

*“An evaluatory study to validate the defining characteristics of NANDA nursing diagnosis ‘excessive fluid volume’ amongst pre haemodialysis patients diagnosed with Chronic Kidney Disease from selected Hospital in Mumbai using Fehring’s CDV model.”*

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## **RESEARCH ABSTRACT**

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### **STATEMENT OF THE PROBLEM:**

“An evaluatory study to validate the defining characteristics of NANDA nursing diagnosis ‘excessive fluid volume’ amongst pre-hemodialysis patients diagnosed with Chronic Kidney Disease in a selected hospital, using Fehring’s CDV model.”

Validation of a nursing diagnosis produces technical and scientific knowledge necessary for the understanding of patients' responses to particular phenomena, making possible both its appropriate use in clinical practice, as well as bringing important implications for teaching and nursing research.

The principle aim of the research is to validate the nursing diagnosis excessive fluid volume using a selected sample (convenient sample) of pre- hemodialysis patients diagnosed with CKD in Fortis Hospital, Mulund.

The study adopted an evaluative, cross-sectional, quantitative approach. This study has a univariate variable that is, defining characteristics of ‘Excessive fluid volume. Data was collected based on Fehring’s CDV model. Reliability of the tool was established at  $r = 1$  through Cohen’s Kappa method. The pilot study established the feasibility of the study.

During the actual process of data collection, formal permissions were obtained. The respondents were assured of anonymity and confidentiality. Informed consent was

obtained. The respondents were interviewed using the interview schedule to know their personal and illness related data. The respondents then were assessed for the presence/absence of DCs of excessive fluid volume using the two-point Likert scale.

## **SIGNIFICANT FINDINGS OF THE STUDY**

### **PATIENT DEMOGRAPHIC DATA**

- According to study findings majority of the respondents belonged to the age group 40-80 years (93.32%). The male female ratio was 4:1.
- Majority of the respondents in the present study were married, educated up to graduation level and belonged to the middle socio-economic status.
- 70% of the respondents consumed non-vegetarian food
- Majority of the respondents had no addiction to any substances as tobacco or smoking. All lived a sedentary life style, may be because of their age and perhaps the draining nature of the illness – CKD.

### **DATA RELATED TO ILLNESS**

- According to the study, 90% of the respondents were diagnosed as CKD and 10% were diagnosed to be having ESRD.
- Majority (76.66%) of the respondents diagnosed with CKD were having the history of the diagnoses for less than 5 years.
- 13.33% of the respondents had co-morbidities as Diabetes mellitus, 36.66% had Hypertension and 36.66% had both (HT & DM) the co-morbidities. Most of them had these co-morbidities prior to being diagnosed as CKD
- Majority of the respondents did not have any family history of illness but few had the family history as diabetes-13.33%, Hypertension-16.66%, and CKD - 20%.

### **Data about the Expert Nurses:**

- The study comprised of 2 expert nurses to validate the DCs 'excessive fluid volume'. Both the expert nurses had completed their diploma in nursing and were pursuing their 2<sup>nd</sup> year Post Basic B. Sc nursing studies.
- The present study is their first scientific production, addressing both CKD and the nursing process.
- In addition, both have had proven clinical experience. One expert nurse has 4 years of experience in the nephrology unit with a short term certified course in dialysis and kidney transplant and the other expert has 8 years of experience in critical care unit with a diploma specialization in Critical Care nursing. Both the respondents were using NANDA-1 nursing diagnosis in their daily clinical practice.

### **VALIDATION OF THE DCs EXCESSIVE FLUID VOLUME IN PRE-HAEMODIALYSIS PATIENTS WITH CKD USING FEHRINGS CDV MODEL.**

- Based on the results of inter-rater reliability index of 32 DCs of NANDA nursing diagnosis 'Excessive Fluid Volume', 12 major ( $R \geq 0.80$ ) and 2 minor DCs ( $R \geq 0.50$  to  $0.79$ ) were obtained and 18 DCs ( $R < 0.50$ ) of the nursing diagnosis are discarded.
- The expert nurses have considered 12 DCs of nursing diagnosis 'Excessive fluid volume' as primary, that is, these DCs must be present at the establishment of the diagnosis. The 12 DCs were: increased Sr. BUN (1.0), Increased Sr. Creatinine (1.0), Variation in Sr. electrolyte (1.0), Azotemia (1.0), Intake exceeding output (1.0), Weight gain (1.0), Oliguria (1.0), Edema that may lead to anasarca (0.93), Decreased haemoglobin and Hematocrit (0.93), Activity intolerance (0.93), Increased blood pressure (0.83), and Fatigue (0.83).
- The 2 DCs considered as secondary were: change in respiratory pattern (0.66) and lack of appetite (0.50). These signs and symptoms picture the manifestations of chronic renal failure most commonly present in patients admitted to the dialysis unit.
- The 18 DFs ( $R < 0.50$ ) of the nursing diagnosis are discarded pulmonary edema , increased PAP, Ascites, pleural effusion, paroxysmal nocturnal dyspnea,

orthopnoea, S3 heart sound, bounding pulse, jugular vein distension, increased CVP, palpitation, hepatjugular reflux, Hepatomegaly, cough, change in mental status, anxiety, restlessness, seizure.

## **CONCLUSION:**

Nursing diagnosis is a phrase summarizing the cluster of empirical signs and symptoms which suggests a state-of-the-patient requiring nursing intervention. The standardization of nomenclature is essential to nursing theory and practice. Scientific validation of highly reliable cues is basic to the correct identification of the nursing diagnosis. The purpose of this research was to validate the diagnosis, *excessive fluid volume*. The research question proposed was: Which signs and symptoms of excessive fluid volume compose the critical cluster of defining characteristics for the nursing diagnosis in pre-haemodialysis patients diagnosed with CKD. This research study is significant in attempts to validate deductively a widely applicable physiological nursing diagnosis in pre-haemodialysis patients.

In this study the validation of 22 defining characteristics belonging to NANDA diagnosis and 10 characteristics identified through literature review was carried out using Fehring's CDV model. The expert nurses identified 12 DCs ( $R \geq 0.80$ ) as primary and 2 DCs ( $R \geq 0.50$  to  $0.79$ ) as secondary and 18 DCs ( $R < 0.50$ ) of the nursing diagnosis were discarded. The hypothesis that there will be significant difference between the evaluations of the defining features of nursing diagnosis "excessive fluid volume" by the expert nurses among Pre Haemodialysis Patient with Chronic kidney disease and that stated by NANDA III is accepted. The reason of rejection of the null hypothesis can well be demonstrated in rejection of 18 DCs which do not fit into pre-hemodialysis patients with CKD. It is highlighted that 5 of the DCs: increased BUN ( $R=1$ ) increased creatinine ( $R=1$ ), Activity intolerance ( $R=0.93$ ), fatigue ( $R=0.83$ ) and lack of appetite ( $R=0.50$ ) were clinically relevant to validate this diagnosis. Therefore, their inclusion into the current DCs in the NANDA-II taxonomy is suggested.

## ACKNOWLEDGEMENT

*"Gratitude makes sense of our past, brings peace for today, and creates a vision for tomorrow" .*

*Melody Beattie*

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Last but not the least we would like to conclude by saying, “Every ceiling when reached becomes a floor, upon which one walks as a matter of course & prescriptive right. We wish to make more & more floors to tread on professionally again & again.”

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# CHAPTER 1

## INTRODUCTION

***“TO ACQUIRE KNOWLEDGE, ONE MUST STUDY, BUT TO ACQUIRE WISDOM ONE MUST OBSERVE”***

A nursing diagnosis is defined as a clinical judgment about individual, family or community responses to actual or potential health problems or life processes, which provides the basis for selection of nursing interventions to achieve outcomes for which the nurse is accountable. Accurate and valid nursing diagnoses guide the selection of interventions that are likely to produce the desired treatment effects and determine nurse-sensitive outcomes. It is influenced by theories and concepts and constitutes the relevant part of the nursing care process, by means of a methodological model for managing information about the client and decision-making about care.

Nursing diagnoses is seen as a key to the future of evidence-based, professionally-led nursing care and to more effectively meeting the need of patients and ensuring patient safety.

Nursing Diagnoses: Definitions and Classification is the definitive guide to nursing diagnoses worldwide. Each nursing diagnoses undergoes a rigorous assessment process by NANDA-I with stringent criteria to indicate the strength of the underlying level of evidence. Each diagnosis comprises a label or name for the diagnosis and a definition. Actual diagnoses include defining characteristics and related factors.

The use of nursing taxonomies has gained ground in order to standardize the language that classifies diagnostic assessment, interventions and outcomes through evidence-based nursing practice. The need and importance of further knowledge through new research about the nursing classifications in different real

care environments is imperative. Thus, it is possible to expand the understanding of them and assess their application in patient care.

When the nurse does not find the correct meaning of the phenomenon that she seeks to identify, then her interventions may not be the most appropriate. Hence the necessity of the diagnosis to have a consistent theoretical argument, based on the literature and its confirmation in the clinical setting. That is, a diagnosis should be subjected to clinical trials that produce evidence sufficient to guarantee its validity.

Validation of a nursing diagnosis produces technical and scientific knowledge necessary for the understanding of patients' responses to particular phenomena, making possible both its appropriate use in clinical practice, as well as bringing important implications for teaching and nursing research. Validation of the defining characteristics of a diagnosis was an often cited theme within a recent review of literature, and the NANDA taxonomy II was the most addressed classification.

A beginning understanding of validation as it applies to nursing diagnosis can be obtained from dictionary. The college edition of Webster's New World Dictionary of American Language states that something is valid when it is "well-grounded on the principles or evidence".

- Gordon recently stated that "validity describes the degree to which a cluster of defining characteristics describe a reality that can be observed in the client-environment interaction".
- This definition expands the understanding of a nursing diagnosis, that is, a nursing diagnosis is essentially a cluster of characteristics that a nurse puts a label on for the communication purpose.
- These defining characteristics are valid when they actually occur and can be identified as a cluster in the clinical situation.

- Gathering evidence that, the nurses actually do identify the frequent defining characteristics is a process of validation.

## **NEED OF THE STUDY**

CKD (CKD) is a worldwide public health problem, both for the number of patients and cost of treatment involved. It is a devastating medical, social, and economic problem. Globally, CKD is the 12th cause of death and the 17th cause of disability, respectively. This is an underestimate as patients with CKD are more likely to die of cardiovascular disease (CVD) than to reach end-stage renal disease (ESRD). Approximately 30% of patients with diabetes mellitus (DM) have diabetic nephropathy and with the growing number of DM patients and aging population there is likely a parallel increase in CKD incidence. As per the Diabetes Atlas 2006, the number of patients with DM in India (currently around 40.9 million) is expected to rise to 69.9 million by 2025 unless urgent preventive measures are taken. With increasing prevalence of CKD, CKD related excess CVD, ESRD and the consequent financial burden of renal replacement therapy (RRT); the importance of CKD and its risk factors has to be realized. The prevalence of ESRD and patients on RRT has increased over last two decades.

In a research done to identify the nursing diagnosis in CKD patients on haemodialysis - 24 nursing diagnosis were identified of which the most frequent were risk for infection (100%), excessive fluid volume (99.4%) and hypothermia (61.8%).

The nursing diagnosis "Excessive fluid volume" proposed by North American Nursing Diagnosis Association in 1980 is described as the state in which an individual experiences increase fluid retention and oedema. Critical defining characteristics are "defining characteristics which must be present in

order for the nursing diagnosis to be made" (Moritz, 1982). The order existing among clinical phenomena can be described statistically (Brown, 1974).

Actual fluid volume excess is defined as an increased extracellular volume due to acute gain of body fluid. The diagnosis can be attributed to a multitude of physiological and pathological processes. Specifically, actual fluid volume excess may result from stress, malnutrition, exogenous cortisone therapy, impaired cardiac function, impaired renal function, syndrome of inappropriate antidiuretic hormone, altered ventilation, and liver disease (Collins, 1983; Feldman, 1982, Ganong, 1981; Gorringer-Moore, 1982; Guyton, 1976; Isaacs, 1979; Jensen, 1980; Nielsen, 1980; Pestana, 1981). A critical cluster of signs and symptoms must be determined to identify the nursing diagnosis clinically. The identification of a diagnosis is a "disjunctive concept attainment task" (Matthews & Gaul, 1979, p.25). One cue cannot define a diagnostic category; diagnosis is based upon the grouping or clustering of cues (Matthews & Gaul, 1979). "From a set of cues one infers the state of a person at a particular time; the form of inference is clinical or probabilistic. . ." (Gordon, 1982). Because 100 percent confidence cannot be attained (Gordon, 1982), the nurse must be able to identify highly reliable signs and symptoms which define the clinical state-of-the-patient (Gordon, 1976). The identification of a nursing diagnosis requires the recognition of the cluster of cues defining the clinical state (Carnevali, 1983).

Ever since nurses began officially to label the phenomenon that they diagnose and treat, there has been a need to validate the existence of that phenomenon. When the nurses who use NANDA list of nursing diagnosis assess their patients and find their defining characteristics are relevant and identifiable in the clinical practice, then the nurses will have confidence in the official diagnosis and will view them at best from the real world of nursing.

Gordon (1982) stated clinical research is essential to the validation of nursing diagnoses. The existence of health states described by clusters of defining characteristics must be verified. At present, inductive and deductive modes of

identifying nursing diagnoses are supported by the Task Force Conference Planning Committee (Doona, 1976; Gordon, 1982c). Most of the nursing diagnoses have been developed inductively. However, Williams (1980) warned that the inductive approach may limit nursing to today's scope of practice. Nursing diagnoses and their respective critical clusters of defining characteristics must be validated deductively.

Gordon and Sweeney (1979) proposed the "nurse-validation model." The research procedure consists of identifying which defining characteristics of a nursing diagnosis are present when the diagnosis is utilized clinically. Signs and symptoms with high frequencies of occurrence are then designated as the critical cluster of defining characteristics.

In the scenario of research on the nursing diagnosis "Excess Fluid Volume", a study stands out that identified the defining characteristics in the context of Heart Failure patients. In this retrospective study of 30 patients' records, the defining characteristics related to the diagnosis were pulmonary crackles, increased pulmonary capillary pressure, and dyspnea. Also, a descriptive and exploratory research which included 29 patients selected by two expert nurses and divided in two groups: with (nine patients) and without a diagnosis (20 patients) revealed that from the patient group with the diagnosis, the following defining characteristics were identified: edema, orthopnoea, blood pressure variation, positive fluid balance, change in breathing pattern, central venous pressure variation and electrolyte alteration.

Based on the research findings in literature so far, a gap is evidenced regarding clinical validation studies for this diagnosis. The relevance of clinical validation studies in different contexts permits establishing priority nursing diagnoses and, mainly, determining conducts based on the best evidence. Although, the diagnoses "Excess Fluid Volume" has recently been validated for patients with cardiovascular patients, clinical validation of the diagnosis remains unexplored in the context of CKD.

The motivation for this study was to gain more knowledge with respect to understanding the extent of validity of the nursing diagnoses "Excess Fluid Volume" amongst pre hemodialysis patient with CKD, so as to improve the care for them. Thus, it will lead to better use of the nursing classifications NANDA - II in the clinical practice as a qualifying tool of the care process. Precisely, this research study endeavoured to identify the critical cluster of defining characteristics of the physiologic nursing diagnosis, actual fluid volume excess. The critical cluster would be identified statistically.

## **CONCEPTUAL FRAMEWORK**

A framework is conceptual under pinning of a study. Not every study is based on a study or a conceptual model, but every study has a frame work. Charter (1975) has stated that the conceptual framework formalizes the thinking process, so that others may read and know the frame of reference, which is basic to the research problem. It also gives directions to the relevant questions on the phenomenon under study. The conceptual framework of the study is based on system's theory.

"System Theory", is the transdisciplinary study of the abstract organization of a phenomenon, independent of their substance, type, or spatial or temporal scale of existence. It investigates both the principles common to all complex entities &, the (usually mathematical) models which can be used to describe them.

This theory has three components:

- Input
- Process
- Output

**INPUT** can be defined as, any form of information, energy or material that enters into the system through its boundary.

**PROCESS** is often referred to as transformation of the input in such a way that it can be readily used by the system.

**OUTPUT** refers to, the outcome of the processed data, that is any energy, information or material that is transformed to the environment.

#### **IN THIS STUDY,**

**Input:** refers to the tool selected to validate the defining characteristics of NANDA nursing diagnosis “Excessive fluid volume” among pre haemodialysis patient diagnosed with CKD. It includes:

- Interview Schedule: which includes interviewing the respondents about their:
  - a. Demographic data and
  - b. Data related to their illness
- Observational tool to assess the presence/absence of defining characteristics of “Excessive Fluid Volume” amongst pre haemodialysis patients diagnosed with CKD.

**Process:** refers to the formal interaction and observation of the respondents with an aim to collect the above stated data. The procedures used were:

- Interviewing the respondents
- Assessment of the Defining features in the respondents.

In this study, the *clinical diagnostic validity* (CDV) model is used to obtain evidence for the existence of the given diagnosis from the actual clinical setting, with two expert clinicians doing the observation and ratings, since the nature of nursing diagnosis related more to physiology.

Prior to using the model, each of the defining characteristics of the diagnosis being tested was described through literature review to provide literature support for the diagnosis and defining characteristics.

**The steps for the CDV model are as follows:**

1. Two clinical experts assess a given number of patients with the pre-established diagnosis “Excessive Fluid Volume” that is being tested.
2. Both clinicians observe for the presence or absence of each defining characteristic of the diagnosis being validated. Each defining characteristics needs to be operationally defined before the actual assessment.
3. Calculate the weighted inter rater reliability ratios for each defining characteristic by the following formula:

$$R = \frac{A}{A+D} \times \frac{F1/N+F2/N}{2}$$

Where A = number of agreements; D = number of disagreements; F1 =frequency of characteristics observed by the first rater; F2 = frequency of characteristics observed by the second rater; N = number of subjects observed; and R = weighted inter rater reliability ratio.

4. Discard the defining characteristics with weighted inter rater reliability ratios less than 0.05.
5. Defining characteristics with weighted ratios greater than or equal to 0.80 will be considered as "major." The Defining characteristics with ratios less than 0.80, but greater or equal to 0.50 will be labelled as "minor."

According to this model, defining characteristics are labelled as "major" if they reach a score of 0.80 or greater. The rationale is that this score means the experts agree that the defining characteristics are very much indicative of the diagnosis being tested. According to NANDA guidelines, "major" characteristics must be present for a diagnosis to be made. The 0.80 score for reliability coefficients for measurement tools is a standard cut-off score.

**OUTPUT:** refers to:

- Inter-rater reliability ratio of the each of the defining characteristics of the nursing diagnoses “excessive fluid volume” diagnosed in pre-hemodialysis patients with CKD as assessed by the clinical experts on the validated observational tool.
- Categorizing the defining characteristics of the nursing diagnoses “excessive fluid volume” diagnosed in pre-hemodialysis patients with CKD as major and minor defining characteristics.
- Comparison of the researched defining features of the nursing diagnoses “excessive fluid volume” in pre-haemodialysis patients diagnosed with CKD with that listed under NANDA-II to know the extent of its validity.

## **PROBLEM STATEMENT**

“An evaluatory study to validate the defining characteristics of NANDA nursing diagnosis “Excessive fluid volume” amongst pre haemodialysis patients diagnosed with CKD in a selected hospital in Mumbai using Fehring’s CDV model.”

The principle aim of the research is to validate the nursing diagnosis excessive fluid volume using a selected sample of pre haemodialysis patients diagnosed with CKD, i.e. to identify which defining characteristics the nurses consider primary and which as secondary.

## **OBJECTIVES OF OUR STUDY:**

1. To develop and validate the observational tool with the defining characteristics operationally defined through review of literature, for the nursing diagnosis 'excessive fluid volume' diagnosed in pre-haemodialysis patients with CKD
2. To assess the defining characteristics of the nursing diagnosis 'excessive fluid volume' amongst the selected sample of pre haemodialysis patients diagnosed with CKD.
3. To analyze which defining characteristics the clinical nurses assess as primary and secondary in the nursing diagnosis 'excessive fluid volume' for pre haemodialysis patients diagnosed with CKD.
4. To correlate the validated diagnoses with that of NANDA-II nomenclature.

## **HYPOTHESIS**

- $H_1$ : NANDA nursing diagnoses "excessive fluid volume" will not be valid in Pre haemodialysis patients diagnosed with CKD.
- $H_0$ : There will be no significant difference between the evaluation of the defining features of nursing diagnosis "excessive fluid volume' by the clinical nurses among Pre Haemodialysis Patient with CKD and that stated by NANDA III

## **OPERATIONAL DEFINITIONS**

### **EVALUATION**

According to Oxford Dictionary, Evaluation is the making of a judgement about the amount, number, or value of something.

In this study, *evaluation* means identifying which defining characteristics the Expert Nurses consider primary and secondary in the NANDA nursing diagnosis “Excessive Fluid Volume” which will be analyzed based on the calculated weighted inter rater reliability ratios stated in Fehring’s CDV model.

### **VALIDATION**

In science and statistics, *validity* is the extent to which a concept, conclusion or measurement is well-founded and corresponds accurately to the real world. The word "valid" is derived from the Latin ‘validus’, meaning strong.

In this study, the researchers will assess (using the Observational tool) and compare the evaluated defining features of the nursing diagnoses “Excessive Fluid Volume” with that stated in NANDA- II nursing diagnoses so as to conclude whether the cluster of the defining features of the said definition is applicable amongst pre haemodialysis patients with CKD or no. Fehring’s CDV framework is used to do the validity of the nursing diagnoses “Excessive Fluid Volume”

### **STUDY**

According to the oxford dictionary (2005), it refers to the activity of learning or gaining knowledge, either from books or by examining things in the world.

In this study, study refers to assessing and examining to what extent the defining characteristics of NANDA-II nursing diagnosis ‘Excessive Fluid

Volume' are valid amongst pre haemodialysis patients with CKD, using Fehring's CDV model."

## **NANDA**

NANDA INTERNATIONAL (formerly the North American Nursing Diagnosis Association) is a professional organisation of nurse's standardized nursing terminology that was officially founded in 1982 and develops researches, disseminates and refines the nomenclature, criteria and taxonomy of nursing diagnosis. Our study refers to the classification in the Taxonomy II North American Nursing Diagnosis Association.

## **EXPERT NURSES:**

An expert nurse is a registered nurse with a earned Bachelor's/Master's degree from a College affiliated to a recognised University.

In this study, *expert nurses* are referred to those two nurses who are researchers in this study. They have been consensually selected by the team of researchers taking into consideration their professional experience. Both these nurses have completed their diploma in nursing (G.N.M) and are registered with Maharashtra Nursing Council and are pursuing their 2<sup>nd</sup> year studies of Post Basic B.Sc. Nursing. One of the expert nurses is having a diploma specialisation in nephrology with 4 years of experience in the said clinical area and the other expert has a diploma specialisation in Critical Care Nursing with 8 years of experience in the said clinical area.

## **EXCESSIVE FLUID VOLUME**

As per NANDA-II, nursing diagnosis excessive fluid volume is defined as an increase in isotonic fluid retention.

In this study, *excessive fluid volume* is based on NANDA-II nomenclature, where there is an increase in extracellular volume due to gain of body fluid amongst pre haemodialysis patients with CKD. The diagnosis can be attributed to physiological and pathological processes resulting from impaired renal function.

## **DEFINING CHARACTERISTICS**

As per medical dictionary for health professional, defining characteristic are signs and symptoms associated with a specific nursing diagnosis.

In this study, the defining features are the all the defining features as stated in NANDA-II nomenclature and also as identified through ROL with respect to the nursing diagnosis “excessive fluid volume” found in pre haemodialysis patients with CKD.

The Defining characteristics for the nursing diagnosis *excessive fluid volume* (NANDA) are:

1. Jugular vein distention;
2. Decreased hemoglobin and Heamatocrit;
3. Weight gain over short period;
4. Changes in respiratory pattern, dyspnea or shortness of breath;
5. Orthopnoea;
6. Abnormal breath sounds (rales or crackles);
7. Pulmonary congestion;
8. Pleural effusion;
9. Intake exceeds output;
10. S3 heart sound;
11. Change in mental status;

12. Restlessness;
13. Anxiety;
14. Blood pressure changes;
15. Pulmonary artery pressure changes;
16. Increased central venous pressure;
17. Oliguria;
18. Azotemia;
19. Specific gravity changes;
20. Altered electrolytes;
21. Edema may progress to anasarca
22. Positive hepatjugular reflex

The other Defining Characteristics for the nursing diagnoses *excessive fluid volume* found through ROL in pre haemodialysis patients with CKD are:

1. Increased Sr.BUN
2. Increased Sr.creatinine
3. Pulmonary edema
4. Ascites
5. Paroxysmal nocturnal dyspnea
6. Bounding pulse
7. Palpitations
8. Hepatomegaly
9. Fatigue
10. Cough
11. Lack of appetite
12. Activity intolerance
13. Seizure

### **ASSUMPTIONS:**

- All pre haemodialysis patients diagnosed with CKD are diagnosed to be having the NANDA nursing diagnosis “excessive fluid volume”.
- Cluster of valid defining features help to state the nursing diagnoses reliably.
- The cluster of defining features for “excessive fluid volume” stated in pre haemodialysis patients diagnosed with CKD is not the same through review of literature, as that found in NANDA-II nomenclature for the said diagnoses
- The clinical nurses are considered as experts, based on Fehring’s CDV model, for the validation of the NANDA nursing diagnosis “excessive fluid volume” stated in pre haemodialysis patients diagnosed with CKD.

### **DELIMITATIONS:**

- This study is dealing with validation of the defining features of only one NANDA Nursing diagnosis diagnosed in pre haemodialysis patients with CKD.
- This study is using the Fehring’s Model - Clinical diagnostic validity (CDV) model for validating the selected nursing diagnoses “Excess Fluid Volume”

### **LIMITATIONS**

For this study, the following limitations are anticipated:

- Composition of the respondents is small.
- Two of the researchers are consensually selected to be the expert nurses for validation of the nursing diagnoses “Excess Fluid Volume”

## **SCOPE OF THE STUDY**

- This study will refine existing defining characteristics nursing diagnoses “Excess Fluid Volume”.
- The valid nursing diagnosis will provide the focus for planning nursing interventions that will assist patients to achieve positive health outcomes.
- The diagnosis will guide nursing intervention in naming accurately the phenomenon’s that are amenable to nursing intervention.

## **SUMMARY**

Nursing diagnosis is a phrase summarizing the cluster of empirical signs and symptoms which suggests a state-of-the-patient requiring nursing intervention. The standardization of nomenclature is essential to nursing theory and practice. Physiologic nursing diagnoses need to be developed. Scientific validation of highly reliable cues is basic to the correct identification of the nursing diagnosis. The purpose of this research was to validate the diagnosis, *excessive fluid volume*. The research question proposed was: Which signs and symptoms of excessive fluid volume compose the critical cluster of defining characteristics for the nursing diagnosis in pre-haemodialysis patients diagnosed with CKD. This research study is significant in attempts to validate deductively a widely applicable physiological nursing diagnosis. The development of the nursing diagnosis *excessive fluid volume*, will promote efficient communication and promotion of evidenced based nursing care.

## **CHAPTER- 2**

### **REVIEW OF LITERATURE**

“Literature adds to reality, it doesn’t simply describe it. It enriches the necessary competency that daily life requires and provides; and in this respects, it irrigates the deserts that our lives have already become” C. S.LEWIS

This chapter deals with the review of literature. According to Polit and Hungler (1978) reviewing the literature is important to gain a better understanding and insight necessary to develop a broad conceptual framework in which the problem can be examined. It helps in the formulation of a specific problem, acquaints the investigator to what is already known in relation to the problem under review, provides a basis for assessing the feasibility of a research program and gives information on the research approach.

According to Gordon and Sweeney (1979) and Fehring (1984), to validate a nursing diagnosis one must provide evidence that the defining characteristics (DC) to which the label refers can be actually observed in clinical situations. Due to the developmental nature of the nursing diagnosis movement, reports of validation studies in the literature are limited but gradually increasing. Gordon and Sweeney (1979) proposed one model for validation of nursing diagnosis, the content diagnostic validation model.

This clinical model uses direct observation of patient behaviours to identify nursing diagnoses. This type of study is carried out in clinical settings, and information is gathered verbally or from the clients' clinical records. Sample selection, accurate communication, and clear descriptions are of vital importance in collection of data. Assessment tools based on conceptual guidelines, guidelines for diagnostic categories, protocols for entering and discharging clients from the study, a format for collection of data and training of data collectors are all important aspects for consideration in carrying out this type of study.

The studies reviewed have been arranged under the following headings:

1. Studies revealing NANDA nursing diagnoses 'excess fluid volume' as the frequently occurring diagnose in patients with CKD.
2. Validation of NANDA nursing diagnoses 'excess fluid volume' in patients with CKD.
3. Use of Fehrings model in validation studies.
4. Use of inter-rater method in validation studies.

**Studies revealing NANDA nursing diagnoses 'excess fluid volume' as the frequently occurring diagnose in patients with renal failure.**

Cecília Maria Farias de Queiroz Frazao & others (2012) did a study to identify the most frequent nursing diagnoses in chronic renal failure patients on haemodialysis. It was a cross-sectional study that included 178 patients, selected by convenience sample of a consecutive type. For data collection, interview guides and physical examination were used. An individual process of clinical judgment for the nursing diagnoses was performed and, for better accuracy, the results obtained underwent a process of paired review among the authors. Twenty-four nursing diagnoses were identified, of which the most frequent were: risk for infection (100%); excessive fluid volume (99.4%); and, hypothermia (61.8%). The most frequent diagnoses identified were included in the safety / protection and nutrition domains of **NANDA-I**.

Poveda, Vanessa de Brito and others (2010) conducted a study to determine the most common nursing diagnoses in patients under hemodialysis treatment, based on the nomenclature of the North American Nursing Diagnosis Association -International NANDA-I, 2009-2011. This was a quantitative, descriptive and exploratory study, accomplished in a hemodialysis clinic in the State of São Paulo, Brazil, with a sample of 50 patients. The researchers identified 24 most frequent diagnoses, of which six were found in 100% of the sample studied; they were: impaired urinary elimination; impaired skin integrity; risk of infection; risk of ineffective renal perfusion; impaired physical mobility; and risk of electrolyte imbalance. Excess fluid volume was found in 84% of the patients.

To conclude, most of the researchers have concluded that the risk of imbalance fluid volume was present throughout the investigated sample but excessive fluid volume was found in 99% to 84% of subjects.

A few recent studies have pointed that over-hydration as a frequent problem in haemodialysis units leads to increased blood pressure and consequent complications during the procedure. Thus, there is frequent use of antihypertensive drugs in many treatment centres, while others combine dietary

salt restriction in an attempt to minimize this reality. Recent study followed for one year two groups, one (n = 190) submitted to salt restriction and other (n = 204) with the use of antihypertensive agents. They concluded that patients undergoing dietary salt restriction substantially used less antihypertensive agents and had lower inter-dialytic weight gain.

Thus, all the above studies revealed that NANDA nursing diagnoses 'excess fluid volume' as the frequently occurring diagnose in patients with CKD/ in patients undergoing haemodialysis and was included in the safety / protection domain of NANDA-I. Most of the researchers have concluded that the risk of imbalance fluid volume was present throughout the investigated sample but excessive fluid volume was found in 99% to 84% of subjects.

### **Validation of NANDA nursing diagnoses 'excess fluid volume' in patients with renal failure:**

Martins, Quenia Camille Soares; Aliti, Graziela Badin; et al; (May 2011) conducted a cross-sectional study aimed to clinically validate the defining characteristics of the Nursing Diagnosis Excess Fluid Volume in patients with decompensated heart failure. The validation model used followed the model of Fehring. The subjects were 32 patients at a University hospital in Rio Grande do Sul. The average age was  $60.5 \pm 14.3$  years old. The defining characteristics with higher reliability index (R):  $R > 0.80$  was: dyspnoea, orthopnea, oedema, positive hepatojugular reflex, paroxysmal nocturnal dyspnea, pulmonary congestion and elevated central venous pressure, and minor or secondary,  $R > 0.50$  to  $0.79$ : weight gain, hepatomegaly, jugular vein detention, crackles, oliguria, decreased hematocrit and haemoglobin.

Thus, this study indicates that the defining characteristics with  $R > 0.50$  and 1 were validated for the diagnosis Excess Fluid Volume.

### **Use of Fehring's model in validation studies:**

Lopes Jade L, de Barros AL, Michel J.L. (June; 2002), conducted a study to validate the content of the priority Nursing Interventions Classification (NIC) and Nursing Outcomes Classification (NOC). The researchers suggested outcomes for cardiac patients with the nursing diagnosis excess fluid volume in the Brazilian context. The content of the interventions and outcomes was scored by seven expert nurses using a Likert scale, using the Fehring's model. From the 83 activities of the priority NIC interventions, nine had scores lower than 0.5 (non-useful) and 50 had scores higher than 0.8 (major); from the 53 indicators of the suggested NOC outcomes, eight scored lower than 0.5 and 26 had scores higher than 0.8. The majority of the NIC interventions and NOC outcomes were considered useful by the Brazilian Cardiology expert nurses.

Juliana de Lima Lopes; Denise Altino, Rita de Cássia Gengo e Silva (2010) validated the defining characteristics of the currently approved and of those identified through reviewing the literature, for the nursing diagnosis: decreased cardiac output. It was a content validation study using the model proposed by Fehring. The defining characteristics were validated by 18 experts (eight doctors and ten nurses), using the five points Likert scale and according to the following classification: scores higher than 0.80 were considered as the main features; those with weight between 0.50 and 0.79 as secondary; and, those with average less than 0.50 as irrelevant. Of the 79 defining characteristics investigated, 38 (48.1%) were validated, among which 17 were present in NANDA-I, and 41 (51.9%) were considered as irrelevant to this diagnosis, of these, eight are listed in NANDA-I.

Thus, the researchers concluded that the defining characteristics currently listed in the NANDA-I classification taxonomy does not completely cover the nursing diagnosis: decreased cardiac output.

[Da Silva Pde O](#), & [Gorini MI](#). (2012) conducted the study to validate the defining characteristics for the nursing diagnosis of Fatigue in adult oncology patients. It was a cross-sectional, descriptive study with a quantitative perspective, and its type was diagnostic content validation. Data collection was carried out in a University Hospital. The sample was made up of 35 expert nurses. The instrument used was subdivided into four parts. The data was analyzed by descriptive statistics. 15 defining characteristics were identified, considered secondary indicators. With an average weighting of less than 0.50, four defining characteristics were excluded. The defining characteristic impaired social interaction, added to those described by NANDA-I after review of the literature, was validated with a weighted average of 0.71.

It was concluded that the subjectivity of the defining characteristics and the difficulty nurses have in recognizing them, influence the identification of this diagnosis.

Renata Zerenikova and Lenka Maniakova (2014) undertook a study to validate the defining characteristics and related factors of the nursing diagnosis “chronic pain” in Slovakia and the Czech Republic. This was a descriptive study. The validation process involved was based on Fehring's Diagnostic Content Validity Model. Three defining characteristics (reports pain, altered ability to continue previous activities, and depression) were classified as major by Slovak nurses, and one defining characteristic (reports pain) was classified as major by Czech nurses.

The results of the study provided guidance in devising strategies of pain assessment that probably could aid in the formulation of accurate nursing diagnoses.

Allne Helena Appoloni, T Heather Herdman, & Anamaria Alves Napoleao (2013) analyzed the human response of delayed surgical recovery, approved by NANDA-I, and to validate its defining characteristics (DCs) and related factors (RFs). This was a two-part study using a concept analysis based on the method of Walker and Avant, and diagnostic content validation based on Fehring's model. Three of the original DCs, and three proposed DCs identified from the concept analysis, were validated in this study; five of the original RFs and four proposed RFs were also validated.

A revision of the concept studied was suggested, incorporating the validation of some of the DCs and RFs presented by NANDA-I, and the insertion of new, validated DCs and RFs.

Renata Zelenikova, Katarina Ziakova (2014), clinically validated (Fehring's model) the characteristics of the nursing diagnosis acute pain in 65 hospitalized children. It was a cross-sectional study. This study resulted in 13 major characteristics (expressive behaviour, change of mental state, verbal report of pain, observed evidence of pain, narrowed focus, position to avoid pain, guarding behaviour, sleep disturbance, protective gestures, changes in heart rate, changes in muscle tone, changes in respiratory rate, and facial mask) and in 5 minor characteristics (changes in blood pressure, coded report, changes in breathing pattern, distraction behaviour, and changes in appetite).

Characteristics with  $R > 0.50$  and  $\leq 1$  were valid in the diagnosis of acute pain.

Genee Brukwitzki, Cynthia Holmgren and Regina Marie Malbusch (2008) designed this validation study to determine the defining characteristics of the nursing diagnosis ineffective airway clearance. Using Fehring's Diagnostic Content Validity Model, 546 nurses who care for respiratory clients validated one major and 19 minor defining characteristic. Nine characteristics previously described in the literature were eliminated.

Neusa Oliveira, Tania Chianca and G. Hussein Rassool (2008), undertook a study to identify the most frequent defining characteristics (DCs) for the diagnoses fear and anxiety in Brazilian patients in the immediate preoperative period following elective cardiac surgery; to develop conceptual and operational definitions for the DCs; and to develop consensual validation. This clinical and observational, descriptive study was developed in two phases. Forty DCs were identified for fear and 19 for anxiety. One expert judged it necessary to include "altered bowel motility" as a DC for fear. There was 100% agreement among the five experts in relation to the DCs.

Thus, the investigators recommended adding "altered bowel motility" to the DCs for the nursing diagnosis fear.

[Oliveira N](#), [Chianca T](#), and [Rassool GH](#) (2008,) undertook a study to validate the nursing diagnosis of anxiety among expert Brazilian nurses and clinicians using NANDA international defining characteristics and to compare the clinical judgments of the experts and clinicians. The study was conducted by the college of nursing, Catholic University of Minas Gearis, Belo Horizonte, Brazil in 2008. A semi structured questionnaire was completed by a convenience sample of 120 nurses. NANDA international defining characteristics of the Brazilian Portuguese version were used. The analysis of the rating was based on the framework of the diagnostic content validation model. The results showed that among the 71 characteristics of anxiety, 8 were identified as critical defining characteristics of anxiety (score  $\geq$  80) by the expert nurses. Brazilian nurses accepted the NANADA international definition for nursing diagnosis of anxiety although some defining characteristics might differ due to cultural differences.

They also recognized that the adequate preparation of undergraduate and postgraduate nurses in nursing diagnosis is important in improving the quality of care given to patients.

From the above reviewed studies it can be concluded that Fehrings model is greatly used and accepted in validation studies for nursing diagnoses.

#### **Use of inter-rater method in validation studies**

Alexandra de Souza Melo, Emilia Campos de Carvalho, Vanderlei José Haas (2008) undertook an observational and descriptive study to validate the nursing diagnoses Sexual Dysfunction and Ineffective Sexuality Pattern and related the relevance of the defining characteristics, validated by experts, with their incidence in patients. Validation by experts involved 32 specialists and 20 patients to verify clinical evidence. For the diagnosis Sexual Dysfunction, the experts attributed scores higher than 0.80 to seven defining characteristics; for Ineffective Sexuality Pattern, four characteristics received scores between 0.50 and 0.80. The clinical occurrence of these characteristics for the Sexual Dysfunction diagnosis ranged between 55% and 90% of the sample and, for Ineffective Sexuality Pattern, between 30% and 85% of the sample.

The study contributed to the improvement of these diagnoses due to careful consideration on their defining characteristics by the experts and as observed in a given client.

The clinical model was also used by Castles (1982) in her study of inter-rater agreement in the use of nursing diagnosis in an intensive care unit. The objective of the study was to determine if the same nursing diagnoses were made when the same patients were assessed at approximately the same time by more than one nurse. Less than a 24 hour period between the two assessments was defined as approximately the same time". This study showed that nurses

making assessments of the same patients at the same time do not arrive at the same conclusions. Furthermore, they reported different signs and symptoms as bases for their conclusions. According to Castles (1982), observations indicated an unexpected range of assessment parameters and decision points. A limitation to this study was the fact that, in the intensive care units, patients' conditions change rapidly, and this could make a difference in the comparisons of the assessments by two nurses within a 24 hour period.

Thus, the use of inter-rater method in validation studies has contributed to the improvement of the validation of nursing diagnoses.

## **SUMMARY**

Through the review of literature, the researchers have concluded that Nursing diagnosis (NDs) is a phrase summarizing the cluster of empirical signs and symptoms which suggests a state-of-the-patient requiring nursing intervention. The standardization of nomenclature is essential to nursing theory and practice. Scientific validation of highly reliable cues is basic to the correct identification of the nursing diagnoses. The scientific production on the validation of NDs in various specialities has clearly indicated that the clinical validation model and the content validation model were mainly used to validate NDs. The most commonly validated components of the NDs were the defining characteristics (DCs). Fehring's validation models and his modified expert selection criteria also prevailed. The knowledge produced in this review can support future studies about the pertinence of the content of the nursing outcomes for the assessment of the efficacy of the nursing interventions in the country.

## **CHAPTER III**

### **RESEARCH METHODOLOGY**

The methodology of research indicates the general pattern of organizing the procedure for gathering valid reliable data for the purpose of investigation. Thus, research methodology organizes all the components of the study in a way that is more likely to result in valid answers to the sub-problems that have been posed.

This chapter deals with the description of methods and different steps used for collecting and organizing the data. It includes research approach, research design, the setting of the study, sample and sampling technique, data collection procedure and plan for data analysis.

A number of factors influenced the choice of the research methodology. The overriding consideration of the research design was to ensure that the research question was answered. This was determined in terms of both substantive and methodological issues. In the present study the researchers ensured that substantively the design matched the aim of the research. Methodologically the main design issues were to ensure that the research design provided the most accurate, unbiased, interpretable answers possible to the research questions and in future should be in a position to yield replicable results.

#### **RESEARCH APPROACH:**

Research approach refers to the way in which the investigator plans or structures the research process. The present study adopted the quantitative research approach which involves collecting and converting data into numerical form so that statistical calculations can be made and conclusions drawn.

The study aims to validate the defining characteristics of NANDA nursing diagnosis 'Excessive fluid volume' amongst pre-hemodialysis patients diagnosed with

CKD. In this study the investigators have a **hypothesis** that they want to address which include predictions about possible relationships between the defining characteristics validated by the expert nurses and those existing in NANDA taxonomy – II (**variables**). In order to find answer to this question, the researchers have an interview schedule and an observational tool with a clearly defined plan of action.

## **RESEARCH DESIGN**

The research design refers to the overall strategy that is chosen to integrate the different components of the study in a coherent and logical way, thereby, ensuring that the research problem is effectively addressed. It is a blue print to conduct a research study, which involves the description of research approach, study setting, sampling size, sampling technique, tools and methods of data collection and analysis to answer a specific research questions or for testing research hypothesis.

The present study is a cross - sectional evaluative study in a quantitative perspective. The evaluative design would aim at evaluating whether the defining characteristics of the NANDA Nursing diagnosis 'Excessive Fluid Volume' is valid in the context of pre-hemodialysis patients with CKD, using the Fehring's clinical diagnostic validity (CDV) model.

## **SETTING OF THE STUDY**

The setting is defined as the physical location and condition in which data collection takes place in a study. It may be a natural setting or laboratory setting depending upon the study topic and the researcher's choice.

This study was conducted in the Hemodialysis Unit of Fortis Hospital, Mulund (W) amongst pre- hemodialysis patients diagnosed with CKD.

#### **VARIABLES OF THE STUDY:**

Variables are the conditions or characteristics that the investigator manipulates, controls or observes.

This study has one discrete variable, that is, the defining characteristics of NANDA nursing diagnosis “Excessive Fluid Volume” in two contexts – one the NANDA nomenclature (for comparison) and the other to be validated in pre-hemodialysis patients with CKD.

#### **POPULATION:**

Population refers to total category of persons or objects that meet the criteria for study, established by the researcher, having observable characteristics in common.

Target population refers to the population that the researcher wishes to study, and is the population about which the researcher wishes to make a generalization. In this study the target population is pre-haemodialysis patient diagnosed with CKD from dialysis unit of Fortis Hospitals Ltd., Mulund (w).

#### **SAMPLE, SAMPLING TECHNIQUE AND SAMPLE SIZE**

Sample is a subset of population selected to participate in a study. In this study, participants were selected using the non-probability convenience method of sampling among pre-hemodialysis patient diagnosed with CKD. Thus, in this study the sample comprised a mixed group of 30 respondents which were selected based on the selection criteria.

### **Criteria for sample selection:**

Respondents undergoing hemodialysis in Fortis Hospitals Ltd., Mulund were selected according to the following criteria:

- Respondents willing to participate in the study.

### **Sampling Technique:**

It refers to the process of selecting a portion of the population to represent the entire population.

As the selection of the samples depends upon their availability, the sampling technique used was non probability convenience method of sampling. This entails the use of the most readily available respondents in the study, until the desired sample is reached. (Burns and Groove, 1987).

Thus, both male and female respondents were recruited for the study from the hemodialysis unit who willingly agreed to participate till a sample of 30 respondents was achieved.

### **Technique and tool:**

#### **A) Technique:**

1. **Interview technique:** To elicit the personal information of the respondents, interview technique was considered to be the best one. It also helps to identify mis-interpretations and inconsistencies, if any. The data elicited through this technique included personal information and medical data of the respondents.
2. **Observational technique:** This research incorporates collection of data with respect to the defining characteristics of NANDA nursing diagnosis “excess fluid volume” amongst pre-hemodialysis patients diagnosed with CKD. Thus, the observational technique was thought to be the most suitable one

and accepted as the defining characteristics can be accurately assessed in the patients through observation technique.

**B) Tool:**

Based on study objectives the tool designated for the study were:

**Tool-1: Interview schedule:** that best suits the interviewing technique

- 1) Section I: consisted of the demographic data of the respondents.
- 2) Section II: consisted of questions related to respondents illness.

**Tool-2: Observational tool:** It provides valid measures of the targeted variable.

The tool consisted of 32 defining characteristics of NANDA diagnosis “Excessive fluid volume” among pre-hemodialysis patients diagnosed with CKD. 22 DCs were taken from the NANDA nomenclature and 10 were taken from ROL. Each defining characteristics was operationally defined through review of literature. Each defining characteristics was put on a two-point, forced choice, Likert scale. A two-point Likert scale was chosen as per the Fehring's CDV model, where experts will clearly indicate whether the Given DC is present or absent in the respondent upon assessment.

**DEVELOPMENT OF THE TOOL**

The development of the tool was a step by step procedure for which the investigators adopted a practical approach. Prior to the preparation of the observational tool the investigators reviewed various literatures in books, journals and websites to find out the defining characteristics (DCs) of ‘Excessive fluid Volume’ and the conceptual definitions of these DCs. Once the tool was prepared along with the research guide, the tool was given for content and construct validation to nursing experts. The interview schedule was also prepared based on the ROL on similar studies.

Thus, the investigators personal observations, clinical experience, the opinion of the experts and literature review greatly helped in the formulation of the two tools.

### **VALIDITY**

The content validity of the tool is concerned with the extent to which tool reflects the variable it seeks to measure. To determine the content and construct validity, the tool was prepared and given to experts from nursing faculty. An individualized evaluation from 11 Nursing teachers armed with Master's degree, from the Fortis Institute of Nursing was obtained. All remarked that the tools were exhaustive. Significant changes were incorporated in the tool in consultation with the Research Guide.

### **RELIABILITY**

The reliability of the tool refers to the extent to which all the instrument's items are measuring the same attribute. The Observational tool was administered on 5 respondents in the clinical area. Inter-rater reliability showed a high agreement between the researchers observation of 5 respondents; the correlation coefficient computed on the entire tool was  $r = 1$

### **PILOT STUDY**

Pilot test is a small scale study in which the results are only preliminary and intended only to assist in design of a subsequent study (Zikmund, Babin, Carr, & Griffin, 2010).

A pilot study was conducted on 20/03/2015 on 5 patients in the hemodialysis unit of Fortis Hospitals Ltd, Mulund, (parent hospital) in order to ensure the feasibility of the tools and the research methodology and to assess the practicability of the research study.

The respondents were selected as per the selection criteria of the study. Prior to initiation of dialysis, both the researchers approached each patient and took their informed consent. The investigators promised an assurance of maintaining confidentiality of data. The confidentiality applied to the responses of the individual respondents and name of the respondents (anonymity) who would participate in the research.

The first researcher then collected the patients data based on the interview schedule at the bedside and assessed the patient thereafter, as per the observational tool. Approximately 10 minutes later, the second researcher assessed the same respondent. This plan of data collection was continued till 5 respondents were recruited in the study.

During the pilot study it was observed by the expert nurses that the following DCs could not be assessed in the patients:

- *'pulmonary edema'* could not be assessed as the respondents did not have an chest x-ray report for validation.
- *specific gravity* could not be assessed as these patients were oliguric and urine report was not available with all the respondents.

Thus, these two defining characteristics - specific gravity and pulmonary edema were eliminated from the observational tool. Nonetheless, assessment of lungs was done. Weighted Inter-rater reliability ratio formula stated in Fehring's CDV model was used to examine the results of the pilot test.

**DATA COLLECTION PROCESS:**

The period of data collection commenced from 20<sup>th</sup> of February 2015 to 23<sup>rd</sup> of February 2015. Prior to the commencement of the Pilot study, formal administrative permission was obtained. The data collection was done in one stage. The same plan was implemented as per the pilot study.

**PLAN FOR DATA ANALYSIS:**

1. The data would be organized in master code sheet.
2. Demographic data and illness related data of the respondents would be analyzed using frequency & percentage.
3. Demographic data of the expert clinical nurses would be analyzed using frequency percentage.
4. The data of the observational tool will be analyzed by inter-rater reliability ratio as stated in the Fehring's CDV model, to analyze the major and minor DCs for the nursing diagnoses "excessive fluid volume" in pre-hemodialysis patients with CKD.
5. The correlation of the identified DCs with that of NANDA nomenclature will be done using the chi square statistics.

## **CHAPTER- IV**

### **ANALYSIS AND INTERPRETATION**

Analyzing the data is important to answer the research question and test the hypothesis in an orderly and coherent fashion. Thus interpretation is the process of making sense of the study results and examining their implication. In this chapter the investigators have dealt with the analysis and interpretation with an aim to validate the DCs (defining characteristics) of NANDA nursing diagnosis 'excessive fluid volume' in pre hemodialysis patient with CKD.

The result of the respondent's data is analyzed and based on the objectives of the study. The data is analyzed by using the excel sheet and the statistical formula imported into it. The elements that are covered in this chapter include descriptive analysis and inferential analysis. To ensure a clearer picture, results obtained are presented in chart and table form. Lastly, this chapter is concluded with a summary on the supporting hypothesis findings.

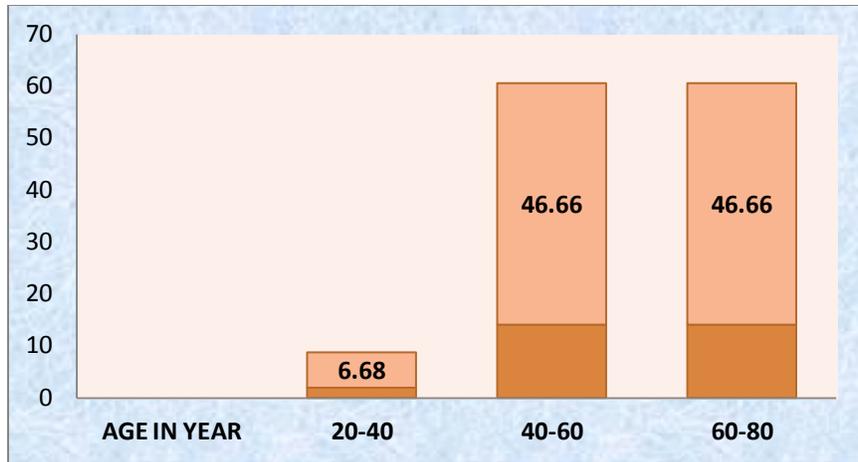
A total of 30 respondents were assessed by the expert nurses. The respondent's demographic data was tabulated and presented in the form of charts.

**TABLE -I (A)**

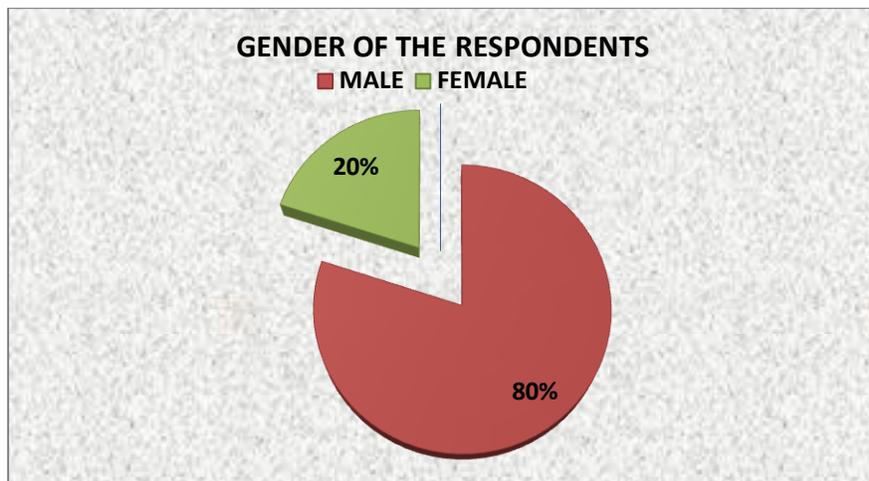
**DEMOGRAPHIC DATA OF THE RESPONDENTS**

(N=30)

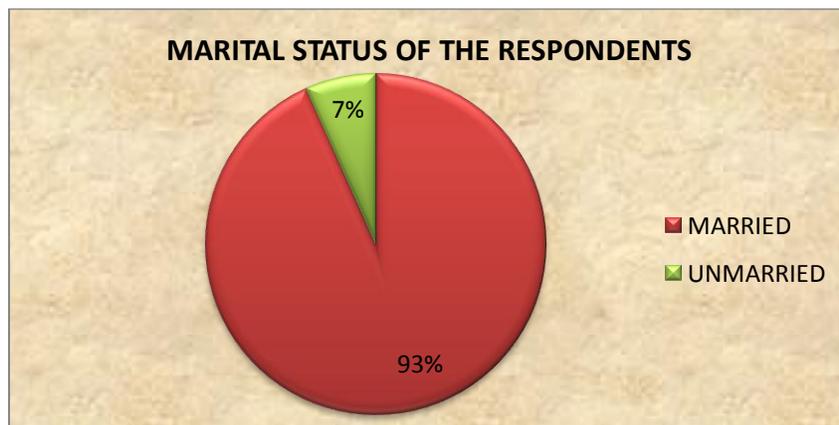
<b>Sr NO.</b>	<b>CHARACTERISTICS</b>	<b>FREQUENCY</b>	<b>PERCENTAGE</b>
<b>1.</b>	<b>AGE IN YEARS</b>		
	20-40	2	6.68
	40-60	14	46.66
	60-80	14	46.66
<b>2.</b>	<b>GENDER</b>		
	MALE	24	80
	FEMALE	6	20
<b>3.</b>	<b>MARITAL STATUS</b>		
	MARRIED	28	93.23
	UNMARRIED	2	6.77
<b>4.</b>	<b>EDUCATIONAL STATUS</b>		
	GRADUATE	19	63.23
	HSC	3	10
	SSC	8	26.77
<b>5.</b>	<b>SOCIO ECONOMIC STATUS</b>		
	MIDDLE CLASS	30	100
<b>6.</b>	<b>LIFESTYLE</b>		
	SEDENTARY	30	100
<b>7.</b>	<b>HABITS</b>		
	SMOKING	4	13.34
	TOBACCO CHEWING	1	3.33
	BOTH	3	10
	NONE	22	73.33
<b>8.</b>	<b>DIET</b>		
	VEG	9	30
	NONVEG	21	70



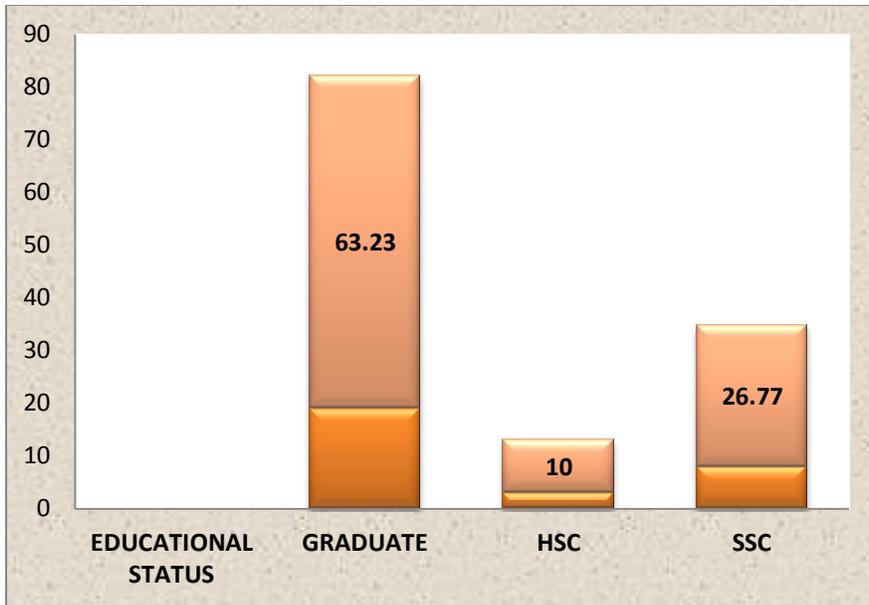
**Figure:2 Age of the respondents**



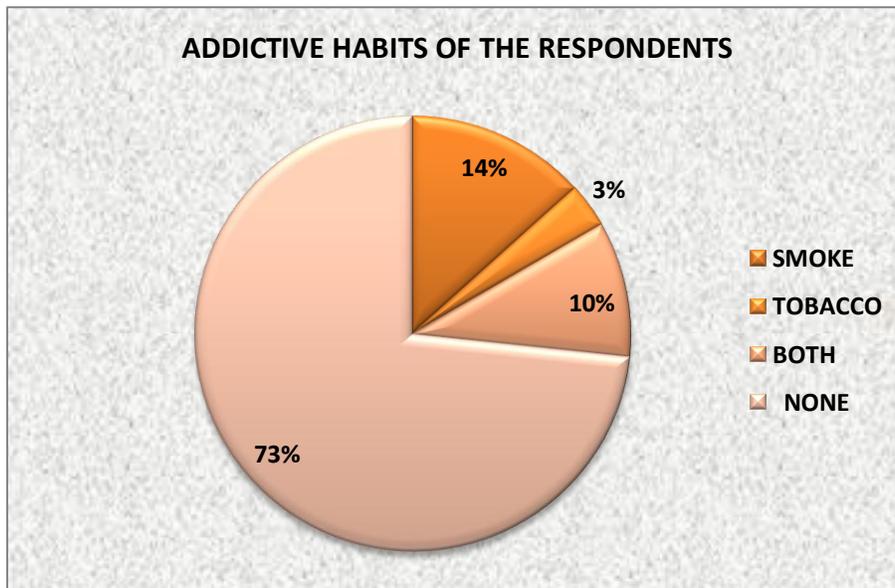
**Figure:3 Gender of the respondents**



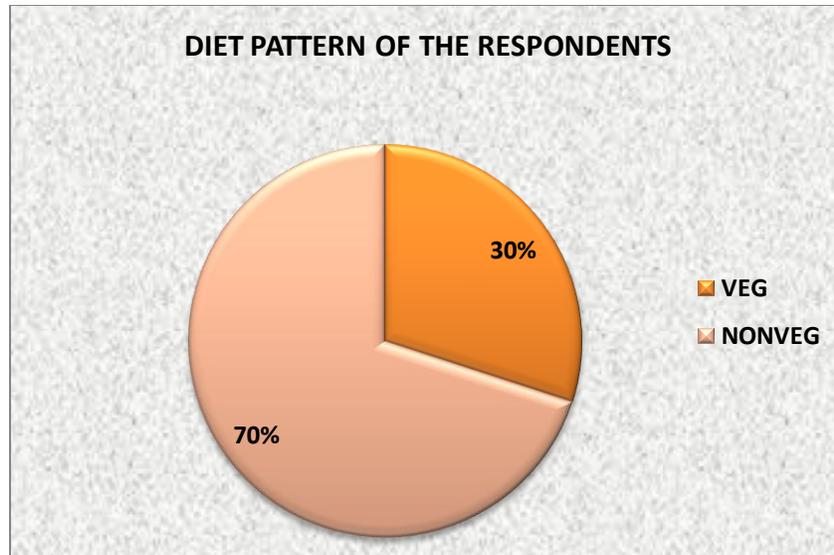
**Figure - 4: Marital status of the respondents**



**Figure:5 Educational status of the respondents**



**Figure – 6: Addictive Habits of the respondents**



**Figure – 7 : Diet pattern of the respondents**

According to study findings (as depicted in table -I) majority of the respondents belonged to the age group 40-80 years (93.32%). 80% of the respondents were males and 20% were females. CKD was seen higher in males than females in the present study. Mohan M Rajapurkar, et al; (March 2012) have found similar results on 52,273 respondents; where the mean age of the respondents was  $50.1 \pm 14.6$  years, and M:F ratio of 70:30.

Majority of the respondents in the present study were married, educated up to graduation level and belonged to the middle socio-economic status. 70% of the respondents consumed non vegetarian food and 30% consumed only vegetarian diet. Majority of the respondents had no addiction to any substances as tobacco or smoking. All lived a sedentary life style, maybe because of their age and perhaps the draining nature of the illness – CKD.

**TABLE – I (B)**

**DATA RELATED TO ILLNESS OF THE RESPONDENTS**

<b>Sr. No.</b>	<b>CHARACTERISTICS</b>	<b>FREQUENCY</b>	<b>PERCENTAGE</b>
<b>9.</b>	<b>DIAGNOSIS</b>		
	CKD	27	90
	ESRD	3	10
<b>10.</b>	<b>YEAR OF DIAGNOSIS</b>		
	UPTO 5	23	76.66
	5-10 Years	4	13.34
	ABOVE 10	3	10
<b>11.</b>	<b>OTHER CO—MORBIDITIES</b>		
	DIABETES	4	13.34
	HYPERTENSION	11	36.66
	BOTH	11	36.66
	IHD, THYROID	4	13.34
<b>12.</b>	<b>FAMILY HISTORY</b>		
	DIABETES	4	13.34
	HYPERTENSION	5	16.67
	BOTH	1	3.33
	CKD	6	20
	NONE	14	46.66

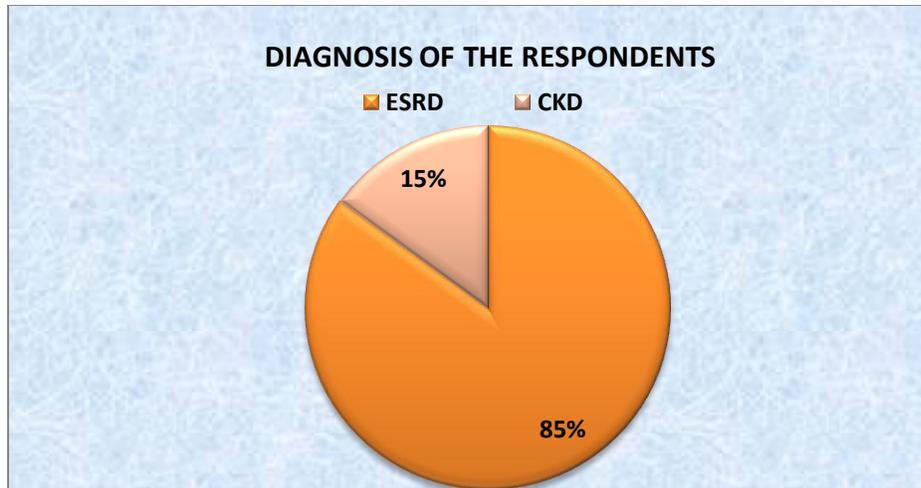


Figure:8 Diagnosis of the respondents

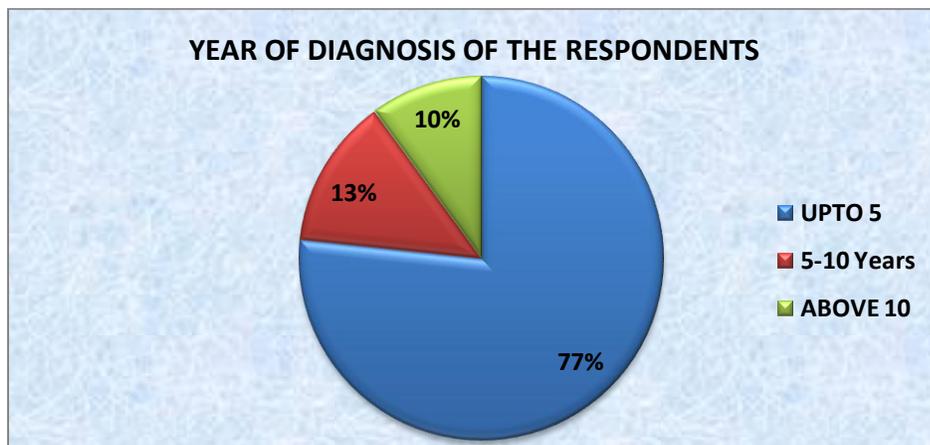
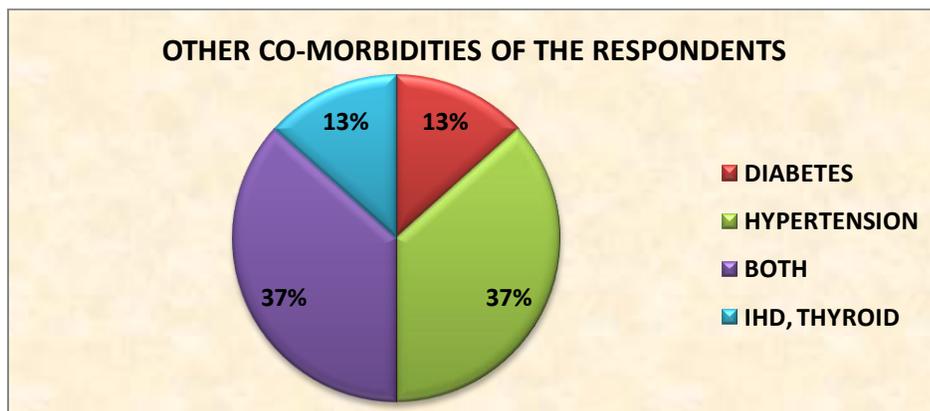
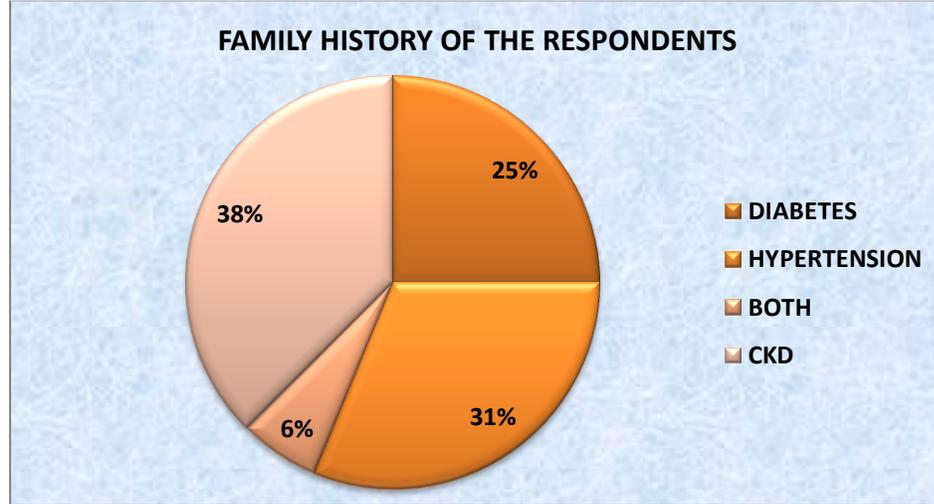


Figure:9 Year of diagnosis of respondents



**Figure:10 Other co-morbidities of the respondents**



**Figure:11 Family history of the respondents.**

According to tabulated data – I (B), 90% of the respondents were diagnosed as CKD and 10% were diagnosed to be having ESRD.

Majority (76.66%) of the respondents diagnosed with CKD, were having the history of the diagnoses for less than 5 years. 13.33% of the respondents had co-morbidities as Diabetes mellitus, 36.66% had Hypertension and 36.66% had both (HT & DM) the co-morbidities. All these patients developed CKD as a complication to Diabetes Mellitus and hypertension. Majority of the respondents did not have any family history of illness but few had the family history as diabetes-13.33%, Hypertension-16.66%, and CKD - 20%. In her research, Nobukazu Ishizaka (June 2007) states that obesity is a known risk factor for hypertension and diabetes, both of which ultimately promote renal dysfunction. The research even revealed prevalence of CKD more in men than in women, just like the present study.

The present study also revealed that the elderly had a markedly higher prevalence of CKD and the prevalence increased with age, particularly among elderly persons aged 40 years and older. This step increase in the prevalence of

CKD in the elderly might be partly due to related co-morbidities of CKD, such as cardiovascular diseases or diabetes, coupled with sedentary lifestyle and addictive habits as smoking and tobacco; which is seen in the present study too – 23.34% males have reported of these habits.

The higher incidence of CKD in favor of men could be because of the risk factors as - prevalence of smoking and alcohol consumption, as well as the prevalence of cardiovascular diseases, which are generally higher in males than in females. Additionally, the difference between females and males in glomerular structure, glomerular hemodynamic, and the hormone metabolism might play an important role in the gender disparity.

A study conducted by Anupama, Y. J. and Uma, G. (2014), on 2091 subjects revealed that the mean age of the subjects was  $39.88 \pm 15.87$  years. 45.57% were males. The prevalence of CKD was 16.54% by the CG-BSA method. On univariate analysis, there was a statistically significant relationship of CKD with gender, advancing age, abdominal obesity, smoking, presence of diabetes and hypertension. There was however no statistical significant relationship with nutritional status as measured by BMI, educational status, occupation, alcohol intake and tobacco chewing.

This study, thus implies, the enormous proportion of morbidity that is likely to unfold in the coming years amongst the respondents, as CKD implies the twin burden of end stage renal disease as well as increased cardiovascular morbidity. The study could have also included kidney specific risk factors such as non-steroidal anti-inflammatory drug use, influence of herbal medicine and environmental toxins in the areas where the respondents stayed.

**TABLE-II(A)**

**DEMOGRAPHIC DATA OF THE EXPERT NURSES**

<b>SR NO.</b>	<b>DEMOGRAPHIC CHARACTERISTICS</b>	<b>FREQUENCY</b>	<b>PERCENTAGE</b>
1.	<b>AGE OF THE EXPERT NURSES</b>		
	26	1	50
	31	1	50
2.	<b>GENDER</b>		
	Male	0	0
	Female	2	100
3.	<b>PROFESSIONAL QUALIFICATION</b>		
	• Pursuing P. B. B. Sc. Nursing	2	100

**TABLE-II(B)**

**PROFESSIONAL EXPERIENCE OF EXPERT NURSES**

<b>CLINICAL EXPERIENCE</b>	<b>AREA OF WORK</b>	<b>DURATION</b>
<b>Prior to P.B.B.Sc. Nursing -</b>		
1 <sup>st</sup> Expert nurse –	Nephrology department	4 years.
2 <sup>nd</sup> Expert nurse -	Intensive care unit	8 years

**TABLE-II(C)**

**OTHER PROFESSIONAL RELATED DATA OF THE EXPERT NURSES**

<b>OTHER PROFESSIONAL EXPERIENCE</b>	<b>EXPERT NURSE-1</b>	<b>EXPERT NURSE-2</b>
UNDERTAKEN ANY COURSE IN NEPHROLOGY	YES	NO
Attended any CNE/CME related to nephrology?	NO	NO
If yes, then how many....?	NA	NA
Mention if topic was nursing –based or medical – based ...	NA	NA
If nursing based then, please state the area.	NA	NA
Are you using NANDA-1 diagnosis in your daily practice?	YES	YES
Published any article related to nephrology?	NO	NO
Published any research or were you a part of any research related to nephrology?	NO	NO
Was this research nursing based?	NA	NA

From the above tabulated data it can be concluded that the study comprised of 2 expert nurses to validate the DCs ‘excessive fluid volume’. Both the expert nurses had completed their diploma in nursing and were pursuing their 2<sup>nd</sup> year Post Basic B. Sc nursing studies. The present study is their first scientific production, addressing both CKD and the nursing process. In addition, both have had proven clinical experience, one expert has 4 years of experience in the nephrology unit with a short term certified course in dialysis and kidney transplant and the other expert has 8 years of experience in critical care unit with a diploma specialization in Critical Care nursing. Both the respondents were using NANDA-1 nursing diagnosis in their daily clinical practice.

**TABLE – III(A)**

**RELIABILITY INDEX OF THE RESPONDENTS FINDINGS**

<b>SR.NO</b>	<b>DEFINING CHARACTERISTICS</b>	<b>RELIABILITY INDEX (R)</b>
1.	Increase Sr.BUN	1
2.	Increase Sr.creatinine	1
3.	Variation in serum electrolytes	1
4.	Azotemia	1
5.	Decreased Haemoglobin and Heamatocrit	0.93
6.	Intake exceeding output	1
7.	Weight gain	1
8.	Edema may progress to anasarca	0.93
9.	Pulmonary edema	0
10.	Increased PAP	0
11.	Ascites	0.03
12.	Pleural effusion	0
13.	Oliguria	1
14.	Change in respiratory pattern	0.66
15.	Paroxysmal nocturnal dyspnea	0.22
16.	Orthopnoea	0.40
17.	S3 heart sound	0
18.	Bounding pulse	0.33
19.	Jugular vein distension	0.15
20.	Increased CVP	0.16
21.	Increased in blood pressure	0.83
22.	Palpitations	0
23.	Hepatojugular reflux	0.06
24.	Hepatomegaly	0
25.	Fatigue	0.83
26.	Cough	0.30
27.	Lack of appetite	0.50
28.	Change In mental status	0
29.	Activity intolerance	0.93
30.	Anxiety	0
31.	Restlessness	0.03
32.	Seizure	0.03

Based on the results of inter-rater reliability index of 32 DCSs of NANDA nursing diagnosis ‘Excessive Fluid Volume’, 12 major ( $R \geq 0.80$ ) and 2 minor DCSs ( $R \geq 0.50$  to  $0.79$ ) were obtained and 18 DCSs ( $R < 0.50$ ) of the nursing diagnosis are discarded.

**TABLE-III (B)**

**RELIABILITY INDEX OF THE PRIMARY AND SECONDARY DEFINING CHARACTERISTICS**

SR.NO	DEFINING CHARACTERISTICS	Reliability Index (R)
<b>MAJOR OR PRIMARY (R&gt;0.80)</b>		
1.	Increase Sr.BUN	1
2.	Increase Sr.creatinine	1
3.	Variation in serum electrolytes	1
4.	Azotemia	1
5.	Intake exceeding output	1
6.	Weight gain	1
7.	Oliguria	1
8.	Edema may progress to anasarca	0.93
9.	Decreased Haemoglobin and Heamatocrit	0.93
10.	Activity intolerance	0.93
11.	Increased in blood pressure	0.83
12.	Fatigue	0.83
<b>MINOR OR SECONDARY (R&gt;0.50 TO 0.79)</b>		
1.	Change in respiratory pattern	0.66
2.	Lack of appetite	0.50

The expert nurses have considered 12 DCs of nursing diagnosis ‘Excessive fluid volume’ as primary, that is, these DCs must be present at the establishment of the diagnosis. The 12 DCs were: increased Sr. BUN (1.0), Increased Sr.creatinine (1.0), Variation in Sr. Electrolyte (1.0), Azotemia (1.0), Intake exceeding output (1.0), Weight gain (1.0), Oliguria (1.0), Edema that may lead to anasarca (0.93), Decreased haemoglobin and Heamatocrit (0.93), Activity intolerance (0.93), Increased blood pressure (0.83), and Fatigue (0.83). The 2

DCSs considered as secondary were: change in respiratory pattern (0.66) and lack of appetite (0.50). These signs and symptoms picture the manifestations of chronic renal failure most commonly present in patients admitted to the dialysis unit.

The DCs increased BUN & increased creatinine were considered as two amongst the 7 most important DCs to validate the diagnosis under analysis; it obtained the highest inter-rater reliability index ( $R=1$ ). This is one of the most common sign among pre hemodialysis patients diagnosed with CKD and is also directly associated with Azotemia.

The presence of edema is a common finding in pre hemodialysis patient with CKD. Water retention occurs due to loss of GFR - oliguria, leading to sodium and fluid retention. Fluid moves into the extra-vascular space, due to increased hydrostatic pressure, causing pitting edema in the lower extremity (fluid movement could also be due to hypoalbuminemia, in some diseases, leading to a low oncotic pressure). All this accentuates weight gain further with intake exceeding output. The DCs oliguria, edema, intake exceeding output, and weight gain are all inter-related relevant clinical findings in the assessment of patients with CKD. Increased blood pressure and variation in serum electrolytes (hyperkalaemia) are complications of CKD with RAAS mechanism in play due to adaptive hyperfiltration at the glomerulus .

Fatigue is an important symptom in patients with CKD due to decreased haemoglobin and haematocit (haemodilution due to fluid retention and loss of erythropoietin due to renal failure). In this study, fatigue was identified as primary DC.

Finally, change in respiratory pattern (due to fluid retention) and lack of appetite (electrolyte imbalance, azotemia and anemia) was valid as secondary DCs of the diagnosis excessive fluid volume in pre hemodialysis patient with CKD. In the present research, the characteristic was assessed through auscultation highlighting the importance of equipping nurses to interpret this

finding. The findings of this physical examination method can be extremely useful in clinical practice, as it is a feasible and low-cost means to support the assessment.

Lack of appetite is a symptom experienced by CKD patient when the kidneys are no longer able to remove waste and fluid from the body affectively which leads to buildup of toxins in the blood. This was valid as secondary DCSs (R=0.50).

It is highlighted that 5 of the DCs: increased BUN (R=1) increased creatinine (R=1), Activity intolerance (R=0.93), fatigue (R=0.83) and lack of appetite (R=0.50) were clinically relevant to validate this diagnosis. Therefore, their inclusion into the current DCs in the NANDA-II taxonomy is suggested.

Jugular vein distension, Increased CVP, Paroxysmal nocturnal dyspnea, Orthopnea, Increased PAP, Pleural effusion, Pulmonary edema, Bounding pulse, Palpitations, S3 heart sound, Ascites, Hepatojugular reflux, Bounding pulse, Hepatomegaly, Anxiety, Restlessness, Seizure, Change In mental status are all signs and symptoms of excess fluid retention and azotemia which is not seen in patients on regular hemodialysis; probably because of which they were discarded with low reliability.

### **Chi-Square Test to correlate the validated diagnoses with NANDA II nomenclature**

	Agreement with NANDA ND DCs	Disagreements with NANDA ND DCs	Total
Observed Frequency ( <i>f<sub>o</sub></i> )	14	18	32
Expected Frequency ( <i>f<sub>e</sub></i> )	22	10	32
<i>f<sub>o</sub></i> - <i>f<sub>e</sub></i>	8	8	
Correction(-0.5)	7.5	7.8	
$\frac{(f_o - f_e)^2}{f_e}$	2.55	5.62	

Chi square test = 8.17 and  $P = 0.004$ ; that is  $P < 0.05$ . Since it is statistically significant, thus the hypothesis that there will be significant difference between the evaluations of the defining features of nursing diagnosis ‘excessive fluid volume’ by the expert nurses among Pre Haemodialysis Patient with Chronic kidney disease and that stated by NANDA II is accepted. The reason of rejection of the null hypothesis can well be demonstrated in rejection of 18 DCs which do not fit into pre-hemodialysis patients with CKD.

### **CONCLUSIONS:**

This was a study in the clinical context that validated the DCs of the diagnosis ‘Excess Fluid Volume’ in pre-hemodialysis patients with CKD. The following were validated as primary or major characteristics: Increased Sr. BUN, Increased Sr. Creatinine, Variation in Sr. Electrolytes, Azotemia, Intake exceeding output, Weight gain, Oliguria, Edema which may lead to anasarca, Decreased hemoglobin and Hematocrit, Activity intolerance, Increased blood pressure and Fatigue. Minor or secondary characteristics were change in respiratory pattern and lack of appetite.

### **IMPLICATIONS FOR CLINICAL PRACTICE**

The validation of nursing diagnoses based on data directly observed in the clinical environment and determined by expert nurses can contribute to improve the accuracy of other phases in the nursing process and, therefore, offer further benefits for patient care.

These study results contribute to enhance diagnostic accuracy when pre hemodialysis patients with CKD are admitted and, hence, to direct the most adequate interventions.

## **CHAPTER-V**

### **SUMMARY, FINDINGS, RECOMMENDATIONS AND CONCLUSIONS**

This chapter deals with a brief summary of the study and its significant findings. The chapter is perhaps a means to an end; but not an end in itself as it offers avenues that can be taken up for further and more intensive research studies.

A nursing diagnosis is defined as a clinical judgment about individual, family or community responses to actual or potential health problems or life processes, which provides the basis for selection of nursing interventions to achieve outcomes for which the nurse is accountable. Accurate and valid nursing diagnoses guide the selection of interventions that are likely to produce the desired treatment effects and determine nurse-sensitive outcomes. Validation of a nursing diagnosis produces technical and scientific knowledge necessary for the understanding of patients' responses to particular phenomena, making possible both its appropriate use in clinical practice, as well as bringing important implications for teaching and nursing research. Validation of the defining characteristics of a diagnosis was an often cited theme within a recent review of literature, and the NANDA taxonomy II was the most addressed classification.

The principle aim of the research is to validate the nursing diagnosis excessive fluid volume using a selected sample of pre hemodialysis patients diagnosed with CKD, i.e. to identify which defining characteristics the nurses consider primary and which as secondary.

### **SPECIFIC OBJECTIVES:**

1. To develop and validate the observational tool with the defining characteristics operationally defined through review of literature, for the nursing diagnosis ‘excessive fluid volume’ diagnosed in pre-hemodialysis patients with CKD
2. To assess the defining characteristics of the nursing diagnosis ‘excessive fluid volume’ amongst the selected sample of pre-hemodialysis patients diagnosed with CKD
3. To analyze which defining characteristics the clinical nurses assess as primary and secondary in the nursing diagnosis ‘excessive fluid volume’ amongst pre-hemodialysis patients.
4. To correlate the validated diagnoses with that of NANDA II nomenclature

### **SUPPORTING HYPOTHESIS:**

- $H_1$ : NANDA nursing diagnoses “excessive fluid volume” will not be valid in Pre- hemodialysis patients diagnosed with CKD.
- $H_0$ : There will be no significant difference between the evaluation of the defining features of nursing diagnosis “excessive fluid volume’ by the clinical nurses among Pre-Hemodialysis Patient with CKD and that stated by NANDA II

### **VARIABLES OF THE STUDY:**

Variables are the conditions or characteristics that the investigator manipulates, controls or observes.

This study has one discrete variable, that is, the defining characteristics of NANDA nursing diagnosis “Excessive Fluid Volume” in two contexts – one the NANDA nomenclature (for comparison) and the other to be validated in pre-hemodialysis patients with CKD.

### **SAMPLE AND SAMPLING TECHNIQUE**

Sample is a subset of population selected to participate in a study. In this study, participants were selected using the non-probability convenience method of sampling among pre-hemodialysis patient diagnosed with CKD from a selected hospital in Mumbai.

### **SETTING OF THE STUDY**

This study was conducted in the Hemodialysis Unit of Fortis Hospital, Mulund (W) amongst pre-hemodialysis patients diagnosed with CKD.

### **TECHNIQUE AND TOOL**

1. **Interview technique:** To elicit the personal information of the respondents, interview technique was considered to be the best one. It also helps to identify mis-interpretations and inconsistencies, if any. The data elicited through this technique included personal information and medical data of the respondents.
2. **Observational technique:** This research incorporates collection of data with respect to the defining characteristics of NANDA nursing diagnosis “excess fluid volume” amongst pre-hemodialysis patients diagnosed with CKD. Thus, the observational technique was thought to be the most suitable one

and accepted, as the defining characteristics can be accurately assessed in the patients through observation technique.

**A) Tool:**

Based on study objectives the tool designated for the study were:

**Tool-1: Interview schedule:** that best suits the interviewing technique

- 1) Section I: consisted of the demographic data of the respondents.
- 2) Section II: consisted of questions related to respondents illness.

**Tool-2: Observational tool:** It provides valid measures of the targeted variable.

The tool consisted of 32 defining characteristics of NANDA diagnosis “Excessive fluid volume” among pre-hemodialysis patients diagnosed with CRF. 22 DCs (defining characteristics) were taken from the NANDA nomenclature and 10 were taken from ROL. Each defining characteristic was operationally defined through review of literature. Each defining characteristic was put on two-point, forced choice, Likert scale. A two-point Likert scale was chosen as per the Fehring’s CDV model, where experts will clearly indicate whether the given DC is present or absent in the respondent on assessment.

## **DEVELOPMENT OF THE TOOL**

The development of the tool was a step by step procedure for which the investigators adopted a practical approach. Prior to the preparation of the observational tool the investigators reviewed various literatures in books, journals and websites to find out the defining characteristics (DCs) of ‘Excessive fluid Volume’ and the conceptual definitions of

these DCs. Once the tool was prepared along with the research guide, the tool was given for content and construct validation to nursing experts. The interview schedule was also prepared based on the ROL on similar studies.

Thus, the investigators personal observations, clinical experience, the opinion of the experts and literature review greatly helped in the formulation of the two tools.

### **VALIDITY**

An individualized evaluation from 11 Nursing teachers armed with Master's degree, from the Fortis Institute of Nursing was obtained. All remarked that the tools were exhaustive. Significant changes were incorporated in the tool in consultation with the Research Guide.

### **RELIABILITY**

The Observational tool was administered on 5 respondents in the clinical area. Inter-rater reliability showed a high agreement between the researchers observation of 5 respondents; the correlation coefficient computed on the entire tool using Cohen's Kappa :  $r = 1$

### **PILOT STUDY:**

A pilot study was conducted on 20/02/2015 on 5 patients in the hemodialysis unit of Fortis Hospitals ltd, Mulund, (parent hospital) in order to ensure the feasibility of the tools and the research methodology and to assess the practicability of the research study.

The respondents were selected as per the selection criteria of the study. Prior to initiation of dialysis, both the researchers approached each patient and took their informed consent. The investigators promised an assurance of maintaining confidentiality of data. The confidentiality applied to the responses of the individual respondents and name of the respondents (anonymity) who would participate in the research.

The first researcher then collected the patients data based on the interview schedule at the bedside and assessed the patient thereafter, as per the observational tool. Approximately 10 minutes later, the second researcher assessed the same respondent. This plan of data collection was continued till 5 respondents were recruited in the study.

During the pilot study it was observed by the expert nurses that the following DCs could not be assessed in the patients:

- '*Pulmonary edema*' could not be assessed as the respondents did not have a chest x-ray report for validation.
- *Specific gravity* could not be assessed as these patients were Oliguric and urine report was not available with all the respondents.

Thus, these two defining characteristics- specific gravity and pulmonary edema were eliminated from the observational tool. Pulmonary edema and pulmonary congestion are correlated; thus the exclusion will not make a significant difference. Increase in urine specific gravity is an important sign in patients with excess fluid volume, especially so in CKD patients. Weighted Inter-rater reliability ratio formula stated in Fehring's CDV model was used to examine the results of the pilot test.

## **DATA COLLECTION PROCESS:**

The period of data collection commenced from 20<sup>th</sup> of February 2015 to 23<sup>rd</sup> of February 2015. Prior to the commencement of the Pilot study, formal administrative permission was obtained. The data collection was done in one stage. The same plan was implemented as per the pilot study.

## **MAJOR FINDINGS OF THE STUDY:**

### **PATIENT DEMOGRAPHIC DATA**

- According to study findings majority of the respondents belonged to the age group 40-80 years (93.32%).
- 80% of the respondents were males and 20% were females. CKD was seen higher in males than females in the present study.
- Majority of the respondents in the present study were married, educated up to graduation level and belonged to the middle socio-economic status.
- 70% of the respondents consumed non-vegetarian food and 30% consumed only vegetarian diet.
- Majority of the respondents had no addiction to any substances as tobacco or smoking. All lived a sedentary life style, may be because of their age and perhaps the draining nature of the illness – CKD.

### **DATA RELATED TO ILLNESS**

- According to the study, 90% of the respondents were diagnosed as CKD and 10% were diagnosed to be having ESRD.
- Majority (76.66%) of the respondents diagnosed with CKD, were having the history of the diagnoses for less than 5 years.

- 13.33% of the respondents had co-morbidities as Diabetes mellitus, 36.66% had Hypertension and 36.66% had both (HT & DM) the co-morbidities.
- Majority of the respondents did not have any family history of illness but few had the family history as diabetes-13.33%, Hypertension-16.66%, and CKD - 20%.
- The present study also revealed that the elderly had a markedly higher prevalence of CKD and the prevalence increased with age, particularly among elderly persons aged 40 years and older.
- The prevalence of CKD in the elderly might be partly due to related co-morbidities of CKD, such as cardiovascular diseases or diabetes, coupled with sedentary lifestyle and addictive habits as smoking and tobacco; which is seen in the present study too – 23.34% males have reported of these habits.

### **Data about the Expert Nurses:**

- The study comprised of 2 expert nurses to validate the DCs ‘excessive fluid volume’. Both the expert nurses had completed their diploma in nursing and were pursuing their 2<sup>nd</sup> year Post Basic B. Sc nursing studies.
- The present study is their first scientific production, addressing both CKD and the nursing process.
- In addition, both have had proven clinical experience, one expert has 4 years of experience in the nephrology unit with a short term certified course in dialysis and kidney transplant and the other expert has 8 years of experience in critical care unit with a diploma specialization in Critical Care nursing. Both the respondents were using NANDA-1 nursing diagnosis in their daily clinical practice.

**VALIDATION OF THE DCs EXCESSIVE FLUID VOLUME IN PRE-HAEMODIALYSIS PATIENTS WITH CKD USING FEHRINGS DCV MODEL.**

- Based on the results of inter-rater reliability index of 32 DCs of NANDA nursing diagnosis ‘Excessive Fluid Volume’, 12 major ( $R \geq 0.80$ ) and 2 minor DCs ( $R \geq 0.50$  to  $0.79$ ) were obtained and 18 DCs ( $R < 0.50$ ) of the nursing diagnosis are discarded.
- The expert nurses have considered 12 DCs of nursing diagnosis ‘Excessive fluid volume’ as primary, that is, these DCs must be present at the establishment of the diagnosis. The 12 DCs were: increased Sr. BUN (1.0), Increased Sr.creatinine (1.0), Variation in Sr. electrolyte (1.0), Azotemia (1.0), Intake exceeding output (1.0), Weight gain (1.0), Oliguria (1.0), Edema that may lead to anasarca (0.93), Decreased haemoglobin and Heamatocrit (0.93), Activity intolerance (0.93), Increased blood pressure (0.83), and Fatigue (0.83).
- The 2 DCs considered as secondary were: change in respiratory pattern (0.66) and lack of appetite (0.50). These signs and symptoms picture the manifestations of chronic renal failure most commonly present in patients admitted to the dialysis unit.

**STATISTICAL TESTING:**

- Chi square test = 8.17 and  $P = 0.004$ ; that is  $P < 0.05$ . Since it is statistically significant, thus the hypothesis that there will be significant difference between the evaluations of the defining features of nursing diagnosis “excessive fluid volume’ by the expert nurses among Pre Haemodialysis Patient with CKD and that stated by NANDA II is accepted. The reason of rejection of the null hypothesis can well be demonstrated in rejection of 18 DCs which do not fit into pre-hemodialysis patients with CKD.

## **CONCLUSIONS**

This was a study in the clinical context that validated the DCs of the diagnosis 'Excess Fluid Volume' in pre-hemodialysis patients with CKD. The following were validated as primary or major characteristics: Increased Sr. BUN, Increased Sr. Creatinine, Variation in Sr. Electrolytes, Azotemia, Intake exceeding output, Weight gain, Oliguria, Edema which may lead to anasarca, Decreased hemoglobin and Heamatocrit, Activity intolerance, Increased blood pressure and Fatigue. Minor or secondary characteristics were change in respiratory pattern and lack of appetite.

It was thus, noted that the content validation is an important tool in the refinement of classifications of nursing. It is highlighted that 5 of the DCs: increased BUN (R=1) increased creatinine (R=1), Activity intolerance (R=0.93), fatigue (R=0.83) and lack of appetite (R=0.50) were clinically relevant to validate this diagnosis. Therefore, their inclusion into the current DCs in the NANDA-II taxonomy is suggested

**LIMITATIONS OF THE STUDY:** This study has some limitations that however do not liquidate the purpose of the study.

- The study was carried out only in one selected hospital of Mumbai city. The findings can be thus generalized only to the population under study.
- Defining characteristics pulmonary edema and specific urine gravity could not be assessed because of non availability of lab reports. Increase in urine specific gravity is an important sign in patients with excess fluid volume, especially so in CKD patients, which needed to be assessed

- The study could have also included kidney specific risk factors such as non-steroidal anti-inflammatory drug use, influence of herbal medicine and environmental toxins in the areas where the respondents stayed.
- Cross-sectional studies have limited potential to infer causal relationship.
- There were some patients who were unable to give data regarding their history of their years of diagnoses of HT/DM

#### **RECOMMENDATIONS FOR FURTHER STUDY:**

- Epidemiology studies can be taken up on patients with CKD to further understand/validate the pattern, causes and effect of disease on the defined population.
- Expert nurses should be selected based on standard criteria using Fehring's model for the research study.
- Validation studies on NIC/NOC of the researched diagnoses could be undertaken
- Similar research study can be undertaken by using a different Fehring's validation model.
  
- Similar research can be done by using a different diagnosis on CKD patients.
- The same nursing diagnoses validation study can be undertaken in other disease conditions.
- Study can be done on larger samples from different hospitals in Mumbai.
- A comparative study of one diagnoses in different disease conditions can be undertaken to know its applicability
- Content validation of the operational definitions of the same diagnoses can be undertaken.

- To identify the information produced and published in the literature regarding the diagnoses by the nurses of pre-hemodialysis patients with CKD

### **IMPLICATIONS:**

The nursing implications of the study could be discussed under nursing service, nursing education, nursing research & nursing administration.

#### **For nursing education- the study brings to light the following aspects:**

- The findings of the study could be discussed by nurse educators with her students and thereby help students to carry out evidence based nursing practice so as to more effectively meet the needs of the patients and ensure patient safety.

#### **For nursing administration**

- Nursing leaders have the responsibility to observe how diagnosis is formulated by nurses.

Clear and known defining characteristics of any nursing diagnosis will make it easier to set criteria for evaluating nurses formulating the diagnosis.

#### **For nursing service**

- Having valid nursing diagnosis that is relevant to the clinical setting will be of particularly important to nurses to recognize excessive fluid volume in patients with CKD. This will enhance diagnostic accuracy so as to direct the most adequate interventions.
- The validation of nursing diagnoses based on data directly observed in the clinical environment and determined by expert nurses can contribute to improve the accuracy of other phases in the nursing process and, therefore, offer further benefits for patient care.

**For nursing research**

- As more and more of this validation studies are conducted, practicing nurses will have more confidence in the use of official NANDA nursing diagnosis. There is still a tremendous need to validate nursing diagnoses.

**LETTER SEEKING EXPERT OPINION IN VALIDATING THE  
CONTENT & CONSTRUCT OF THE TOOL**

**From**  
**Research Group –I**  
**FIN, Mumbai.**

To,

\_\_\_\_\_

\_\_\_\_\_

**SUB: CONTENT VALIDITY OF THE TOOL.**

Respected Madam/Sir,

We the undersigned students have undertaken the following Research topic for our research project in partial fulfilment of the P. B. B.Sc. Nursing programme.

*“An evaluatory study to validate the defining characteristics of NANDA nursing diagnosis ‘excessive fluid volume’ amongst pre-haemodialysis patients diagnosed with Chronic Kidney Disease in a selected hospital, using Fehring’s CDV model.”*

**Objectives of our study:**

1. To develop and validate the observational tool with the defining characteristics operationally defined through review of literature, for the nursing diagnosis ‘excessive fluid volume’ diagnosed in pre-haemodialysis patients with CKD
2. To assess the defining characteristics of the nursing diagnosis ‘excessive fluid volume’ amongst the selected sample of pre haemodialysis patients diagnosed with Chronic Kidney Disease.
3. To analyze which defining characteristics the clinical nurses assess as primary and secondary in the nursing diagnosis ‘excessive fluid volume’ for pre haemodialysis patients diagnosed with Chronic Kidney Disease.

4. To correlate the validated diagnoses with that of NANDA II nomenclature.

May we kindly request you to validate the content and construct of the tool & give your valuable suggestions?

Yours sincerely,

**Research group**

Ms. Supriya Talashilkar

Ms. Rubyiana D'souza

Ms. Reshma shirsekar

Ms. Eunice Karkera

Mr. Amit Mohite

Mr. Prafull Ambekar

Place: Mumbai

Date:

**AIM OF THE TOOL:** To validate the nursing diagnosis excessive fluid volume using Fehring's CDV model amongst pre haemodialysis patients diagnosed with CKD i.e. to identify which defining characteristics are primary and /or secondary.

**INSTRUCTIONS:**

- Please read & follow the instruction as specified in the tool.
- This tool consists of 2 section; you have the choice to tick () any number of options in the pre-stated multiple choice. The guidelines are stated along with the questions.

**TOOL 1: Interview schedule:**

**A)** This section consists of the demographic data of the respondents.

**B)** This section consists of questions related to respondent's illness.

**TOOL 2: Observational Tool:**

This section consists of the defining characteristics of NANDA diagnosis "Excessive fluid volume" among pre haemodialysis patients diagnosed with CKD.

## TOOL- 1 : INTERVIEW SCHEDULE

### RESPONDENTS' DEMOGRAPHIC DATA:

**Instruction:**

1. The investigator will collect the data from the respondents' record sheet. The unavailable data will be collected in the form of interview with the respondent, keeping all the principles of interviewing in mind.

Code :	_____		
Age :	_____		
Gender: Male	<input type="checkbox"/>	Female	<input type="checkbox"/>
Marital status:	_____		
Educational status :	_____		
Socio economic status:	_____		
Dietary habits: Veg	<input type="checkbox"/>	Nonveg	<input type="checkbox"/>
Addiction: Alcohol	<input type="checkbox"/>	Tobacco Chewing	<input type="checkbox"/>
Smoking	<input type="checkbox"/>	Others(Specify)	_____
Lifestyle: Active	<input type="checkbox"/>	Sedentary	<input type="checkbox"/>

**TOOL -1 (B)**

**DATA RELATED TO RESPONDENTS ILLNESS:**

a) Diagnosis

b) Since how long diagnosed

c) In your family is any one affected with-----?

Diabetes

Hypertension

Thyroid Disorder

CKD

Others (Specify)-

d) Do you have co-morbidities like..?

Diabetes

Hypertension

Both

Thyroid

IHD

Both

## TOOL-2: OBSERVATIONAL TOOL

### Instructions:

1. The following statements are about the defining characteristics of the nursing diagnoses “excessive fluid volume” seen amongst pre haemodialysis patients diagnosed with CKD. The expert nurse will assess the pre-haemodialysis patients diagnosed with CKD and indicate her/his AGREEMENT or DISAGREEMENT with the below stated defining characteristics by ticking (√) in the appropriate box.
2. The two expert nurses will assess the defining features independently with a gap of minimum 10 minutes amongst them.

SR.NO	Defining Characteristic Score	Agree	Disagree
1.	<b>Increase Sr. BUN</b> Patient exhibits BUN levels above 20mg/dl.		
2.	<b>Increase Sr Creatinine</b> Patient exhibits Sr. Creatinine levels above 1.5 mg/dl.		
3.	<b>Variations in serum electrolytes</b> Patient exhibits variation in Sr. Potassium Sr. sodium Sr. chloride.		
4.	<b>Azotemia</b> Patient exhibits increase levels of Sr. Creatinine and Sr. BUN.		
5.	<b>Decreased Haemoglobin and Heamatocrit</b> Patient exhibits haemoglobin levels below 12mg/dl) and heamatocrit below 38%		
6.	<b>Intake exceeding Output</b> Fluid intake of the patient is more than the output as indicated by a positive balance in the intake output chart.		
7.	<b>Weight Gain</b> Unintentional weight gain reported and demonstrated by the patient without eating and /or drinking more.		
8.	<b>Edema may progress to anasarca</b> Patient presents with generalised oedema characterized by widespread swelling of the skin. It is most prominent in the lower legs and feet further increasing by the end of the day.		

9.	<b>Increased PAP(Pulmonary Artery Pressure)</b> Patient exhibits PAP pressures Above 14mmHg at rest .		
10.	<b>Ascites</b> Patient shows evidence of collection of abnormal fluid in the peritoneal cavity with increase in abdominal girth.		
11.	<b>Pleural effusion</b> Collection of fluid in pleural space.		
12.	<b>Oliguria</b> Patient has urine output that is less than 400ml/ 24hrs in adults.		
13.	<b>Change in Specific gravity of urine</b> Patient's urine shows the specific gravity greater than 1.030.		
14.	<b>Early changes in Respiratory pattern</b> Leading dyspnoea, shortness of breath. Patient description of heaviness, tightness, suffocation And abnormal lung sound on auscultation.		
15.	<b>Paroxysmal nocturnal dyspnoea</b> Patient show sudden recurrence of shortness of breath and coughing that generally occurs at night.		
16.	<b>Orthopnoea</b> Patient show difficulty in breathing while in lying down position.		
17.	<b>S3 Heart Sound</b> On auscultation of the patient's pericardium, extra heart sound is heard in diastole as a dull, low pitched sound immediately following S2.		
18.	<b>Bounding pulse</b> A strong and forceful heartbeat felt over one of the arteries in the body.		
19.	<b>Increased CVP</b> Patient exhibits a CVP of more than 12cm of water or more than 5mm Hg.		
20.	<b>Increase in Blood Pressure</b> Patient exhibits an Systolic BP greater than		

	140 mm Hg and diastolic BP of greater than 90mm Hg.		
21.	<b>Palpitations</b> Patient verbalizes a sensation in which the person is aware of an irregular or rapid heartbeat in self.		
22.	<b>Hepatojugular reflux</b> Distension of neck veins precipitated by the manoeuvre of firm pressure over the patient's liver by the examiner.		
23.	<b>Hepatomegaly</b> On abdominal palpation enlargement of patient's liver is found more than 12 cms in Men & more than 10 cms. in Women.		
24.	<b>Fatigue</b> Patient verbalizes an objective lack of energy, feeling of muscle weakness and slowed movements.		
25.	<b>Cough</b> Patient verbalizes and demonstrates cough repetitively to clear the breathing passage from secretions and irritants.		
26.	<b>Lack of appetite</b> Patient verbalizes no desire to eat and demonstrates consumption of less than 50% of what is served during meal times.		
27.	<b>Change in Mental status</b> A mental state characterized by episodes of unclear thoughts and expressions and perhaps demonstrated by confusion and inappropriate behaviour.		
28.	<b>Activity intolerance</b> Patient verbalizes and demonstrates insufficient physical or psychological energy to endure or complete necessary or desired daily activity.		
29.	<b>Anxiety</b> Patient expresses a feeling of fear and an inner turmoil (that is subjectively seen) often accompanied by nervous behaviour.		
30.	<b>Restlessness</b> Patient is unable to achieve relaxation. A state characterized by irritability and unable to achieve a state of rest or repose.		

31.	<b>Seizure</b> Patients exhibits intermittent convulsion along with thought disturbances and altered consciousness.		
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**COVERING LETTER TO THE RESPONDENT'S TO PARTICIPATE IN THE RESEARCH.**

Dear respondents,

You are invited to participate in this research study that will validate the defining characteristics of NANDA nursing diagnosis 'excessive fluid volume' amongst pre haemodialysis patients diagnosed with chronic renal failure using Fehring's CDV model. This study is being conducted under the auspices of the Fortis Institute of Nursing (FIN), Fortis Healthcare, Mulund, Maharashtra University of Health Sciences. The research is conducted by us, the students of FIN under the guidance of a teacher, as a requirement of our degree course – Post Basic B. Sc. Nursing studies. The study has been reviewed by the Ethics Committee of FIN.

You have been asked to participate in this study because of your diagnosis as CKD. The purpose of the study is to validate the NANDA nursing diagnosis 'excessive fluid volume'.

To achieve this, a few questions will be asked to you. The questions in the questionnaire will ask in general about your personal and illness related information. The investigators (2 expert nurses) will assess you and mark their observations in the observational tool independently. The data collection will be done in the haemodialysis unit prior to starting the haemodialysis in you.

Your participation in this study is entirely voluntary. You may refuse to participate or choose to stop your participation at any point, without any form of penalty or negative consequences of any kind to you.

Your responses will be held strictly confidential. The results of this study may be published in scientific journals or presented at professional meetings.

You may not benefit directly as a result of taking part in this study, but knowledge may be generated through the study that might benefit others and future studies of similar kind.

There will be no risks or discomforts in this research.

No compensation will be there for participating in this study.

The signature in the attached consent form certifies that you have read and understood the information presented here and that you have decided to participate. You will be given a copy of

this consent form, if desire by you. We are open to all clarification before you sign the consent form.

Your collaboration is extremely appreciated &, we wish you success good luck for your life.

Thanking You,

Yours sincerely,

2nd Yr. P.B. B. Sc Nursing students,  
Fortis Institute of Nursing.

## **INFORMED CONSENT**

(Please read the document and sign it at the bottom of the page, if you consent to participate in the investigative project)

I understand that the purpose of this research is to validate the defining characteristics of NANDA nursing diagnosis ‘excessive fluid volume’ amongst pre haemodialysis patients diagnosed with CKD. I understand that the objective is to validate which defining characteristics are primary and secondary.

I understand that by participating in this research I will be asked some questions using the questionnaire to elicit my personal and illness related data. Two expert nurses will assess me with respect to the defining features of the nursing diagnoses excessive fluid volume and will mark their observations in the observational tool, independently. There will be neither risk nor discomfort to me with the participation in this research.

I understand that the participation in this study is absolutely voluntary and that I can withdraw from the study at any time without giving any reason and without any loss of any kind to me. I also understand that this information I provide will be treated confidential, so that it is impossible to trace this information back to me individually, as all raw data will be kept in a secured area by the researcher. I understand that in accordance with the data protection act, this information will be retained indefinitely. I also understand that the result of this research will be reported as aggregate summary data and no individually identifiable information will be provided. I also have a right to review the result of this research, if I wish to do so. A copy of the result may be obtained by me by contacting the researcher.

I have read and understood the foregoing information explaining the purpose of this research and my rights and responsibilities as a respondent. My signature below designates my consent to participate in this research, according to the terms and conditions outlined above.

Name:

Signature with date:

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