The effectiveness of applying aromatherapy to dementia caregivers on decreasing pressures in Taiwan

Yi Chun Huang Du Mei Chen* Po Er Liu** Chin Po Chou*** Rong Yiu Tan**

Abstract Objective: To investigate the effectiveness of applying aromatherapy to dementia caregivers on decreasing pressures. Method: Fifty one cases were randomly divided into experimental group and control group. There are 30 cases in experimental group and 21 in control group. A pressure-load evaluation table and a qualitative evaluation guide were adopted to appraise the changes on pressure taking abilities that interviewees might have before and after having a thirty-minute aroma therapy. Result: The study showed that the experimental group procures post-test pressure load evaluation, which is lower than pre-test scores of 80.3 points. The control group pressure-load finding lowers than pre-test average evaluation of 74.24 points. Conclusion: Applying aroma-massage had more effective on releasing dementia caregivers' pressure than basic carrier oil.

Key words Dementia caregiver Aroma therapy Pressure decreasing

1. Introduction

The dementia morbidity for elders takes 2.5% to 4.4% in Taiwan (Lee, Chen, 2000). What dementia caregivers face is not only the problem of taking care of the patients constantly at home, but also the possibility that they themselves become the victims of suffering from pressures.

Aromatherapy is a concept to strengthen the health and to decreasing the pressures by responding to the rhythm of the nature to get physical and psychological balance. The study is conducted to explore the effectiveness of applying aromatherapy massage to decreasing pressure.

2. Literature review

2.1 Pressures of dementia patients caregivers

The major cause of dementia is the memory obstacle and plus other function recognition obstacles on directions, judgments, and attentions. In addition, some symptoms may probably appear at the same time like: interference behavior, delusion, illusion etc. These symptoms are serious enough to influence human relationship and working ability, while in-bed patients might even have serious psychological symptoms which may bring tremendous persecution to the caregivers or others (Chang, Ho, 2004). Since dementia is the kind of degeneracy disease that advances gradually on recognition functions, changes with the course of the disease and appears on behaviors, emotion and psychological symptoms; it demands different caring skills and specific environment to accomplish the caring. Restricted by limited medical resources, most dementia patients live in communities, taken care by family members or foreign labors (Lee, Chen, 2000; Tang, Mao, Jhou, Chen, Liu, 1992).

Rabinson (1983) indicated that the dementia caregivers may have pressures on: (1) physical problems like insufficient sleeps, weight changes, fatigue, etc.; (2) social problems like having less social activities and less entertainment activities, etc.; (3) emotional problems like feeling frustrated because social activities are constricted or family members don't have enough time to help taking care of the patients, etc.; (4) financial problems: caregivers may be influenced with their work and even have to quit their jobs. Sian (1987) found in his survey that the pressure resources of the caregivers are: having hard time taking care of the patients, family members can help with housework, chronically not having enough sleep, being tied up and not able to work or go traveling. Tang, et al. (1992) discovered in their research that most dementia caregivers are females who are mostly the spouses or the daughters-in-law of the patients. One-fourth of them is getting worse with their health and one-seventh of them quit their jobs because of the caring duty.

2.2 Aromatherapy works on human body

Aromatherapy can be defined as "Applying the aromatic botanic extraction to the therapy" (Vickers,

Author address: Taichung Nursing College, Taiwan
* Dementia Caregivers' Association
** Hung-Kuang University, Taiwan
*** Taichung Veteran General Hospital

1996). The carrier oil is the extraction derived from roots, stems, leaves and fruits of plants. The extraction methods usually include: distillation, squeezing extraction, oil extraction, and solvent extraction. In general, carrier oil which is extracted from flowers probe in nerve sensory organs; while carrier oil extracted from leaves is provided with excellent treatment on the respiratory system as well as on the circulatory system, and the oil from roots is good at strengthening digestive system and metabolism system (Bargener, Bakas, Dunahee & Tossey, 1998). Scientific researches reveal that once when the carrier oil is inhaled into lung, the scent will partly be sent to the organs through blood circulation, others will be permeated through skin, and act on organs like brain never, heart etc. Carrier oil can permeate through skin into human body, next sent to blood and lymph through the body liquid of millions of cells, then through circulation, it acts on variable systems, organs and internal secretion. Finally, the remnants will be excreted out of human body through the excretory organs in twenty-four hours. So far, many nursing staff have been applying aromatherapy to palliative care, using carrier oil to help end stage cancer patients mitigate their physical symptoms and relax their emotions (Jhuo, 1999; Jhong, 1999).

2.3 The effectiveness of massage to human body

Massage has outstanding influence both on physical and on mental health. Physically, it helps circulation, muscle relaxation and stimulate lymph system; thus makes waste materials excreted speedily. Mentally, massage can transmit the feeling of attentiveness and respects which make people feel more self-confident. Once when these two efficiencies combine, they immediately create a miracle peacefulness that is impossible for modern scientific treatment to compare with. Though massage cannot replace traditional medical treatments on their positions and functions, it can be granted as a supporting treatment to the traditional medical treatments under the situation of not influencing the present medical treatment. It is believed that sample cases would get better with their bodies, mental and spirit being thoroughly taken care of (Hudson,1988).

3. Method

3.1 Objectives

1. To understand dementia caregivers' related basic personal data and their regular ways to release pressure.
2. To develop a proper aromatherapy program (hand massage skill and the carrier oil) for applying to dementia caregivers.
3. To probe into the effects how aromatherapy has against dementia caregivers, and proposes critical suggestions.

3.2 Sample

The inclusion criteria are the caregivers, whom have looked after dementia patients for more than one year. Sample was divided into experimental group and control group by random sampling. There are thirty sample interviewees who attend the entire procedure in experimental group, while there are two out of twenty-three sample interviewees withdraw from the research and remain the other twenty-one interviewees in control group. Therefore, there are total fifty-one dementia caregivers attend the entire research as the interviewees.

3.3 Research tool

The loading quantitative table authorized by Dr. Chou Guei-Ru of National Defense Medical Center. There are twenty-eight items in the questionnaire as attachment one. The score of each item start counting from 1 to 5 points which the score of 5 means at the highest pressure of this item.

The qualitative table is designed under the concept of semi-structure with two in-depth questions asking the subjective physical and psychological receptions that interviewees have on aromatherapy and pressure.

3.4 Research procedure

The interviewees chosen in this research are dementia caregivers who conformed to the purpose of the research. All the interviewees were offered by paper and oral explanation of the research procedures. A "Join the Research" agreement was signed by every interviewee after they had read and approved to take part in the research. Every week, each interviewee was invited to the appointed institute (a professional aromatherapy classroom in a university in Central Taiwan) to take a thirty-minute aroma massage course which is developed for this research. This aroma

massage course proceeded for about six weeks. Before and after this six-week course, every interviewee was asked to take tests using the pressure-loading evaluation table which is designed for dementia caregivers; furthermore, a focus discussion on aromatherapy was conducted between the third and the forth week. The purpose of this to give assistance to every individual interviewee with the help of the motive force from the group, and to attain reference from case study for modifying the aroma massage course. In the meantime, to understand the how the interviewees when taking the aroma massage and possible difficulties that might have, researchers gave one-on-one in-depth interviews after every massage treatment, and took records under interviewees' permission as the reference for analysis. This two-team research progressed for over four months before it finalized.

4. Results

The demographic data was shown in Table 1.

4.1 Result from experimental group

4.1.1 Descriptive statistics of personal data

Among the thirty interviewees of experimental group, female interviewees share the greater portion as 63.33%; as for the age distribution, age range over forty possesses ninety percents of the total thirty-one people.

To understand whether there is any unaccommodated symptoms happen on caregivers after having taken the responsibilities of caring patients, a multiple-choice questionnaire has designed for the interviewees. In experimental group, there are fifty-two responses about physical symptom from 30 subjects, ten of them are suffered from insomnia, which accounting for 19.23% of the total responses is most common physical symptom (Table 2).

4.1.2 Analyzing caregivers' pretest and posttest pressure-loading

The completely proceeding subjects are changed after 6-weeks period and the effective attendant rate of sample is 23 (76.7%) in experimental group.

As for the total scores of pressure-loading, there are not obvious differences between the scores before and after the aroma-massage; however, the average scores after the aroma-massage are still get a improvement from releasing pressure from 80.3 low to 72.6. Of all 28 questions, there are 20 questions do not show remarkable lower points in after-test than those in before-test (Table 3).

Table 1 Demographic data

Background items	Experimental (n=30)		Control (n=21)	
	n	%	n	%
Gender				
Male	11	36.67	2	9.52
Female	19	63.33	19	90.48
Age				
20-29	1	3.33	0	0
30-39	2	6.67	2	9.52
40-49	8	26.67	6	28.57
50-59	11	36.67	7	33.33
60-69	7	23.33	4	19.05
Over70	1	3.33	2	9.52
Level of education				
Elementary school and below	2	6.67	0	0
Junior high school	2	6.67	2	9.52
Senior high school	9	30	5	23.81
Junior college	6	20	6	28.57
Graduate school	11	36.67	8	38.10
Professional condition				
Full-time job	14	46.67	8	38.10
Bywork	4	13.33	1	4.76
Latter resigns	3	10	2	9.52
Other	9	30	9	42.86
Relationship with the dementia patient				
Spouse	5	16.67	4	19.05
Family	9	30	5	23.81
Son-in-law/wife	5	16.67	5	23.81
Other	11	36.67	6	28.57
Whether lives together with sickness				
Yes	12	40	10	47.62
No	18	60	11	52.38
Marital status				
Single	2	6.67	2	9.52
Married	27	90	16	76.19
Other	1	3.33	3	14.28
Attendance sickness period				
1 year	16	53.33	3	14.29
1.1-5 year	6	20	8	38.10
5.1-10 year	5	16.67	7	33.33
Over10 year	2	6.67	3	14.29
Other	1	3.33	0	0
Attendance sickness period				
<4hr.	15	50	9	42.86
4-8hrs.	1	3.33	4	19.05
8-12hrs	2	6.67	3	14.29
Over12hrs	10	33.33	5	23.81
Other	2	6.67	0	0
Health condition on the caregiver's own option				
Very bad	1	3.33	3	14.29
Bad	5	16.67	2	9.52
Mediocre	14	46.67	11	52.38
Good	5	16.67	4	19.05
Very good	4	13.33	1	4.76
Other	1	3.33	0	0

4.2 Result from control group

4.2.1 Descriptive statistics of personal data

Among the 21 interviewees of the contrast team, female interviewees still share the greater portion as 90.48% of the dementia caregivers (Table 1).

A multiple-choice questionnaire is applied to the interviewees to see what the most uncomfortable physical symptom happen on caregivers is after having taken the responsibilities of caring patients. In control group, there are total fifty-two responses about physical symptom were choice by 21 subjects, the most happening symptoms are insomnia and headache (Table 2).

Table 2 The common physical symptoms

Physical symptoms	Experimental (n=30) No. of Responses	Control (n=21) No. of Responses
Insomnia	10	10
Backache	7	9
Headache	4	10
Total response number	4	5
Vertigo	7	5
Gastralgia	5	7
Arthralgic	6	4
Other	9	2
Total response number	52	52

4.2.2 Analyzing caregivers' pretest and posttest pressure-loading

The completely proceeding subjects are changed after 6-weeks period. and the effective attendant rate of sample is 17(80.9%) in control group.

There is no evident difference on caregivers' pretest and posttest pressure-loading; however, the posttest average points 72.35 are still lower than those of pretest 74.24. Of all the questions, except questions 1 and 11 which have significant differences between the pre-test and the post-test, other twenty-six questions remain no significant differences (Table 3).

4.2.3 Qualitative research result

This qualitative research result is based on the psychological and physical interviews to both the control team and the contrast team after they have consecutively taken six times of aroma massage therapy or carrier oil massage. The data of the semi-structured interview have been analyzed and been referred to the responses from the two groups concerning "Dementia caregivers' uncomfortable feeling after taking the responsibility of caring the patients". It is defined that the physical problems that are often seen are: sleeping quality and muscle soreness (from including neck, shoulders and the back); and the psychological problems are: emerging tempers, emotional responses, feelings of comfort and pressure-loading).

Furthermore, experimental group (with aromatherapy massage) and control group (with sweet almond oil massage) are compared with each other by the appearing ratio of every individual question, that is to see their differences on their physical and psychological qualitative interviews. It looks that the physical improvements of the two teams do not cause manifest differences on them because of the interference of aromatherapy as the difference figures of the physical improvement show the range from 2.33% to 11.67%. On the other hand, for experimental group, the difference figures of the psychological improvement show three out of four items have apparent improvement with range from 25.24 % to 67.51% which is much better than control group that only applies sweet almond oil. In this case-subjective expression analysis, it shows from the data that aromatherapy earns more identification from caregivers on the psychological aspect with positive improvement; however, massage itself may help blood circulation, thus it shows no meaningful difference between the two teams on the physical aspect.

Table 3 Analyzing caregivers' pre-test and post-test pressure-loading

Question	Experimental (n=23)			Control (n=17)		
	M	SD	*t*-test	M	SD	*t*-test
Total points	80.30 72.61	16.97 18.52	1.649	74.24 72.35	19.34 17.77	0.363
I feel I don't have enough sleep.	3.35 3.00	1.43 1.21	0.890	4.00 3.06	0.79 1.30	3.241
I feel physically exhausted.	3.70 2.70	1.22 1.02	2.954	3.71 3.29	0.92 1.10	1.198
I think taking care of patients makes me get sick.	2.70 2.43	1.18 1.04	1.030	2.82 2.41	1.13 1.00	1.281
I think my health has been influenced.	2.83 2.74	1.19 1.10	0.347	2.94 2.88	1.20 1.11	0.180
I don't get along so well with other family members like we used to be.	2.35 2.52	1.15 1.04	-0.581	2.06 2.00	1.25 1.12	0.194
I am shamed of the patient.	1.48 1.35	1.08 0.88	0.591	1.12 1.18	0.33 0.39	-0.436
(for married interviewees) I think my marriage has problem. (for not married interviewees) I think my marriage is influenced	1.65 1.61	0.98 1.08	0.196	1.82 1.65	1.33 1.00	0.588
I feel embarrassed with patient's behavior.	2.17 1.96	1.37 0.93	0.706	2.29 2.18	1.26 1.38	0.324
I think I don't do housework that good as I used to do.	2.96 2.61	1.30 0.99	1.034	2.71 2.82	1.45 1.24	-0.436
My efforts of caring the patient aren't appreciated either confirmed by other family members.	2.26 1.91	1.10 0.85	1.785	2.29 2.35	1.31 1.17	-0.251
I feel angry with those people who are able to but are not willing to help.	2.91 2.65	1.16 1.15	1.239	2.29 3.06	1.45 1.39	-2.193
I feel angry with the interaction I have with the patient.	2.78 2.78	1.24 1.24	0	2.59 2.65	1.37 0.93	-0.174
When friends visit and see the patient, I feel uncomfortable.	2.00 1.70	1.17 0.88	1.194	1.53 1.53	0.72 0.80	0.000
I hate the patient.	1.61 1.74	0.89 1.01	-0.768	1.53 1.53	0.80 0.94	0.000
The patient needs me to help him/her with many daily activities.	3.91 3.48	1.08 1.12	1.361	3.12 3.06	1.50 1.14	0.152
The patient depends on me.	3.74 3.30	1.01 1.15	1.738	3.18 3.59	1.38 0.94	-1.237
I have to pay close attention to the patient to keep him from dangers.	3.87 3.30	1.18 1.33	1.769	3.35 3.76	1.17 0.83	-1.383
I have to help him with many elementary works.	4.22 3.48	0.67 1.12	3.234	3.18 2.65	1.47 1.41	1.376
I'm too busy to take a rest because I have to take care of the patient.	2.61 2.52	0.99 0.99	0.267	3.00 2.65	1.22 1.22	1.562
Because of taking care of the patient, I feel that I've missed many things in my life.	2.83 2.70	1.30 1.06	0.383	2.88 2.71	1.58 1.45	0.418
I really wish I could escape from this situation.	2.39 2.30	1.23 1.26	0.302	2.18 2.41	1.33 1.18	-1.725
Taking care of the patient influences my social life.	2.78 2.65	1.20 1.03	0.460	3.12 2.82	1.22 1.24	0.925
I think taking care of the patient makes me feel exhausted.	3.17 2.48	1.11 1.12	2.448	2.53 2.47	1.42 1.18	0.148
I wish things would be different now.	3.22 3.39	1.17 0.84	-0.778	3.00 3.00	1.50 1.12	0
I think taking care of the patient will cost me the savings I've prepared for other usages.	3.39 2.87	1.08 1.14	2.021	2.94 2.65	1.30 1.06	0.814
I think the expenditures for taking care of the patient makes my family give up some necessities.	2.96 2.83	1.15 1.15	0.430	2.65 2.59	1.22 1.23	0.187
I think the expenditures for taking care of the patient makes my family and I enable to afford extra expense.	3.09 2.70	1.08 1.06	1.621	2.65 2.35	1.37 1.11	0.704
I think taking care of the patient is very costly.	3.39 2.91	0.89 1.16	1.973	2.76 3.06	1.25 1.25	-0.772

Remark: the first column represents pre-test and the second one represents post-test of each question.

5. Discussion

The result of this study response Kilstoff's discovery in 1998 when he was conferring the effect of applying aromatherapy on releasing dementia's symptoms. After analyzing the focus group discussion, he incidentally found that aromatherapy helped not only the dementia patients, but also their caregivers to discharge pressures. In the study, it was found that when doing hand massage to the dementia patients, the caregivers also felt relaxed and calm, and had sleeps improved. Furthermore, this study result also response the analysis that Papadopoulos et al did in 1999 verifying that aromatherapy service obtains effects on chronic diseases and their caregivers. Both of them came up with the idea that aromatherapy is valuable in promotion with its function of helping caregivers release pressures. Dementia caregivers not only have to take the critical responsibility of caring, but also have to prevent their health from getting problems. Therefore, taking initiative prevention can effectively keep from diseases relating to pressures; and this study result verifies that aromatherapy massage can be used as an option for dementia caregivers' prevention healthcare.

6. Conclusion

The study probes into the effect of applying aromatherapy to dementia caregivers to release their pressures. The findings indicated that massage has a certain sound effect on releasing pressures.

7. Suggestions to Future Study

In this study, we recruit the target interviewees with purpose sampling, thus the samplers are less representative. For future study, we suggest that random sampling be used to collect more information concerning to dementia caregivers, so to verify this study result.

Restricted by limited budget we were not able to progress more scientific sampling on physical bodies like: cortisol figures or blood flowing changes, etc. but only focused on self-evaluation questionnaire and private interviews. For future study, we suggest taking it into consideration to progress physical verification and pressure-loading at the same time for both the experimental group and the control group.

We also suggest giving systematic plan for future study. Only through clinical verification and through conducting dementia caregivers with homecare education with follow-up inspection can we put the purpose into practice to apply aromatherapy to release dementia caregivers' pressures.

Reference

Burgener, S. C., Bakas, T., Dunahee, J. A., & Tossey, S. (1998). Effective caregiving approaches for patient with Alzheimer's disease. *Geriatric Nursing, 19* (3), 121-126.

Chang, J. C., & Ho, J. G. (2004). How to evaluate and deal with dementia patients behavior. *Basal Medical Science, 19* (6), 134-138.

Jhuo, J. Y. (1999). Nursing on respiration system disease with aromatherapy. *Palliative Care Magazine, 13*, 3-12.

Jhong, C. H. (1999). Palliative care vs. aromatherapy. *Palliative Care Magazine, 13*, 27-29.

Sian, L. (1987). *Study to mentally deficient patients and the alternation to their families*. Taipei: National Science Council.

Tang, L. Y., Mao, J. L., & Jhou, J. F. (1992). Study on dementia elders' burden and relating elements. *Nursing Magazine, 39* (3), 89-98.

Robinson, B. C., & Thurnber, M. (1983). Taking care of aged parents: A family cycle transition. *The Gerontologist , 19* (6), 586-593.

Vickers, A. (1996). *Massage and aromatherapy: A guide for health professionals*. London: Chapman Hall.

Lee, Z. H., & Chen, S. Z. (2000). Brief introduction to dementia. *Contemporary Medical Scienc, 27* (6), 438-442.

芳香療法對減輕長期失智病患照顧者壓力的效果

黃宜純 陳都美* 劉波兒** 周青波*** 譚蓉瑩**

摘要 目的：探索芳香療法對長期失智病患主要照顧者壓力的紓解效果。方法:研究對象為51名長期面對壓力的失智病患主要照顧者，分為實驗組與對照組，實驗組有30名，對照組有21名，以失智照顧者壓力負荷量表與質性量表評估個案接受30分鐘芳香療法按摩前後之壓力感受變化。全程參與的個案，實驗組有23名、對照組有17名，樣本有效率分別為76.7%與80.9%。結果：實驗組經複方精油按摩前後其負荷低於前測的平均為80.3分,而對照組經過甜杏仁基礎油按摩前後其負荷量低於前測的平均74.24分。結論：精油按摩對失智照顧者壓力緩解成效優於單純基礎油按摩。

關鍵詞 失智照顧者 芳香療法 壓力