

“A study to assess the effectiveness of finger stretching exercise on preventing dupuytren’s contracture among geriatric clients residing at kalitheerthalkuppam, puducherry”.

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ABSTRACT:

Dupuytren contracture often first occurs in only one hand, affecting the right hand twice as often as the left. About 80 percent of affected individuals eventually develop features of the condition in both hands. It has been linked to many risk factors including a history of smoking , alcohol consumption , frozen shoulder , epilepsy , diabetes mellitus, carpal tunnel syndrome, history of manual labor , and hand injury. All of these reports are controversial and frequently delivered based on selective data. Factors associated with increased severity include male gender and a young age at onset, which are often reported although the evidence appears to be weak. A total of 50 geriatric clients were selected by using purposive sampling technique and the study was carried out in Kalitheerthalkuppam. The data was collected by using the questionnaire consist of 25 questions. The study results show that in pre-test, majority of them 26 (52%) having Dupuytren contracture in a moderate risk and only 24 (48%) of them in high risk for contracture. Where in post-test, out of 50 samples majority 48 (96%) of them were in low risk and only 2 (4%) of them were in moderate risk. In pre-test, the mean score is 29.44 with the standard deviation of 3.264. Whereas in post-test, the mean score is 7.82 with the standard deviation of 2.37. Practicing regular stretching exercise will stretch and relax all the muscle and tendons at a periodic interval and makes an active movement promotes regular function of that particular area.

I. INTRODUCTION

“Numbing the pain for a while will make it worse, when you finally feel it”

- **J. K. Rowling**

Swiss doctor Felix Platter was the first to describe Dupuytren's contracture in the 1600s. Many years later, the condition was named for French surgeon Baron Guillaume Dupuytren, who gave a famous lecture on retracted fingers in 1831. Dupuytren contracture is characterized by a deformity of the hand in which the joints of one or more fingers cannot be fully straightened (extended); the immobility is limited to arrangement of bent (flexed) positions. The condition is a disorder of connective tissue, which supports the body's muscles, joints, organs, and skin and provides strength and flexibility to structures throughout the body. In particular, Dupuytren contracture results from shortening and thickening of connective tissues in the hand, including fat and bands of fibrous tissue called fascia; the skin is also involved.

Dupuytren contracture often first occurs in only one hand, affecting the right hand twice as often as the left. About 80 percent of affected individuals eventually develop features of the condition in both hands. It has been linked to many risk factors including a history of smoking, alcohol consumption, frozen shoulder, epilepsy, diabetes mellitus, carpal tunnel syndrome, history of manual labor, and hand injury. All of these reports are controversial and frequently delivered based on selective data. Factors associated with increased severity include male gender and a young age at onset, which are often reported although the evidence appears to be weak.

The first sign of Dupuytren's contracture is a hard knot or lumps of connective tissue that form under the skin of the palm. These lumps might feel tender to the touch, but they usually aren't painful. Over many years, the knots become bands of thick tissues. The bands extend up the fingers—usually the ring and pinky fingers, although it can affect other fingers.

II. REVIEW OF LITERATURE:

Gediminas Samulenas(2020) was conducted a study on Dupuytren’s contracture is a chronic fibro proliferative and disorder with a varying pattern of genetic predisposition across different regions and populations. Traumatic events have been found to have influence on the development of this illness and are likely to trigger different clinical forms of this disease. The aim of this study was to evaluate the phenomenon of development of Dupuytren’s contracture following an acute injury to the hand, and to observe the incidence and clinical diversity of such cases in daily clinical practice. We collected data of patients presenting with primary Dupuytren’s contracture in the Lithuanian population and evaluated the occurrence and clinical manifestation of this specific type of DC, arising following acute and trauma. The diagnosis of DC was based on clinical signs and physical examination. Digit contractures were measured by goniometry, and the staging was done according to Tubiana classification. Injury-induced (injury-related) cases were identified using the “Criteria for recognition of Dupuytren’s contracture after acute injury” .29 (22%) of a total of 132 cases were injury-induced DCs. Twenty-six of 29 patients in this group presented with stage I–II contractures. Duration of symptoms was 6 (SD 2.2) and 3.8 (SD 2.2) years in the injury-related and injury-unrelated DC groups, respectively. Mean age on the onset of symptoms in the injury-induced and non- injury-induced groups was 52(SD10.7) and 56(SD10.9), respectively. Patients from both groups expressed strong predisposition towards development of DC. Around one-fifth of patients seeking treatment for primary Dupuytren’s contracture seemed to suffer from injury-induced Dupuytren’s contracture.

STATEMENT OF THE PROBLEM:

A study to assess the effectiveness of finger stretching exercise on preventing dupuytren’s contracture among geriatric clients residing at kalitheerthalkuppam, puducherry

OBJECTIVES:

- To assess the level of dupuytren’s contracture among geriatric clients.
- To evaluate the effectiveness of finger stretching exercise on preventing dupuytren’s contracture among geriatric clients.
- To associate the post-test level of dupuytren’s contracture among geriatric clients with their selected demographic variables.

ASSUMPTIONS:

- There will be a significant differences in level of Dupuytren’s contracture before and after administration of finger stretching exercise among geriatric clients.
- There will be significant association between the level of dupuytren’s contracture among geriatric clients with their selected demographic variables.

III. MATERIALS AND METHODS:

This chapter describes the research methodology followed to assess the effectiveness of finger stretching exercise on preventing dupuytren’s contracture among geriatric clients residing at kalitheerthalkuppam, puducherry

It deals with research approach, research design, setting of the study, population, sample, sample size, sampling technique, criteria for sample selection, plan for data collection and tools and instruments.

- **SECTIONA:** Demographic variables such as age, gender, religion, educational status, marital status, dietary habit etc.
- **SECTION B:** Structured checklist regarding assessment of Dupuytren contracture and functional assessment was carried out by using URAM scale.

SCORING INTERPRETATION:

| LEVEL OF KNOWLEDGE | SCORING |
|--------------------|---------|
| Low risk | 1-3 |
| Moderate risk | 4-6 |
| High risk | >6 |

RESEARCH APPROACH:

A quantitative research approach was selected for the present study.

RESEARCH DESIGN:

A retrospective research design was adapted for this study.

SETTING OF THE STUDY:

The study was conducted at kalitheerthalkuppam, Puducherry. This is 1 km far away from Sri Manakula Vinayagar Nursing College Puducherry. The geographic area comprises of 547.62 acres with a total population of 8,862 peoples, out of which male population is 4,357 while female population is 4,505.

SAMPLE:

Sample of the study comprises all the geriatric who are all residing at Kalitheerthalkuppam.

SAMPLING TECHNIQUE:

Purposive sampling technique was used for the present study.

SAMPLE SIZE:

Sample size is the number of subjects involved in the study. Sample size consists of 50 geriatric clients.

CRITERIA FOR SAMPLE SELECTION:

Inclusion criteria:

- Geriatric who are all available at the period of data collection.
- Geriatric who are all residing at kalitheerthalkuppam.

Exclusion criteria:

- Geriatric who are all not willing to participate in the study.
- Geriatric who are all under co-morbid disease treatment.

IV. RESULTS:

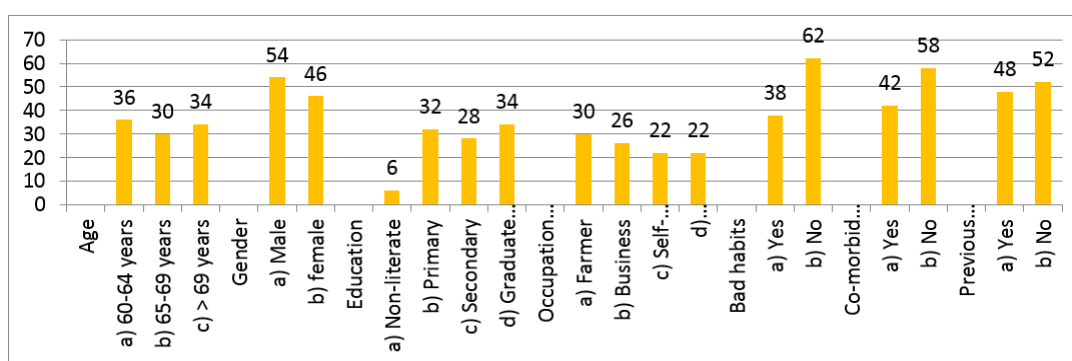
The findings reveals that out of 50 samples. Mean and standard deviation. In pre-test, the mean score is 29.44 with the standard deviation of 3.264. Whereas in post-test, the mean score is 7.82 with the standard deviation of 2.37. The effectiveness of finger stretching exercise were compared with the mean score and it is statistically proved with the paired ‘t’ test value 36.539 is statistically significant at the level of $p < 0.001$. Findings shows that the factors associated with osteoporosis among geriatric with their selected demographic variables. There was no significant association between Age, Gender, Religion, Educational status, Marital status, Dietary habit etc.

Frequency and percentage wise distribution of demographic variables among geriatric males residing at kalitheerthalkuppam, Puducherry.

(N=50)

| S.NO | DEMOGRAPHIC VARIABLES | FREQUENCY | PERCENTAGE |
|------|-----------------------|-----------|------------|
| 1 | Age | | |
| | a)60-64years | 18 | 36 |
| | b)65-69years | 15 | 30 |
| | c)>69years | 17 | 34 |
| 2 | Gender | | |
| | a)Male | 27 | 54 |
| | b)female | 23 | 46 |
| 3 | Education | | |

| | | | |
|---|---------------------------------|----|----|
| | a)Non-literate | 3 | 6 |
| | b)Primary | 16 | 32 |
| | c)Secondary | 14 | 28 |
| | d)Graduate and above | 17 | 34 |
| 4 | Occupation pattern | | |
| | a)Farmer | 15 | 30 |
| | b)Business | 13 | 26 |
| | c)Self-employed | 11 | 22 |
| | d)Government-employer | 11 | 22 |
| 5 | Bad habits | | |
| | a)Yes | 19 | 38 |
| | b)No | 31 | 62 |
| 6 | Co-morbid disease | | |
| | a)Yes | 21 | 42 |
| | b)No | 29 | 58 |
| 7 | Previous history of hand injury | | |
| | a)Yes | 24 | 48 |
| | b)No | 26 | 52 |



Percentage wise distribution of demographic variables among geriatric residing at kalitheerthalkuppam, Puducherry.

Mean and standard deviation regarding factors associated with osteoporosis among geriatric males residing at kalitheerthalkuppam, Puducherry.

| LEVELOFRISK | PRE-TEST | | POST-TEST | |
|-------------|----------|---|-----------|----|
| | N | % | N | % |
| NO | 0 | 0 | 0 | 0 |
| LOW | 0 | 0 | 48 | 96 |

| | | | | |
|----------|----|----|---|---|
| MODERATE | 26 | 52 | 2 | 4 |
| HIGH | 24 | 48 | 0 | 0 |

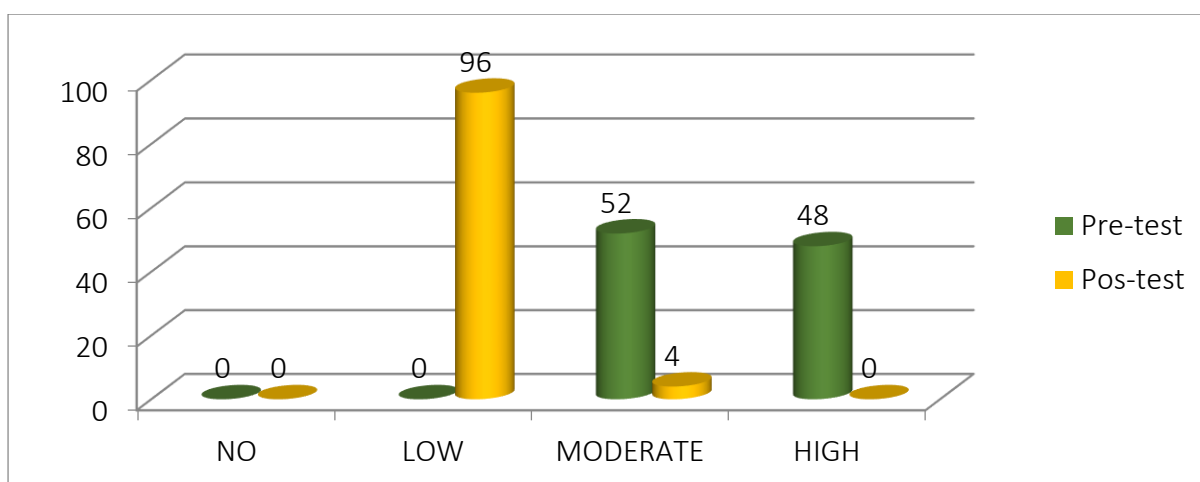


TABLE 4: Association of pre-test level of risk Dupuytren disease among geriatric clients with their selected demographic variables (N=50)

| S. NO | DEMOGRAPHIC VARIABLES | MODE | | HIGH | | X ² |
|-------|------------------------|------|----|------|----|---------------------|
| | | N | % | N | % | |
| 1 | Age | | | | | 1.994 df=2 0.369 |
| | a) 60-64 years | 9 | 18 | 18 | 36 | |
| | b) 65-69 years | 6 | 12 | 9 | 18 | |
| | c) > 69 years | 11 | 22 | 6 | 12 | |
| 2 | Gender | | | | | 0.001 df=1 0.982 |
| | a) Male | 14 | 28 | 13 | 26 | |
| | b) female | 12 | 24 | 11 | 22 | |
| 3 | Education | | | | | 1.786 df=3 0.618 |
| | a) Non-literate | 2 | 4 | 1 | 2 | |
| | b) Primary | 10 | 20 | 6 | 12 | |
| | c) Secondary | 7 | 14 | 7 | 14 | |
| | d) Graduate and above | 7 | 14 | 10 | 20 | |
| 4 | Occupation pattern | | | | | 4.086 df=3 0.252 |
| | a) Farmer | 6 | 12 | 9 | 18 | |
| | b) Business | 9 | 18 | 4 | 8 | |
| | c) Self-employed | 4 | 8 | 7 | 14 | |
| | d) Government-employer | 7 | 14 | 4 | 8 | |
| 5 | Bad habits | | | | | 0.005 df=1 0.944 |
| | a) Yes | 10 | 20 | 9 | 18 | |
| | b) No | 16 | 32 | 15 | 30 | |
| 6 | Co-morbid disease | | | | | 0.278 df=1 |

| | | | | | | |
|---|---------------------------------|----|----|----|----|---------------------|
| | a) Yes | 10 | 20 | 11 | 22 | 0.598 |
| | b) No | 16 | 32 | 13 | 26 | |
| 7 | Previous history of hand injury | | | | | 0.732 df=1 0.389 |
| | a) Yes | 14 | 28 | 10 | 20 | |
| | b) No | 12 | 24 | 14 | 28 | |

Table4 Reveals that association of pretest level of risk Dupuytren disease among geriatric clients with their selected demographic variables. Among 7 demographic variables none of the demographic variables were found to be significant at the level of $p < 0.05$.

TABLE 5: Association of post-test level of risk dupuytren disease among geriatric clients with their selected demographic variables

(N=50)

| S. NO | DEMOGRAPHIC VARIABLES | Low | | Moderate | | X ² |
|-------|------------------------|-----|----|----------|---|---------------------|
| | | N | % | N | % | |
| 1 | Age | | | | | 3.704 df=2 0.157 |
| | a) 60-64 years | 16 | 32 | 2 | 4 | |
| | b) 65-69 years | 15 | 30 | 0 | 0 | |
| | c) > 69 years | 17 | 34 | 0 | 0 | |
| 2 | Gender | | | | | 2.446 df=1 0.118 |
| | a) Male | 27 | 54 | 0 | 0 | |
| | b) female | 21 | 42 | 2 | 4 | |
| 3 | Education | | | | | 1.076 df=3 0.783 |
| | a) Non-literate | 3 | 6 | 0 | 0 | |
| | b) Primary | 15 | 30 | 1 | 2 | |
| | c) Secondary | 14 | 28 | 0 | 0 | |
| | d) Graduate and above | 16 | 32 | 1 | 2 | |
| 4 | Occupation pattern | | | | | 2.652 df=3 0.449 |
| | a) Farmer | 15 | 30 | 0 | 0 | |
| | b) Business | 13 | 26 | 0 | 0 | |
| | c) Self-employed | 10 | 20 | 1 | 2 | |
| | d) Government-employer | 10 | 20 | 1 | 2 | |
| 5 | Bad habits | | | | | 3.399 df=1 0.065 |
| | a) Yes | 17 | 34 | 2 | 4 | |
| | b) No | 31 | 62 | 0 | 0 | |
| 6 | Co-morbid disease | | | | | 0.055 df=1 0.815 |
| | a) Yes | 20 | 40 | 1 | 2 | |

| | | | | | | |
|---|---------------------------------|----|----|---|---|---------------------|
| | b) No | 28 | 56 | 1 | 2 | |
| 7 | Previous history of hand injury | | | | | 0.003 df=1 0.954 |
| | a) Yes | 23 | 46 | 1 | 2 | |
| | b) No | 25 | 50 | 1 | 2 | |

Table5 Reveals that association of posttest level of risk Dupuytren disease among geriatric clients with their selected demographic variables. Among 7 demographic variables none of the demographic variables were found to be significant at the level of $p < 0.05$.

V. CONCLUSION AND RECOMMENDATIONS:

This study implies and the data proves that practicing regular finger stretching exercise were found to be an effective strategy and technique in reducing and preventing Dupuytren contracture among geriatric population. Practicing regular stretching exercise will stretch and relax all the muscle and tendons at a periodic interval and makes an active movement promotes regular function of that particular area.

NURSING IMPLICATIONS:

The investigator has drawn the following implication from the study that are vital concerns for nursing services, nursing education, nursing administration and nursing research.

NURSING SERVICES:

We can improve the knowledge of the nursing students regarding the finger stretching exercise among geriatrics with the appropriate tools and criteria.

NURSING EDUCATION:

Nursing educator motivates and encourages the students to take their conditions of medical, clinical, life-style and nutritional factor affect geriatrics by Dupuytren contracture.

The Nursing management of patient with dupuytren's contracture and its risk factor should be included in detail in nursing curriculum.

NURSING ADMINISTRATION:

As a nurse administer, encourage to conducting in-service and continuing nursing education to promote knowledge regarding risk for Dupuytren contracture among geriatrics.

NURSING RESEARCH:

The investigator needs a lot of review materials and one obtained by using the study report. Various methods may be used to strengthen the knowledge of the people by the researcher, which should be published for the benefits of those who are not able to participate in this study.

The findings of the study can be utilized for conducting further study on find out the prevalence and factors related to Dupuytren contracture among geriatrics. Further research articles should be carried out in improving health status among geriatrics.

RECOMMENDATIONS FOR THE STUDY:

Based on the findings of the study, following recommendation have been made for future study.

- Replication of the study may be done with large sample.
- A case study can be undertaken to identify the factors associated with dupuytren contracture among geriatrics on high density of people who are with co-morbidities.
- Same study can be done in old age home for assessing risk factors for Dupuytren contracture.

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