



A study to assess the prevalence and risk factors of osteoporosis among geriatric clients residing kalitheerthalkuppam, at puducherry.

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ABSTRACT:

Bone exhibits significant mechanical strength at a minimum weight, its biomechanical properties allow for significant flexibility without compromising this mechanical strength. Cellular composition of the 4 cellular elements of bone are osteoblasts, osteocytes, bone lining cells, and osteoclasts. A simpler cellular classification consisting of bone forming and bone resorbing cells also has been developed. Further differentiation of bone cells is based on their origin. Bone Structure overall structure of bone can be divided into cortical (compact) versus cancellous. Within these classifications, cortical and cancellous bone can consist of either woven (primary) or lamellar (secondary) bone. A quantitative research approach was adapted for this study. The study samples consist of geriatric people residing at Kalitheerthalkuppam. The findings reveal that out of 50 samples. Mean and standard deviation, the mean value is high in clinical factor with the mean value of 2.7 and standard deviation of 1.54. Whereas in medical factor the mean score is 2.4 with the standard deviation of 1.47. The study implies that among the major factors which is associated with osteoporosis among geriatric clients the prevalence and risk factors play a vital role in developing osteoporosis among geriatric clients where as the remaining factors also play an important role.

I. INTRODUCTION

“A broken bone can heal, but the wound a word open can fester forever”

- Jessamyn West

Bone is a specialized form of connective tissue that serves as both a tissue and an organ system within higher vertebrates. As such, its basic functions include locomotion, protection, and mineral homeostasis. Its cellular makeup includes osteoblasts, osteocytes, bone lining cells, and osteoclasts, and its matrix contains an organic and an inorganic component. Morphologically, bone is characterized either as cancellous (spongy, trabecular) or as cortical (compact). Functionally, cancellous bone is more closely associated with metabolic capabilities than cortical bone, whereas cortical bone generally provides greater mechanical strength. Although bone exhibits significant mechanical strength at a minimum weight, its biomechanical properties allow for significant flexibility without compromising this mechanical strength. Cellular composition of the 4 cellular elements of bone are osteoblasts, osteocytes, bone lining cells, and osteoclasts. A simpler cellular classification consisting of bone forming and bone resorbing cells also has been developed. Further differentiation of bone cells is based on their origin.

Bone Structure overall structure of bone can be divided into cortical (compact) versus cancellous. Within these classifications, cortical and cancellous bone can consist of either woven (primary) or lamellar (secondary) bone. Comparison of cortical and cancellous bone demonstrates a similar matrix structure and composition, but vastly different masses, with cortical bone having a greater mass-to-volume ratio. Bone section (left) and radiograph (right) of the proximal femur in the frontal plane illustrating cortical and cancellous bone. Note the arching pattern of trabeculae (double arrows).

Cortical bone surrounds the marrow cavity and the trabecular plates of the cancellous bone. It accounts for 80% of the mature skeleton and forms the diaphysis, or shaft, of long bones. The metaphysis and epiphysis of long bones have thinner cortical walls, with the epiphysis forming a bulbous end surrounding the inner cancellous bone. Short bones (eg, the tarsals and carpals), the vertebrae, skull, and pelvic bones also tend to have thinner cortical walls but contain a greater percentage of cancellous bone compared with long bones.

II. REVIEW OF LITERATURE:

Prajeshkothawala (2021) conducted a study based on systemic review and meta analysis of real world adherence to drug therapy for osteoporosis twenty-four studies were included in the meta-analysis. The pooled database-derived persistence rate was 52% (95% confidence interval [CI], 44%-59%) for treatment lasting 1 to 6 months, 50% (95% CI, 37%63%) for treatment lasting 7 to 12 months, 42% (95% CI, 20%-68%) for treatment lasting 13 to 24 months, returning to 52% (95% CI, 45%58%) for treatment lasting more than 24 months. Pooled adherence rates decreased from 53% (95% CI, 52%-54%) for treatment lasting 1 to 6 months to 43% for treatment lasting 7 to 12 months (95% CI, 38%-49%) or 13 to 24 months (43%; 95% CI, 32%-54%).

STATEMENT OF THE PROBLEM:

A study to assess the prevalence and risk factors of osteoporosis among geriatric clients residing kalitheerthalkuppam, at puducherry.

OBJECTIVES:

- To assess the level of risk on osteoporosis among geriatrics clients.
- To associate the level of clients and risk on osteoporosis among geriatrics clients with their selected demographic variable.

ASSUMPTIONS:

- Geriatric clients may be more prone to develop osteoporosis.
- Geriatric clients may have various level of risk for developing osteoporosis.

III. MATERIALS AND METHODS

This chapter describes the research methodology followed to assess the prevalence and risk factors of osteoporosis among geriatric clients residing kalitheerthalkuppam, at 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.

- **SECTION A:** Demo-graphic variables such as age, gender, religion, educational status ,marital status, dietary habit etc.
- **SECTION B:** Multiple choice questionnaire regarding Prevalence and Risk factors for osteoporosis among geriatric clients

SCORING INTERPRETATION:

LEVEL OF KNOWLEDGE	FREQUENCY (n)	PERCENTAGE (%)
INADEQUATE	12	24
MODERATE	38	76
ADEQUATE	0	0
Total	50	100

RESEARCH APPROACH:

A quantitative research approach was adapted for this study.

RESEARCH DESIGN:

A descriptive 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:

The study samples consist of geriatric people residing at Kalitheerthalkuppam, Puducherry who fulfill the inclusion criteria.

SAMPLING TECHNIQUE:

A convenient sampling technique was used for the present study.

SAMPLE SIZE:

Sample size consists of 50 geriatric clients residing at Kalitheerthalkuppam, Puducherry

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:

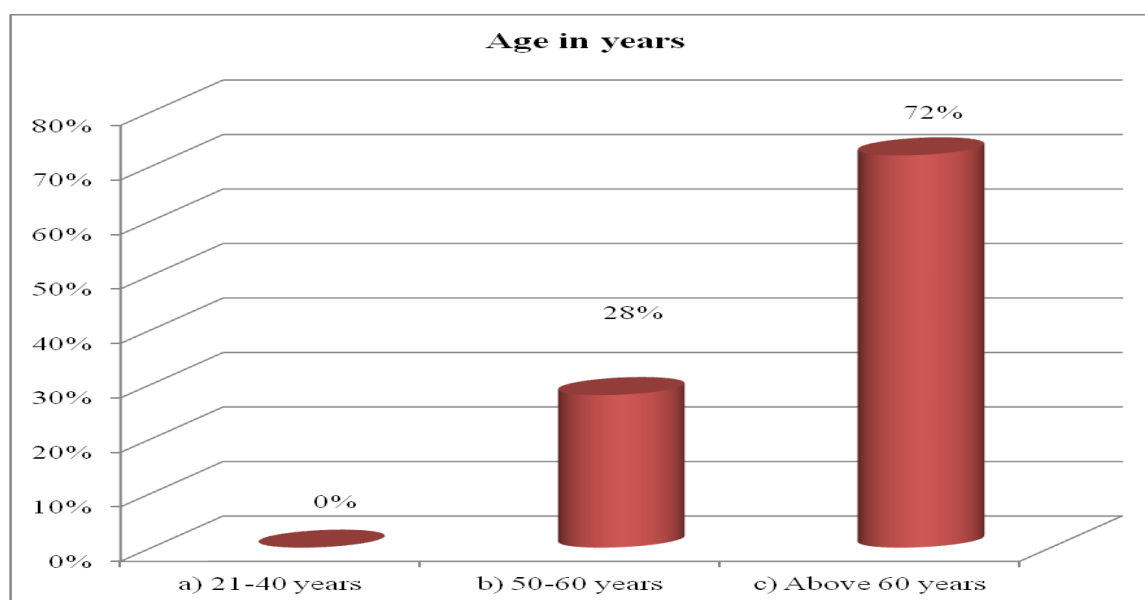
The findings reveals that out of 50 samples. Mean and standard deviation .The regarding factors associated with osteoporosis among geriatric males residing at kalitheerthalkuppam, Puducherry. Among all 4 factors the mean value is high in clinical factor with the mean value of 2.7 and standard deviation of 1.54. Where as in medical factor the mean score is 2.4 with the standard deviation of 1.47. The least mean score of 2.1 and 2.2 is under lifestyle and nutritional factor respectively. However their standard deviation is 1.92 and 1.12 respectively. Findings shows that the factors associated with osteoporosis among geriatric males 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 amonggeriatric clients residing at kalitheerthalkuppam.

(N=50)

SL. NO	DEMOGRAPHIC VARIABLES	FREQUENCY(N)	PERCENTAGE(%)
1.	Age in years		
	a) 21-40 years	0	0
	b) 50-60 years	14	28
	c) Above 60 years	36	72
2.	Gender		
	a) Male	8	16
	b) Female	42	84
3.	Marital status		
	a) Marriage	38	76
	b) Unmarried	2	4
	c) Widow	10	20
4.	Religion		
	a) Hindu	37	74
	b) Christian	9	18
	c) Muslim	4	8
5.	Educational level		
	a) Illiterate	13	26
	b) Primary School	9	18
	c) Secondary School	13	26
	d) Graduate	15	30
6.	Monthly income		
	a) Less than 5000	20	40
	b) Above 10000 -20000	21	42
	c) Above 50000	9	18

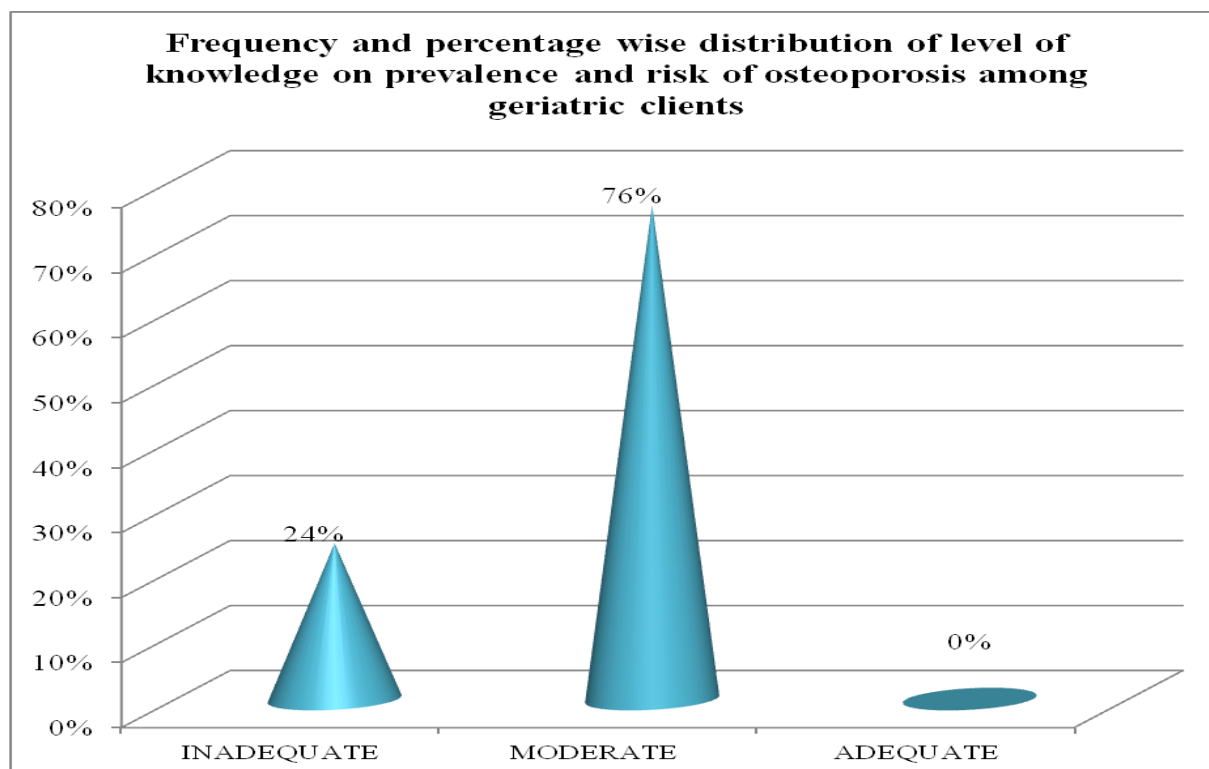
7.	Socio-Economic Status		
	a) Poor socio-economic status	16	32
	b) Middle class	31	62
	c) High class	3	6
8.	Residence		
	a) Urban	21	42
	b) Rural	29	58
9.	BMI		
	a) < 18.5	13	26
	b) 18.5-24.9	10	20
	c) 25-29	6	12
	d) >29	21	42
10.	Diet		
	a) Vegetarianism	4	8
	b) Non-vegetarian	46	92



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

Frequency and percentage wise distribution of level of knowledge on prevalence and risk of osteoporosis among geriatric clients.

LEVEL OF KNOWLEDGE	FREQUENCY (n)	PERCENTAGE (%)
INADEQUATE	12	24
MODERATE	38	76
ADEQUATE	0	0
Total	50	100



Association between the level of knowledge on prevalence and risk of osteoporosis among geriatric clients with their selected demographic variables.

(N=50)

SL. NO	DEMOGRAPHIC VARIABLES	LEVEL OF KNOWLEDGE				
		INADEQUATE		MODERATE		
		N	%	N	%	
1.	Age in years					$X^2=6.14$ Df=1 p =0.013 *S
	a) 21-40 years	0	0	0	0	
	b) 50-60 years	0	0	14	36.8	
	c) Above 60 years	12	100	24	63.2	
2.	Gender					$X^2=30.15$ Df=1 p =0.000 *HS
	a) Male	8	66.7	0	0	
	b) Female	4	33.3	38	100	
3.	Marital status					$X^2=4.98$ Df=2 p =0.083 NS
	a) Marriage	12	100	26	68.4	
	b) Unmarried	0	0	2	5.3	
	c) Widow	0	0	10	26.3	
4.	Religion					$X^2=5.54$

	a) Hindu	12	100	25	65.8	Df=2 p =0.062 NS
	b) Christian	0	0	9	23.7	
	c) Muslim	0	0	4	10.5	
5.	Educational level					X²=44.93 Df=3 p =0.001 *S
	a) Illiterate	12	10	1	2.6	
	b) Primary School	0	0	9	23.7	
	c) Secondary School	0	0	13	34.2	
	d) Graduate	0	0	15	39.5	
6.	Monthly income					X²=17.64 Df=2 p =0.001 *S
	a) Less than 5000	11	91.7	9	23.7	
	b) Above 10000 -20000	1	8.3	20	52.6	
	c) Above 50000	0	0	9	23.7	
7.	Socio-Economic Status					X²=33.55 Df=2 p =0.001 *S
	a) Poor socio-economic status	12	100	4	10.5	
	b) Middle class	0	0	31	81.6	
	c) High class	0	0	3	7.9	

V. CONCLUSION AND RECOMMENDATIONS:

The study implies that among the major factors which is associated with osteoporosis among geriatric clients the prevalence and risk factors place a vital role on developing osteoporosis among geriatric clients where as the remaining factors also place an important role.

NURSING IMPLICATIONS:

The study had implications for nursing practice, nursing education, nursing administration and nursing research

NURSING SERVICES:

We can improve the knowledge of nursing students regarding the risk factors of osteoporosis among geriatric clients with the appropriate tools and criteria.

NURSING EDUCATION:

The nurse educator motivates and encourages the students to take their condition of medical, clinical, nutritional factors affect the geriatric clients.

The nursing management of patient with osteoporosis and its risk factors 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 osteoporosis 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 the study.

The findings of the study can be utilized for conducting further study on find out the prevalence and risk factors related to osteoporosis among geriatric clients. Further research articles should be carried out in improving health status and to prevent the osteoporosis among geriatric clients.

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 risk of osteoporosis among geriatric clients on high density of people who are with comorbidities.
- Same study can be done in old age home for assessing factors for osteoporosis.

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