

# Evaluation of the Effectiveness of Awareness Program on Knowledge of Sarcopenia and Its Prevention among the Senior Age Group of Pashan Zone of Pune City

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**Abstract** Sarcopenia is widespread, progressive condition of the skeletal muscles known as sarcopenia which increases the likelihood of adverse events like falls, functional decline, frailty, and death while also causing an accelerated loss of muscle mass and function. It is a typical ageing process that affects older adults and is influenced by both present risk factors and long-term hereditary and lifestyle factors. As the population ages, sarcopenia, which is common and has serious negative health implications, will become more prevalent. The approach of research study was quantitative research design. Pre-intervention and Post-intervention method is used in this study. The data were collected by using a Non-probability Convenience sampling technique and the sample size taken for this study was 100 and reviewed for the period of seven days after the intervention of Awareness program was given. The target population was geriatric group (65 years and above). This study was conducted in the Urban area of Pune City that is at Pashan. The knowledge and preventive questionnaire were discussed with the demographic variable. According to the intervention, the group's pre-intervention knowledge consisted as follows: 24% had outstanding knowledge, 44% had weak knowledge, and 30% had average knowledge. The group's knowledge is revealed by the research result. 67% population were having good knowledge where as 19% were having average knowledge and only 12% people were having poor knowledge after giving intervention. The current study concludes that the effectiveness of Awareness program on knowledge of

Sarcopenia and its prevention has a positive impact on the urban community of selected area of Pune City (Pashan). This conclusion was drawn as a result of the findings of the study.

**Keywords** Assess, Frailty, Knowledge, Sarcopenia, Geriatric Age Group, Muscle Weakness

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## 1. Introduction

Sarcopenia is a growing concern as the global population continues to age. It is known as the gradual loss of muscle mass, strength, and function with ageing which is linked to a number of detrimental health effects, such as decreased mobility, an elevated A lower quality of life, a higher risk of fractures and falls. Genetics, way of life, and overall health state are just a few of the variables that might affect the complicated illness known as sarcopenia. Effective sarcopenia prevention, management, and treatment options are required due to the rising population of older persons. Sarcopenia is a muscular illness (muscle failure) caused by unfavorable muscle alterations occurring over time. Sarcopenia is more frequent in elderly persons, but it may occur at any age [1].

Sarcopenia may have serious side effects. People who have sarcopenia frequently experience a reduction in muscular strength, which makes it harder for them to

accomplish daily tasks like walking, climbing stairs, or carrying goods. Additionally, Sarcopenia is characterised by a compromised condition of health that has a significant human cost, including decreased mobility, a higher risk of fractures and falls, difficulties doing everyday tasks, impairments, loss of independence, and a higher chance of passing away [2].

Following is an outline of the study's objectives:

- This study's main goal is to assess the effectiveness and impact of awareness program to increase senior residents of a pashan, Pune awareness of sarcopenia and its preventative measures.
- To ascertain the current level of knowledge and awareness of sarcopenia among the elderly in the selected part of Pune.
- To create and carry out an educational program that aims to increase knowledge of sarcopenia, its dangers, and countermeasures.
- To observe to see whether the sarcopenia prevalence has decreased and whether the information acquired via the program has a long-lasting effect.
- To offer information and suggestions that may be utilized to guide public health programs and policies aimed at enhancing the well-being of the elderly population in Pune and surrounding regions.

This project's objective is to provide crucial information on the efficiency of awareness campaigns in raising awareness, encouraging preventative measures, and perhaps lowering the prevalence of sarcopenia among senior people in the targeted neighbourhood of Pune City, Pashan.

Evidence shows that having both of these conditions increases the likelihood of developing a wide range of comorbidities in obese individuals with sarcopenia, a group who is at an especially high risk of adverse outcomes. Recent research has indicated that chronic inflammatory state and lifestyle-related variables in older persons may have a role in the onset and progression of sarcopenia, even if the underlying processes and pathophysiology of the condition are still unclear [3,4]. The goal of sarcopenia research is to comprehend the fundamental processes of the disease, identify risk factors, and create efficient therapies to both prevent and cure sarcopenia. Both pharmaceutical and non-pharmacological methods are included here, such as exercise, dietary changes, and supplementation [5]. Medical personnel are essential in the prevention, detection, treatment as well as in the promotion of elderly well-being. The requirement and foundation for these acts are comprehension and understanding [6]. There is also a need to raise awareness of sarcopenia and its impact on older adults and their families. This includes educating healthcare providers, policymakers, and the general public about the signs, symptoms, and consequences of sarcopenia, as well as the importance of early detection and intervention.

According to the most recent data from the Indian

Council of Medical Research (2014), geriatric experts predict that by 2020, India would have 12% of the world's senior population, making it the country with the second-highest elderly population. Sarcopenia has to be studied since it is becoming increasingly clear how it affects the health and happiness of elderly people. Overall, the rising incidence of sarcopenia, its major effects on older individuals' health and well-being, and the need for effective therapies and preventative methods all point to the importance of studying sarcopenia. The results of this study will assist to design sarcopenia therapies that are more successful and will enhance the quality of life for older persons on a global and national level [7].

### 1.1. Objectives

1. To evaluate the initial knowledge of sarcopenia and its prevention among the geriatric age group before the intervention.
2. To evaluate the knowledge of sarcopenia and its prevention among the geriatric age group after the intervention.
3. To determine the impact of an awareness program on improving knowledge about sarcopenia and its prevention among the geriatric age group.
4. To investigate the relationship between knowledge levels and selected demographic characteristics.

### 1.2. Research Question

What is the impact of awareness program on knowledge about sarcopenia and its prevention among senior age group persons?

## 2. Methodology

Through an awareness program, the current study hopes to educate older persons about sarcopenia and how to prevent it. The impact of the awareness workshop on knowledge of sarcopenia and its prevention among 100 older persons in Pune who satisfied the inclusion criteria was evaluated using a quantitative study approach. The urban area of Pune City that is Pashan served as the study's location. The study adopted pre-experimental design with one group pre-test and post-test. The samples were chosen using a non-probability purposive sampling approach as the senior old age persons usually stays at home and have to be approached to collect the data at their ease and comfort. The inclusion criteria involved the elderly peoples with 65 years of age and above of both genders, who are available at the time of data collection and have consented to participate. The exclusion criteria involve the participants who are critically ill, mentally unstable, and are not in condition to provide information. To collect the data, a self-structured questionnaire was created. After being examined by several specialists and verified, the

urban region of Pune City formally approved the instrument's use. The written consent was obtained for research participation, and confidentiality was maintained. Seven days following the delivery of the intervention, samples are analyzed. The knowledge and prevention questions were addressed in conjunction with the demographic variable. The SPSS program was used to analyse the study.

### 3. Result

**Section I:** Assessment of Demographic variables.

**Section II:** Assessment of Pre-intervention Knowledge score regarding Sarcopenia

**Section III:** Assessment of Post-intervention knowledge score of sarcopenia

**Section IV:** Evaluation of effectiveness of Awareness Program

**Section V:** Analyze the association among knowledge and demographic factors.

Table 1 displays the distribution of sarcopenia in percentage terms in relation to demographic factors. An appropriate sample from the research population of 100 participants was chosen. Age, gender, marital status, education, occupation, location of residence, type of family, and any past medical histories of the region of Pune City chosen for the research study are just a few of the characteristics of the sample that have been collected and used to define them. 16% of the sample falls within the age range of 65 to 67 years, according to the age (years) of the chosen samples. Twenty percent of the sample is between the ages of 68 and 70. 30 percent of the sample's population is between 71 and 72 years old. 73 years of age or older make up 34% of the sample. According to the data's gender breakdown, 40% of the sample's respondents identify as men. Female identity makes up 60% of the sample. Individuals who identify as transgender are not present in the sample.

Marital The current data status indicates that 47% of the sample is married. Of the sample, 20% are single. Divorces affect 12% of the sample. There are 21% widows in the sample.

According to education, the 10% of the sample are illiterate, according to education-related data. Primary education is held by 24% of the sample. Secondary education is present in the sample in 17%. Graduates comprise 49% of the sample. A 30% private workforce is represented in the samples, according to their occupation. Public sector employees make up 22% of the sample. Commercial guys make up 6% of the sample. Individuals who are retired make up 42% of the sample. 63% of the sample's population lives in urban regions, according to the area of living pattern. A semi-urban environment is home to 37% of the sample. According to the sample's Types of Family data, joint families represent 36% of the sample. Families with children make up 32% of the sample.

Extended families make up 22% of the sample population. Single-person families represent 10% of the sample. 60% of the sample had a history of physical sickness, according to the chosen samples. A physical sickness has never been a problem for 40% of the group.

**Table 1.** Demographic variables

Sample Characteristics	Percentage	Frequency
<b>Age (years)</b>		
65-67 years	16%	16
68-70 years	20%	20
71-72 years	30%	30
>=73 years	34%	34
<b>Gender</b>		
Male	40%	40
Female	60%	60
Transgender	0	
<b>Marital Status</b>		
Married	47%	47
Unmarried	20%	20
Divorced	12%	12
Widowed	21%	21
<b>Education</b>		
Illiterate	10%	10
Primary	24%	24
Secondary	17%	17
Graduate	49%	49
<b>Occupation</b>		
Private worker	30%	30
Government worker	22%	22
Businessman	6%	6
Retired	42%	42
<b>Area of living</b>		
Urban	63%	63
Semi Urban	37%	37
<b>Types of family</b>		
Joint	36%	36
Nuclear	32%	32
Extended	22%	22
Single	10%	10
<b>Any history of physical illness</b>		
Yes	60%	60
No	40%	40

According to the results in Table 2, 44% of those polled had a low level of understanding on Sarcopenia. This indicates that a significant portion of the participants lacked sufficient understanding or awareness about Sarcopenia and its prevention. 30% of the people included in the study had an average knowledge score regarding Sarcopenia. This suggests that a considerable number of participants had a moderate level of understanding, but there was room for improvement in their knowledge. 26% of the people surveyed had a good knowledge score regarding Sarcopenia. This subset of participants demonstrated a solid understanding of the topic and had a higher level of knowledge compared to the other categories.

**Table 2.** Assessment of Pre-intervention knowledge score

Sr. No	Knowledge Score	Frequency	%
1.	Good	26	26%
2.	Average	30	30%
3.	Poor	44	44%

Table 3 reflects that 67% of the people surveyed have a good knowledge regarding Sarcopenia and its prevention. This suggests that a majority of the participants have a solid understanding of the topic and are well-informed about the prevention of Sarcopenia. 21% of the people surveyed have an average knowledge regarding Sarcopenia and its prevention. This indicates that a significant portion of the participants possess a moderate level of understanding about Sarcopenia and its prevention but may require further information or education to enhance their knowledge. 12% of the people who participated in the study have a poor knowledge regarding Sarcopenia and its prevention. This subset of participants lacks a sufficient understanding of Sarcopenia and its preventive measures, indicating a need for additional education and awareness-building efforts.

**Table 3.** Assessment of post-intervention knowledge score

Sr. No	Knowledge Score	Frequency	Percentage
1.	Good	67	67%
2.	Average	21	21%
3.	Poor	12	12%

Table 4 demonstrates that the mean knowledge score after the intervention was 32.72 with an SD of 8.29, which is more than the mean knowledge score before the intervention, which was 23.05 with an SD of 5.23. Since the administration of the awareness program on sarcopenia and its prevention. The average knowledge score has increased. At the threshold of 0.05, the post-intervention average knowledge was determined to be significant ( $t=3.0112$ ;  $p<0.00001$ ). The null hypothesis is thus disproved. This shows that the awareness program has improved the knowledge score of the elderly age group in a particular location in Pune.

**Table 4.** Evaluation of Effectiveness of Awareness Program

Test	Mean	SD	T	DF	P-value
Pre-intervention	23.05	5.23	3.0112	99	<0.0005
Post-intervention	32.71	8.29			

Here we observe that all  $p$ - values  $< \alpha$ , we reject the null hypothesis at 0.05% level of significance.

Table 5 shows that, despite their age, gender, marital status, education, employment, area of residence, and family type, they did not show a connection between their awareness of sarcopenia and the demographic factors. As a result, the null hypothesis is accepted and the alternative is rejected. There is no statistically significant link between the knowledge score and the demographic characteristics specified.

**Table 5.** Association between knowledge and demographic variables

Sample Characteristics	Level of knowledge			P- value
	Poor	Average	Good	
<b>Age in years</b>				
65-67 years	8	4	4	
68-70 years	2	10	6	0.005
71-72 years	10	8	12	
73 years and above	10	8	14	
<b>Education</b>				
Illiterate	5	3	2	
Primary	12	8	4	0.04
Secondary	5	6	6	
Graduated	10	30	9	
<b>Occupation</b>				
Private worker	10	10	10	
Government worker	11	5	6	0.032
Businessman	2	3	1	
Retired	10	30	2	
<b>Area of living</b>				
Urban	16	13	19	0.01
Semi Urban	21	17	14	
<b>Types of family</b>				
Joint	13	4	4	
Nuclear	7	3	10	0.002
Extended	12	9	13	
Single	7	6	12	
<b>Do you have any history of physical illness</b>				
Yes	17	10	13	0.002
No	10	20	17	

## 4. Discussion

The bulk of the participants in the research were older than 73 years old. The participants were mostly women. The purpose of the study was to raise awareness among the participants and determine their general understanding about sarcopenia and how to prevent it. Results of the inquiry are assessed. It was permissible to have some information before the intervention. Overall, people's levels of understanding were good. This study unequivocally shows that participants' knowledge grew as a result of an education programme about sarcopenia and its prevention.

To support the study, the similar study was found which was the suggested systematic review carried out and reported in line Charlotte Beaudart contacted the Preferred Reporting Items for Systematic Review and Meta-analysis. Two reviewers independently extracted the data, which was then encoded in a standardised Excel file and sample-tested before use. The search tactics used on the databases in October 2022 resulted in the identification of a total of 3725 references, the researcher discovered. After eliminating duplicates, 188 of the 2293 references were given a second evaluation based on their entire text after having been chosen to be eligible based on their title/abstract [8].

The similar study was carried out and suggested by Jan Bilski the global healthcare system is under immense stress as a result of obesity and ageing. The world's adult population is suffering from significant health expenses due to obesity and ageing. Inherent metabolic abnormalities are more likely to arise as a result of these circumstances. The presence of sarcopenia and obesity is what distinguishes saracenic obesity. Muscle quality, quantity, and functional performance all decline with age-related sarcopenia, as do muscular strength and size. This is why it's really important to practise physical activity, especially as you become older, that incorporates both resistance and endurance training in the proper dosage [9].

It seems that the Awareness Program has had a positive impact on the participants' knowledge levels, with a majority of individuals exhibiting good knowledge after the intervention. However, there is still room for improvement, as a notable percentage of participants fall into the average or poor knowledge categories.

## 5. Implications

The study's results are relevant to nursing practise, nursing education, nursing research, and geriatric nursing care, among other fields. From the current study, some conclusions about the geriatric age group may be reached. Nursing staff members can run educational programmes in the local community that aims to raise the general public's awareness of sarcopenia. In illness prevention and health promotion, nurses have a crucial role to play. People are

motivated to pursue healthy practises in daily life, requiring changes in lifestyle, via educational programmes with effective teaching methodologies and audio-visual aids.

Nursing interventions such as regular exercise and physical therapy can help prevent falls. Sarcopenia can also lead to impaired mobility, making it difficult for older adults to perform daily activities such as dressing, bathing, and walking. Nursing interventions can include physical therapy, occupational therapy, and assistive devices to help improve mobility. Nurses can monitor the nutritional status of older adults and provide dietary counselling to help prevent malnutrition.

## 6. Limitations

The size and representativeness of the senior population in the chosen location may have restricted the study's findings, being a small sample may not accurately represent the variety of the city of Pune's overall population or that of other areas. Therefore, more investigation on the large sample is required to generalise the findings. The sample cannot be randomly chosen as the availability of the samples depends on their physical conditions and ability to respond. The investigator sometimes has to skip the participant because of on-the-spot occurrence of criticality in the participant's health. Another limitation is no control on the extraneous variables as other factors may influence knowledge and behaviour changes, making it difficult to isolate the precise impact of the awareness programme.

## 7. Conclusions

The findings of the present research show a tendency towards increased knowledge about sarcopenia among the geriatric population. The majority of participants demonstrated a basic understanding of the condition, its causes, and its potential impact on overall health and quality of life. This suggests that efforts to educate older adults about sarcopenia are having a positive impact and are helping to raise awareness of this important health concern.

Moreover, the study findings highlight the need for ongoing education and outreach efforts to continue improving knowledge of sarcopenia and its prevention by providing awareness of sarcopenia. By targeting older adults and their caregivers with targeted educational campaigns and materials, healthcare providers can help ensure that older adults are empowered to take proactive steps to prevent or manage sarcopenia and related health issues.

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## Conflict of Interest

There is no conflict of interest.

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