



# The Associated Factors of Foot Lesion and Foot Self-care Behaviors of Hemodialysis Patients

Te-Fen Lee<sup>2</sup>, Pei-Chun Chien<sup>1</sup>, Shuang-Ling Li<sup>1</sup>, Hsiao-Ting Yen<sup>1</sup>, Hsiao-Hsuan Wang<sup>1</sup>, Mei-Ling Tsai<sup>1</sup>, Wen-Yi Chiu<sup>1</sup>,  
1. Associate Professor, Nursing department of Ching Kuo Institute of Management and Health (E-mail: dfleelee7@gmail.com)  
2.RN, National Yang-Ming University Hospital

## Research Background and Motives

Although the life expectancy of patients with nephropathy is prolonged due to hemodialysis, the lesions of peripheral blood vessels and nerves also induce foot lesions and even cause amputation to reduce patients' quality of life. Strengthening foot self-care behaviors can reduce the risk of amputation. However, there is a lack of relevant studies investigating the foot lesions and food self-care behaviors of patients undergoing hemodialysis. Therefore, the motives of the study team were triggered.

## Research Method

This descriptive correlational study used purposive sampling to enroll subjects, and used foot testing tool and structured questionnaire to collect the data of dependent variables. The research framework is shown in Figure 1.

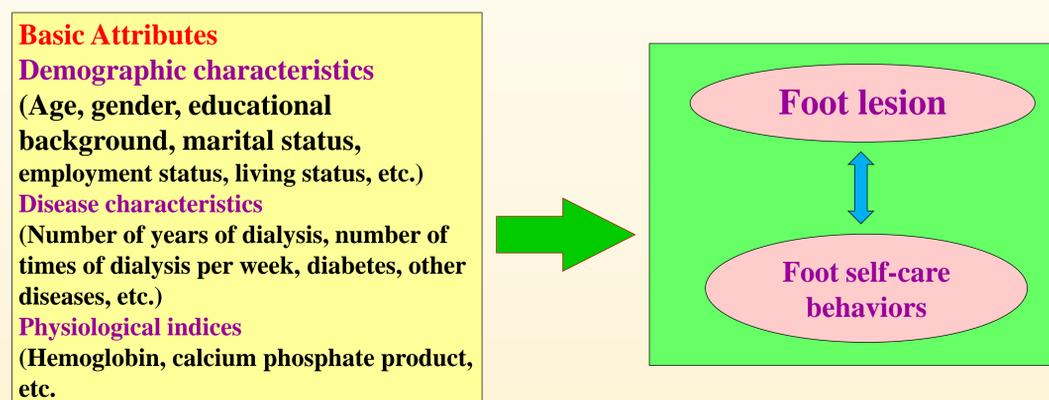


Figure 1: Research framework

## Research Results

### I. Basic Attributes of the Research Subjects

**Demographic characteristics:** This study enrolled 112 patients undergoing hemodialysis, with 63 male patients and 48 female ones. The average age of patients was 66.03 years old. Most of the patients were unemployed, and had a religious belief. For educational background, most of the patients were elementary school and junior high school graduates (42.9%). Most of them were married (59.8%) and lived with family members (86.6%). The economic status of most of the patients was good (75%). 90.2% of patients did not have a smoking habit.

**Disease characteristics:** the largest number of years of dialysis was 23 years, and the smallest number was 1 month. The average number of years of dialysis was 5.08 years. 95.5% of patients underwent dialysis 3 times per week, 46.4% of them suffered from diabetes, 84.8% of them were complicated with other diseases, and as many as 98.2% of them had never learned foot care.

**Physiological indices:** white blood cells, serum albumin, and cholesterol of most of the patients were normal, and as many as more than 50% of patients experienced abnormalities in hemoglobin, blood phosphorus, and glycated hemoglobin.

### II. Current Status of Foot Lesion and Foot Self-care Behaviors of Research Subjects

#### 1. Foot lesion

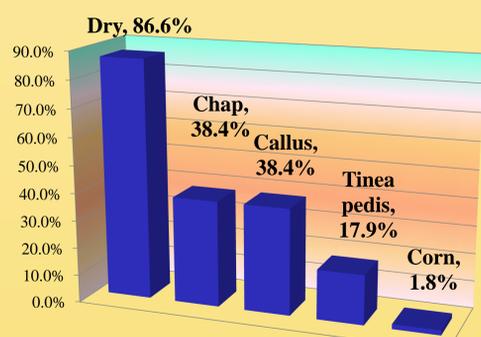


Figure 2 Foot skin abnormalities

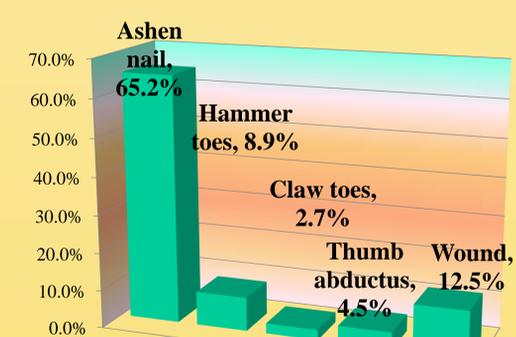


Figure 3 Abnormal foot structure

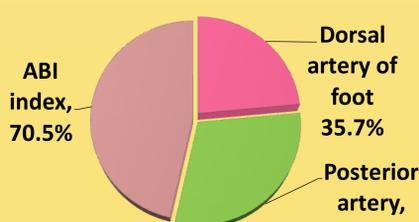


Figure 4. Abnormal of Peripheral vascular

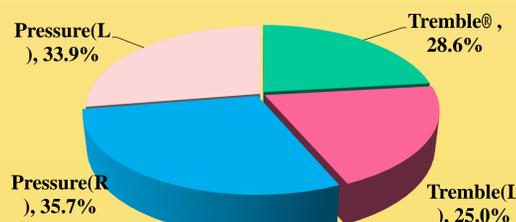


Figure 5 Peripheral nerve assessment

#### 2. Foot self-care behaviors

The total score of the scale on foot self-care was 90 points, the average score was 61.1, points, the highest score was 83 points, and the lowest score was 39 points, suggesting that the frequency of subjects' food self-care behaviors was inclined to acceptable and frequently.

Table 1: Mean and Rank of Various Items of Foot Self-Care Behaviors (N=112)

No.	Item	Mean	Rank
5	use a heater to warm up my feet in cold days	4.29	The highest
10	go to hospital if there is any problem of feet	3.95	The second highest
7	use a mirror or request my family to check my soles or toe seams where I can't see	2.47	The lowest
17	I wear cotton or wool socks that can easily absorb sweat	2.77	The second lowest

### III. Correlation between Foot Lesion and Foot Self-care Behaviors

There was not a statistical correlation between foot lesion and foot self-care behaviors of patients undergoing hemodialysis, suggesting that the foot lesion of research subjects did not affect their foot self-care behaviors.

### IV. Influence Basic Attributes on Foot Lesion and Foot Self-care Behaviors

Table 2: Influence Basic Attributes on Foot Lesion and Foot Self-care Behaviors (N=112)

		Basic Attributes with Statistical Significance
Foot lesion	Foot skin abnormalities	Gender, economic status, educational background, marital status, and glycated hemoglobin
	Abnormal foot structure	Educational background, living status, and glycated hemoglobin
	Peripheral vascular assessment	Age, employment status, religious belief, number of years of dialysis, diabetes, other diseases, glycated hemoglobin, and WBC value
	Peripheral nerve assessment	Marital status, diabetes, diabetes treatment, other diseases, glycated hemoglobin, blood phosphorus, and blood lipid
Foot self-care		Calcium phosphate product

For basic attributes, the differences in weekly number of times of dialysis, Hb value, serum albumin, calcium phosphate product, cholesterol, and triglyceride did not lead to a statistical difference in foot lesion and foot self-care behaviors.

## Research Limitations

- The research samples were collected from a dialysis center of a certain hospital. In consideration of regional differences and sample size, the research results cannot be extended to patients undergoing hemodialysis in other countries/cities.
- This study conducted a questionnaire survey. The concentration on response of the subjects might be affected by lower educational background, advanced age, and hemodialysis discomfort, which might result in distortion of survey and evaluation results.

## Application of Nursing Profession

### I. School Nursing Education

The research find that few patients receiving the instruction of foot care, but many patients experienced abnormalities in blood vessels and nerve sensory. Therefore, this study suggested that, school education and clinical in-service education should include the evaluation of patients' foot lesion and foot care into teaching issues to promote foot care quality of patients with hemodialysis.

### II. Clinical Practical Care

This study suggested that, it is preferable for dialysis center to view foot evaluation and nursing instruction as conventional care and use the screening tests of nerves, blood vessels, skin appearance, and structure to discover patients with foot abnormalities and archive them for management to prevent the crisis of amputation.

### III. Future Studies

Quasi-experimental studies can be designed to provide the intervention of nursing instruction. Long-term follow-ups and analyses on data, such as physiological indices, nerves, skin appearance, and structure, can also be used to find out the predictors of foot lesion, which will be beneficial to the prevention of foot lesion.

**keywords:** hemodialysis, foot lesion, foot self-care behaviors