

ORIGINAL CONTRIBUTION

The Effects of One-Time Laughter Therapy on Stress Response, School Life Adjustment and Ego-Resilience of Women College Students

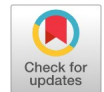
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Abstract— This research aims to develop and assess the effectiveness of a one-time laughter therapy program for college nursing students. It intends to investigate the effectiveness of this program on their stress response, school life adjustment and ego-resilience. It is a quasi-experimental research of nonequivalent control group pre/post-test design. 33 people each of an experimental group and a control group participated in this research ($n = 66$). After operating the one-time laughter therapy on two groups, this study measured their stress response, school life adjustment and ego-resilience during the same period. The results demonstrated that their stress response was $p = .040$ and their school life adjustment was $p = .012$, which meant that the one-time laughter therapy exerted a significant influence on them. The findings suggest that one-time laughter therapy can help college nursing students relieve their stress and adjust to their school life well. This program also enhanced the ego-resilience of the students. Based on the results, it is recommended that the laughter therapy program should be introduced and operated consistently in nursing colleges to regulate the stress response and school life adjustment and promote the health of nursing students.

Index Terms— One-time Laughter Therapy, Stress Response, School Life Adjustment, Ego-Resilience

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Introduction

College students have a period to judge autonomously and do self-directed activities, which means to get early adulthood to prepare themselves for society (Jo & Lee, 2015). In college life, they suffer from a lot of stress due to self-identity establishment, value judgment, emotional independence, new relationships, academic problems, economical problems, employment, competition, and uncertain future (S. Kim et al., 2015). National Statistical Office reported that stress index between the ages of 13 and 19 represents 58.7%, that between 20 and 29 accounts for 68% and that between 30 and 39 comes to 75.5% so over college student age and women rather than men feel more stress (M. Kim & Kim, 2014). Since women do more social advancement briskly than the past, females in their twenties increase their mental burden to prepare for the future and adjust to social environment. For these reasons, female college students experience more stress than males (H. Park & Kim, 2008). In addition, Kong & Kang (2012) presented that female students have more stress of relationships with the opposite sex, relationships with professors, academic problems, future problems and value problems than males.

Stress has a negative effect on school life adjustment and life satisfaction and many college students experience various stress response (S. Choi et al., 2014). Stress response means that when environmental requirements exceed individual's coping resources during the interaction between individual and environment, it causes emotional, physical, cog-

nitive, active response (Sung, 2007). Stress response appears variously in many areas, such as negative emotions, general physical symptoms, specific physical symptoms, cognitive function decline, negative thoughts, self-degradation, impulsive aggressive thoughts, careless actions (Kong & Kang, 2012). Stress response of college students appear various emotional aspects such as fatigue, frustration, somatization, anger, depression, tension, aggressiveness, which can lead to psychological obstacles, so a measure to relieve stress is necessary through the whole campus life (J. Park, 2011).

Undergraduate students are exposed to diverse social cultural environments and subject to psychological pressure, such as proactive participation in campus life (E. Lee & Park, 2012), academic grades by relative assessments, career choice and anxiety about the future, which brings about physical symptoms, studying abroad or dropout (Song, 2013). School life adjustment means that students properly cope with studies, relationships, emotions in physical and personal college environments (G. Lee et al., 2015). J. Park (2011) studied that not only their irrational belief, positive emotions, negative emotions but also stress as parameter can have a direct effect on school life adjustment. College life is a period to prepare for their adulthood so it has a significant meaning to affect psychological, emotional independence and social adaptation (Shin, 2015). Shin (2015) said that the level of school life adjustment could be changed based on individual intrapsychic variables so if they do not know their feelings nor control their emotions, they cannot adjust to campus life well. Generally,

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students who manage their campus life stably behave advisably and form a good relationship. Moreover, successful campus life influences physical and emotional well-being (Ko & Jeong, 2012). A number of undergraduate students are frequently exposed to stressful situations. Situation itself is not a problem, but they need an ability to be flexible in responding to situations.

Ego-resilience means an individual ability to adjust and balance despite environmental stress, uncertainty, unstable conditions (Shin, 2015). People with ego-resilience have various problem solving skills of reducing stress and in case of students, they can participate actively and flexibly in school life and show their competence in cognitive aspects (N. Kim, 2008). As the level of ego-resilience has significance for school life adjustment, it was studied that the higher they have ego-resilience, the better they can adjust to college principles and campus life (Shin, 2015). School life adjustment has a correlation with ego-resilience and self-esteem (S. Choi et al., 2014) so by enhancing ego-resilience capability as intrapsychic variable, students should build up their adaptability to positively and rationally resolve complex stresses or conflicts which they can experience in campus. Besides, varied solutions need to be made in order to handle effectively and adjust to stresses which they experienced or will experience (Shin, 2015).

Stress-relieving methods include laughter therapy, abdominal breathing, imagery program, music therapy, massage therapy, meditation, yoga and biofeedback. But, among them, laughter therapy is a stress killer to let body and mind healthy and pleasant and a self-care tool to get out of negative feelings, such as tension, anxiety, anger (J. Choi et al., 2010). Laughter therapy does not need more time and money than other meditation methods and is an effective method to be adjusted easily anytime, anywhere (M. Kim & Kim, 2014). Laughter therapy can reduce stress and give a positive effect psychologically and enhance self-control capability by judging a situation objectively (Y. M. Lee & Sohn, 2010). Recently, stress mediation programs through laughter therapy have been examined briskly but mostly conducted for residents (Y. M. Lee & Sohn, 2010), mastectomy patients (J. Choi et al., 2010), facial palsy patients (M. Kim & Kim, 2014), senior citizens and menopausal women (Cha et al., 2012). Therefore, this study verifies the effects of one-time laughter therapy on female students' stress response, school life adjustment, ego-resilience and provides baseline data for their stress management program based on research results. The concrete purposes are as follows.

- It verifies the effect of laughter therapy on a participant's stress response.
- It verifies the effect of laughter therapy on a participant's school life adjustment.
- It verifies the effect of laughter therapy on a participant's ego-resilience.

Methodology

Research design

This is a quasi-experimental research of nonequivalent control and experimental group pre/post-test design to verify the effects of one-time laughter therapy on female students' stress response, school life adjustment and ego-resilience.

Table 1
Research design

Group	Pre-Test	Treatment	Post-Test
Cont.	Y1	-	Y2
Exp.	Y1	X	Y2

Cont: Control group, Exp: Experimental group; Y1: General Characteristics, laughter therapy, stress response, school life adjustment, ego-resilience; Y2: Laughter therapy, stress response, school life adjustment, ego-resilience X: One-time laughter therapy (4hrs)

Research object

This study selected female college students of p city by convenience sampling and assigned them to an experimental group and a control group for operating one-time laughter therapy. The objects filled out questionnaires before and after operating one-time laughter therapy and did not give any individual information at all. The objects who fully understood purposes and procedures and agreed to participate in this study among students aged over 18 were acceptable and someone who was under 18, male, pregnant, physically ill and did not agree to this study was excluded. The number of the objects was proved to be 26 people each of two groups based on significance level (α) = .05, group number = 2, power = .90, effect size = .80 in Cohen (1988) power analysis so finally 33 people each of two groups were confirmed.

Research intervention

Developing process of program

The researcher completed professional courses at Korea Laughter Happiness Leader Association and Korea Laughter Clinic Therapy Center and has developed the program based on working experience as a laughter therapy professional instructor for many years by referring to the studies of Cha et al. (2012) and Y. M. Lee & Sohn (2010).

Ethical protection of object

For ethical protection of objects, this research was implemented after obtaining K College's IRB (Institutional Reviews Board) approval number: GU-IRB-006. The research objects agreed to this study and listened to explanation of a research purpose and a participation method. They fully understood guarantee of anonymity, voluntary participation and possibility of quitting midway. And they received compensation items.

Application of one-time laughter therapy program

Objects who agreed to the explanation of the research purpose were divided into an experimental group and a control group and completed pre-questionnaires about stress response, school life adjustment and ego-resilience.

Table II
One-time laughter therapy process

Stage	Subject	Action
Stage 1	Open mind	Applause induction games Stretch games Massage games Opposite the finger Draw king rock paper scissors Focus on the dance song companion
Stage 2	Relax laughter muscles	Stretch of laughter muscles Big laughter sound for 15 seconds 3 times Big laughter without sound for 15 seconds 3 times Lion laughter Focus on the dance song companion
Stage 3	Finish	Focus on the dance song companion Laughter therapy meditation Efforts to increase ego-resilience

Shortly after the survey, the research applied laughter therapy to female college students for 50 minute operations and 10 minute breaks over total 4 hours a day. The both groups filled out post-questionnaires immediately after the therapy.

In the first stage, before laughter therapy, it induced muscle relaxation and open mind by applause inducing games, stretching, massage games, dancing to music, etc. In the second stage, it relaxed laughter muscles by maintaining smiles for 15 seconds, keeping mouth corners up while saying 'I love you, I am happy', laughing aloud clapping one's hands (Cha et al., 2012). In the third stage, it tried to increase ego-resilience through laughter therapy intervention to form a positive attitude.

Research Tool

Stress response

This is a scale which Koh et al. (2000) developed to measure stress responses including emotional, physical, cognitive, active responses. This tool has 7 subscales including 6 questions of tension, 4 questions of aggression, 3 questions of somatization, 6 questions of anger, 8 questions of depression, 5 questions of fatigue, 7 questions of frustration, which comes to 39 questions totally. It is 5 point scale of Likert that ranges from 0 point of 'not at all' to 5 point of 'very much'. It represents from 0 point at min to 5 point at max and means that the higher the score is, the higher stress response is. Reliability of the tool was Cronbach's α .97 when developed.

School life adjustment

N. Kim (2008) developed a scale of school life adjustment, which includes 20 questions of academic adjustment, 20 questions of social adjust-

ment, 10 questions of school environment adjustment. Among them, only 20 questions of academic adjustment and 10 questions of school environment adjustment were selected to make total 30 questions. The questions will be marked by the matching level of Likert scale which ranges from 1 of 'not at all' to 5 of 'very much'. In N. Kim (2008) study, internal consistency reliability of academic adjustment scale was Cronbach's α .90 and that of school environment scale was Cronbach's α .88.

Ego-resilience

Yoo et al. (2004) adapted the ego-resilience scale that Block & Kremen (1996) developed. The Ego-resilience scale has total 14 questions, which includes 5 subelements of relationships, vitality, emotion control, curiosity, optimism. Each question is marked by 4 scales, which ranges from 1 point of 'not at all' to 4 point of 'very much'. It represents from 1 point at min to 4 at max and means that the higher the score is, the more outstanding ability to recover crises and troubles it has. In Yoo et al. (2004) study, the reliability was Cronbach's α .67.

Data Analysis

Collected data were analyzed by using SPSS WIN 20.0. General characteristics of objects and value of each variable were calculated by frequency, percentage, average, standard deviation. Chi-square test was conducted to verify general characteristics and homogeneity test of objects and paired t-test was performed to check the effects of pre/post-tests in both groups.

Sociodemographic characteristics of object

Objects of the experimental group were mostly lower grades. 42.4% of the control group members were satisfied with their school life whereas 9.1% of the experimental group were satisfied. More than 60% of the whole objects had a religion. 45.5% of the control group and 33.3% of the experience group were satisfied with their major. The economic status of the objects was mostly average. 36.4% of the control group 42.4% of the experimental group thought that their self-esteem was high (Table I).

Homogeneity examination of research object

Before investigating the effects of objects' stress response, school life adjustment and ego-resilience, homogeneity of each measurement area baseline of the two groups was examined. To do that, independent sample t-test was conducted for pre-test scores of each measurement tool and it was found that there was no significant difference between the experimental group and the control group in all measurement indexes, which proved that these groups achieved the homogeneity (Table II).

Table III
Homogeneity test of general characteristics (N = 66)

Characteristics		Cont. (n = 33) n (%)	Exp. (n = 33) n (%)	χ^2	p
Grade	Lower(1 2)	27(81.8)	21(63.6)	1.18	.55
	upper(3 4)	6(18.2)	12(36.4)		
School life	Satisfaction	14(42.4)	3(9.1)	4.46	.11
	Average	14(42.4)	16(48.5)		
	Dissatisfaction	5(15.2)	14(42.4)		
Religion	Yes	26(78.8)	21(63.6)	.82	.66
	No	7(21.2)	12(36.4)		
Major	Satisfaction	15(45.5)	11(33.3)	3.36	.19
	Average	13(39.4)	12(36.4)		
	≤ Average	5(15.2)	10(30.3)		
Economic Status	High	12(36.4)	11(33.3)	3.91	.14
	Average	18(54.5)	10(30.3)		
	Low	3(9.1)	12(36.4)		
Self-esteem	High	12(36.4)	14(42.4)	1.09	.58
	Average	12(36.4)	8(24.2)		
	Low	9(27.3)	11(33.3)		

Table IV
Pre-test scores for the homogeneity

Variables	Groups	M	S.D	t	Sig.
Stress Response	Exp.(n = 33)	2.04	.62	1.89	.14
	Cont.(n = 33)	1.78	.52		
School Life Adjustment	Exp.(n = 33)	3.42	.52	2.71	.08
	Cont.(n = 33)	3.14	.31		
Ego-resilience	Exp.(n = 33)	3.52	.96	1.56	.26
	Cont.(n = 33)	3.20	.64		

Effects of one-time laughter on female college students' stress response, school life adjustment and ego-resilience

To validate changes of the groups in the research attendees' stress response, school life adjustment and ego-resilience, matching sample -test

for pre/post variations was executed. Depending on the results, the stress response decreased from pre-score(M = 2.04) to post-score(M = 1.71) and the school life adjustment increased from pre-score(M = 3.43) to post-score(M = 3.78). However, it indicated that the ego-resilience had no significance (Table III).

Table V
Effects of one-time laughter treatment on stress response, school life adjustment and ego-resilience

Variables	Categories	Exp. (n = 33)	Cont. (n = 33)	t	Sig.
		M(S.D)	M(S.D)		
Stress Response	Pre	2.04(.62)	1.78(.52)	2.14*	.04
	Post	1.71(.63)	1.74(.46)		
School Life Adjustment	Pre	3.43(.52)	3.14(.31)	-2.66*	.01
	Post	3.78(.54)	3.09(.45)		
Ego-resilience	Pre	3.52(.97)	3.20(.65)	-.61	.54
	Post	3.64(.56)	3.18(.65)		

*p < .05

Discussion

This study was executed to apply the one-time laughter therapy program to women undergraduates and to figure out its effects on their stress response, school life adjustment and ego-resilience.

According to the results, the effect of laughter therapy on participants' stress response was not significant in the control group. However, there was a significant difference from 2.04 point of pre-test to 1.71 point of post-test in the experimental group. It is the same as the result that application of laughter therapy program declined anger of oil spill victimized community residents (Y. M. Lee & Sohn, 2010). Stress means a physiological response to cope with stress factors of tension, excitement, anxiety occurred by external pressure and keep calm and an emotion of anxiety

and threat that people feel when facing uncontrollably difficult situations (Jo & Lee, 2015). Laughter therapy reduces negative feelings of stress, anxiety, depression by releasing serotonin and gives a positive influence psychologically to promote quality of life (Cha et al., 2012). Collegians are under a lot of stress about new relationships, academic problems, economic problems, employment and uncertain future. In particular, women collegians get more stressed on adaptation problems of social environments than men collegians (Kong & Kang, 2012). Thus, if laughter therapy is implemented once a year consistently from low grades, it is considered that it can be helpful for their psychological stability and recovery of stress.

The effect of laughter therapy on participants' school life adjustment did not show significant difference in the control group. However, 3.43 point of pre-score was revised to 3.78 point of post-score, which showed

significant difference in the experimental group. College entrance is a life event to provide educational and social chances (Ko & Jeong, 2012). However, students experience stress about new relationships, career choice, self-realization and uncertain future in the unique university culture. It was examined that stress has a negative influence on school adjustment (Ko & Jeong, 2012). This study reveals that laughter therapy decreases the stress level of female college students and heightens the level of school adjustment. As well, it suggests that laughter therapy not only prevents side effects from their stress but also can be an effective measure to adjust to healthy college life. Therefore, to lessen their stress and heighten the level of school adjustment, various activities such as not only physical efforts like health promotion facilities and environment improvement but also laughter therapy program as a psychological aspect should be done together in college.

The effect of laughter therapy on participants' ego-resilience did not indicate any significant difference in the both groups. That means that school life adjustment affects the level of ego-resilience significantly so it differs from the research that students with high ego-resilience can adjust to their studies well (Shin, 2015). Ego-resilience is an ability to adjust to interior and exterior stress flexibly so students can deal with stress situations and adjust to their school life by improving ego-resilience. This study is a one-time program and displayed no significant difference in ego-resilience. However, 3.52 point of pre-score changed to 3.64 point of post-score in the experimental group, which means ego-resilience improved slightly.

In conclusion, it was proved that stress response and school life adjustment of women college students showed significance statistically. Plus, one-time laughter therapy was considered to enhance the level of ego-resilience.

Limitations and Future Research Directions

The limitations and future research recommendation are as follows:

- This study is a one-time program and displayed no significant difference in ego-resilience. Scholars are encouraged to study the impact of this program with a different sample and identify if it affects the resilience of the respondents.
- This study is carried out only in a single institute with limited sample. Replicate this study in different regions and different domains to assess the effectiveness of laughter program.

Conclusion

This is a quasi-experimental research to identify the effects of laughter therapy on stress response, school life adjustment and ego-resilience of women college students by using a nonequivalent control and experimental group pre/post-test design.

Participants of this research were women college students aged over 18 in P city who listened to its purpose and agreed to it. They were randomly divided into a control group and an experimental group per undergraduate institution. They filled out questionnaires about stress response, school life adjustment and ego-resilience before and after laughter therapy respectively. Laughter therapy was carried out total 4 hours a day, which includes 3 stages of 50 minute operations and 10 minute breaks. Collected data was analyzed as frequency, percentage, average, standard deviation and t-test by using SPSS WIN 20.0. The results are as follows.

First, lower grade students (1st ~ 2nd grades) have more generalized features than upper grade students (3rd ~ 4th grades) and school satisfaction of the control group members was over average and that of the experimental group was mostly below average. Academic level of the control group was mostly very high whereas that of the experimental group

was mostly average. Major satisfaction of the both groups was mostly average. Self-esteem of the control group members was mostly over average whereas the experimental group members with high self-esteem were the largest and the low self-esteem members were the second.

Second, the homogeneity verification of the research objects resulted in no significant difference.

Third, it was proved that the experimental group who took the laughter therapy could lower the score of stress response and raise the levels of school life adjustment and ego-resilience in comparison with the control group who did not take it. Stress response and school life adjustment appeared any significant difference statistically in the experimental group but not for ego-resilience.

On the basis of the research results, stress response and school life adjustment of female students in college should be checked and laughter therapy program should be introduced for their stress recovery and consistently operated for health promotion. Since this research was confined to women college students in certain regions, it could not be generalized. So, it suggests choosing other region objects and performing repetitive researches on them. Furthermore, it should study systematically their diverse variables, such as self-esteem, coping, which did not include in this research.

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