

Attitudes toward Dietary Management Actions among Hemodialysis Patients in Japan

Hiromi Onbe

Graduate School of Health Science, Gunma University

日本の透析患者の食事管理行動に対する態度

恩幣宏美

群馬大学大学院保健学研究科

< Abstract >

Background: For behavioral modification to occur, patients must acquire necessary information and understand it, and form a desirable attitude or improve their attitude. Attitude is composed of affect and cognition, which influence propensity of behavior. Detailed information is not available, however, on the structure of affect and cognition as they influence dietary management actions in hemodialysis patients.

Aim: The aim of this study is to extract the factors of affect and cognition that influence attitude in the dietary management actions of hemodialysis patients.

Methods: The participants in the study were nine patients undergoing chronic maintenance hemodialysis who had received guidance related to diet and had good test results. Data was collected through ethnography, by means of participant observation and semi-structured interviews. The data was analysed according to thematic analysis methods.

Findings and discussion: Regarding affect and cognition as factors of attitude influencing dietary management actions in hemodialysis patients, three themes came to light, with culture as an additional theme. Also, through strict dietary management carried out while undergoing dialysis treatment, an affect leading to eustress was extracted.

Conclusion: As the elements that contribute to dietary management of the hemodialysis patients, four factors became clear out of three components, affect, cognition, and culture. Those factors are: *Believing in information perceived to be good for the health; valuing happy feelings and taking a positive approach to dialysis; feeling that dialysis creates stress; and valuing cooking with seasonal ingredients and creating special meals for seasonal occasions.*

< 要旨 >

〔目的〕 行動変容では、必要な知識の習得と理解、並びに望ましい態度の形成や改善が必要である。態度は感情と認知で構成され、行動傾向に影響するが、血液透析患者の食事管理行動に対する感情と認知の詳細な内容は明らかになっていない。本研究の目的は、血液透析患者の食事管理行動における態度に影響する因子である感情・認知を抽出し、その内容を検討することである。

〔方法〕 対象は今までに食事に関する指導を受けた経験がある、検査データが良好な慢性維持血液透析患者 9 名である。データ収集は、参与観察および半構成的面接によるエスノグラフィーで行った。分析は、thematic analysis の手法に則って実施した。

〔結果と考察〕 血液透析患者の食事管理行動における態度に影響する因子である感情・認知では 3 つのテーマが明らかとなり、さらに文化として 1 つのテーマが明らかとなった。また、態度の中で、透析治療上の厳しい食事管理行動の間で、

ユーストレスにつながる感情が抽出された。

〔結論〕 透析患者の食事管理行動における望ましい態度を構成する要因として、感情、認知、文化の3つの成分から、4つの因子が明らかになった。それらの因子は、健康に良いと思った情報を信じている、快の感情を大切にし透析を前向きに考えている、透析には辛い感覚が伴うことを感じている、旬を味わう食事をしているであった。

Keywords	
affect	感情
attitude	態度
cognition	認知
dietary management actions	食事管理行動
hemodialysis patient	血液透析患者

I. Introduction

The number of dialysis patients in Japan undergoing chronic dialysis treatment at the end of 2011 was 304,592, exceeding 300,000 for the first time ever¹⁾. According to data from 19 countries around the world, Japanese dialysis patients have the longest time on dialysis, at 8.76 years, and their prognosis is good²⁾. However, since the top cause of death in Japan is heart failure¹⁾, it is vital to prevent cardiovascular system complications. For dialysis patients, controlling the concentration of phosphorus, which affects the cardiovascular system³⁾, and preventing rises in blood pressure will influence prognoses, so medication management, in addition to dietary management, is critical. Dialysis patients need to have strict dietary management, but the affect of naturally enjoying meals also comes into play. For patients that continue implementing dietary management actions, it is important to have the affect of naturally enjoying meals, not simply managing meals to prevent complications. Having this affect, patients may be able to sustain proper dietary management actions over the long term. It was therefore considered important for medical caregivers to think not only of proper dietary management actions for medical reasons,

but to also review patients' self-management in light of the relationship between feelings toward meals and dietary management actions.

II. Background & literature review

Attitude is an important concept in thinking about feelings and behavior. In social psychology, attitude is composed of three components—*affect*, *cognition*, and *propensity of behavior*. It is said that cognition components influence affects and affective components influence propensity of behavior⁴⁾. In addition, in patient education it is necessary to make patients acquire necessary information toward behavior modification, understand it, and form a desirable attitude or improve their attitude⁵⁾.

A previous study on attitude in dialysis patients focused solely on a scale measuring adherence to food and liquid intake restrictions⁶⁾. However, the sample for this scale was small and validity was not sufficiently assured. No studies have been done on the relationship between dietary management actions and affect/cognition in hemodialysis patients. In a study unrelated to dialysis patients that examined the relationships among dietary management actions, cognition performance, and affect, it was found that

a low-carbohydrate diet intended for losing weight had the intended effect, but the study showed that the diet did not have a positive influence on cognition performance and affect⁷⁾. Those results demonstrate that meals designed primarily for losing weight and maintaining good test results, while leading to improvements on paper, did not have a positive influence on cognition performance and affect. This study was therefore designed to ascertain what kind of attitude (affect/cognition) dialysis patients with good test results have related to their dietary management actions.

It is important to include food culture when trying to understand the relationship between eating meals and attitude, so this study was conducted using the qualitative methods of ethnography. The objective of this study was to extract attitude factors in the dietary management actions of hemodialysis patients. Connecting the extracted attitude factors to the development of an attitude scale can lead to an intervention study aimed at behavioral modification with regard to eating habits that takes affect and cognition into consideration.

III. Aim

The aim of this study is to extract affect and cognition factors, factors that influence hemodialysis patients' attitude on their daily dietary management actions, and to evaluate the content of these factors.

IV. Methodology

Microethnography was chosen as the research method. While the culture that serves as the background to people's daily actions has become so ingrained that it is imperceptible even to the person in question in most cases, fieldwork is one method for describing a culture⁸⁾. We believe that it is

difficult to understand attitudes toward dietary management actions that are influenced by culture through interviews alone, which is why this method was chosen.

1. Ethical considerations

This study underwent screening by and received the authorization of the Gunma University Research Ethics Review Committee (Authorization No. 9-7). Following authorization, the researchers explained the study in writing and verbally to each research facility's director, director of nursing, and head nurse, and received their consent. After receiving consent from the research facilities, the researchers were introduced to about five patients at each facility who would be potential informants. The researchers explained the study in writing and verbally to these potential informants. Specifically, they explained the aim of the study, along with the policy of protecting individual privacy, the strict observance of confidentiality, the benefits and drawbacks to the individual arising from the study, the voluntary nature of participation in the study, and that no detriment would arise from withdrawing consent. Notably, because this study involved observation in the private space of the informant's home, the researchers explained quite carefully about protecting individual privacy and the strict observance of confidentiality. After explaining these things, the researchers received written authorization for cooperation with the study.

2. Field Overview and Research Participants (Table 1)

The field was hospitals and the homes, including the kitchens, of people receiving outpatient dialysis in Japan.

The participants were selected according

to the study's criteria and introduced by dialysis physicians and head nurse, and the researcher explained the study to each person. There were nine patients in the study, who managed their diet themselves, plus eight of their family members. (See Table 1) The age of the patients, five males and four females, ranged from 50s to 70s with their hemodialysis history ranging from seven to 32 years. The nine patients, undergoing chronic maintenance hemodialysis for over six months as outpatients, had received guidance related to diet and had good test results. The test

result selection criteria were mean values of around 6.0mg/dl phosphorus, 5.5mEq/l potassium, 9.0-10.5mg/dl calcium, and 3.5g/dl serum albumin six months prior to the time of the survey, and a mean monthly weight gain of around 5% with two days between dialysis treatments. Additional requirements were that no participants have cognitive impairment or the inability to communicate, or higher brain dysfunction with regard to reading and writing; they also had to be between the ages of 20 and 80.

Table 1 Research participants

	Gender	Age	Years on dialysis	Original condition	Family
Person A	Female	60s	30	Chronic nephritis and nephropathy of pregnancy	Lives with husband (has 1 daughter)
Person B	Male	70s	16	Chronic nephritis	Lives with wife and eldest son's family including 1 daughter and 1 son
Person C	Male	50s	18	Polycystic Kidney Disease	Lives with wife and son
Person D	Male	60s	16	Chronic nephritis	Lives with wife
Person E	Female	50s	32	Chronic nephritis	Lives with mother, brother and brother's wife
Person F	Male	70s	15	Polycystic Kidney Disease	Lives with wife
Person G	Male	60s	7	Chronic glomerulonephritis	Lives with wife and daughter
Person H	Female	60s	18	Polycystic Kidney Disease	Lives with husband, son's family (3 people)
Person I	Female	60s	22	Unknown	Lives with husband

3. Data collection

Data collection was carried out from 2010 to 2011. Consistent with an ethnographic approach, data were collected through interviews, field notes, and documents. Participant observation was carried out at the scenes of cooking and eating for 45 hours in total, all of which was recorded in the field notes. An interview was conducted after a participant observation for about one to one and a half hours per session, 77 hours in total.

The interviews were structured according to Spradley's ⁹⁾ classic approach of using open-ended general to more specific questions. Although an interview guide was used to assure a systematic approach to data collection, it still provided flexibility in the sequencing of interview questions. Questions were broadly related to participants' perceptions of the attitude components. After the informant signed an informed consent form, the data collector turned on the audio recorder.

Four roles of the field worker have been identified (the complete participant, the participant-as-observer, the observer-as-participant, and the complete observer)¹⁰⁾. For this study the field worker's role was the participant as observer. The researchers spent as much time as possible with participants, such as during cooking or eating meals, while trying to keep any disturbance to the flow of their daily lives to a minimum. The observations were documented in field notes written as soon as feasible and transformed into a short report and later into a more detailed report.

4. Data analysis

All field work and individual interviews were recorded and transcribed by the first author prior to thematic analysis. The data analysis

followed thematic analysis methodology^{11,12)}. All fieldwork and data transcripts were carried out by the first author while checking with the co-researchers. The data set consisted of the verbatim transcripts and field notes. The data set was read numerous times until familiarity with the data was established. Then, items of interest in the data, especially items that pertained to the concept of attitude, were extracted and codified. Latent themes and the codes were compared. Then, to make the relationships between the themes and codes visible, a thematic map was created and the themes revisited in the process of studying the overall stories. The themes extracted in the end were named and definitions were created. The initial analysis was conducted by the first author, then the relationships between the codes and themes and the map were discussed with the other researchers. The agreement of the other researchers was obtained on the naming and definitions of the themes extracted in the end.

5. Trustworthiness

Trustworthiness was addressed using Lincoln & Guba's ¹³⁾ criteria of credibility, transferability, dependability and confirmability. To ensure credibility and transferability, both researchers independently coded the text for relevant themes during meetings. Following agreement on the key themes, the researchers reviewed ideas, assumption and ensuring consistency. Dependability and confirmability were achieved by maintaining an audit trail throughout the work.

V. Findings

The results of analysis revealed four themes of desirable attitudes in dietary management

actions among hemodialysis patients. Key themes are hereafter indicated by boldface type.

Theme 1: Believing in information perceived to be good for the health

Because this factor indicates believing, or an evaluation of truth or falsehood, it represents the cognitive component of attitude. The researchers learned that when participants get information not only from a health care practitioner such as a doctor, nurse, or a dietician, but from family members, neighbours, the mass media, or other source, which if they deem to be useful for leading a healthy life in light of their disease or physical condition, they believe in that information. However, there were patients who believed that shrimps are good for their kidney, and accordingly took shrimps. As it is known, this was a false information. Thus, it became clear that some information, such as this one, was not correct.

Theme 2: Valuing happy feelings and taking a positive approach to dialysis

Because this factor includes the word 'feelings' and words that indicate cognition in 'taking a positive approach', it represents both the behavioral and cognitive components of attitude. Dialysis brings with it various restrictions and distress, but the participants valued the good feelings they had in daily life. While dialysis has a tendency to be viewed negatively, they did not think of it in that light, instead taking a positive approach.

"(Ice cube after dialysis is over) One cube. Just one. It's good. That is what I look forward to". (Person B)

Theme 3: Feeling that dialysis creates stress

Because this factor involves words that

express the feeling of being stressed, it represents the affective component of attitude. Although the participants undergoing dialysis do not necessarily feel restricted and stressed constantly, when their desire for food was not fulfilled, they inevitably felt that undergoing dialysis brought stress. This stress became a deterrent, however, keeping the participants from overeating.

"I love fruits. Just a little. Yeah, just a few nibbles. But I have to hold myself back and ..."
(Person I)

Theme 4: Valuing cooking with seasonal ingredients and creating special meals for seasonal occasions

As shown by the term 'seasonal', this factor does not involve any of the three components of attitude, so it is considered a finding related to culture. Analysis revealed that participants often prepare such seasonal foods with special care. As it is known, eating seasonal vegetables raise the hemodialysis patients' serum potassium. However, the patients boiled vegetables, following their culture based cooking ideas, and successfully avoided raising serum potassium.

The vegetable drawer of Person A's refrigerator is stocked full with vegetables. She chooses some vegetables from the vegetable drawer to prepare a meal. "A neighbour brings me eggplant and scallions, which is a big help. In the summer vegetables are the best", she says as she chooses vegetables and begins to prepare them.

VI. Discussion

This discussion covers two things—the factors of affect and cognition that influence attitude, which is the objective of the study, plus the factor of culture, which does not

belong to the three components of attitude found in the analysis.

1. Affect and cognition in dietary management actions

The participants in this study, who have good test results, have the cognition of *believing in information perceived to be good for the health*. Some of that information, however, was incorrect with regard to health. Because no drop in cognitive functions such as higher brain dysfunction was observed, it is considered that a low level of information literacy played more of a part than a reduced ability to interpret information. It remains unclear as to how holding the cognition of a belief in incorrect information can lead to good test results. Depending on the type of food, one would anticipate that following such information would lead to a rise in potassium levels, for example, in the dialysis patient, which would be a significant threat to their health. Through interviews with the participants in this study it became clear that cognitively they believed what doctors and nutritionists told them, and also information that they got from the media, and used all of that information in their dietary management actions. One study shows that a low level of information literacy is related to an insufficient understanding of the information received from doctors^{14,15)}. Japanese patients place the highest degree of trust in information when received from doctors, but it has been pointed out that the information from doctors alone does not fulfil their needs and so they make use of multiple sources of information¹⁶⁾. For that reason, raising the information literacy of patients is vital, but it is also important for doctors to accurately communicate the kind of information that will properly satisfy the patient's informational needs.

Regarding emotions, participants generally had the positive emotion of *valuing happy feelings and taking a positive approach to dialysis* and the negative emotion of *feeling that dialysis creates stress*. Although the ratio of positive to negative emotions—and which was greater—was not apparent, it is important that the participants felt positive emotions despite living with the severe dietary restrictions demanded by dialysis. Also, participants had negative thinking, but from interviews it was learned that this became a deterrent in practicing dietary management. For this reason, it is considered to be eustress. Eustress encourages better behavior, so it is necessary for doctors in talking with patients to give them eustress rather than distress with regard to dietary management actions.

2. Food culture in dietary management actions

In the participants who had good test results, their affect/cognition of *valuing cooking with seasonal ingredients and creating special meals for seasonal occasions* was found to be the factor of culture.

Participants ate meals primarily based on seasonal Japanese foods. Japanese cuisine is considered healthy in general, but for seasoning it calls for the use of soy sauce, which is high in salt, and employs fresh vegetables, which are high in potassium. Because Japanese food is high in salt and potassium¹⁷⁾, both of which need to be controlled in hemodialysis patients, it is by no means the basis for a healthy diet for them. The participants of this study, however, had good test results. In addition they did not take in a large amount of fluids. This is likely due to the fact that the participants did not have excessive intakes of potassium and salt. Participant observation revealed a meal

style of a soup and three side dishes. Their desirable condition may also be influenced by the 'soup and three side dishes' approach to cuisine that has been part of Japanese food culture since olden times, an approach that is nutritionally well-balanced¹⁸⁾. Also, an intervention study conducted in Greece reported that the use of olive oil, essential for preparing local Greek cuisine, significantly improved cognitive functions¹⁹⁾. This result can be understood to mean that being able to eat meals based on the food culture of a person's country may contribute to a better attitude. Also, participants limited the amount of their intake. Eating a variety of different foods, even in small amounts, provided satisfaction to the participants. In patient education, nurses can introduce the idea of increasing the number of dishes and eating smaller amounts, rather than simply promoting conventional eating restrictions. This approach should give people a sense of satisfaction—a positive emotion that will lead to forming a good attitude toward good dietary management actions.

3. Implications for Practice

People tend to think that most dietary guidance is provided by nationally certified senior dietitians and doctors, but because the nurses who provide guidance think of the patient as a person leading everyday life, they are in the best position to give that guidance using the attitude elements learned from the informants and obtained in this study. Also, most hemodialysis patients receive dialysis at clinics that do not have a resident nationally certified senior dietitian, and often nurses also serve as dietitians. For that reason, if nurses are able to understand the element of attitude in the dietary management of hemodialysis patients they will likely be able to carry out

effective, highly personalized patient education as they carry out their regular duties.

After going through many books on dialysis nursing, nowhere was the necessity of incorporating the concept of attitude into patient education found. From the perspective of the findings of attitude expressed in behavior and based in cognition and emotion, it is important for nurses to first look at the cognition, emotion and culture in a patient, instead of looking exclusively at the dietary management actions being taken or the patient's test results. If the nurse looks at cognition and emotion and culture, and is able to draw them from the patient to make an assessment, it then becomes possible to provide support directed toward attitude change and behavior change that is more specific and individually tailored. Moreover, this study may reveal more than cultural discoveries of the attitudes of Japanese people. It may offer concepts that can be applied in other countries, as well. From this point on, the researchers would like to verify desirable attitudes in dietary management that arise through national and cultural differences.

4. Limitations of the Study and Future Challenges

In this study, in order to understand attitude in the dietary management of hemodialysis patients in Japan as much as possible, data was collected in three regions of the country. But because of the diversity of regional characteristics that affect diet even within Japan there are limits to the applicability of the results of the study to hemodialysis patients nationwide in terms of attitudes in dietary management. Also, because environmental factors have such a strong influence on the food habits of informants from their birth

to the present day, it will also be important to investigate correlations that include the informants' life history.

VII. Conclusion

As the elements that contribute to dietary management of the hemodialysis patients, four factors became clear out of three components, affect, cognition, and culture. Those factors are: *Believing in information perceived to be good for the health; valuing happy feelings and taking a positive approach to dialysis; feeling that dialysis creates stress; and valuing cooking with seasonal ingredients and creating special meals for seasonal occasions.* In cognition, belief in information without confirming its veracity suggested a low level of information literacy. In attitude, affects leading to eustress were extracted from the strict dietary management actions demanded by dialysis treatment. Plus, a factor related to culture was extracted and it was found that this might constitute a factor making up attitude.

Acknowledgement

The author wishes to thank the dialysis patients who participated in the study.

Reference

- 1) Journal of Japanese Society for Dialysis Therapy: An overview of regular dialysis treatment in Japan (As of December 31, 2010). Journal of Japanese Society for Dialysis Therapy, 45: 1-47, 2012
- 2) Dialysis Outcomes and Practice Patterns Study: 2010 DOPPS Annual Report. <http://www.dopps.org/annualreport/index.htm> (accessed 21 March 2013)
- 3) Rodriguez BA, Martin MA, Alvarez LA, Rodriguez M, Aljama, A: Mild Hyperphosphatemia and Mortality in

Hemodialysis Patients, American Journal of Kidney Diseases, 46: 68-77, 2005

- 4) Rosenberg MJ, Hovland CI: Attitude Organization and Change, Yale University Press, NY, 1960
- 5) Kim K, Reicks M, Sjoberg S: Applying the theory of planned behavior to predict dairy product consumption by older adults, Journal of Nutrition Education and Behavior, 35: 294-301, 2003
- 6) Rushe H, Mcbee MH: Assessing adherence to dietary recommendations for hemodialysis patients: The renal adherence attitudes questionnaire(RAAQ) and the renal adherence behavior questionnaire(RABQ), Journal of Psychosomatic Research, 45: 149-157, 1998
- 7) Cheatham AR, Roberts BS, Dasa SK, Gilhoolya HC, Golden KJ, Hyatt R, Debra L, Saltzman E, Lieberman RH: Long-term effects of provided low & high glycemic load low energy diets on mood and cognition, Physiology and Behavior, 98: 374-379, 2009
- 8) Spradley JP: Participant observation, Holt Rinehart and Winston Inc, NY, 1980
- 9) Spradley JP: The Ethnographic Interview, Holt Rinehart and Winston Inc, NY, 1979
- 10) Gold R: Roles in Sociological Field Observation, Social Forces, 36 : 217-223, 1958
- 11) Braun V, Clarke V: Using thematic analysis in psychology, Qualitative Research in Psychology, 3: 77-101, 2006
- 12) Joffe H, Yardley L: Content and thematic analysis. (Marks F D, Yardley L eds) Research Methods for Clinical and Health Psychology. 6-68, Sage Publication, London, 2004
- 13) Lincoln YS, Guba EG: Naturalistic inquiry, 289-331, Sage Publication, London, 1985

- 14) Cesar MC, Clifford W, Frances W, Schillinger D: Babel babble: physicians' use of unclarified medical jargon with patients, *American Journal of Health Behavior*, 31: 85-95, 2007
- 15) Schillinger D, Bindman A, Wang F, Stewart A, Piette J: Functional health literacy and the quality of physician-patient communication among diabetes patients, *Patient Education and Counseling*, 52: 315-23, 2004
- 16) Setoyama Y, Nakayama K: Literature Review for information needs, Information resources, and difficulties of information use among patients with breast cancer in Japan, *Medicine and Society*, 21: 325-330, 2011
- 17) Hashimoto H: An overseas salt intake and health policy, *Science of Health*, 35: 801-804, 1993
- 18) Ehara A, Ishikawa N: Japanese gastronomic culture, I,K, Corporation, Tokyo, 2009
- 19) Kyrozi A, Psaltopoul T, Stathopoulos P, Trichopoulos D, Vassilopoulos D: Dietary lipids and geriatric depression scale score among elders: The EPIC-Greece cohort, *Journal of Psychiatric Research*, 43: 763-769, 2009