing

Received: October, 16, 2019, **Revised:** November 12, 2019, **Accepted:** December 8, 2019

First author: Hyun Soo Jo, soo94@gnu.ac.kr, <https://orcid.org/0000-0003-2192-6788>

***Corresponding author:** Moo Ryong Huh, mrhuh@gnu.ac.kr, <https://orcid.org/0000-0001-8562-4901>



irrational beliefs and turning them into rational beliefs are very important in solving career problems of college students, while even affecting proper career preparations and decisions (Han, 2004; Kim, 2007; Kwak, 2017).

Rational emotive behavior therapy (REBT) is most frequently used in reducing irrational beliefs and turning them into rational beliefs, in which cognitive, emotive and behavioral aspects interact with one another and exert effect, with focus on the cognitive (rational) aspect (Ellis, 1995; Han, 2017; Seo, 2006). REBT is carried out by applying the principles of ABCDE (A is for activating event, B is for beliefs, C is for consequence, D is for disputing, E is for effective new belief), and since all of cognitive, emotional and behavioral aspects are handled in the development process, educational activities using this technique must include all three aspects (Ellis and Dryden, 1997).

Previous studies proved that career problems affect job-seeking stress and career maturity. Job-seeking stress is affected by depression, anxiety, career maturity, career barriers and physiological symptoms, and it is necessary to increase career maturity to solve these problems (Lee, 2015). Career maturity is how much an individual is prepared to choose and adapt to the career, and high career maturity enables the individual to choose the right career for him or her and to confidently and consistently make career preparations.

Jeong (2009) discovered that a horticultural therapy program applying REBT has positive effects on reducing depression and increasing self-esteem of the elderly in care facilities, and Yoon (2010) reported that horticultural therapy implementing REBT group counseling reduced impulsiveness and increased self-esteem of middle school students. Moreover, Park and Jung (2014) claimed that REBT group counseling using horticultural activities is effective in improving self-esteem and reducing depression of middle-aged women. These studies proved the effects of horticultural activities applying REBT.

Horticultural activities improve the quality of human life with benefits obtained from plants in the relationship between plants and humans (Matsuo, 2009; Son et al., 2006). Horticultural activities include activities that can develop not only cognitive, emotional and behavioral functions but also social, environmental and vocational adjustment skills

(Bae, 2018). These horticultural activities are therapeutic activities that improve adaptability in multiple aspects and help with people's mental and physical therapy (Son et al., 2006).

Therefore, this study determined the applicability of horticultural activities as a method to reduce irrational beliefs by changing individual irrational beliefs after implementing horticultural activities applying REBT, and examined the impacts on job-seeking stress and career maturity.

Research Methods

Subjects

The subjects of this study are students attending G University located in Jinju, Gyeongsangnam-do, primarily recruiting 30 students who want to voluntarily participate in the research program with concerns about their careers by posting the recruitment announcement on the bulletin boards of the campus and the university's website. To determine whether the recruited students are suitable for this study, we used an irrational belief measurement tool and selected 24 students with high scores, ultimately selecting 12 students in the control group who did not participate in the program and 12 students in the experimental group that participated in the program. After the final selection, we provided detailed explanations about the program and carried out the program after obtaining their consent in research participation. This study was deliberated and approved by the Institutional Review Board (IRB) of G University located in Jinju, Gyeongsangnam-do (GIRB-A19-Y-0007).

REBT applied horticultural therapy program

The REBT applied horticultural therapy program in this study is as shown below (Table 1). The program was carried out in total 10 sessions, once a week and 90 minutes per session, from March to May 2019 at the horticultural activity hall in G University (Fig. 1).

The program is comprised of introduction, development and wrap-up. In Introduction, the main host provided detailed explanations about the program, process and activ-

Table 1. Horticultural activity program paired with rational emotive behavior therapy (REBT) technique

Stage	Session	Horticultural activity	Rational emotive behavior therapy	Contents	
Introduction	1	Making a name tag using pressed flowers	Self-introduction & intimacy formation	Creating a name tag and introducing yourself by expressing your strength and weakness as adjective	
	2	Planting herb plants	Understanding the situation	Planting reasonable beliefs in one's mind	
Rational	3	Making fragrance potpourri	Distinguishing one's beliefs	Distinction between reasonable beliefs and irrational beliefs	
	4	Making a grass doll	Disputing irrational belief	Expressing feelings	
	5	Making a flower basket	Restoring self-esteem through positive emotion improvement	Restoring self understanding and self-esteem	
Development	Emotional	6	Making a topiary	Understanding the emotional change of belief	Converting irrational beliefs into reasonable beliefs
	7	Making a succulent garden	Managing career problems through positive thinking and improved emotions	Specific career setting and quality to identify aptitude and obstacles	
Behavior	8	Hydroponics sprout vegetables	The change of rational thinking to improve positive emotionality and behavior change	Increasing capacity	
	9	Creating a compressed business card	Improving career maturity through stress management and career preparation actions	Choosing your final job	
Wrap-up	10	Drinking herb tea	Finishing program & post-evaluation	Looking back at the activity and looking for a changed look	



Fig. 1. Pictures from the different horticultural activity sessions during the program.

ities to the subjects, increasing their understanding of the program and inducing their interest. In Development, the subjects actually participated in the activities after the main host demonstrated and described the details and methods of the activities. Difficulties or problems faced by the subjects during the activities were solved with the help of the

main and assistant host. The activities were carried out by adequately revealing certain questions and interests to induce relationship building among the subjects. In Wrap-up, the subjects shared their outcomes and reviews about the activities, and organized the activities on the activity sheets. We set the process and theme of REBT to fit the

10-session program carried out in this study. We divided the entire process of REBT into Introduction, Development and Wrap-up, and then classify the Development stage in the order of rational, emotional and behavioral counseling.

In Session 1, the therapist and subjects greeted one another and introduced themselves, formed affinity by making name tags using pressed flowers, and used the pressed flowers to induce curiosity and interest in horticultural activities. Sessions 2-4 are the process of the rational (cognitive) technique aimed at turning irrational beliefs into rational beliefs through refutation. In Session 2, the subjects set out plants that represent themselves with anticipation and hopes about their beliefs that will change through the program, and carried out physical activities to concentrate on themselves. In Session 3, they smelled various fragrances and found the ones they prefer, realizing the internalized beliefs through the characteristics and meaning. In Session 4, the subjects revealed their internalized beliefs through grass dolls and perceived their cognition, and also learned how to convert negative thoughts or cognitions into positive thoughts. Sessions 5-7 are the process of the emotive (emotional) technique that is focused on creating physiological responses by stirring up certain situations. In Session 5, the subjects expressed their emotions through colors by making flower baskets, which enabled them to actively and enthusiastically accept themselves by expressing them in different lengths and shapes. By making topiary that forms a single shape by clumping up peat moss, the subjects expressed their confusion, anxiety and compulsion caused by their dysfunctional emotions in the topiary, thereby understanding them and thinking of ways to deal with them. Afterwards, in Session 7, the subjects applied their changed emotions to the succulent plants and supplies and made a succulent garden, expressing their new self. Sessions 8-9 are the process of the behavioral technique that focuses on bringing change that is visibly observable. In Session 8, the subjects are given the behavior-oriented task of managing and cultivating sprout vegetables through hydroponics for a week based on the horticultural activities they had carried out so far. Through harvest, they can promote positive thoughts and behaviors accompanied by desirable outcomes of their performance. Finally, in Session 10, they wrapped up the program by reflecting on their ac-

tivities and examining their changes.

Measurement tools

Irrational beliefs (Shortened General Attitude and Belief Scale; GABS)

We used 26 items from the Shortened General Attitude and Belief Scale (GABS) developed by Lindner et al. (1999) and adapted and validated in Korean by Song (2010). Higher scores indicate greater irrational beliefs, and each item is rated on a 5-point Likert scale from 'Strongly agree (5 points)' to 'Strongly disagree (1 point)'. In the study by Moon (2018), the Cronbach's α of the original tool was .889, and in this study it was .937.

Job-Seeking Stress (JSS)

To measure job-seeking stress, we referred to the 'Job-Seeking Stress Questionnaire' by Hwang (1998) developed based on the Conell Medical Index (CMI), which is revised and supplemented by S.A. Kim (2012). The questionnaire comprises of 22 items, with higher scores indicating higher job-seeking stress. Each item is rated on a 5-point Likert scale from 'Strongly agree (5 points)' to 'Strongly disagree (1 point)'. In the study by Jeong (2019), the Cronbach's α of the original tool was .91, and in this study it was .888.

Career maturity

We used the Career Maturity Inventory (CMI) developed by Crites (1978) to measure career maturity, which is adapted by Lee and Han (1997) and used by M.S. Kim (2012). The questionnaire comprises of 22 items, with higher scores indicating higher career maturity. Each item is rated on a 5-point Likert scale from 'Strongly agree (5 points)' to 'Strongly disagree (1 point)'. In the study by Jeong (2017), the Cronbach's α of the original tool was .838, and in this study it was .760.

Analysis method

We completed the basic data coding of the questionnaire filled out by the subjects during the research period with Excel, and statistically analyzed the data using IBM SPSS Statistical package (Ver. 24). We tested reliability to verify

the reliability of the questionnaire used in this study, and conducted frequency analysis and descriptive statistics to determine the demographic characteristics of the subjects. The Mann-Whitney test was used to test homogeneity at the 95% significance level to verify the homogeneity between the control group and experimental group. The Wilcoxon Singed-Rank test was conducted to test the effects of the program at the 95% significance level.

Results and Discussion

Demographic characteristics of subjects

Total 24 subjects participated in this study: 12 in the control group and 12 in the experimental group. As a result of analyzing the demographic characteristics, the control group comprises eight male and four female subjects, and the experimental group comprises five male and seven female subjects (Table 2). The average age of the control group was 23.08 and that of the experimental group was 23.92, showing that the experimental group had higher average age.

Table 2. Demographic characteristics of participants

Variables	Control (n=12)	Experimental (n=12)
Gender ^z		
Male	8	5
Female	4	7
Age ^y	23.08(1.975)	23.92(1.621)

^zValues are the numbers of participants.

^yValues are mean(standard deviation).

Preliminary test of homogeneity

The Mann-Whitney test was conducted to verify the homogeneity of the two groups in irrational beliefs, job-seeking stress, and career maturity. As a result, all three items did not show statistical significance, proving that the two groups and homogeneous (Table 3).

Effects of the REBT applied horticultural activity program

Pretest-posttest comparison of irrational beliefs

To determine the effects of the horticultural program on irrational beliefs of university students, we comparatively analyzed the pretest and posttest results of the control group and experimental group, and the results are as shown in Table 4 and Fig. 2.

For the total scores of irrational beliefs, the experimental

Table 3. Verification of homogeneity of control and horticultural activity program (HAP) group

Variables	Group	M	SD	<i>p</i>
GABS	Control	79.42	6.44	.630 ^{NS}
	Experimental	80.83	8.85	
JSS	Control	47.00	4.71	.478 ^{NS}
	Experimental	51.50	14.39	
CMI	Control	71.33	6.99	.114 ^{NS}
	Experimental	68.25	8.09	

Note. GABS = general attitude and belief scale; JSS = job-seeking stress; CMI = career maturity inventory.

^{NS}Non-significant by Mann-Whitney U test.

Table 4. Comparison of GABS's subscales between pre- and post REBT applied horticultural activity program in university students

GABS subscale	Group	Pre		Post		<i>p</i>
		M	SD	M	SD	
Self-downing	Control	17.25	2.73	17.92	2.31	.203 ^{NS}
	Experimental	16.83	2.41	13.83	2.33	.005 ^{**}
Other downing	Control	17.67	4.03	18.42	3.26	.362 ^{NS}
	Experimental	17.42	3.03	14.75	3.28	.009 ^{**}
Need for achievement	Control	21.92	3.09	22.75	2.53	.474 ^{NS}
	Experimental	23.00	5.97	15.67	6.01	.003 ^{**}
Need for approval	Control	22.58	2.91	21.83	2.82	.328 ^{NS}
	Experimental	23.58	3.06	14.00	3.95	.002 ^{**}

Note. GABS = shortened general attitude and belief scale.

^{NS}Non-significant, ^{**}*p* < .01 by Wilcoxon signed rank test.

group showed a significant decrease from 80.83 to 58.25 after the program ($p=.002$), but the control group did not show a significant change from 79.42 to 80.92 ($p=.722$) after the program. Like the report that horticultural activities applying REBT reduce irrational beliefs and turn them into rational beliefs (Park and Jung, 2014), this study also proved that the horticultural program has a positive effect on reducing irrational beliefs.

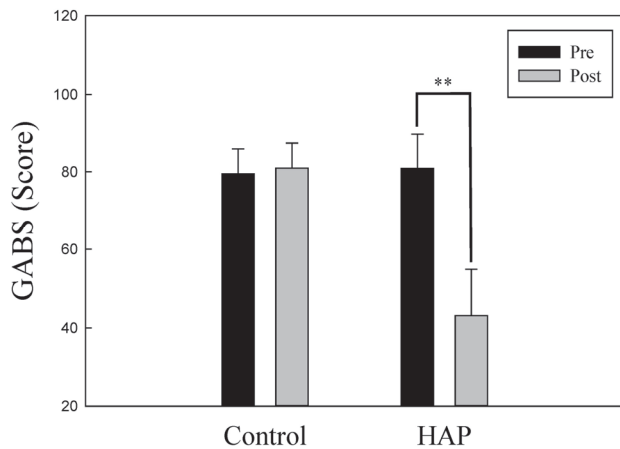


Fig. 2. Comparing total Shortened general attitude and belief scale (GABS) scores of control and REBT applied horticultural activity program (HAP) group between pre and post horticultural activity program in university students. Error bars represent standard deviation of the mean. The asterisk denotes significant difference from the control group at $^*p < .05$, $^{**}p < .01$ by Wilcoxon signed-rank test.

Pretest-posttest comparison of job-seeking stress

To determine the effects of the horticultural program on job-seeking stress of university students, we comparatively analyzed the pretest and posttest results of the control group and experimental group, and the results are as shown in Table 5 and Fig. 3.

For the comprehensive results of job-seeking stress, the control group showed a significant increase in the job-seeking stress score after the program (56.67) compared to be-

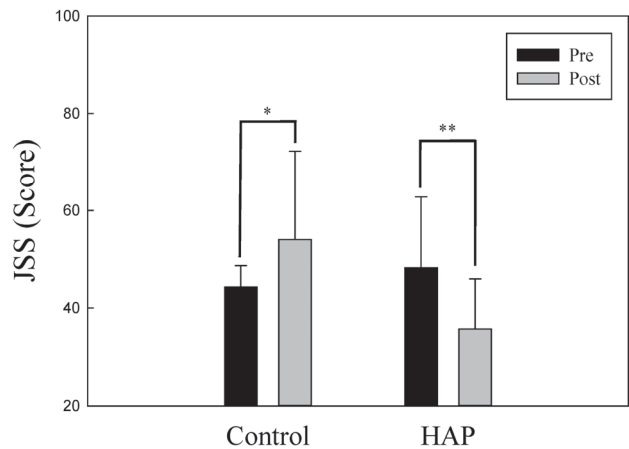


Fig. 3. Comparing total Job-Seeking Stress (JSS) scores of control and REBT applied horticultural activity program (HAP) group between pre and post horticultural activity program in university students. Error bars represent standard deviation of the mean. Asterisks denote significant differences from the control group at $^*p < .05$, $^{**}p < .01$ by Wilcoxon signed-rank test.

Table 5. Comparison of job-seeking stress between pre- and post REBT applied horticultural activity program in university students

Variables	Group	Pre		Post		p
		M	SD	M	SD	
Personality	Control	10.00	5.27	15.00	6.42	.016*
	Experimental	13.92	5.66	10.00	5.27	.003**
Job insecurity	Control	5.58	1.56	6.75	2.83	.109 ^{NS}
	Experimental	7.92	3.00	5.58	1.56	.005**
Family environment	Control	7.25	1.91	12.58	5.38	.006**
	Experimental	10.50	5.89	7.25	1.91	.028*
Study	Control	7.67	4.46	10.92	3.40	.041*
	Experimental	9.92	4.48	7.67	4.46	.007**
School environment	Control	8.25	3.77	11.42	4.01	.017*
	Experimental	9.25	3.50	8.25	3.77	.135 ^{NS}

^{NS}Non-significant, * $p < .05$, ** $p < .01$ by Wilcox signed rank test.

Table 6. Comparison of career maturity inventory between pre- and post REBT applied horticultural activity program in university students

Variables	Group	Pre		Post		<i>p</i>
		M	SD	M	SD	
Decisiveness	Control	17.75	6.74	15.08	4.01	.449 ^{NS}
	Experimental	18.17	4.04	17.75	6.74	.593 ^{NS}
Vision or goals	Control	21.42	5.43	20.83	3.01	.844 ^{NS}
	Experimental	20.33	5.66	21.42	5.44	.061 ^{NS}
Planning	Control	20.67	3.60	14.92	4.32	.003 ^{**}
	Experimental	17.25	4.41	20.67	3.60	.090 ^{NS}
Assurance	Control	14.75	3.62	13.17	4.53	.345 ^{NS}
	Experimental	12.50	4.10	14.75	3.62	.123 ^{NS}

^{NS}Non-significant, ^{**} $p < .01$ by Wilcoxon signed rank test.

fore (47.00; $p=.021$), whereas the experimental group showed a significant decrease after the program (38.75) compared to before (51.50; $p=.002$), proving that the horticultural program has a positive effect on reducing job-seeking stress. This result is also consistent with the study proving that horticultural activities are effective in reducing stress from studies, classes and exams (Lee et al., 2018), and the study that emotional responses from freely making creative works such as plant cultivation and flower arrangement reduce job stress (Choi et al., 2015). It also supports the fact that nature has positive effects on purifying human emotions and promoting mental health.

Pretest-posttest comparison of career maturity

To determine the effects of the horticultural program on career maturity of university students, we comparatively analyzed the pretest and posttest results of the subjects, and the results are as shown in Table 6 and Fig. 4.

As for the scores of career maturity, the control group showed a decrease in the score from 71.33 to 64.00 after the program, which was a statistically significant difference ($p=.028$). The experimental group showed an increase in the score from 68.25 to 74.58 after the program ($p=.008$), which was a statistically significant difference. Like the report that horticultural activities have positive effects on career maturity (Kwack and Jang, 2012) and REBT promotes career development (Kim and Park, 2002), this study proved that the horticultural program was effective in improving career maturity.

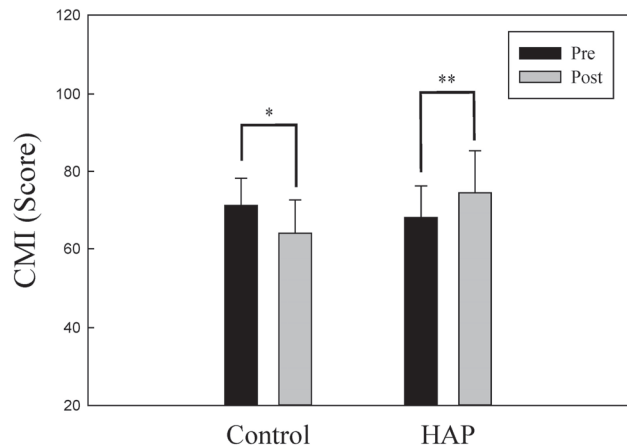


Fig. 4. Comparing total career maturity inventory (CMI) scores of control and REBT applied horticultural activity program (HAP) group between pre and post horticultural activity program in university students. Error bars represent standard deviation of the mean. Asterisks denote significant differences from the control group at ^{*} $p < .05$, ^{**} $p < .01$ by Wilcoxon signed-rank test.

Conclusion

In this study, we implemented REBT applied horticultural activity program to university students with irrational beliefs to examine the positive effects on decreasing such irrational beliefs, and compared the results before and after the program to determine the relations among change in irrational beliefs, job-seeking stress, and career maturity. The results of irrational beliefs showed that all sub-items and the total score decreased significantly, through which it was found that horticultural activities had a positive ef-

fect on reducing irrational beliefs. Job-seeking stress showed a significant difference in the total score and all sub-items except school environment, thereby proving that the program had a positive effect on lowering job-seeking stress. The results of career maturity showed that all sub-items and the total score increased, but there was a significant difference not in the sub-items but only in the total score. Therefore, it can be found that REBT applied horticultural activity program has positive effects on reducing irrational beliefs and job-seeking stress and improving career maturity.

Many studies covered irrational beliefs as the cause of academic and career problems of college students and used REBT as a means to reduce them. However, there is insufficient research attempting a psychological approach to subjects using plants that symbolize nature as a medium by applying REBT, which is focused on linguistic approach, to horticultural activities.

Therefore, this study has significance in determining the applicability of horticultural activities as a method to reduce irrational beliefs. However, there are limitations in generalizing the effects of this study as the group size of the subjects is small and the effects of other factors aside from the program activities for 90 minutes once a week are excluded. Based on the results of this study, a follow-up research must be conducted to develop a horticultural program that can produce the greatest effects by increasing the group size of the subjects and considering the effects of factors other than program activities.

References

- Bae, W.R. 2018. The effects of free semester horticultural therapy program on stress and school life satisfaction. Master's thesis, Korea University, Seoul, Korea.
- Choi, Y.H., S.Y. Yoon, and B.J. Choi. 2015. Effects of horticultural activity on job stress, coping ability, and job satisfaction of elementary school teachers. *J. Korean Soc. People Plants Environ.* 18(4):327-331. <https://doi.org/10.11628/ksppe.2015.18.4.327>
- Crites, J.O. 1978. *Career maturity inventory: Theory and research handbook*. Monterey, CA: McGraw-Hill Pub.
- Ellis, A. 1995. Thinking processes involved in irrational beliefs and their disturbed consequence. *J. Cogn. Psychother.* 9(2):105-116.
- Ellis, A. and W. Dryden. 1997. *The practice of rational emotive behavior therapy* (2nd ed.). New York, NY: Springer Publishing.
- Han, S.O. 2004. The impact of unemployed college graduates' irrational beliefs on their employment strategies. Master's thesis, Kyonggi University, Suwon, Korea.
- Han, Y.J. 2017. The mediating effects of irrational belief and cognitive empathy on the relationship between covert narcissism and interpersonal competence of university students. Doctoral dissertation, Gachon University, Seongnam, Korea.
- Hwang, S.W. 1998. A study on employment stress of university students. Master's thesis, Dong-A University, Busan, Korea.
- Jeong, H.Y. 2009. The effect of horticultural therapy program based upon theory of REBT on the depression and self-esteem of the elderly in facilities. Master's thesis, Mokpo National University, Muan, Korea.
- Jeong, J.Y. 2017. Effect of solution-focused group art therapy program on college students' self-efficacy, ego-resilience and career maturity. Doctoral dissertation, Seoul Venture University, Seoul, Korea.
- Jeong, Y. 2019. The relationship between job-seeking stress and suicide ideation: a moderated mediation model of depression and stress vulnerability. Master's thesis, Hanshin University, Osan, Korea.
- Kang, C.K. and J.R. Kang. 2018. The mediating effects of career adaptability on the relationship between irrational beliefs and planned happenstance skills of college students. *J. Learn. Cent. Curric. Instr.* 18(19):611-630. <https://doi.org/10.22251/jlcci.2018.18.19.611>
- Kim, H.S. and K.A. Park. 2002. A research study on the effects of REBT based group career counseling on college students' career development. *Korea J. Couns. Psychother.* 14(2):339-358.
- Kim, M.R. 2007. Influence of irrational conviction and self-efficacies in career decision on behaviour of career preparation. Master's thesis, Jeju National University, Jeju, Korea.
- Kim, M.S. 2012. The effects of career group counseling

- based upon multiple intelligence theory on career decision-making, career self-efficacy, and career maturity for college students. Doctoral dissertation, Dong-A University, Busan, Korea.
- Kim, S.A. 2012. Dance of the major college career maturity, the impact on job stress. Master's thesis, Catholic University of Daegu, Daegu, Korea.
- Kwak, H. 2017. Structural relationship of career beliefs, career decision-making autonomy, planned happenstance skills and career decision level in university students. Doctoral dissertation, Myongji University, Seoul, Korea.
- Kwack, H.R. and E.J. Jang. 2012. Effect of horticultural activities on occupational view and career maturity inventory for married immigrant women. *J. Korean Soc. People Plants Environ.* 15(5):325-336.
- Kwon, M.S. and I.S. Oh. 2015. The mediating effects of covert narcissism and optimism on the relationship between irrational beliefs and career maturity. *J. Res. Educ. [Korea University]* 28(1):29-52.
- Lee, G.H. and J.C. Han. 1997. Study for the validation of career attitude measurement scale. *J. Career Educ. Res.* 8:219-255. Retrieved from www.careeredu.net
- Lee, M.H., Y.H. Kim, E.J. Park, and M.R. Huh. 2018. Effects of plant mediated therapy activity on college students'academic burnout and stress. *J. People Plants Environ.* 21(3):233-241. <https://doi.org/10.11628/ksppe.2018.21.3.233>
- Lee, S.Y. 2015. The mediating effect of career maturity on the relationship between career barriers and jobs seeking stress in university students. Master's thesis, Dongshin University, Naju, Korea.
- Lindner, H., R. Kirkby, E. Wertheim, and P. Birth. 1999. A brief assessment of irrational thinking: the shortened general attitude and belief scale. *Cognit. Ther. Res.* 23(6):651-663. <https://doi.org/10.1023/A:1018741009293>
- Matsuo, E. 2009. The encouragement of the social horticulture: Environment, education, welfare and village creation(K.C. Son, I.S. So, and J.K. Suh, Trans.). Seoul, Korea: KuBook, Konkuk University Press. (Original work published 2005)
- Moon, J.E. 2017. The effect of control of anger, irrational beliefs, academic stress on the suicidal impulse of middle and high school students. Master's thesis, Dong-A University, Busan, Korea.
- Park, S.H. 2018. The effects of horticultural therapy integrating REBT group counseling on depression, self-esteem and emotional change of middle-aged women. Doctoral dissertation, Kyungpook National University, Daegu, Korea.
- Park, S.Y. and T.Y. Jung. 2014. The effect of REBT group counseling utilizing horticultural activity on self-esteem and depression in middle-aged women. *J. Korean Soc. People Plants Environ.* 17(5):309-318. <https://doi.org/10.11628/ksppe.2014.17.5.309>
- Seo, Y.S. 2006. Effect of a REBT career group counseling program on self-esteem career decision-marking self-efficacy, career attitude maturity of vocational high school boy students. Master's thesis, Keimyung University, Daegu, Korea.
- Son, K.C., M.J. Cho, J.E. Song, S.Y. Kim, and S.S. Lee. 2006. Program and assessment tools for professional horticultural therapy. Coobook. Seoul, Korea: KuBook, Konkuk University Press.
- Song, Y.H. 2010. The mediating effects of goal continuity and self-esteem between college students'irrational belief and depression. Master's thesis, Gatholic University of Daegu, Daegu, Korea.
- Yoon, H.S. 2010. Effect of horticultural therapy based upon REBT group counseling on the improvement of self-esteem and the reduction of impulsivity in maladjusted middle school students. Master's thesis, Konkuk Universtiy, Seoul, Korea.