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"AN EVALUATORY STUDY TO VALIDATE THE DEFINING CHARACTERISTICS OF NANDA NURSING DIAGNOSIS 'ACTIVITY INTOLERANCE' DIAGNOSED AMONGST DAY 3 POST OPERATIVE CABG PATIENTS IN SELECTED HOSPITAL IN MUMBAI, INDIA USING FEHRING'S CDV MODEL".

Nursing

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ABSTRACT

Background Of The Study: - A study was conducted to evaluate the DC's of NANDA nursing Diagnosis 'Activity Intolerance' amongst the Day 3 post CABG patients of Fortis Hospital, Mumbai, India.
Methodology: - An observational cross sectional study was conducted at Fortis ICU 1 on 3rd day CABG patients. Non Probability Convenient Sampling Technique was used to collect data on a group of 30 patients using Fehring's CDV Model.
Result:-The study result revealed that out of 13 DC's 7 major Characteristics were found that is Abnormal Blood Pressure in response to activity (0.92), Abnormal Heart Rate (0.98), Exertional Dyspnea (0.81), Fatigue (1.00), Generalized Weakness (0.86), Abnormal Respiratory Rate 0.82, Anxiety (0.92) and Minor Characteristics were 2 which were ECG changes (0.61), Movement Induced Tremors (0.64) and 4 were Discarded.
Conclusion:- The study findings concluded that, 7 DCs ($R \geq 0.80$) as primary and 2 DCs ($R \geq 0.50$ to 0.79) as secondary and 4 DCs ($R<0.50$) of the nursing diagnosis were discarded. There was a significant difference between the evaluations of the defining features of nursing diagnosis "Activity intolerance' by the expert nurses among Post-operative CABG patient and that stated by NANDA III was accepted.

KEYWORDS

CABG (Coronary Artery Bypass Grafting), Fehring's CDV Model, Defining Characteristics (DC's), AI (Activity Intolerance).

INTRODUCTION

Cardiac Insufficiency (CI) as a clinical syndrome is characterized by the presence of cardiac dysfunction leading to a supply of blood which is insufficient to meet the metabolic needs. This leads to activity intolerance in the patients in the mid 1990 some 10,000 Coronary Artery Bypass Graft (CABG) surgeries were being performed annually in India. Presently the annul number is more than 60,000 according to industries sources.

There has been a study annual rise to the tune of 25-30% in the number of Coronary intervention over the past several years. This on one hand reflects the accessibility of the population to advance cardiac facilities and on the other hand, portrays that the disease now achieving epidemic proportions[5].

NANDA (North American nursing diagnosis association) is universally accepted for formulating nursing diagnosis. Defining characteristics are observable cues/ inferences that cluster as manifestations focused or health promotion diagnosis or syndrome. This does not only imply those things that the nurse can see, but the things that can be seen or heard, touched, or smelled. Richards Fehringare the most utilized, primarily the diagnostic content validation model (DCV) and clinical diagnostic validation (CDV) model are commonly used.

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 specialties 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[1].

Significant Need Of The Study:-

"the Logic Of Validation Allows Us To Move Between Two Limits Of Dogmatism And Scepticism"-anonymous.

- The lack of research based literature and of Research model for validation of nursing diagnosis results in some research efforts.
- It must be done however to move forward in medical and nursing diagnosis model and to improve communication among nurses.
- The problem of nursing diagnosis is that there are few DC that nurses agree on as commonly identifiable and as suitable for labeling.
- NANDA has put forward open for validation of cluster of Nursing Diagnosis. Out of which the researchers selected to take Activity Intolerance which was last reviewed in the year 2014-2015.

Review of Literature

The aim of this study is to compare angina and heart failure class and results of the stress test in the patent with the refractory angina with and without the nursing diagnosis of activity intolerance Results :-a total 44 patients with refractory angina were included. Of these 22 diagnosed with nursing diagnosis of activity intolerance was included in the case group and 22 who were not diagnosed with activity intolerance were included in control group. Analysis of CCS angina class showed that the groups of patient with the nursing diagnosis of activity intolerance were generally rated as belonging to higher classes than patient without this diagnosis [1.]

A study to assess the usefulness of the operational definition of DCS's of NANDA International nursing Diagnosis AI Decreased cardiac output and excessive fluid volume diagnosed with patients with decompensate heart failure . Result: - assessments regarding the presence of all DC have reached 100% agreement except with anxiety .5DC's were representative of the association between excess fluid volume and decreased cardiac output [2].

Kelly, David Jonathan, the identification and clinical validation of the defining characteristics of the nursing diagnosis for alteration in tissue perfusion in cardiac conditions. This exploratory study used Diagnostic Content Validity (DCV) and the Clinical Diagnostic Validation (CDV) models proposed by Fehrings (1986) to clinically identify and validate the defining characteristics for Alteration in Tissue Perfusion: Cardiac. Twenty subjects, 18 years old and older were selected from a population who were admitted as inpatients in a southwestern university affiliated hospital. Data were collected through patient interviews, independent nurse assessment, and review of laboratory data. Using the steps described in Fehring's CDV model (1986) one major defining characteristic and 13 minor defining characteristics were clinically validated. The tool CDV score was 0.62. The nursing diagnosis Alteration in Tissue Perfusion: Cardiac was clinically validated and one major and 13 minor defining characteristic were identified [3].

"A study conducted on validates the defining characteristics of NANDA nursing diagnosis 'excessive fluid volume' amongst pre hemodialysis patients diagnosed with Chronic Kidney Disease." 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. There was significant difference between the evaluations of the defining features of nursing diagnosis "excessive fluid volume' by the expert nurses among Pre Hemodialysis 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.[4] (Talashilkar, Supriya; D'souza, Rubyiana; Shirsekar).

Statement Of The Problem

"An Evaluatory study to validate the defining characteristics of NANDA nursing diagnosis "Activity Intolerance" in post-operative day 3 of CABG using Fehring's CDV model from a selected hospital in Mumbai, India.

Objectives

- To develop and validate the observational tool with defining characteristics defined through ROL for the nursing diagnosis "Activity Intolerance" in post CABG patient.
- To identify DC of nursing diagnosis of "Activity Intolerance" that occurs with the highest frequency.
- To identify the DC the nurses consider major and minor in the nursing diagnosis "Activity Intolerance"

Assumptions

- All post CABG patients are diagnosed to be having the NANDA nursing diagnosis "Activity Intolerance".
- Cluster of valid defining features help to state the nursing diagnosis reliably.
- The cluster of defining features for "Activity Intolerance" stated in post CABG patients is not same through ROL , as found in NANDA= II nomenclature for the said diagnosis.
- The clinical nurses are considered as experts, based on Fehrings CDV model, for validation of NANDA nursing diagnosis "Activity Intolerance" in post CABG patients.

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.

"System Theory", is the Trans disciplinary 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 such as input, process and output.

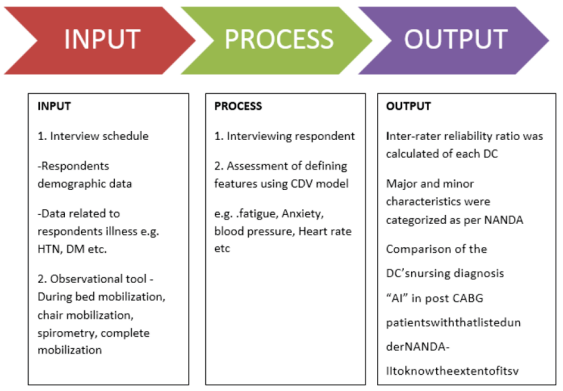

Fig 1: Conceptual Framework On System Theory (1975)

Operational Definitions

Evaluation: - According to Oxford dictionary, evaluation is the making of a judgment 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 " Activity Intolerance" which will be analyzed based on the calculated weighted inter rater reliability ratios stated in Fehrings CDV model.

Validations: - According to Oxford dictionary, the action of checking or proving the accuracy of something or declaring something legally or officially acceptable.

In this study, the researcher will assess and compare the evaluated defining feature of the nursing diagnosis "Activity Intolerance" with that stated in Nanda II nursing diagnosis so as to conclude whether the cluster of the defining features of the said definition is applicable amongst post CABG patients. Fehrings CDV frame work is used to do the validity of nursing diagnosis "Activity Intolerance"

Defining characteristics: - defining characteristics are signs and symptoms associated with specific nursing diagnosis.

In this study, the defining .characteristics are the all the defining features as stated in NANDA nomenclature and also as identified through ROL with respect to the nursing diagnosis "Activity Intolerance" found in patients underwent CABG
The defining characteristics were:-

1. Abnormal blood pressure in response to activity
2. Abnormal heart rate
3. ECG changes
4. Exertional discomfort
5. Exertional dyspnea
6. Fatigue
7. Generalized weakness
8. Changes in Saturation
9. Movement induced tremors
10. Anxiety
11. Malnutrition
12. Cultural belief regarding appropriate activity
13. Exertional discomfort

Activity Intolerance

Activity Intolerance is refers to that is an insufficient physiological or psychological energy to complete required or desired daily activities.

NANDA

NANDA INTERNATIONAL (formerly the North American Nursing Diagnosis Association) is a professional organization 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 recognized University.

Delimitations

1. This study was dealing with validation of defining characteristics of only one NANDA nursing diagnosis in post CABG patients
2. This study was using only the Fehrings CDV model for validating the selected nursing diagnosis "Activity Intolerance".

MATERIAL AND METHODS

The sampling design selected for the study was non experimental descriptive research design**.** The sample selected for the study was post operative day 3 of CABG patient in Intensive care unit. Patients were selected after drain removal and off oxygenation support. The Non Probability Convenient Sampling Technique was used for data collection of 30 samples. In our study tool consisted of three sections as follow:

Section 1: demographic data of expert nurses
Section 2: demographic data of patients
Section 3: 13 defining characteristics of Activity Intolerance given by NANDA II.

Technique

Interview technique: - to collect the personal information and medical information of the respondent.

Observational technique: - this research incorporates collection of data with respect to defining characteristics of NANDA nursing diagnosis "Activity Intolerance" among post CABG patients. Thus, the observational technique was thought to be most suitable and accepted as the defining characteristics can be accurately assessed in the patients through observations.

Data Collected Plan

The data was collected from 26.01.2017 to 25.02.2017. Prior to the commencement of the Pilot study, formal administrative permission was obtained. The data was collected in the following steps:-

1. Two clinical experts assess a given number of patients with the pre-established diagnosis "Activity Intolerance" that is being tested.
2. Both clinicians observe for the presence or absence of each defining characteristics of diagnosis being validated. All defining characteristics should be operationally defined before performing the assessment.

Data Analysis: The data was analyzed using the CDV Model. The steps for the CDV model are as follow:-

1. Calculate the weighted inter rater reliability ratios for each defining characteristics by the formula.

$$R = \frac{A}{A+D} \times \frac{f1/N + f2/N}{}$$

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

2. Discard the defining characteristics with weighted inter rater reliability ratios less than 0.05.

3. 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 than or equal to 0.50 will be labeled as "minor".

Based on CDV model, defining characteristics are labeled as "major" when the score is 0.80 or greater. The rationale behind this score means the experts agree that the defining characteristics are very much expressive of the diagnosis being tested. According to NANDA guidelines, "major" characteristics must be present for a nursing diagnosis to be made. The 0.80 score for reliability coefficients for measurement tools is a standard cut-off score.

Data Analysis And Interpretation

Table –I (a) Demographic Data Of The Respondents (N=30)

Sr. CHARACTERISTICS	F	%
1.AGE INYEARS		
40-50	5	16.66
50-60	12	40
Above 60	13	43.33
2. GENDER		
MALE	25	83.33
FEMALE	5	16.66
3. MARITALSTATUS		
MARRIED	29	99.66
UNMARRIED	0	0.00
DIVORCED	1	3.33
4. EDUCATIONALSTATUS		
POST GRADUATE	5	16.66
GRADUATE	10	33.34
HSC	5	16.66
SSC	10	33.34
5. SOCIO ECONOMICSTATUS		
MIDDLE CLASS()	30	100
6. BMI		
NORMAL (19.4-24.5)	8	26.67
Over weight (24.6-34.5)	19	63.33
Obese (34.6-45.5)	03	10
7. HABITS		
TOBACCO CHEWING	1	3.33
SMOKING	3	10
ALCOHOL	4	13.33
BOTH	5	16.67
8. DIET		
VEG	5	16.67
NONVEG	25	83.33

Table – I (b Data Related To Illness Of The Responde

Sr. No.	CHARACTERISTICS PERCENTAGE	F	%
9.	DIAGNOSIS		
	CABG	30	100
10.	YEAR OF DIAGNOSIS		
	UPTO 1	10	33.33
	1-2	15	50.00
	2-5	5	16.67
11.	OTHERCO—MORBIDITIES		
	DIABETES	2	6.67
	HYPERTENSION	6	20.00
	BOTH	16	53.33
	NONE	06	
12.	FAMILYHISTORY		
	DIABETES	5	16.66
	HYPERTENSION	6	20.00
	BOTH	15	50.00
	CABG	4	13.33
	NONE	0	0.00

CABG in the elderly might be partly due to related co-morbidities, such as cardiovascular diseases or diabetes, coupled with sedentary lifestyle and addictive habits as smoking and tobacco; which is seen in the present study .The higher incidence of CABG in favor of men could be because of the risk factors of smoking and alcohol addiction can increase the prevalence of cardiovascular diseases in men than women. There was significant relationship between diets as non-vegetarian are more prevalent to have CABG than vegetarian as well as overweight patient are more prone to get cardiovascular disease.

Table-II (a) Demographic Data Of The Expert Nurses

SR NO. DEMOGRAPHIC CHARACTERISTICS	F	%
1.AGE OF THE EXPERTNURSES		
33	1	50
31	1	50
2.GENDER		
Male	0	0
Female	2	100
3.PROFESSIONALQUALIFICATION		
Pursuing P. B. B. Sc. Nursing	2	100

Table-II (b) Professional Experience Of Expert Nurses

CLINICAL EXPERIENCE	AREA OF WORK	DURATION
Prior to P.B.B.Sc. Nursing		
Expert nurse one –	Intensive care unit	12
Expert nurse two -	Cardiac OT	8

Table-II© Other Professional Related Data Of The Expert Nurses

OTHER PROFESSIONAL EXPERIENCE	EXPERT-1 NURSE-1	EXPERT NURSE-2
UNDERTAKEN ANY COURSE IN CARDIOLOGY	No	No
Attended any CNE/CME related to cardiology?	NA	YES
If yes, then how many….?	NA	YES(1)

Mention if topic was nursing –based or medical – based …	NA	Nursing
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 cardiology?	NA	NA
Published any research or were you a part of any research related to cardiology?	NA	NA
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 'Activity Intolerance'. Both the expert nurses had completed their diploma in nursing and were pursing their 2nd year Post Basic B. Sc nursing studies. The present study is their first scientific production, addressing both CABG and the nursing process. In addition, both have had proven clinical experience, one expert has 12 years of experience in the intensive care unit and the other expert has 8 years of experience in operation theater. Both the respondents were using NANDA-1 nursing diagnosis in their daily clinical practice.

Table – III (a) Relibility Index Of The Respondents Findings

SR.NO	DEFINING CHARACTERISTICS	RELIABILITY INDEX (R)
1.	Abnormal blood pressure changes	0.92
2.	Abnormal heart rate	0.98
3.	ECG changes	0.61
4.	Exertional dyspnea	0.81
5.	Fatigue	1.00
6.	Generalized weakness	0.86
7.	Saturation(abnormal)	0.20
8.	Movement induced tremors	0.64
9.	Anxiety	0.92
10.	Malnutrition	0.12
11.	Joint stiffness	0.05
12.	Cultural belief	0.21
13.	Exertional discomfort	0.12

Table-III (b) Relibility Index Of The Primary And Secondary Defining Characteristics

SR.NO	DEFININGCHARACTERISTICS	Reliability Index(R)
1.	MAJOR OR PRIMARY	(R>0.80)
2.	Abnormal Blood pressure in response to Activity AaActivityactivity	0.92
3.	Abnormal Herat Rate	0.98
4.	Exertional Dyspnea	0.81
5.	Fatigue	1.00
6.	Generalized weakness	0.86
7.	Anxiety	0.92
8.	MINOR OR SECONDARY	(R>0.50 TO 0.79)
9.	ECG Changes	0.61
10.	Movement Induced Tremors	0.64

Out of 13 defining characteristics of 'Activity Intolerance' The expert nurse found that 7 DCs considered as a primary such as Abnormal Blood Pressure in response to activity 0.92, Abnormal Heart Rate 0.98, Exertional Dyspnea 0.81, Fatigue 1.00, Generalized Weakness 0.86, Abnormal Respiratory Rate 0.82, Anxiety 0.9 and 2 DCs considered as secondary such as ECG Changes 0.61, Movement Induced Tremors 0.64. In that the DCs of fatigue is obtained the highest inter-rater reliability index (R=1). This is one of the most common sign among post-operative diagnosed with CABG and is also directly associated with activity intolerance**.** Therefore, this should be include into the current DCs in the NANDA-II taxonomy is suggested.

DISCUSSION

(Table 1A) CABG in the elderly might be partly due to related co-morbidities, such as cardiovascular diseases or diabetes, coupled with sedentary lifestyle and addictive habits as smoking and tobacco; which is seen in the present study .The higher incidence of CABG in favor of men could be because of the risk factors of smoking and alcohol addiction can increase the prevalence of cardiovascular diseases in men than women. There was significant relationship between diets as non-vegetarian are more prevalent to have CABG than vegetarian as well as overweight patient are more prone to get cardiovascular disease.

(Table 2A) From the above tabulated data it can be concluded that the study comprised of 2 expert nurses to validate the DCs 'activity intolerance'. Both the expert nurses had completed their diploma in nursing and were pursing their 2nd year Post Basic B. Sc nursing studies. The present study is their first scientific production, addressing both CABG and the nursing process. In addition, both have had proven clinical experience, one expert has 12 years of experience in the intensive care unit and the other expert has 8 years of experience in operation theater. Both the respondents were using NANDA-1 nursing diagnosis in their daily clinical practice.

(Table 3A) this deals with the DC's stating 7 major and 2 minor characteristics of which the major ones had a significant influence on the activity of the patients following CABG surgery and that was observed in majority by the expert nurses. These are influenced due to post operative patients condition that bring about a significant change in the activity the person performs. During our study we also noted that there was a major change in the patients respiratory pattern following CABG surgery basically during spirometry and walking in the Ile this was because of the increased efforts required by the patient as evident by change in respiratory rate being a Major characteristics having R=0.92 that was found during the study.

LIMITATIONS

- Composition of respondents is small.
- Two of the researchers are consensually selected to be the expert nurses for validations of nursing diagnosis “Activity Intolerance”.

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. 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 of activity intolerance. The research question proposed was: Which signs and symptoms of compose the critical cluster of defining characteristics for the nursing diagnosis of activity intolerance in post- operative CABG patients. This research study is significant in attempts to validate deductively a widely applicable physiological nursing diagnosis. The development of the nursing diagnosis Activity Intolerance, will promote efficient communication and promotion of evidenced based nursing care.

In this study the validation of 7 defining characteristics belonging to NANDA Diagnosis and 6 characteristics identified through literature review were carried out Using Fehring's CDV model. The expert nurses identified 7 DCs ($R \geq 0.80$) as primary and 2 DCs ($R \geq 0.50$ to 0.79) as secondary and 4 DCs ($R<0.50$) of the nursing diagnosis were discarded. There was a significant difference between the evaluations of the defining features of nursing diagnosis “Activity intolerance' by the expert nurses among Post-operative CABG patient and that stated by NANDA III was accepted. The reason of rejection of the null hypothesis can well be demonstrated in rejection of 4 DCs which do not fit into post CABG patients. It is highlighted that 7 of the DCs: Abnormal Blood pressure in response to Activity 0.92, Abnormal Herat Rate 0.98, Exertional Dyspnea 0.81, Fatigue 1.00, Generalized weakness 0.86, Abnormal Respiratory Rate 0.82, Anxiety 0.90 were clinically relevant to validate this diagnosis. Apart from that the major characteristics that was identified was change in respiratory rate. Therefore, their inclusion into the current DCs in the NANDA-II taxonomy is suggested.

Recommendation

- Epidemiology studies can be taken upon patients with CABG 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 under taken.
- Similar research study can be undertaken by using a different

Fehring's validation model with large sample..

- Similar research can be done by using a different diagnosis on CABG patients.
- The same nursing diagnoses validation study can be under taken in other disease conditions.
- A comparative study of one diagnosis in different disease conditions can be under taken to know its applicability.

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