

# Health Teachings Rendered to Hemodialysis Patients as Perceived by Hemodialysis Patients and Staff Nurses

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**Abstract:** ***Objective:** The objective of the study was to determine extent of health teachings rendered to hemodialysis patients as perceived by hemodialysis patients and staff nurses in Baguio City. **Design:** The study was a descriptive cross-sectional study and Quantitative methods were adopted. **Setting:** The study was carried out in six hemodialysis facilities in Baguio City: Saint Louis University–Hospital of the Sacred Heart (SLU-HSH, Cordillera Integrated Medical Services, Inc.), Notre Dame de Chartes Hospital (NCDH), Baguio General Hospital and Medical Center (BGH-MC, B. Braun Ativan), Pines City Doctor’s Hospital (PCDH), Cordillera Kidney Specialist, Inc. (CKSI), and Baguio Kidney Care Clinic (BKCC). **Sample:** A total of 205 patients and 26 nurses participated in the study. The respondents were determined using nonrandom convenience sampling. Patient-respondents were currently undergoing hemodialysis treatment, from ages 21 to 68, who were non-critical, able to read and write, and willing to participate in the study. **Analysis.** Data gathered was subjected to analysis and interpretation using descriptive and inferential statistics. Descriptive statistics such as weighted mean, average mean, and frequencies were used to synthesize and describe the data. **Main outcome measures:** Health teachings rendered to hemodialysis patients. **Results:** From the patients’ point of view, health teachings rendered on diet and fluid management was moderate, health teachings on medication was moderate, teachings on hemodialysis as treatment modality was very much rendered and on average all teachings were very much rendered. With regards to duration of treatment there was no significant differences in reported extents of teaching in the different durations ( $F(3, 16) = 0.85, p = .49$ ). **Conclusion:** Health teachings on the different aspects of hemodialysis care have a great contribution to maintain health and prevent complications among hemodialysis patients. **Recommendation:** The researcher recommends an assessment should be done after every dialysis session about the things that may confuse patients from the previous health teachings provided.*

**Keywords:** Hemodialysis, Patients, Health teaching, Nurses, Baguio city sensitization, medication

## 1. Background

Health teaching is defined as any combination of learning experiences designed to help individuals and communities improve their health by increasing their knowledge and influencing their attitudes (World Health Organization, 2012). It has been considered as a major component in the nurses’ professional role. As early as 1918, organizations such as the National League of Nursing (NLN), American Nurses’ Association, International Council of Nurses, Joint Commission on Accreditation of Health Care Organization (JCAHO), American Diabetes Association, Oncology Nurses Association, and the Association of Rehabilitation Nurses have observed and promulgated the importance of health teaching as an integral aspect in the nursing care delivery for the promotion of health and the prevention of illness (Bastable, 1997; 2003). Health teachings are integrated by nurses in specific situations like in the case of chronic kidney disease (CKD) patients undergoing hemodialysis therapy is needed for it to be effective as we need it to be. Knowing that CKD is the gradual and progressive loss of kidney function, it requires thorough health teachings for the patient to survive.

Among the available forms of treatment for CKD, hemodialysis has been the most common approach to manage the loss kidney function. It is defined as a diffusion of molecules in a solution across a semipermeable membrane along an electrochemical concentration gradient with the primary goal of restoring the intracellular and extracellular fluid environment that is a characteristic of a normal kidney function. It has been the most common type

of dialysis being used today, with already over one million dialysis patients worldwide, with an incidence of about a quarter of a million new patients each year (Yach et. al., 2004; Beaglehole et. al., 2003). The thirty second report in 2009 of Australia and New Zealand Dialysis and Transplantation (ANZDATA), a renal registry that includes 15 to 24-year-old patients reported that there are at least 7,000 adolescent/emerging–adult dialysis patients in Europe, North America, Australia, and New Zealand. In the Philippines, a data from the Philippine Renal Registry in connection with the Department of Health have identified 8,708 patients nationwide who had already started their hemodialysis therapy in 2009. A recent survey in Cordillera Administrative Region (CAR) particularly Baguio City, has a total of 248 hemodialysis patients recorded since 2008 in the first quarter of 2011 (DOH-REDCOP, Baguio City, 2011).

Chronic conditions like in the case of hemodialysis patients have other underlying health problems that require a complex and rigid treatment in order to survive. The emergence of medical technology such as hemodialysis therapy could increase their survival rate. However, several tasks like special diets, fluid limitations, medications, caring for the vascular access and other daily activities are being handled by patients outside the hemodialysis unit which plays greater educational requirements on them to achieve adequate control and to prevent adverse outcomes. Therefore, nurses in the hemodialysis unit who always encounter the patients during hemodialysis therapy are in an excellent position to deliver quality health teachings to the

patients for them to understand and actively participate in the required tasks.

Managing diet as one of the important tasks to reduce the workload of the kidneys and to preserve their functions is difficult for a hemodialysis patient due to the sudden shift on low fat, low sodium, low potassium, low phosphorus, and low protein diet. Several studies have shown that educational intervention enhances dietary management of phosphate among hemodialysis patients and promotes better control of the adverse effect of mineral and bone disorder (Ashurst&Dobble, 2003; Ford et. al., 2004; Toussaint et. al., 2010). Similarly, monitoring fluid intake is necessary to help control buildup of fluids in the body and prevent shortness of breath, lung edema, and hypertension. The provision of health teachings on managing daily fluid allowance required for them is necessary to prevent such complications. It was found out that post-educational intervention on fluid intake provided to patients has led to a significant decrease in the interdialytic weight gain (IDWG) (Johnstone & Halshaw, 2003; Root et. al., 2005 as cited by Richard, 2006).

Furthermore, the overwhelming number of medications prescribed to hemodialysis patients is also important to control the progression of the disease. The provision of health teachings may also improve medication management. A previous study has revealed that the medication knowledge of correct dosage and timing of medications are considered vital for improved therapeutic outcome (Griffith et. al., 1990 as cited by Sathvik et. al., 2007). Medication intake needs to be discussed to patient since it becomes a part of their daily activity. In the same way, having knowledge on caring for the vascular access site is important as the other aspects of treatment. Vascular access as the means by which the hemodialysis apparatus can enter the vascular system for the administration of therapy is the lifeline of hemodialysis patients. Proper care for it is necessary to prevent complications such as vascular access dysfunction or loss of patency and infection which are among the single most important cause of morbidity and mortality in the hemodialysis population (US Renal Data System, 2002 and 2008). A study has shown that patients who received training on vascular access cleansing have shown a significant higher completion of vascular access cleansing (Brantley et. al., 1990). Patients are much more willing to take on certain behaviors if they feel they will be able to master the skill or knowledge required for which nursing education is vital (Schatell& Alt, 2008). Moreover, daily activities for hemodialysis patients need changes and the provision of health teachings will help them to cope with their life activities with greater confidence. In a study where a nurse-led clinic providing education was conducted, it revealed a great proportion of the patients change in behavior such as increase in physical activity and increase in control and prevention of complications (Pagels et. al. 2008).

There is substantive evidence that health teachings to hemodialysis patients play an important role to improve disease management and maintain healthy life. The implementation of health teachings has led to a positive effect on hemodialysis patients' total knowledge regarding chronic renal failure with its management and self-care

activities (Abd El hamed Ali et. al., 2011). According also to Golper (2011), the provision of education to hemodialysis patients in the course of chronic renal insufficiency offers many potential benefits for patients and health care professionals, including improved treatment outcomes, reduced anxiety, greater prospect for continued employment, improved timing for the start of dialysis, and a greater opportunity for intervention to delay disease progression. However, in a study conducted by De Guzman (1998) in Baguio City has revealed that the comprehensiveness of health teachings provided to hemodialysis patients regarding their treatment regimen, diet, and changes in lifestyle were not observed. It has shown that there was deficient information provided in the aspects of depth, method and follow-up regardless of age group, educational attainment, and gender (De Guzman C, 1998).

The inadequacy of health teachings rendered to them by nurses may be caused by several factors associated by both patient and health care provider. The stress and anxiety of patient caused by their existing chronic illness and the lack of time for nurses to carry out the role as a nurse educator affects the teaching and learning process (Bastable, 1997; 2003). Finding time to allocate the role as an educator is very challenging for the nurses due to the competing demands of workload. The relationship between the patient and the health care provider must be a partnership that draws on the competencies of each (Kammerer et. al., 2007). To some extent, there is lacking evidence on the factors that may facilitate or hinder the ability of patients to learn and the ability of nurses to teach patients which entails the need to evaluate it. Therefore, the researcher found it necessary to conduct this study. The objective of the study was to determine the extent of health teachings rendered to hemodialysis patients as perceived by hemodialysis patients and staff nurses and also to assess if there is significant differences in extent of health teaching in sessions of different durations.

## 2. Methods and Procedures

The study utilized a quantitative descriptive type of research in order to identify the extent of health teachings rendered by nurses to hemodialysis patients. The respondents of the study were hemodialysis patients and nurses from the six hemodialysis facilities in Baguio City: Saint Louis University-Hospital of the Sacred Heart (SLU-HSH, Cordillera Integrated Medical Services, Inc.), Notre Dame de Chartes Hospital (NCDH), Baguio General Hospital and Medical Center (BGH-MC, B. Braun Ativan), Pines City Doctor's Hospital (PCDH), Cordillera Kidney Specialist, Inc. (CKSI), and Baguio Kidney Care Clinic (BKCC).

A total of 205 patients and 26 nurses participated in the study from the months of July to September of 2012. The respondents were determined using nonrandom convenience sampling. Patient-respondents were currently undergoing hemodialysis treatment, from ages 21 to 68, who were non-critical, able to read and write, and willing to participate in the study. The nurse-respondents were currently employed as hemodialysis nurse, with a formal or in-house training, with varied shifts and different patient assignment per day.

The research tool was a questionnaire based and modified from review of related literature and the previous research of Javier-Advincula (2009). A separate set of questionnaires was provided for patients and nurses that consisted three parts. The first part of the questionnaire was the demographic profile. The second part contained the health teachings categorized into five domains of renal care specifically: (a) Diet and fluids = 12 items, (b) Medications = 10 items, (c) Hemodialysis as treatment modality = 6 items, (d) Vascular access care = 10 items, and (e) Activities of daily living = 9 items. There were items which were positively stated that required a no as a correct answer and negatively stated items but needed a yes answer or vice versa. The facilitating and hindering factors to teaching and learning process were also included in the survey.

Content validity test was done by two experts in the field of hemodialysis with an equivalent of 0.96, which means that the tool is able to determine what it intends to measure. After content validity was determined, the set of questionnaires for patients was subjected to Filipino translation by a faculty from the Department of Professional Education at Saint Louis University. A pre-test was done to ten samples of patient respondents with same characteristics of the actual research. The pre-test was done to evaluate the readability and understandability of the written material. Comments and suggestions from the respondents were solicited. Items or words that were difficult to understand were noted and changed to simpler terms. For the patient respondents, they said that the tool was very long and some of the items or words were technical/medical and not easy to understand. Like for example, "Hemodialysis machine was used to run a 250cc-300cc of blood to a filter for removal of waste products and excess fluid" was rephrased to "Hemodialysis machine is used to run blood to filter waste products and excess fluid." Another, the words "bruit" and "thrill" were reworded to "swishing sound" and "vibrating sensation". Nurse respondents have a general comment that the questionnaire was easy to understand but it was quite too long.

An endorsement letter from the graduate program coordinator approved by the Dean of the School of Nursing, Saint Louis University, was solicited prior to data gathering. A formal letter addressed to the administrators of hemodialysis centers was given to obtain their approval prior to the distribution of questionnaires. In Baguio General Hospital and Medical Center, a copy of the thesis proposal was submitted to the Ethics Review Committee (ERC) for review. Revisions were made as suggested and was approved. Upon approval of the ERC, a letter of permission to conduct the study was approved by the medical chief director.

A verbal and written consent from the respondents stating the nature and objective of the study, as well as the full disclosure of intent and confidentiality of results throughout the study was also obtained from them. Patients and nurses were asked to complete the questionnaires at their most convenient and accessible time. For the patients, they answered the questionnaire prior to dialysis while waiting for their turn, others chose to answer during the dialysis, and some patients answered the questionnaire post-dialysis

session. For the nurses, they answered the questionnaire after patient was hooked to the hemodialysis machine and while waiting for the termination of hemodialysis patients' therapy.

The patients were given instructions giving emphasis that the health teachings must have been provided by the nurses and not any member of the health care personnel. While respondents were answering the questionnaire, the researcher kept a distance of two to three meters enough for the respondents to approach the researcher for any clarifications and so as not to influence their responses. The questionnaires were retrieved immediately after having answered by the respondents to review if items were completely answered. Incompletely answered questionnaires were immediately returned to the respondents to answer the missed items. Subsequently, tabulation of gathered information was done and subjected to statistical treatment.

### Data Analysis

Data gathered was subjected to analysis and interpretation using descriptive and inferential statistics. Descriptive statistics such as weighted mean, average mean, and frequencies were used to synthesize and describe the data (Polit and Beck, 2006). The scores of respondents were identified in each category. A range of score was specified for each domain of health teachings rendered to hemodialysis patients. Using the software Epi Info version 5.1.1 of the Center of Disease Control, the frequencies and weighted mean was obtained to determine the extent of health teachings rendered to hemodialysis patients using the following scale:

Scale of Interpretation	Extent of Health Teaching Rendered
1.00 – 1.75	Not rendered
1.76 – 2.50	Partially rendered
2.51 – 3.25	Moderately rendered
3.26 – 4.00	Very much rendered

### 3. Results & Discussion

From the findings, diet and fluid management was moderately rendered, medication was moderately rendered, hemodialysis as treatment modality was much rendered and the average of all the activities was 3.30 which showed all activities were very much rendered. Table 1 below shows a summary of the analysis.

**Table 1:** Extent of Health Teachings Rendered to Hemodialysis Patients as Perceived by Hemodialysis Patients

Health Teachings Indices	x	Interpretation
Diet and fluid management	2.89	Moderately rendered
Medication	3.14	Moderately rendered
Hemodialysis as treatment modality	3.61	Very much rendered
Vascular access care	3.55	Very much rendered
Activities of daily living	3.29	Very much rendered
Average Mean	3.30	Very much rendered
Legend:		
Not rendered – NR		Moderately rendered – MR
Partially rendered – PR		Very much rendered – VMR

Generally, the hemodialysis patients perceived that health teachings were very much rendered to them by hemodialysis nurses. The perceived extent of health teachings rendered to the hemodialysis patients may be associated by the fact that patients frequently attended the treatment and always encountered the nurses in the hemodialysis unit. The constant interaction with the nurses made it possible for them to acquire information on properly managing their present condition. The fact that the nurse had provided patients the needed information regarding their health was already a transaction that led to the goal of acquiring health teachings from the nurses. Transaction made between nurse and patient, was a process of interaction in which they communicate with the health care needs to achieve the goals (King, 1981).

Further, hemodialysis patients were almost always accompanied with complications. Obviously, the threat brought about by the disease made it possible for nurses to support patients through their educative roles to prevent aggravating the consequences. The provision of health teachings was seen as an important role of nurses in showing their support to lift up patients' outlook in changing their lifestyle habits and improve their condition. The supportive-educative role of nurses may empower patients to be active in managing their health effectively (Orem, 1971). It therefore implied that hemodialysis nurses need to continue to encourage patients through their educative roles to be active in their own care, to halt the progression of the disease, to promote quality life, and to prevent premature deaths.

Specifically, the health teachings on hemodialysis as a treatment modality was perceived by hemodialysis patients to be very much rendered by nurses. The result may be due to the fact that the therapy was explained to the patients prior to and until the termination of the treatment. It was the nurses' role to explain the rationale of every step in the procedure being done at the hemodialysis unit. Teaching and learning that occurred during the actual experience could have a greater impact to hemodialysis patients that made them recognize that health teachings was rendered to them regarding this aspect of hemodialysis care. As reflected in the item, "Hemodialysis machine is used to run blood to filter waste products and fluid" under hemodialysis as treatment modality was mostly rendered by nurses. The researcher also observed during the conduct of the study, that for the four hours of therapy, it was the hemodialysis nurse who was constantly with the patient during the treatment session. Nurses provided and clarified information to hemodialysis patients regarding the treatment during this interaction. There was no doubt that patients would not be able to perceive its importance and that nurses would not be able to explain the advantages and disadvantages of the therapy. The constant interaction of nurse to patient improved the care by communicating the needed information (King, 1981).

In relation to hemodialysis as treatment modality, health teachings on vascular access care was also found to be very much rendered by nurses over the other aspects of hemodialysis care. The result suggests that the vascular access was linked to hemodialysis treatment and was

considered to be the lifeline of hemodialysis patients. Once the vascular access site is damaged, they cannot undergo therapy and requires preparation before a new site can be made; hence, these promoted patients and nurses to be aware of preventing damage to their vascular access site. It was promulgated in the clinical practice guidelines for vascular access that all hemodialysis patients should have education on preserving the veins used in hemodialysis treatment (Fluck & Kumwenda, 2011). Therefore, repetition of its importance and care was emphasized by nurses.

Accordingly, lack of education to treatment systematically deprives patients of their autonomy (Schatell & Alt, 2008). Insufficient knowledge on the advantages and disadvantages of the treatment prevented patients the opportunity to decide if they were to undergo or to terminate the treatment. As it was coined by Andreucci et. al. (2004), in the "Rights of chronic renal failure patients undergoing chronic dialysis therapy" it is the right of patient to be informed of the medical consequences and the possible complications of their treatment as well as their self-care requirements. Patient's knowledge of potential health problem was necessary for promoting self-care behaviors (Orem, 1971). Therefore, by making patient understand about the treatment, it may prevent them from skipping one or more dialysis sessions which is associated with a relative mortality risk of 30% (Kammerer et. al., 2007; Saran et. al, 2003) that is caused by life-threatening conditions such as volume overload and hyperkalemia. The extensive health teachings provided by nurses to hemodialysis patients could lead to retention and awareness of the importance of attending the scheduled hemodialysis session.

On the other aspects of care, health teachings on the dietary and fluid management were perceived by the patients to be the least rendered by nurses. The observed result could be attributed to the fact that in the care of hemodialysis patients, it involved a multidisciplinary approach that consisted of nurses, dieticians and physicians. Patients have continuous check-up with their nephrologists who provided them specific information regarding their diet. With this, nurses then were perceived by patients as the least provider of information regarding their dietary and fluid allowances. As supported by the study of Toussaint et. al. (2010), it revealed that patients were mostly informed by the nephrologists (60%), followed by the dieticians (43%), and were lastly informed by nurses (38%). The researcher also observed that during the conduct of the study, patients often asked their nephrologists regarding their dietary and fluid adjustments than the hemodialysis nurses. This observation suggested that patient viewed physicians to be more comprehensive at giving information concerning their diet and fluid adjustments than to any other members of the health care team.

Further reason that resulted to the perceived moderate health teachings rendered to hemodialysis patients regarding their diet and fluids was associated to the observed factor that some of the patients' family members or the patients themselves were health care provider. This served as a contributory factor that hindered nurses to assist patients in learning because they thought they have already the knowledge on how to take care of their sick relatives or

themselves. Indeed, it was difficult to teach someone who has the knowledge about taking care of oneself, because the ego decreases an individual's receptivity to listen. Consequently, patients may either not receive the information to manage dietary and fluid intake or they may be insulted with the redundancies of information they have (Bastable, 1997; 2003). Thus, nephrologists direct the care and nurses coordinates the care (Compton et. al., 2009). It was the nurses' responsibility to reinforce patients' dietary and fluid management because it played an integral component in slowing the progression of chronic kidney disease.

In Table 2, findings showed a pattern that the longer the hemodialysis patient was under treatment, the more extensive their perception on the health teachings rendered to them by hemodialysis nurses. Patients who had shorter duration of treatment have observed that health teachings as moderately rendered to them by nurses has implied several causes that could affect their interest. It was the author's impression that patients have not yet been able to familiarize with the nurses and develop therapeutic nurse-patient relationship; hence, the extent of health teachings rendered to them by nurses was perceived to be moderate.

**Table 2:** Extent of Health Teachings Rendered to Hemodialysis Patients According to Duration of Treatment

Health Teaching Indices	Duration of Treatment							
	0-12 months		13-36 months		37-72 months		73-120 months	
	x	I	x	I	x	I	x	I
Diet and fluids	2.84	MR	2.92	MR	3.11	MR	3.00	MR
Medication	3.03	MR	3.25	MR	3.44	VMR	3.50	VMR
Hemodialysis as treatment modality	3.59	VMR	3.56	VMR	3.78	VMR	4.00	VMR
Vascular access care	3.55	VMR	3.59	VMR	3.33	VMR	3.50	VMR
Activities of daily living	3.24	MR	3.32	VMR	3.39	VMR	3.75	VMR
Average mean	3.25	MR	3.33	VMR	3.41	VMR	3.55	VMR
$F = 0.85, F_{crit.} = 3.24, Sig. = 0.49$ $f(3, 16) = 0.85, \text{not significant}, P > 0.05$								

At this stage patients were still in denial about their condition which may decrease their understanding of the health teachings provided to them by nurses. It is the initial stage, wherein hemodialysis patients refused to accept the reality relating to the present condition. Accordingly, patients' denial is the stage wherein they do not want to believe that change is happening in their life (Kubler, 1969). Patients may believe that the disease could not hurt them and ignore the nurses' advice that could help keep the disease under control. The period of initiation of dialysis is often a stressful one causing depressive symptoms and high level of anxiety (Watnick et. al., 2003; Klang et. al., 1996). When patients realized that the change is real, it usually turned to anger (Kubler, 1969). At this point in time the person is very difficult to care due to misplaced feelings of rage and envy (Kubler, 1969). Hemodialysis patients may have limited ability to absorb information about why it is important to adhere to treatments, therapies, and life style alterations (Wingard et. al., 2007). Therefore, these factors may

interfere to patients' ability to understand and to perceive the health teachings rendered to them by hemodialysis nurses.

Aside from the emotional effects of the disease, patients may also suffer from fatigue that decreases their energy to perceive the extent of health teachings rendered to them by nurses. The changes in the life and poor prognosis of hemodialysis patients have both physical and emotional manifestations for learning (Van Hoozer, 1987). Obviously, hemodialysis patients at a shorter duration of treatment have several factors that may affect their ability to perceive and recall the health teachings rendered to them by nurses. As supported by a study conducted to patients with chronic fatigue syndrome, it was found out that they have reduced attention capacity and impaired memory (Joyce et. al., 1996); therefore, this led to patients' decrease perception on the health teachings rendered to them. However, nurses must extend their patience in teaching the patients in spite of these conditions to prevent monthly first-year mortality rates of dialysis (US Renal Data System, 2008).

Correspondingly, patients with frequent dialysis schedule in a week have more frequent interaction with the nurses that resulted to health teachings as extensively rendered (Table 3). Comparing patients on shorter duration of treatment to patients on longer duration of treatment, the latter perceived the health teachings of nurses as extensively rendered possibly due to the therapeutic nurse-patient relationship that have developed. As one of the proposition of Imogene King's theory, that if interpersonal relationship is present in nurse-patient interactions, transaction will occur and therefore the goal of teaching the patient will be attained ([http://currentnursing.com/nursing\\_theory/goal\\_attainment\\_theory.html](http://currentnursing.com/nursing_theory/goal_attainment_theory.html)). The major emphasis on hemodialysis patients during the first encounter with the nurses is an atmosphere in which trust can grow. In any relationship, trust is nurtured by demonstrating genuineness and empathy, developing positive regard, showing consistency, and offering assistance in alleviating patient's emotional pain or problems (Varcarolis & Halter, 2009). A relationship where trust and confidence has been established can improve patient's perception, thereby appreciating the nurses' health teachings to be rendered extensively.

Furthermore, some patients quickly accept the disease and turn their attention towards healing. Managing a long-term illness can also bring emotional upheaval, which brings the triumphant feelings and strength that come with the overcoming obstacles. Those who have hemodialysis for 4-5 years often had accepted reality and are willing to learn. Accordingly, acceptance is about seeing the reality and coping with the present condition (Kubler, 1969). In other words, these patients stayed with the medical advances and worked with nurses to keep the disease in check. Adaptation to illness has led to the acceptance of reality, to part with the old self but appreciate worth of the new self, and try out new roles (Van Hoozer, 1987). During this stage of time, patients are motivated to seek health-related information that led to the result of having long term hemodialysis patients perceived that health teachings was very much rendered to them by hemodialysis nurses.

Nevertheless, hemodialysis patients' perception on the extent of health teachings rendered to them by nurses has no significant difference according to the duration of treatment. The result may have occurred because regardless of being a new or an old patient in the health care facility, it is the responsibility of nurses to provide patients the health teachings necessary to attain self-control over their life-changes. The duration of patients in the treatment is not a factor that will hinder or promote therapeutic relationship between nurse and patient for a health education to transpire. According to Shatell (2004), extensive time is not necessary to form a relationship between the nurse and the patient. It implied that nurses continue to respond to the learning needs of individual regardless of their duration of treatment. Hemodialysis patients are at high risk for several complications and calls for more intensive health education to prevent adverse outcomes (Sarnak et. al., 2003). The result suggested that there is a tremendous need for nursing to look at how well patient teaching principles are taught and integrated into practice.

In Table 3, the perception of hemodialysis patients on the extent of health teachings rendered to them by nurses in relation to how many times they attended their treatment appeared to be very much rendered among patients with twice and thrice a week schedule. The result was associated to the increase interaction of patients with the nurses. The more frequent a patient attended to the dialysis session; the greater was the interaction with the nurses. A greater interaction gave opportunities for patient to clarify health concerns to the hemodialysis nurses. A patient who gets immediate feedback on their health concerns on shorter time interval of reinforcement the more effective it is to build a strong response on the perceive health teachings rendered to them by nurses (Van Hoozer, 1987). Through this constant provision of health teachings to patient, the existing information was refined throughout as new learning may be encountered which in turn helped patient to improve their behavior.

**Table 3:** Extent of Health Teachings Rendered to Hemodialysis Patients According to Number of Hemodialysis Session per Week

Health Teachings Indices	Number of Hemodialysis Session in week					
	Once a week		Twice a week		Thrice a week	
	x	I	x	I	x	I
Diet and fluids	2.92	MR	2.89	MR	2.89	MR
Medication	2.75	MR	3.16	MR	3.19	MR
Hemodialysis as treatment modality	2.75	MR	3.69	VMR	3.57	VMR
Vascular access care	3.17	MR	3.57	VMR	3.57	VMR
Activities of daily living	3.00	MR	3.31	VMR	3.27	VMR
Average mean	2.92	MR	3.32	VMR	3.30	VMR
$F = 3.65, F_{crit.} = 3.89, Sig. = 0.06$ $f(2, 12) = 3.65, \text{not significant}, P > 0.05$						

On the other hand, patients who attend once a week therapy perceived health teaching to be moderately rendered. This may be associated to the fact that a long interval after the last reinforcement of information was given consequently be forgotten by hemodialysis patients. Less than two weeks after learning, 90% of the information has been forgotten or

cannot be retrieved from memory (De Young, 2009). The length of time interval since health teaching was provided to hemodialysis patients may influence the prediction of future change in the perception of rendered health teachings (Bastable, 1997; 2003). Memories in the brain may not be able to retrieve when connections to the memory have been weakened (De Young S, 2009). In the case of hemodialysis patients whose health status is fragile, they have narrowed focus on the health teachings rendered to them by nurses. According to King's framework, a humans' perception to object, person, and events may influence the behavior, social interaction, and health (Williams, 2001). Therefore, these factors contribute to the perceived moderate extent of health teachings rendered by nurses to these patients. However, though results showed a clear difference in the mean values, statistics did not show significant difference on the perceived extent of health teachings rendered to hemodialysis patients according to the number of hemodialysis session a patient attends in a week. This suggested that the frequency of interaction and repetition of information provided was not a factor for a patient to learn. Because learning was based on the principle that hemodialysis patients vary in regard to the input, processing, and output aspects of learning (Van Hoozer, 1987). The most important thing was how hemodialysis patients would internalize the information that should result to better understanding of the patient. Especially, that learning may be weakened by the present condition of hemodialysis patients. The real challenge for hemodialysis nurses depends in diagnosing the strengths and weaknesses of patients so that strengths can be utilized for an effective learning to occur (Bastable, 1997; 2003). Learning is perceived with constant repetition of information. According to Ausbel (1963), repetition of information would enhance the retention of information (De Young, 2009). The increased interaction assists in drawing patients to learn and enhances patients to information retention and therefore increases perception to learning (Wingard, 2007).

#### 4. Conclusion & Recommendation

Health teachings on the different aspects of hemodialysis care have a great contribution to maintain health and prevent complications among hemodialysis patients. Extensive health teachings rendered to hemodialysis patients as perceived by both patients and nurses can help in the maintenance of hemodialysis patients' self-care ability to prevent aggravating complications of the disease. However, the perceived extent of health teachings rendered on each aspect of care differed between patients and nurses. The similarities on the moderate extent of health teachings rendered to hemodialysis patients on diet and fluids could contribute to patients' inability to prevent worsening the damage of kidneys. On the other hand, the identified patient and nurse variables were not significant factors for the extensive health teachings rendered to the hemodialysis patients.

Further, the study suggested that the respect of patients and nurses towards each other was an independent factor to enhance the teaching and learning process among hemodialysis patients. On the other hand, communication skills of nurses should be enhanced to make teaching and

learning effective. Hemodialysis nurses must possess the needed specialization required to strengthen the health teachings on diet and fluid management of patients. It is further sought that nurses must collaboratively work with the nephrologists and dietician to be able to gain competence in providing dietary and fluid instruction. Nursing school administrators must review the nutrition subject to include specialized diet for each illness to make the student nurses more prepared when dealing with patients requiring special diet. Together with improving the nurses' teaching roles, a brochure for disease management should be provided to patients to keep them remember the information provided. The researcher further recommends an assessment should be done every dialysis session about the things that may confuse patients from the previous health teachings provided. A checklist should be provided for patients to evaluate their learning needs. Moreover, for an effective learning to occur nurses should promote a culturally competent facility, eliminating possible hindrances and promoting active participation of patients maintaining the dignity and rights of each individual. Administrators of every hemodialysis centers should improve the facility and provide a more comfortable environment conducive for learning.

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