Nursing innovation: "Neo Hand Image"

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Abstract

In Thailand, disability from chronic illness is increasing and becomes a major health problem. The condition impacts to patients' quality of life of family members in terms of physical, mental, social, and spiritual problems. Therefore, health promotion and prevention are needed to improve their quality of life. Loss of functions of hand, wrist, and finger are common complications in paralysis patients. Student nurse who visited paralysis patients in the community realized that these conditions could be solved with "Neo Hand Image." Thus, the "Neo Hand Image" was invented to: 1) rehabilitate hand disability to be normal features; and 2) to prevent complications of finger and hand disability.

The innovation procedure used development process using reused materials to invent "Neo Hand Image". The purpose of the pilot study was to try out this invention in the paralysis patient in the community. In the pilot study, patients satisfied this product because it was easy to use and had low cost. The product would expect to eliminate the complications of hand disability in terms of bent fingers, joint stiffness, and muscle atrophy. Hence, this invention needs to use in long term to see the effectiveness. In the future study, biomarkers of patients need to be measured before and after using this product.

Keyword: Hemiplegia; Innovation; Hand disability prevention

Introduction

Chronic illness and disability are increasing and becoming the major health problem in Thailand. There are 13,000 clients with motion disability in 2011. Person with chronic illness and disability needs to adapt well and keep oneself quality of life sustains. Currently, modification of caring clients with chronic illness and disability is developing in terms of medical tecnology, humanistic care matter, as well as clients' encouragement of self-care and complication prevention. This situation persueded the Royal Thai Government has stressed the policy to support those clients with motion disability.

Hemiplegia is frequenly found in neuromuscular disease. It is the loss of brain function with motor and sensation. WHO reported of clients with stroke that there were approximately 15 million cases in each year. In those, five million were died and five million were paralysis. In Thailand according to the report of death with cardiovascular diseases, stroke was the highest rate with 20.6, 20.8, and 20.8: 100,000 cases in the year 2006, 2007, and 2008, respondingly (Pajaree, 2005). In addition, the trend of this becomes increasing. The stroke survivors are paralysis and unable to take care of themself. This condition impacts to patients' quality of life of family members in terms of physical, mental, social, and spiritual problems. Therefore, health promotion and prevention are needed to improve their quality of life. The nursing students did survey and visited one community while studying in Community Nursing Course found that there were 3out of 16 patients with hemiplegia.

Loss of functions of hand, wrist, and finger are common complications in paraplegia patients. Those nursing students realized that these conditions could be solved with some innovations. Therefore, they invented the equipment called "Neo Hand Image" with the regards of promoting quality of life, preventing complication, and encouraging self-care in clients living with chronic disease in the community.

Objectives:

1. To produce the innovation to rehabilitate the paralysis patients in the community to maintain hand function, eliminate the complication of hand disability and reinforce the strength of muscle and extremity.
2. To try out the use of innovation in terms of rehabilitation the paralysis patient in the community.

The expected outcomes:

1. The paralyzed patient's hands were in normal features.
2. There was none complication to the patient's hand s in terms of bent fingers, or joint stiffness.
3. The paralyzed patients were aware of the complications of bent fingers, or joint stiffness and wound occuring.
4. The paralyzed patients were aware of self- care, especially on physical rehabilitation.
5. The paralyzed patients or their family acknowledged the "Neo Hand Image" benefits and distribute its information to others.

Procedures:

1. The nursing students did survey problems and copmilcations of patients with hemilpegia by taking history and doing physical examination. They found that those patients had hand and fingers with deformity in the paralysed side. Those hands' wrists and fingers were bent and likely to be a pressure sore.

2. The literature review associated with diesease and nursing care, especially on patient with hemiplegia was done. This directed to creating the innovation called "Neo Hand Image" with the main ideas of cocking up splint by using towel. In the beginning, this innovation was used as a handing roll, but it was not appropraited for a hemiplegia patient in longer period as he/she had already had hands and fingers with muscle and tendon retraction. Their fingers were too bent and this innovation could not maintain their normal figures.

3. The nursing students had a group discussion to creat a new version innovation with the major goals of hand figure maintaining and preventing a finger sore. This equipment was invented with main concept of using the cost-effective materials. Later, the group invented the innovation by using the PVC pipe with diameter 11 cms to maintain a hand figure and the towel to comfort and absorb moist of fingers.This was washable. The materials used for this innovation were as follows:1) PVC pipe with diameter 11 cms; 2) towel; 3) saw ; 4) needle and threads; 5) scissors ; and 6) tape bezel size 12 cms. In addition, the steps of making the innovation were included:

1. Measured the PVC pipe size to be 11 cms long, and then rubbed with the sandpaper to prevent skin abrasion.

2. Measured the towel size to be 13 x 23 cms, cut and stitched it.

3. Measured and cut the tape bezel to be 12 cms and then sew on any side of the towel prepared.

4. Measured the thickness of towel to be sized 3.5 x 7.5 (5 pieces) and on the towel in the shape of ring (for inserting five fingers and decrease the friction of fingers.

5. Covered the towel on PVC pipe

After finished producing the innovation, the group testified it by applying for paralyzed patient with movement disability and chronic disorder by inserting the fingers into the ring shape of innovation. This innovation could be easily moved and washable. One patient in the community was satisfied with using the "Neo Hand Image." She said that "After using this equipment, my hand side with paralysis has more power. I felt that I hold a thing. This made my upper arm muscle energized and I could extend more all of my fingers without bending or finger sore as occurred in earlier. I felt that my hand figure is similar to a normal one. This can prevent my finger bending and joint stiffness as well as help my hand and arm exercised. I believe that I will have a normal hand sooner."

Recommendations:

1. This innovation"Neo Hand Image" is needed to reinvent so as to use for exercising as well.

2. This can apply to other parts of body such as foot and pharanges. However, appropriate materials may have to be considered.

3. Since this pilot study applied the innovation to only one patient, the further investigation is required.

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