

# Dvt risk assessment tool for nurses using modified delphi



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Research article

## DEVELOPMENT OF PATIENT'S DVT RISK ASSESSMENT TOOL FOR NURSES USING MODIFIED DELPHI TECHNIQUE.

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### ABSTRACT

#### Background

Deep vein thrombosis (DVT) is a very serious, potentially fatal, and very preventable medical condition. It is important for all patients admitted to the hospital to be screened for the risk of developing a DVT. This could be easily accomplished by performing a risk factor assessment-screening tool on all patients. It is also important to educate the medical and nursing staff on the fact that all patients are at risk for developing DVT, not just surgical patients who are often believed to be at the highest risk of DVT. The implementation of the risk factor assessment could potentially save lives and reduce the hospital costs of treating and managing the complications of DVT and venous thromboembolic disease. The implementation of a risk factor assessment tool could potentially aid in the recognition and appropriate prophylaxis of those patients who are at extremely high risk for DVT. Without appropriate recognition of the risk for DVT, patients may be placed at risk for DVT and the potentially fatal and/or debilitating complications associated with the development of DVT. 1

#### Aim

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The aim of the study is to develop Patient's DVT Risk Assessment Tool for Staff Nurses.

### Objectives

1. To select and pool the items to develop Patient's DVT Risk Assessment Tool for Staff Nurses.
2. To obtain consensus of Panelists for the development of Patient's DVT Risk Assessment Tool for Staff Nurses.
3. To organize valid items in a structured format for the development of Patient's DVT Risk Assessment Tool for Staff Nurses.

### Methods

Using instrument development design for Patient's DVT Risk Assessment Tool for Staff Nurses. 66 Items were generated from evidence and qualitative data. Face and content validity were established through experts by 3 modified Delphi round. Content validity was computed. The content validity index (CVI) was calculated for each item i. e CVI-i, content validity index for experts i. e CVI-e and general content validity index for the tool i. e CVI-total. Item level CVI (CVI-i) is calculated by number of experts agreeing on the value of relevance of each item (value between 3 and 4) divided by total number of experts, expert level CVI (CVI-e) is calculated by number of items scored between 3 and 4 by an expert divided by total number of items and general CVI (CVI-total) is calculated by sum of all experts individual CVI divided by number of experts. Based on expert panel, CVI-i lower than 0. 6 were deleted, (CVI-e) is 0. 8, and CVI-total) 0. 89.

## Results

Patient's DVT Risk Assessment Tool for Staff Nurses had face and content validity. The content validity index was 0.89.

## Conclusion

The study concluded that assessment of DVT risk is essential in hospitalized patients. The identification of DVT risk at its earliest stage can help to decrease the morbidity and

mortality rate in hospitalized patients. The Patient's DVT Risk Assessment Tool will be helpful to identify risk of DVT at its earliest stage so that preventive measures can be taken.

## Keywords

Deep Vein Thrombosis, Patient's DVT Risk Assessment Tool. Modified Delphi Technique, Content Validity Index

## INTRODUCTION

"An ounce of prevention is cheap, the pound of cure costly"

(A. Taylor, B. J. Whiting)

In India, the incidence of deep vein thrombosis (DVT) is not well highlighted and literature survey shows scanty works in this field. Most of the literature available in India is from the orthopaedic departments, overall incidence of DVT in general population is largely unknown. Most of the DVTs are

idiopathic and occur in less than 45 years age group. Irrespective of the etiology, LMWH and Warfarins are efficient, safety is well demonstrated, and domiciliary treatment is advisable with surveillance. Idiopathic DVTs require long term follow up to watch for recurrent thrombosis. <sup>2</sup>

Each year, deep vein thrombosis (DVT) occurs in 1 of every 1, 000 Americans, hospitalizes nearly 600, 000 for DVT-related complications, and kills up to 300, 000. It is possibly the most common preventable cause of hospital deaths in the United States. Occupations in transportation, air travel, confined spaces, and sedentary office positions pose risks for DVT. The risk of DVT increases with factors such as obesity, cancer, pregnancy, estrogen-containing medications, major surgery, and hospitalizations. , With an understanding of DVT, occupational health nurses are well positioned to promote DVT awareness and reduce the risk of complications for employees diagnosed with DVT. <sup>3</sup>

Deep vein thrombosis [DVT] is one of the most dreaded complications in post-operative patients as it is associated with considerable morbidity and mortality. Majority of patients with postoperative DVT are asymptomatic. The pulmonary embolism, which is seen in 10% of the cases with proximal DVT, may be fatal. Therefore it becomes

imperative to prevent DVT rather than to diagnose and treat. Only one randomized trial has been reported from India to assess the effectiveness of low molecular weight heparin in preventing post-operative DVT. <sup>4</sup>

## METHODOLOGY

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It is a methodological study to develop Patient's DVT Risk Assessment Tool. The tool was validated by 10 multidisciplinary health care professionals. The study was conducted in 3 Modified Delphi rounds. The validity of tool was determined by content validity index (CVI). The data was collected via e-mail. The tool was developed under three phases and under each phase some steps were taken.

#### PHASE 1- Preliminary preparation

During this phase the investigator developed the preliminary Patient's DVT Risk Assessment Tool for which the following steps were taken:

Step-1: Review of Literature- An extensive review of literature was carried out from books, journals and through internet. Literature was searched which represent Patient's DVT Risk Assessment Tool from all aspects. Various tool were searched. Literature related to tool construction and standardization was also reviewed.

Step-2: Items selection and pooling- Different tools were analyzed and related items such as risk factors were selected from the content and items were pooled together.

Step-3: Preparation of first draft- Selected items were seemed to represent Patient's DVT Risk Assessment Tool to generate first draft of the tool.

#### PHASE 2- Validation of first draft and subsequent drafts

Step-1: Selection of panel- There were 10 experts in all Delphi rounds. The Delphi panel was consisted of multidisciplinary health care professionals

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(nurses, doctors, and administrator). The sample of the panelist were heterogeneous to ensure the entire spectrum of opinion to be determined. The written consent was taken from the selected experts to participate in the study. The first draft of tool was circulated among 10 experts from above stated field.

Step-2: Delphi Rounds: The modified Delphi technique was used to validate the draft. (The Delphi is an interactive process designed to combine expert's opinion into group consensus.

According to this technique the response of each panelist remains anonymous that there are equal chances of each panelist to present the ideas unbiased by the identity of other panelist. There are subsequent Delphi rounds until a definitive level of consensus is recorded). All the panelist were requested to give their valuable suggestion pertaining to the content, accuracy of information, the item order i. e organization and sequence of the items and working of the items. The suggestions given by panelist was incorporated to generate the second draft of tool.

Step-3: Modification: as per the experts opinion: The modification in the tool was made.

PHASE 3- Assessing reliability and content validity of tool:

Draft prepared after third Delphi round.

Validity of Tool:

It was done by expert's opinion. The tool was circulated to 10 experts of various specialties . The experts were asked to rate the items in terms of relevance to the Patient's DVT Risk Assessment Tool. A 4 point likert scale (1 not relevant, 2 somewhat relevant, 3 relevant, very relevant). The content validity index (CVI) was calculated for each item i. e CVI-i, content validity index for experts i. e CVI-e and general content validity index for the tool i. e CVI-total. Item level CVI (CVI-i) is calculated by number of experts agreeing on the value of relevance of each item (value between 3 and 4) divided by total number of experts, expert level CVI (CVI-e) is calculated by number of items scored between 3 and 4 by an expert divided by total number of items and general CVI (CVI-total) is calculated by sum of all experts individual CVI divided by number of experts. Based on expert panel, CVI-i lower than 0. 6 were deleted, (CVI-e) is 0. 8, and CVI-total) 0. 89.

Instrument development:

The content validity assessment process described by Waltz and Bausell (1981) and Lynn (1986) was used. 66 items were generated and were carefully investigated for clarity, grammar, and construction. A likert scale was chosen as scale type. Each item was rated on 4 point likert scale (1 not relevant, 2 somewhat relevant, 3 relevant, very relevant) with significant agreement (10 experts rating item a 4 or 3) needed for it to be retained. The experts were asked also to evaluate the set of items to determine if any content area was missing.

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