

An Analysis of Improving Community Environment for Dementia Care: A Case Study on Chia-li Veteran Home in Taiwan

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Abstract—In Taiwan, most of the facilities are designed for the elderly people's dwellings, but they are not proper to the residents with dementia. In this research, for illustration on Chia-Li Veteran Home in Tainan, we explore how to build a comprehensive community environment through reconstructing old buildings in order to care elderly people with dementia. The aim of this research is to analyze the care model in a comprehensive environment, in which the elderly people with dementia can received integrated care, except of using psychiatric medicines. Regarding research method, we adopt both documentary analysis and observation to collect data. Using documentary analysis method to explore the relevant literatures regarding the care for the elderly with dementia provides us rudimentary knowledge about the comprehensive community environment. Moreover, we visited and observed the Chia-Li Veteran Home in Tainan during the March, 2015. According to research findings, firstly, it is designed as a unit care, in which 12 elderly people dwells together with individual care plan. Secondly, the community remains large spaces and free areas in order to create activity places for elderly with dementia, as well as maintaining sufficient light and circulated air. Thirdly, the design of a comprehensive community environment reveals personal characteristics that facilitate the elderly people with dementia distinguishing symbols for returning their rooms. Fourthly, in the community, even though a regular arrangement of daily life for the elderly with dementia is significant to their psycho-social stability, individual flexibility is still allowable. Fifthly, integrated care group consisting by numerous professionals provide comprehensive care, and thereby the usage of psychiatric medication can be reduced in the community. In conclusion, the findings are meaningful to the relevant facilities in Taiwan, particularly when they redesign a comprehensive community environment for providing better care to the elderly with dementia.

Index Terms—Dementia care, Community environment, Non medication treatment

I. INTRODUCTION

Alzheimer's disease (dementia) usually occurs on the elderly, and this disease declines patients' recognitions, memories, and judgement abilities. Alzheimer's disease may get progress for about eight to ten years [1]. However, sometimes its syndrome may become worse in

a very short period of time. Even though dementia may destroy persistent memory and lead to cognitive impairment, their mood and inner feelings are still very rich and sensitive [2]. Therefore, how to provide proper care for the elderly with dementia is a pivotal issue in long-term care field.

In Taiwan, most of the facilities are designed for the elderly people's dwellings, but they are not proper to the residents with dementia. In this research, for illustration on Chia-Li Veteran Home in Tainan, we explore how to build a comprehensive community environment through reconstructing old buildings in order to care elderly people with dementia. The aim of this research is to analyze the care model in a comprehensive environment, in which the elderly people with dementia can received integrated care, except of using psychiatric medicines.

II. LITERATURE REVIEW

A. Definition of Dementia

Due to different causes, dementia can be divided into three kinds of type: degenerative dementia, vascular dementia, and treatable dementia. Firstly, degenerative dementia includes Alzheimer's disease, frontotemporal lobe dementia and dementia with Lewy bodies. Alzheimer's disease is the most common form of dementia. Usually, it shows irreversible cognitive dysfunction in the early symptoms, and then mainly expresses memory decline, problems of identification, chaos of place and time, and even abnormal characteristics. Dementia with Lewy bodies is the second most common degenerative dementia. Not only does show cognitive dysfunction, but also may combine body stiffness, shaking hands, gait disorders and falls, as well as more obvious mental symptoms (such as visual or auditory hallucinations, emotional instability or paranoia, etc.). Frontotemporal dementia is characterized by early personality changes and loss of behavioral control, often irrational behaviors, or early language barriers, etc. The lesions mainly invade the frontal and temporal lobes, and the average age of onset is after 50 years old [3].

Secondly, vascular dementia is the second leading cause of dementia, due to poor blood circulation in the brain caused by a stroke, resulting in brain cell death and mental problem. There are two sorts of vascular dementia:

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post-stroke vascular dementia and dementia with small vessel diseases, respectively. They have common features on the patients, including slow movement, slow reaction, gait disorder and mental disordered in early stage [3]. As a result, this disease presents a step of malignant in cognitive function and its fluctuated situation has ups and downs. Later, common features include depression, dysphagia, foley incontinence, slip and fall, etc. [1].

Thirdly, treatable dementia means the syndrome of dementia is temporary, and a patient’s cognitive function can be recovery. This kind of reversible dementia is not quite a few, however, among all cases of dementia is only about 5%~ 10%. Nevertheless, reversible dementia still exist and it shows the fact that it can be improved after diagnosis and active treatments. In some cases, such as hydrocephalus, brain tumor, hypothyroidism, vitamin B12 deficiency syndrome, and neurosyphilis, etc., they usually lead to dementia, yet they are reversible [2].

B. Environment Design for Dementia Care Plan

Due to the cognitive decline of the elderly with dementia and the derived problematic behaviors, family members have difficulties in taking care of them at home and their family quality of life has been reduced. Therefore, taking care of the elderly with dementia with institutional services has become one of the important choices for family members. The environmental arrangement and activity design of institutional care, whether it is suitable for the life and care of the elderly with dementia, are deemed as the key consideration items by their families [4]. In dementia care facilities, activities are designed according to individual interests, abilities, needs, culture background and lifestyle to enhance individual identity and maintain the residents’ ability to participate in daily life. These activities provide meaningful interpersonal relationships and appropriate social support among the elderly with dementia. In addition, the participation of elderly people with dementia in group activities can reduce their problem behaviors, improve their sleep quality and functions of daily life. Meanwhile, designed activities for the elderly with dementia also can reduce anxiety and promote self-expression [5]. Moreover, in dementia care facilities, environmental arrangement is a pivotal point, in which they have to design proper public space, as well as personal space to protect privacy individually. A suitable design of environment for a dementia care facility enables the elderly with dementia to achieve a balance between personal living space and group living space. There are also many different types of institutional care for the elderly with dementia, such as group homes, unit care and day care for the elderly with dementia. According to the type of elderly care, there are different living arrangements according to the mental and physical state of the elders with dementia. Usually, it is generally considered that group home is a more appropriate living arrangement mode, which is one of the mixed services [6]-[8].

With regard to the care of elderly people with dementia, it can be found from the Japanese experience that the type of group home is considered more suitable for the life

care of elderly people with dementia, and the group home combines the care service with the space design, so that the elders can be taken care of "people-centered" in the "home-like environment" [8]. However, most group homes have strict requirements in space design and planning. Without such planning in the initial design, it is difficult to meet the standards for group homes and integrate them with care services. This study aims to a traditional institutional service unit -- Chia-li Veteran Home, a residential facility for honorary nationals in Taiwan. This case study explores how to make it a more suitable environment for elders with dementia through the re-planning and arrangement of environmental space, as well the improvement of software services.

C. Features of Chia-li Veteran Home in Taiwan

Chia-li Veteran Home in Tainan city was established on April 1, 1972. In response to the changes in the needs of the development of government policies, Chia-li Veteran Home strategically established a “dementia care center”, where is a special area for teaching and doing relevant research for caring the elderly with dementia. In this sense, Chia-li Veteran Home becomes an important center of dementia care for promote dementia education and research in Taiwan. In this center, it is expected to make important contributions to the development of dementia care through practical work, teaching services and multi-disciplinary cooperation in interdisciplinary research. At present, there are 30 employees, 34 part-time workers, 13 nursing staff (including 5 outsourced nursing staff), 44 attendants (including 30 outsourced nursing staff), and 11 substitute civilian servicemen. Its service functions can be seen as follows:

1) Dementia care center

The building has three floors, and each floor equips four care units. In one unit, there are 12 beds, divided into different areas according to different levels of dementia of the residents. The arrangement can be seen in Table I and Table II.

TABLE I. ARRANGEMENT OF DEMENTIA CARE CENTER

Units		Beds	Different levels of dementia
1st floor	Area C	12	Light
	Area D	12	
2nd floor	Area B	12	Medium
	Area C	12	
3rd floor	Area A	12	Heavy
	Area D	12	

Dementia care center was opened since year 2012, in which started from the 1st floor and 3rd floor, Area D, and then opened Area A in 3rd floor in year 2013.

Source: Chia-li Veteran Home (2015)

2) Status of care givers

TABLE II. STATUS OF CARE GIVERS IN DEMENTIA CARE CENTER OF CHIA-LI VETERAN HOME

Caregivers	Day Time		Night-Time
	Light	Medium	
Nursing manpower	1 person/area		2 persons
Services assistants	2 persons/area	3-4 persons/area	1 person/area

1. Nursing manpower is 13 persons (including 5 outsourcing nurses)
2. Services assistants are 44 (including 30 outsourcing services assistants)
3. Nursing manpower have to do health promotion activities, whereas services assistants focuses on daily accompanied.

Source: Chia-li Veteran Home (2015)

III. METHODOLOGY

A. Research Method

The research methods of this study are documentary analysis and observation. The collected literature includes the discussion on the care environment of dementia and the relevant policies of our government on the care of dementia. The field observation is based on the authors' records in the field study during April in 2015. Therefore, the analysis of this study not only has the discovery and arrangement of the literature materials, but also has the field visit experience as the evidence, so that the service model of dementia care environment in this study can be closer to the current situation of Taiwan. Also, the findings of this study can be used as a reference for the development of dementia service model in the future.

B. Data Collection and Analysis

The literature collected in this study regards dementia care environment and limited to written materials in Chinese or English, including journals articles, books, government publications and newspapers. The screening principle of literature bases on the published year. The more recent time of published documents, the more priority is given to reference and use. In addition, published literature is preferred, rather than to unpublished literature. Academic journals and documents with international standard book number (ISBN) are prior to the newspapers. Finally, this study focuses on the experience of caring environment and service model for dementia in Taiwan, the author also cited the relevant website of Chia-li Veteran Home in Tainan as the source of references. In addition, the author also used the field observation method to sort out the observation records, handwritten notes, photographic records and discussion contents during the visiting of Chia-li Veteran Home in Tainan. Through field observation, primary data of Chia-li Veteran Home and its service model were obtained, and the results of field investigation were taken as the data basis of this study.

IV. RESEARCH FINDINGS

A. Reconstruction of Chia-li Veteran Home

The research findings show that Chia-li Veteran Home is an eminent case, in which original building was reconstructed for adapting dementia caring, explore its creative design of environment to cope with new service model. In dementia care center, each floor has 4 care units and one unit has 12 beds. Moreover, the space of dementia care center is still enlarged continually in order to deal with increasing number of dementia residents. Through environmental reconstruction, living area in each floor becomes sweet feeling with friendly

atmosphere. In addition, aisles are modified into barrier-free space, and is equipped with a single armrest. Every old person lives in an individual room, which has a single suite, sliding door, personal bed, wardrobe, desk and barrier-free toilet facilities.

The reconstruction still continued because the elderly with dementia is growing and they need this kind of facility to provide proper services. Not only space, but also the color of the aisle and personal rooms are brightening and colorful to change the atmosphere of Chia-li Veteran Home.

B. Environment Design Changed the Care for the Elderly with Dementia

Chia-li Veteran Home has yearly different design, called year topic, to decorate the living space of the facility for the elderly. Therefore, the hardware equipment is adjusted year by year to increase vital changes in their environment. In addition, in each personal room is equipped with his or her own works or handcrafts as individual symbol, so as to help the elderly with dementia find their way back to their room.

Moreover, the place of bed in the room is changed from non-wall to close-to-wall to avoid fallen from the bed. Considering their convenience, the wardrobe and windows on the door were changed into partial transparency glass to help the elderly with dementia know how many clothes they have. Also, each room is equipped with emergency bell for ensuring the residents can receive immediate assistance. These details not only enable the elderly with dementia to have their own living space, but also enable caregivers to timely understand their needs and conditions.

In addition, there is a living room where the elderly can chat and eat together. There is an open and public kitchen, where they can make foods by themselves and communicate with each other as a social lounge.

According to the design of environment, the service is provided with a people-oriented approach, so that the elderly can enjoy adequate living space and proper services. In terms of dining, dinner is usually served on a buffet plate, and happy meal is provided on every Wednesday. The entertainments and daily activities are led by nursing staff and usually accompanied by assistants to help the elderly with dementia. In corresponding to the design of environment, these activities enhance the residents' interpersonal interactions and enrich their life quality.

C. Trans-professional Teamwork Care with Environmental Changes

Dementia care center of Chia-li Veteran Home cooperate with some professional agencies, such as Taipei veterans education training center, Taichung veterans research and development group, Kaohsiung veterans medical resource group, and so on, to form integrated care model for caring elderly with dementia. Trans-professional teamwork helps to solve some complex problems in Chia-li Veteran Home, as well accumulates practical caring experience. Furthermore, there are several kinds of professionals participate in this

team, such as physicians, nurses, social workers, architects, etc. Hence, different professionals can work together according to the same discipline, which is to provide best service for the elderly with dementia in Chia-li Veteran Home. A trans-professional teamwork care can work successfully because of a proper environment design, too. For example, due to a proper environment design, in dementia care center, elders can reduce the use of antipsychotic with non-drug therapy because they can easily have more social participation and fully respect without many barriers. Again, this case proves that proper environment design also facilitates the care for the elderly with dementia.

V. CONCLUSIONS

Chia-li Veteran Home is a typical case of reconstruction that makes a traditional elderly facility becomes a dementia care center. According to this study, to explore its features and experience is useful and meaningful to other elderly facilities to change their caring model for the elderly with dementia. Even though Chia-li Veteran Home is a simple case, it enlightens us in numerous ways.

Firstly, although Chia-li Veteran Home is a facility with old buildings after several decades, it can be reconstructed and changed for caring elderly with dementia through environmental design. The open space design makes it difficult for the elderly to find an exit to avoid distraction on the way.

Secondly, using their favorite items as landmarks to decorate their room is beneficial to the elderly with dementia to distinguish their own place and enhances their judgement of directions.

Even though Chia-li Veteran Home provide its services with old buildings and environmental spaces, it could be flexibly adapted itself serving its residents with dementia through reconstructing and redesigning its services. Without large spending for reconstruction, some innovative changes in the facility bring extraordinary effects for improving care services. This finding also re-confirm that tender services and personal centered care are the core of the long-term care services, particular for the elderly with dementia [8].

As a case study, there are several limitations in the research. Firstly, Chia-li Veteran Home is a successful case but its experience may not be suitable to other facilities because of different conditions. Secondly, in this study, we adopt observatory method, yet it is insufficient to provide empirical data and statistical analysis to prove the function of environmental changes. However, as a pilot study, the contribution of this case study is that Chia-li Veteran Home can be a reference for other long-term care institutions. In the future, further research can be expanded, not only understand the hardware environment construction and care model, but also increase the inhabitants of interview and questionnaire survey, to understand people in this environment of satisfaction or related experience. At the same time, as a part of research method, quantitative data can be collected in the future and analyzed by statistical methods,

so as to enrich the findings of this study. It is expected to have more and more facilities pay much attention to suitable environmental design for improving care for the elderly with dementia in the future.

CONFLICT OF INTEREST

Hubert C. Y. Liu and Cheng-Chung Tsai declare that they have no conflict of interest.

AUTHOR CONTRIBUTIONS

Hubert C. Y. Liu conducted the research; Cheng-Chung Tsai contributed precious ideas and comments for revising this paper; both authors had approved the final version.

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