



The Effect of Horticultural Therapy (HT) on the Self-efficacy of Frail Older People in Residential Care

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BACKGROUND

Frail older people in nursing homes are sometimes physically unable to participate in various group activities. This lack of activity may gradually impair their psychosocial health, such as their self-efficacy, mood, and social engagement. Horticultural therapy (HT) has demonstrated many positive effects people with mental health problems, such as stress reduction in people with cancer (Taft, 2007), improving depression (Gonzalez, 2011), and promoting relaxation and social interaction (Williams, 1989). However, there is a lack of studies examining its effect on frail older people's psychosocial health.

OBJECTIVES

The aims of this study were:

- To examine the effect of HT on frail older people in care and attention homes in terms of their self-efficacy, mood and affect, social engagement and network, and sense of wellbeing;
- To investigate whether HT would improve the quality of life of frail older people; and
- To explore participants' perceptions of the experience of HT

However, due to word limitation, this paper reports the outcome variable of self-efficacy alone.

METHODS

A randomized controlled trial was conducted. Participants were all aged 70 or more, were able to communicate orally in Cantonese, had been identified as being in a frail state according to the Fried et al. (2001) criteria, had normal cognition as defined by the Chinese Abbreviated Mental Test score of 6 or more out of 10 (Chu et al., 1995) or were mildly cognitively impaired as identified by the Clinical Dementia Rating Scale for questionable or mild dementia (Lai et al., 2004), did not have a terminal illness, and did not have a rapidly deteriorating health status. The residents were excluded if they had severe cognitive impairment as identified by staff or with a documented MMSE score of 10 or below (Chiu et al., 1995), had cardiac problems requiring hospital care in the previous three months, had a hip fracture or major surgery during the previous six months, had impairment of both upper limbs affecting participation in HT activities, were allergic to pollen, plants, seeds, soils and fertilizers, were concurrently receiving other complementary therapies, or had received HT within the previous six months.

Residents who fulfilled the aforementioned eligibility criteria and consented to participate in the study were randomly allocated into two groups: the intervention group and the control group. Participants in the intervention group received an 8-week HT program conducted by HT internists and consisting of one 45-minute session per week. The HT program included activities such as potting, herbal tea tasting, propagation, watering, weeding, plant trimming, and flower arranging. Participants in the control group received a weekly social activity program conducted by nursing home staff for the same frequency and duration. The social activity program included activities such as discussing newspaper and chatting. The outcome was self-efficacy as measured by the General Self-Efficacy Scale (GSES), and was measured at baseline (T0), immediately post-intervention (T1), and 12 weeks post-intervention (T2). The data collectors were all blinded to the participants' group label. The general estimating equation (GEE) was employed to analyze the group, time, and their interaction effects.

Table 1: Participants' characteristics at baseline

	All n=96	HT n=46	Control n=50	Statistics	
Clinical characteristics, mean (SD)					
Age	84.60 (7.24)	85.54 (6.72)	83.74 (7.66)	t=1.22	p=0.225
AMT	6.97(2.01)	7.26(1.96)	6.7(2.03)	t=1.37	p=0.173
IANA-FRAIL	2.46(1.06)	2.43(1.05)	2.48(1.07)	t=0.21	p=0.835
FFI	2.39(0.88)	2.41(0.93)	2.36(0.83)	t=0.30	p=0.768
No. of chronic illnesses	3.99(2.45)	4.35(2.42)	3.66(2.46)	t=1.38	p=0.171
mBI	77.85(23.25)	78.13(23.72)	77.59(23.04)	t=0.11	p=0.911
Lawton's iADL	9.03(7.74)	9.74(8.23)	8.37(7.274)	t=0.86	p=0.391
MNA	16.11(3.68)	15.86(3.55)	16.34(3.82)	t=0.63	p=0.530
Clinical characteristics, frequency (%)					
Gender					
Male	33(34.4)	16(34.8)	17(34.0)	X ² =0.01	p=0.936
Female	63(65.6)	30(65.2)	33(66.0)		
Marital status					
Never married	2(2.1)	1(2.2)	1(2.0)	X ² =1.52	p=0.678
Married	30(31.3)	12(26.6)	18(36.0)		
Widowed	61(63.5)	32(69.6)	29(58.0)		
Divorced/separated	3(3.1)	1(2.2)	2(4.0)		
Education					
Primary	30(31.3)	13(28.3)	17(34.0)	X ² =2.59	p=0.459
Secondary	15(15.6)	8(17.4)	7(14.0)		
University	2(2.1)	2(4.3)	0(0)		
Others	48(50.0)	23(50.0)	25(50.0)		
VHT-hearing					
Adequate	72(75.0)	36(78.3)	36(72.0)	X ² =0.67	p=0.881
Minimal difficulty	13(13.5)	5(10.9)	8(16.0)		
Moderate difficulty	7(7.3)	3(6.5)	4(8.0)		
Highly impaired	2(2.1)	1(2.2)	1(2.0)		
VHT-vision					
Adequate	50(52.1)	27(58.7)	23(46.0)	X ² =2.30	p=0.512
Minimally impaired	29(30.2)	12(26.1)	17(34.0)		
Moderately impaired	14(14.6)	6(13)	8(16.0)		
Highly impaired	1(1.0)	0(0)	1(2.0)		

Table 3: GSES scores pair-wise comparisons

	MD (SE)	p-value	95%CI
HT Group			
T0-T1	3.41(1.43)	0.017*	6.20, 0.61
T0-T2	1.96(1.36)	0.150	4.63, -0.71
Control group			
T0-T1	3.00(1.24)	0.015*	5.43, 0.57
T0-T2	0.73(1.31)	0.579	3.30, -1.84

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Table 2: GSES scores in different time points and groups

	HT group	Control group	p-values
GSES scores, mean (SE)			
T0	21.45(1.40)	22.06(0.88)	p=0.685
T1	24.86(1.43)	25.07(1.15)	p=0.896
T2	23.41(1.29)	22.79(1.14)	p=0.677

RESULTS

There were 96 participants recruited in four RCH who completed the study; 46 were randomized to the HT and 50 to the control group. As shown in Table 1, there was no significant difference in the clinical characteristics at baseline between the HT and control groups. Table 2 shows that there were no significant differences between the groups at baseline, T1, and T2. As shown in Table 3, significantly increased GSES scores compared with the baseline were observed in both HT (mean difference=3.41, SE=1.43) and control (mean difference=3.00, SE=1.24) groups at T1. There were no significant differences in the GSES scores at T2 compared with the baseline in both HT and control groups. The interaction effect between time and group was not significant.

DISCUSSION

This study showed that it is feasible for frail older people in RCH to participate in HT activities. HT improved their self-efficacy because the increase in GSES scores at T1 was significant compared with the baseline in the HT group. However, a similar significant increase in GSES score was also observed in the control group. The self-efficacy improving effect was observed to be comparable between HT and social activities. Nevertheless, several factors which may influence the effect size of the HT should also be considered before we can draw conclusions regarding the effect of HT. For example, participants' interest in planting may affect their adherence to taking care of the plant (e.g. watering) after the activity contact time. The intervention dose (e.g. number of sessions and frequency) and selection of different planting-related activities (e.g. weeding, propagating) into the protocol may also affect the effects of HT. Further studies should focus on examining the effects of the HT after optimizing the intervention protocol. The interest of the participants should be included as one of the selection criteria in the subject recruitment.

CONCLUSION

In this study, it was observed that HT improved the self-efficacy of frail older people in RCH, but its effect was not sustainable 12 weeks after the intervention, nor was it superior to the social activities. However, before we can draw conclusions as to the effect of HT on self-efficacy in frail older people, further studies are needed to optimize the intervention protocol. The HT can then be further evaluated so that its effect can be more clearly understood.

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