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Long-term effects of leisure education on leisure needs and stress in older adults

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ABSTRACT

We examined whether a 12-week leisure education program could promote leisure autonomy and leisure competence and reduce stress in older adults. Forty subjects were randomly assigned to either an experimental group or a control group. Before the experiment, pretest data were collected using leisure autonomy, leisure competence, and stress scales. After the experiment, posttest data were collected using the same scales; follow-up test data were collected a year later. These data were evaluated through an analysis of covariance. The results indicated that the average posttest and follow-up test scores of leisure autonomy and leisure competence in the experimental group were significantly higher than the corresponding scores in the control group and that the average posttest and follow-up test scores of stress in the experimental group were significantly lower than the corresponding scores in the control group. In the experimental group, the average posttest and follow-up test scores of leisure autonomy and leisure competence were significantly higher than the average pretest scores of leisure autonomy and leisure competence, whereas the average posttest and follow-up test scores of stress were significantly lower than the average pretest scores of stress. Therefore, health care practitioners should adopt the provision of leisure education as a priority to promote leisure autonomy and leisure competence and reduce stress in older adults.

Perceived stress is common in older adults (Ezzati et al., 2014). Stress is inversely related to physical and mental health (de Frias & Whyne, 2015; Tsai, Chi, & Wang, 2015) and increases mortality risk in older adults (Fredman, Cauley, Hochberg, Ensrud, & Doros, 2010; Vasunilashorn, Gleib, Weinstein, & Goldman, 2013). Therefore, reducing stress is a critical factor for maintaining optimal health and increasing longevity in older adults (Chang, Yu, & Chang, 2016).

Stress is identified by appraising a stressor (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986; Lazarus & Folkman, 1984). Two types of appraisal exist: primary and secondary appraisal. Primary appraisal involves determining whether a negative event is a stressor. Secondary appraisal involves identifying actions that are the most likely to enable people to manage the negative event designated as a stressor during the primary appraisal (Folkman et al., 1986). Coping refers to the behavioral or cognitive efforts used to manage the demands of a designated stressor. Two forms of coping are identified: (a) problem-focused coping, which entails directly addressing a stressor, and (b) emotion-focused coping, which reduces the stress experienced as the result of a negative event (Folkman, Lazarus, Gruen, & DeLongis, 1986). According to these findings, older adults may perceive stress when they do not effectively cope with a negative event.

Health-related concerns are the most frequently reported stressors in older adults (Hunter & Gillen, 2009; Tak, 2006). The death of a friend, relative, or spouse is also a frequently mentioned

stressor (Fitzpatrick, Spiro III, Kressin, Greene, & Bossé, 2001; Norris & Murrell, 1990). In other words, many older adults experience various chronic stressors as they age, such as chronic disease, disability, and loss of loved ones. However, emotion-focused coping can enable older adults to reduce stress (Ong & Bergeman, 2004). Therefore, developing an emotion-focused stress-coping strategy is necessary for older adults.

Self-determination theory (SDT), which has been widely applied in the field of mental health studies, holds that autonomy and competence are two basic human needs (Deci & Ryan, 2008; Ng et al., 2012; Ryan, Huta, & Deci, 2008). Autonomy refers to free choice and initiative in the activities that people perform. Competence corresponds to the ability to perform the activities in which people participate. When satisfied, these two needs contribute to their mental health. SDT has recently been applied to stress studies (Chang, 2017; Weinstein & Ryan, 2011). The cited studies indicate that, over time, autonomy can facilitate fuller processing of emotions related to stressful events. Autonomy enables people to reduce stress by promoting emotional health. Feedback of feeling competent leads people to perceive themselves as generally capable of dealing with negative events, and they thereby tend not to consider negative events as stressors. Competent feedback also results in positive emotions, which can relieve stress (Chang & Yu, 2013). According to these findings, enhancing levels of autonomy and competence appears to be an effective emotion-focused method for reducing the stress perceived by older adults.

Leisure can serve as an effective avenue for participants to exercise autonomy and competence (Chang, 2012; Chang & Yu, 2013). Most older adults have time to participate in leisure activities and find it provides pleasurable experiences to supplement the routines of daily life (Chang, 2015; Hutchinson & Nimrod, 2012). Thus, participation in leisure activities appears to be an ideal opportunity to promote autonomy and competence in older adults.

Iwasaki and Mannell (2000) proposed a similar concept, namely that leisure participation can strengthen leisure coping beliefs. Leisure coping beliefs refer to general beliefs that leisure enables people to reduce stress. One of the most frequently reported leisure coping beliefs is leisure autonomy, which corresponds to the belief that participants are allowed to choose their leisure activities freely. Leisure autonomy has been reported to be correlated with stress reduction in older adults (Chang & Yu, 2013). In addition to leisure autonomy, leisure can generate leisure competence in older adults (Peacock & Talley, 1985). Leisure competence pertains to the belief that participants can engage in leisure activities and control their own behaviors within the context of those activities. Higher levels of leisure competence have been observed to be associated with lower levels of stress in older adults (Chang, 2017). However, these studies have failed to reveal the causal relationships between leisure autonomy and leisure competence in older adults and their stress. Therefore, the effects of these two factors on stress require further investigation.

Leisure education, which refers to an organized program designed to improve the leisure attitudes, leisure knowledge, and leisure skills of participants, thereby allowing them to use their leisure time more effectively and satisfactorily (Dattilo & Williams, 2012; Sivan & Stebbins, 2011), has been reported to promote leisure autonomy and leisure competence (Dattilo, 2015). One mechanism through which leisure education can promote leisure autonomy and leisure competence is inferred: Leisure autonomy and leisure competence depend on a person's leisure skills for participation in leisure activities. When leisure skills increase, leisure autonomy and leisure competence also increase. Leisure education develops the leisure skills of a participant through training (Searle, Mahon, Iso-Ahola, Sdrolas, & Dyck, 1995); thus, it can lead to an increase in leisure autonomy and leisure competence.

Searle et al. (1995) conducted a pretest–posttest quasi-experimental study to examine the effect of a leisure education program on leisure competence in older adults. They assigned 13 subjects to an experimental group and 15 subjects to a comparison group and used an analysis of covariance to analyze the pretest and posttest data. The average posttest scores of leisure competence in the experimental group were found to be significantly higher than those in the comparison group.

This program appears to facilitate leisure competence in older adults. However, the validity of their results needs to be further examined because they did not randomly assign subjects.

Chang, Yu, and Jeng (2015) confirmed that the leisure education program of Searle et al. (1995) could also promote the leisure autonomy of older adults; however, they did not examine the long-term effect of the program on leisure autonomy nor did they examine the benefit of leisure competence. Many older adults have an obvious decline in physical functioning with aging. This decline considerably prompts their feelings of decreasing leisure autonomy and leisure competence as the range of their practically attainable achievements becomes limited in leisure activities (Chang & Yu, 2013). Because the evidence that a leisure education program can promote leisure autonomy in the long term is lacking, determining the long-term effect of such a program on leisure autonomy is necessary.

According to previous findings, we proposed three hypotheses: (a) A leisure education program can promote the leisure autonomy of older adults in the long term; (b) a leisure education program can facilitate the leisure competence of older adults in the long term; and (c) a leisure education program can reduce the stress of older adults in the long term after their leisure autonomy and leisure competence increase. The results of our hypothesis test can provide health care practitioners with information valuable to the development of strategies for stress reduction in older adults.

Methods

Subjects

Subjects had to meet four eligibility criteria: (a) aged 65 years or older, (b) had no previous training in any form of leisure education, (c) demonstrated practical literacy, and (d) were able to walk without assistance.

Forty subjects were selected from a pool of participants identified in our other cross-sectional study. The subjects received a handbill outlining the purpose of our study and describing our leisure education program. They were then invited to participate in the program with assurance that only statistical data would be reported. After agreeing to participate, they filled out a consent form. The subjects were 65–79 years old, with a mean age of 69.4 years ($SD = 4.31$) in the experimental group and 69.2 years ($SD = 4.06$) in the control group. Most of them were married and had completed primary school (Table 1). No statistically significant differences were observed in the demographic variables between the experimental and control group subjects.

Design

A pretest–posttest randomized experimental design was adopted. Forty subjects were randomly assigned to either an experimental group ($n = 20$) or a control group ($n = 20$); the subjects were not advised of their assignment. All subjects took a pretest to measure their leisure autonomy, leisure

Table 1. Characteristics of the subjects.

Characteristic	Experiment		Control	
	<i>n</i>	%	<i>n</i>	%
Gender				
Women	11	55	10	50
Men	9	45	10	50
Education				
Primary School Graduates	17	85	18	90
High School Graduates	1	5	1	5
University Degree and Above	2	10	1	5
Marital Status				
Single	3	15	2	10
Married	17	85	18	90

competence, and stress. The experimental group subjects then participated in a leisure education program. All subjects also underwent a posttest and 1-year follow-up test.

Intervention

The leisure education program of Chang et al. (2015), which is a modified program of Searle et al. (1995), was adopted for our intervention. As mentioned previously, leisure autonomy and leisure competence could be promoted by the development of leisure skills. We addressed leisure skills and capabilities in units 3, 4, 6, 8, and 12 of the leisure education program. Thus, the intervention is believed to promote leisure autonomy and leisure competence and reduce stress in the subjects.

The intervention comprised 12 units (Table 2). Each of the 12 units comprised a variety of activities such as discussion exercises, role-playing, and participation in leisure activities. We delivered all units and demonstrated activities in our school. The experimental group subjects attended unit lectures and completed all units together. The intervention was conducted twice per week for 3 months. The subjects spent approximately 2 hours participating in each unit.

Measures

Leisure autonomy was measured using the Chinese scale of Chang and Yu (2013), a modified version of leisure self-determination scale in the study of Weissinger and Bandalos (1995). The scale contains six items related to how free older adults perceive themselves to be in making choices regarding their leisure activities. Two examples of the items are as follows: (a) "I freely choose my leisure activities" and (b) "I perceive freedom when participating in leisure activities." The subjects were asked to rate the degree to which they agreed with each of the items on a 5-point scale, from 1 (*not at all*) to 5 (*completely*). The scale scores ranged between 6 and 30, with higher scores indicating greater leisure autonomy. The reliability of the scale was reassessed by performing a preliminary investigation involving 120 older adults. The results indicated that the scale had an acceptable alpha reliability coefficient of 0.89.

Table 2. Leisure education program content (Chang et al., 2015).

Unit	Content
1	<i>What you do for leisure activities.</i> This unit had the subjects consider the potential benefits of leisure on physical and psychological well-being and encouraged them to take a realistic look at their present repertoire of leisure activities.
2	<i>Why you do what you do.</i> This unit helped the subjects become aware of what motivated them to participate in specific leisure activities.
3	<i>How it's done.</i> The subjects learned to conduct an activity analysis of each of their leisure interests by analyzing the physical, psychological, and social skills required for each activity.
4	<i>Can you do it?</i> The subjects were taught to realistically assess their current and potential physical and psychological capabilities and evaluate the extent to which their leisure repertoire met their leisure needs.
5	<i>Can/will you adapt?</i> Each of the subjects was exposed to the concepts of activity adaptation and equipment modification and taught how to utilize these procedures to facilitate satisfactory leisure participation.
6	<i>Barriers.</i> The subjects explored the variety of barriers they might face and explored ways of overcoming these barriers in order to enhance their capacity to participate in their chosen leisure pursuits.
7	<i>Making plans for your future leisure activities.</i> The subjects were taught to make realistic short- and long-range leisure plans. This unit also motivated them to participate in leisure activities.
8	<i>What else is there?</i> In this unit, the subjects explored other potential leisure pursuits, identified skills they had to learn to participate in such activities, and developed plans to facilitate their participation in these activities.
9	<i>Resources.</i> The subjects were taught to identify people who might support them in pursuing out their leisure goals, and how to make clear and assertive requests for assistance.
10	<i>Personal resources.</i> Each of the subjects was taught to assess their personal resources related to their leisure plans, including finances, transportation, and equipment.
11	<i>Community resources.</i> The subjects were exposed to community resources and taught how to assess such resources as a means of facilitating community-based participation.
12	<i>Before You're Through With Us.</i> Prior to the end of the intervention, the subjects were asked to reassess and perhaps revise their participation goals. This was done, in part, to ensure that they were able to continue to reassess their leisure goals in the future.

The Chinese scale of Chang and Yu (2013), a modified version of leisure competence scale in the study of Weissinger and Bandalos (1995), was used to measure leisure competence. The scale comprises six items related to the perception of older adults regarding their ability to participate in leisure activities. Two examples of the items are as follows: (a) "I am skilled at leisure activities" and (b) "I feel good about my ability to participate in leisure activities." The subjects were asked to rate the degree to which they agreed with each of the items on a 5-point scale, from 1 (*not at all*) to 5 (*completely*). The scale scores ranged between 6 and 30, with higher scores indicating greater leisure competence. The reliability of the scale was reassessed by the preliminary investigation. The results indicated that the scale had an acceptable alpha reliability coefficient of 0.88.

Stress was measured using the scale (14 items) of Cohen, Kamarck, and Mermelstein (1983), which has been widely used in Taiwan (Chang, 2015; Gaertner, Sedikides, & Chang, 2008). Two examples of the items are (a) "In the last month, how often have you successfully coped with life hassles?" and (b) "In the last month, how often have you felt that you were unable to control the important things in your life?" The subjects were asked to rate the degree of stress they felt regarding each of the items on a 5-point scale, from 1 (*never*) to 5 (*always*). The scale scores ranged between 14 and 70, with higher scores indicating higher stress. The reliability of the scale was reassessed by the preliminary investigation. The results indicated that the scale had an acceptable alpha reliability coefficient of 0.91.

Data collection and analysis

Before the intervention was conducted, a research assistant collected the pretest data of the experimental and control groups. After the intervention ended, the posttest data were collected by the assistant in the same setting. The assistant collected follow-up test data a year later.

The pretest data from the experimental and control groups were used as covariates, and group differences in posttest and follow-up test data regarding leisure autonomy, leisure competence, and stress were examined using an analysis of covariance.

Results

The average leisure autonomy and leisure competence scores of the experimental group subjects were 20.05 (SD = 4.06) and 19.75 (SD = 4.14) in the pretest, 21.95 (SD = 4.17) and 21.55 (SD = 5.40) in the posttest, and 21.75 (SD = 4.04) and 21.40 (SD = 5.12) in the follow-up test, whereas the control group subjects scored 19.60 (SD = 4.07) and 19.40 (SD = 3.93) in the pretest, 19.25 (SD = 4.18) and 19.20 (SD = 4.01) in the posttest, and 16.60 (SD = 4.14) and 16.85 (SD = 3.96) in the follow-up test, respectively. The average stress scores of the experimental group subjects were 42.80 (SD = 12.52) in the pretest, 39.80 (SD = 13.66) in the posttest, and 40.30 (SD = 13.75) in the follow-up test, whereas the control group subjects scored 41.95 (SD = 12.51) in the pretest, 42.05 (SD = 12.30) in the posttest, and 45.25 (SD = 11.28) in the follow-up test, respectively.

The results of the analysis of covariance were as follows: First, the average posttest and follow-up test scores of leisure autonomy in the experimental group were significantly higher than the corresponding scores in the control group when the pretest data of these two groups were used as covariates ($F_{\text{Post}} = 5.20, p < .05$; $F_{\text{Follow-up}} = 13.72, p < .01$). In the experimental group, the average posttest and follow-up test scores of leisure autonomy were significantly higher than the average pretest scores of leisure autonomy (Table 3). The results supported the first hypothesis.

Second, the average posttest and follow-up test scores of leisure competence in the experimental group were significantly higher than the corresponding scores in the control group when the pretest data of these two groups were used as covariates ($F_{\text{Post}} = 3.93, p = .05$; $F_{\text{Follow-up}} = 16.98, p < .01$). In the experimental group, the average posttest and follow-up test scores of leisure competence were significantly higher than the average pretest scores of leisure competence (Table 3). The results were consistent with the second hypothesis.

Table 3. Differences in leisure autonomy, leisure competence, and stress.

Variable	Pretest		Posttest		<i>F</i>	Follow-up test		<i>F</i>	Post Hoc
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		<i>M</i>	<i>SD</i>		
Leisure Autonomy					5.20*			13.72**	
Experiment	20.05	4.06	21.95	4.17		21.75	4.04		Pre < Post, Follow-up
Control	19.60	4.07	19.25	4.18		16.60	4.14		
Leisure Competence					3.93†			16.98**	
Experiment	19.75	4.14	21.55	5.40		21.40	5.12		Pre < Post, Follow-up
Control	19.40	3.93	19.20	4.01		16.85	3.96		
Stress					6.25*			8.93**	
Experiment	42.80	12.52	39.80	13.66		40.30	13.75		Pre > Post, Follow-up
Control	41.95	12.51	42.05	12.30		45.25	11.28		

† $p = .05$ * $p < .05$ ** $p < .01$.

Third, the average posttest and follow-up test scores of stress in the experimental group were significantly lower than the corresponding scores in the control group when the pretest data of these two groups were used as covariates ($F_{\text{Post}} = 6.25$, $p < .05$; $F_{\text{Follow-up}} = 8.93$, $p < .01$). In the experimental group, the average posttest and follow-up test scores of stress were significantly lower than the average pretest scores of stress (Table 3). The results supported the third hypothesis.

Discussion

The three hypotheses were proposed: (a) A leisure education program can promote the leisure autonomy of older adults in the long term; (b) a leisure education program can facilitate the leisure competence of older adults in the long term; and (c) a leisure education program can reduce the stress of older adults in the long term after their leisure autonomy and leisure competence increase. The results of our study supported the hypotheses. Implications of the results are discussed in the following sections.

Effects of leisure education on leisure needs and stress

As reported in previous studies, a leisure education program could significantly promote leisure autonomy (Chang et al., 2015) and leisure competence (Searle et al., 1995) in older adults. Our study confirmed that the leisure education program of Chang et al. (2015) significantly and positively influenced leisure autonomy and leisure competence in the subjects. Chang (2017) and Chang and Yu (2013) have also indicated that leisure autonomy and leisure competence are related to stress reduction in older adults. Consistent with the findings of these two studies, our results revealed that the program could significantly decrease stress in the subjects after their leisure autonomy and leisure competence increased. We further observed that the subjects sustained higher levels of leisure autonomy and leisure competence and lower levels of stress a year later. Therefore, a leisure education program is believed to have a long-term benefit in enhancing levels of leisure autonomy and leisure competence and reducing levels of stress in older adults.

Implications

Our results have several crucial implications. The stressors many older adults face in their lives are ongoing (e.g., health problems); however, they possess emotion management capabilities to reduce stress (Carstensen & Mikels, 2005; Ong & Bergeman, 2004). Because leisure autonomy and leisure competence can elicit positive emotions to strengthen emotion management capabilities for reducing stress (Chang, 2017; Chang & Yu, 2013; Weinstein & Ryan, 2011), enhancing levels of leisure autonomy and leisure competence is an effective emotion-focused method for reducing stress in older adults. Furthermore, leisure education provides a key context for promoting leisure

autonomy and leisure competence in older adults (Chang et al., 2015; Searle et al., 1995). Thus, leisure education can help older adults reduce stress. In other words, encouraging older adults to participate in leisure education is necessary to promote leisure autonomy and leisure competence and reduce stress.

Leisure education has been proposed in Taiwan for approximately 60 years since the first paper of Chu (1956) was published. During this period, leisure education programs were typically implemented for children and adolescents (Chuang & Hsu, 2007; Hsieh, Wu, & Hsieh, 2007) but rarely for older adults. For example, none of the participants had any previous training in leisure education in our previous cross-sectional study. Therefore, providing older adults with leisure education programs to help them promote leisure autonomy and leisure competence and reduce stress is pressing.

Strengths, limitations, and suggestions

Compared with previous studies, our study has several strengths. For example, we used a randomized experimental design, whereas Searle et al. (1995) did not. Although Chang et al. (2015) adopted a randomized experimental design to determine the effects of a leisure education program on leisure autonomy and self-rated health in older adults, they did not examine the long-term benefits of the leisure education program. Because we observed the long-term effects of our leisure education program on leisure autonomy, leisure competence, and stress in older adults, our results indicated more complete causal relationships between our leisure education program and studied variables.

However, our study has three limitations. First, the sample size of our study was small although the sample size of past research was not significantly bigger than ours. Second, our results may not be directly generalized to illiterate older adults or older adults with lower limb disability because these groups were excluded. Third, we adopted a group-based leisure education program. Participation in such a group-based program likely changed the state of social interactions in the subjects. Because social interactions significantly influence stress, the stress reduction reported in our study cannot necessarily be attributed entirely to changes in leisure autonomy and leisure competence.

On the basis of the limitations, our study suggests that future studies perform the following tasks to ensure robust conclusions: (a) evaluate the long-term effects of a leisure education program on leisure needs and stress by using a large sample, (b) determine the long-term effects of a leisure education program on leisure needs and stress in other groups, and (c) reexamine the long-term effects of a leisure education program on leisure needs and stress by using social interactions as a covariate.

Conclusion

The results of our study indicated that a leisure education program could promote leisure autonomy and leisure competence and reduce stress in older adults. Although the statistical power of the results (small sample size) was not very high, our study provides a starting point to understand the long-term benefits of leisure education in older adults.

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