

Assessment of Osteoporotic Risk among Post-Menopausal Women

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ABSTRACT - A research study entitled “A study to assess the osteoporotic risk among post-menopausal women at Sahakar Nagar in Bangalore” was conducted. The objective of the study was to assess the osteoporotic risk among post-menopausal women. The study adopted conceptual framework on “osteoporotic risk” based on Ronald M Anderson’s behavioral model and access to medical care (1960). The research approach was descriptive survey and the design was descriptive correlational design. Purposive sampling technique was used for this study. Data were collected using osteoporotic risk assessment scale. Content validity was established in two phases initially from 5 nursing experts and later from 5 orthopaedicians and modifications was made based on the experts’ suggestions. Pretesting was done on 5 post-menopausal women. Reliability was established for the research tools. Cronbach’s alpha was used to assess the osteoporotic risk assessment of post-menopausal women ($r = 0.79$) and was found to be reliable. Pilot study was conducted among 36 respondents who fulfilled the sampling criteria the study was found to be feasible. Data were collected using demographic proforma and osteoporotic risk assessment scale was used to assess osteoporotic risk among post-menopausal women at Sahakar Nagar in Bangalore. Descriptive and inferential statistics were used to analyze the data. The study results revealed that among the post-menopausal women. Majority 273 (77.6%) of them belong to less than 65 years and most of them 254 (72.2%) were literates. Most of them 137 (38.9%) were sedentary workers and most 204 (58.0%) of their family income is `10000/- and less. Majority 195 (55.4%) had more than 2 children and most of them 187 (53.1%) were Hindus. For most 224 (63.6%) participants, mass media was the source of health information and majority 245 (69.6%) were between 1 to 10 years after the menopause and most of them 213 (60.5%) attained menopause at the age of less than 50 years. The osteoporotic risk scores were significantly associated with age in years ($p=0.001$), educational qualification ($p=0.001$), nature of work done ($p=0.006$), total number of children ($p=0.031$), religion ($p=0.001$), source of health information (0.001) and total number years after the menopause (0.001).

KEY WORDS - Assessment, Osteoporotic risk, Post-menopausal, Women.

I. INTRODUCTION

Osteoporosis is a disease manifested by reduced bone density with micro architectural depletion of bone cells which influences rigidity of bones and thereby increasing the vulnerability to fracture. Among Indians osteoporotic fractures commonly occurs at younger age when compared with that of the West. [4] A study published in recent times enumerates the prevalence of vitamin-D deficiency all across our country particularly in the urban areas including both the gender and all age groups. [5] Poor exposure to sunlight, skin pigmentation and vitamin-D deficient diet has greater roles in preventing the occurrence of reduced bone mass. Rapid bone loss occurs when menopause is attained. It is found to be the greatest in the early stage of

postmenopausal period. [6] Approximately 2-3% of bone loss occurs during 5 to 10 years after the onset of menopause. As per 2011 census approximately 18% of Indians are aged more than 50 years and the number will reach to 20% by 2025. [7] It is predicted that nearly 61 million Indians survive with the osteoporosis condition as per the report given by National Institute for Research in Reproductive Health. [8] It was expected that more than half of all hip fractures will occur in our continent by the mid of 21st century. [1]

Most of the elderly population in our country is prone to get fragility fractures at the hip, spine and wrist which is associated with osteoporosis a major health problem. Hip fracture is more serious than the other fractures associated

with osteoporosis. [10] This is mainly because of the complications that it may lead to like chronic pain, disability, diminished quality of life and pre-mature death. [2]

II. MATERIALS AND METHODS

Research methodology is a systematic way of doing the research to solve a problem. [9] It coordinates all the component of the research aspects in a way that is most likely to bring reasonable answers to the sub problems that have been proposed. [3] Descriptive survey approach and descriptive correlational design was adopted for the study. The study was conducted at Sahakar Nagar in Bangalore. A total of 352 post-menopausal women aged greater than 50 years were selected for the study. Purposive sampling technique was used since typical subjects who fulfill the sampling criteria were required for the study. The following instruments were used for data collection: Clinical & demographic variables and Osteoporotic risk assessment scale were used. The clinical and demographic variable is designed to collect the sample characteristics. The clinical variable consists of 2 items namely height and weight. The demographic variable consists of 9 items respectively namely age, educational qualification, nature of work, family monthly income, total number of children, religion, source of health information, total number of years after the menopause and age at which menopause occurred.

This scale consists of 32 items to measure the level of risk among post-menopausal women regarding osteoporosis. It consisted of 2 options (Yes/No) for the respondents to answer through a checklist. The respondents were asked to select one best option that explains their osteoporotic risk. If the respondent answers "No" the score will be 0, if the respondent answers "Yes" the score will be 1. The maximum score was 32 and the minimum score was 0. The scoring was graded as follows: high risk for osteoporosis (17 to 32) and low risk for osteoporosis (16 or less). The researcher obtained administrative permission and written informed consent from every participant. Anonymity and confidentiality of the participants were safeguarded by the researcher in the study. The validity of the tool was established in two phases as follows: In the first phase from 5 nursing experts and in the second phase from 5 orthopaedicians. They were chosen on the basis of their experience, expertise and interest in the selected area of study. The experts were requested to give their opinion regarding agreement or disagreement on each item in the tool according to their relevance, accuracy and appropriateness and to suggest for modification if any. Items with agreement above 80% were accepted. In order to establish the reliability, the tool was administered to 20 post-menopausal women from Sahakar nagar, Bangalore. In order to establish the reliability, the tool was administered to 20 post-menopausal women from Sahakar nagar, Bangalore. The reliability of Osteoporotic risk assessment

scale was established by Cronbach's alpha technique and computed coefficient correlation values were found to be $r = 0.79$ respectively and they were considered reliable. A house to house survey was conducted in the six blocks of Sahakar Nagar. 352 respondents who fulfilled the sampling criteria were selected purposively. The demographic proforma was used to gather information about age, educational qualification, nature of work done, family monthly income, number of children, religion, source of health information, number of years after the menopause and age at which menopause occurred. Post-menopausal women's osteoporotic risk was assessed by osteoporotic risk assessment scale. The data were collected and analyzed by using descriptive and inferential statistics by SPSS package version 20.0 with the help from guide, co-guide and statistician. The data analysis was planned based on the objectives of the study. The plan for data analysis is as follows:

- Frequency and percentage distribution was used to analyze demographic variables
- Frequency and percentage distribution, mean and standard deviation was used to analyze osteoporotic risk among post-menopausal women
- Association of osteoporotic risk with selected demographic variables was analyzed using chi-square test

III. RESULTS AND DISCUSSION

The data collected were categorized and analyzed based on the study objectives by using descriptive and inferential statistics with the application of SPSS 20.0 version. The analysis of the data were organized and presented under the following headings:

Section 1 : Analysis of demographic variables of post-menopausal women.

Section 2 : Assessment of osteoporotic risk among post-menopausal women.

Section 3 : Association of osteoporotic risk with selected demographic variables of post-menopausal women.

Section 1: Demographic data of post-menopausal women

Analysis of the data related to the background information of the demographic variables of post-menopausal women namely age, educational qualification, nature of work done, family monthly income, total number of children, religion, source of health information, total number of years after the menopause and age at which menopause occurred is shown below.

Frequency and percentage distribution of demographic variables

n=352

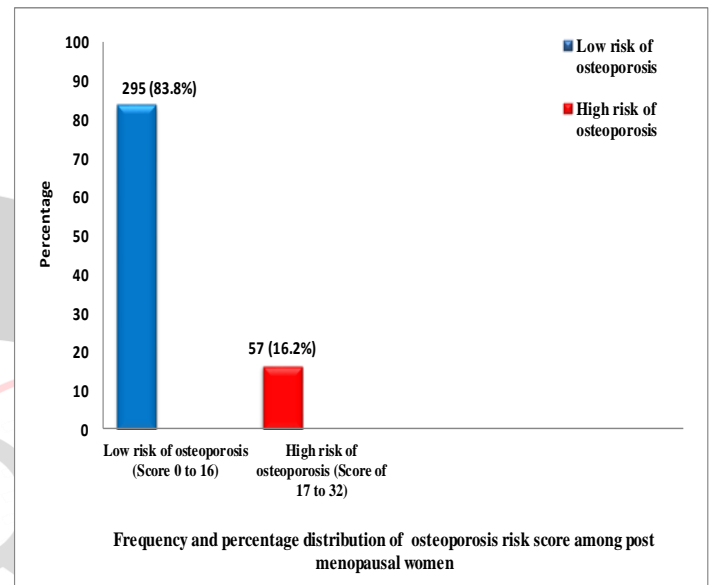
S No	Demographic variables	Frequency	Percentage
	Age in years		
	< 65 years	273	77.6
	65 years and above	79	22.4
	Educational qualification		
	Illiterate	98	27.8
	Literate	254	72.2
	Nature of work done		
	No work	118	33.5
	Sedentary work	137	38.9
	Heavy work	97	27.6
	Family monthly income in rupees		
	Upto `10000/-	204	58.0
	>10000/-	148	42.0
	Total number of children		
	Upto 2 children	157	44.6
	>2 children	195	55.4
	Religion		
	Hindu	187	53.1
	Muslim	58	16.5
	Christian and others	107	30.4
	Source of health information		
	Mass media	224	63.6
	Health professionals and significant others	128	36.4
	Total no of years after menopause		
	1 to 10 years	245	69.6
	> 10 years	107	30.4
	Age at which menopause occurred		
	< 50 years	213	60.5
	50 to 60 years	139	39.5

Table-1: Depicts frequency and percentage distribution of demographic variables

The data in table 1 above shows that majority 273 (77.6%) of the respondents belong to less than 65 years. Mostly they were literates 254 (72.2%). Most of them 137 (38.9%) were sedentary workers. Most 204 (58.0%) of their family income was `10000/- and less. Majority 195 (55.4%) had more than 2 children. Most 187 (53.1%) of them were Hindus. Most 224 (63.6%) of them got health information through mass media. Majority 245 (69.6%) were between 1 to 10 years after the menopause and most 213 (60.5%) of them attained menopause at the age less than 50 years.

Section 2: Assessments of osteoporotic risk among post-menopausal women

n=352



Graph-1: Depicts frequency and percentage distribution of osteoporotic risk among post-menopausal women

The figure depicts that most 295 (83.8%) of the post-menopausal women had low risk of osteoporosis and least 57 (16.2%) had high risk of osteoporosis.

Section 3: Association of osteoporotic risk score with selected demographic variables of post-menopausal women

n = 352

S. No	Demographic Variables	Category	Sample size	Osteoporotic risk score		Chi square value χ^2	df	p value
				High	Low			
1	Age in years	< 65 years	273	17	256	89.026	1	.001* S
		65 years and above	79	40	39			
2	Educational qualification	Illiterate	98	28	70	15.334	1	.001*
		Literate	254	29	225			
3	Nature of work done	No work	118	29	89	10.074	2	.006*
		Sedentary work	137	19	118			
		Heavy work	97	9	88			
4	Family monthly income in rupees	Upto `10000/-	204	37	167	1.351	1	.245
		>`10000	148	20	128			

5	Total number of children	Upto 2 children	157	18	139	4.669	1	.031*
		>2 children	195	39	156			
6	Religion	Hindu	187	19	168	16.936	2	.001*
		Muslim	58	19	39			
		Christian and others	107	19	88			
7	Source of health information	Mass media	224	47	177	10.410	1	.001*
		Health professionals and significant others	128	10	118			
8	Total number of years after menopause	1 to 10 years	245	10	235	87.11	1	.001*
		> 10 years	107	47	60			
9	Age at which menopause occurred	< 50 years	213	37	176	.551	1	.458
		50 to 60 years	139	20	119			

*P<0.05

Table-2: Depicts association of demographic variables with selected demographic variables

Table depicts the association of osteoporotic risk with selected demographic variables of post-menopausal women. The osteoporotic risk scores significantly associated with age in years ($p=0.001$), educational qualification ($p=0.001$), nature of work done ($p=0.006$), total number of children ($p=0.031$), religion ($p=0.001$), source of health information ($p=0.001$) and total number years after the menopause ($p=0.001$).

IV. CONCLUSION

The major findings of the study were as follows:

- Majority 273 (77.6%) of them belong to less than 65 years and most of them 254 (72.2%) were literates. Most of them 137 (38.9%) were sedentary workers and most 204 (58.0%) of their family income was 10000 and less. Majority 195 (55.4%) had more than 2 children and most of them 187 (53.1%) were Hindus. For most 224(63.6%) participants, mass media was the source of health information and majority 245 (69.6%) were between 1 to 10 years after the menopause and most of them 213 (60.5%) attained menopause at the age less than 50 years.
- Most of the post-menopausal women 295 (83.8%) had low risk of osteoporosis.
- The osteoporotic risk scores were significantly associated with age in years ($p=0.001$), educational qualification ($p=0.001$), nature of work done ($p=0.006$), total number of children ($p=0.031$), religion ($p=0.001$), source of health information ($p = 0.001$) and total number of years after the menopause ($p = 0.001$).

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