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Identification of the knowledge about calcium deficiency complications in women, and educate and create awareness in women about the diet to be followed for prevention and treatment of calcium deficiency

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Abstract

Background: Inadequate calcium intake leads to decreased bone density and increased fragility, resulting in osteoporosis. This condition is characterized by porous and brittle bones, making individuals susceptible to fractures. Calcium is necessary for the proper functioning of the blood clotting cascade, helping to prevent excessive bleeding. For maintaining the strength of bones and teeth with structure of bones along with certain critical metabolic functions, the serum level of which is tightly controlled by the parathyroid hormone, calcitonin, and vitamin D. Calcium depletion leads to poor bone density and a higher risk of osteoporosis particularly in women who have repeated episodes of pregnancy and lactation. A low dietary intake of Calcium in women of reproductive age could reduce bone accretion rates and increase the risk of osteoporosis.

Objective: To identify the knowledge about calcium deficiency complications in women, and educate and create awareness in women about the diet to be followed for prevention and treatment of calcium deficiency.

Methodology: Simple descriptive cross-sectional one that is being carried among 30 females with varied socio-economic backgrounds at District Hospital, Ratlam (M.P). The women included in the study are both working women and housewives belonging to more than 18 years of age of good health and not pregnant, lactating mothers and suffer from any endocrine diseases or having thyrodisim. Knowledge and attitude of women will be assessed by data which will be collected through a structured questionnaire using Google forms from the eligible participants. This questionnaire will include questions about calcium intake, its effect and its complications in women.

Results: 63.3% of participants felt pain in their joints and back which can be an indicator of calcium deficiency. Despite of high incidence of pain in joints only 20% of women have undergone any test for calcium, this indicates the lack of knowledge about the involvement of calcium in joint pain and discomfort.

Conclusion: Presurvey followed Post survey of the female provide improving the understanding of participants has increased and they are now well aware of its vital role and also about its deficiency and complications. During this study importance of physical activity and exercise is also conveyed to the participants as exercise increases the absorption of calcium in the body and also helps inbuilding bone and muscle mass.

Keywords: Calcium, joints, diseases, knowledge and depletion

Introduction

Adequate calcium intake is crucial for achieving peak bone mass, which typically occurs in the late twenties ^[1]. At certain ages, maintaining calcium levels helps to slow the rate of bone density loss, which can prevent conditions like osteoporosis. Calcium Depletion leads in the diet will hamper the normal cell functions which can lead to weakened bones or Osteoporosis, rickets, skeletal muscle deformity, cardiovascular dysfunction and cognitive changes ^[2]. Short/long latency diseases-rickets/osteomalacia/osteoporosis caused by deficiency of nutrients. Low intake of calcium reduce bone mass and increase the risk of fracture ^[3]. The fracture rate at the neck of femur has been shown to occur 12 to 15 years earlier in females

from low income group with low level of calcium intake as compared to females from high income group^[4]. Low-income group are mostly suffer from greater risk of developing bone abnormalities^[5,6]. It has also been shown lack of Knowledge among the educated people too. Our study focused on the with the increasing age women should take proper calcium diet, and taking micronutrients with that. This study also provides an approach to improve their understanding and cognizance about calcium deficiency.

Objectives of the study

Identify the current level of awareness about calcium deficiency among women and educate with create awareness in women about the diet to be followed for prevention and treatment of calcium deficiency.

Methodology

Study design: simple descriptive cross-sectional

Sample Collection: District Hospital, Ratlam (M.P).

Sample Size: 30 females

Age criteria: More than 18 years of age.

Inclusion criteria

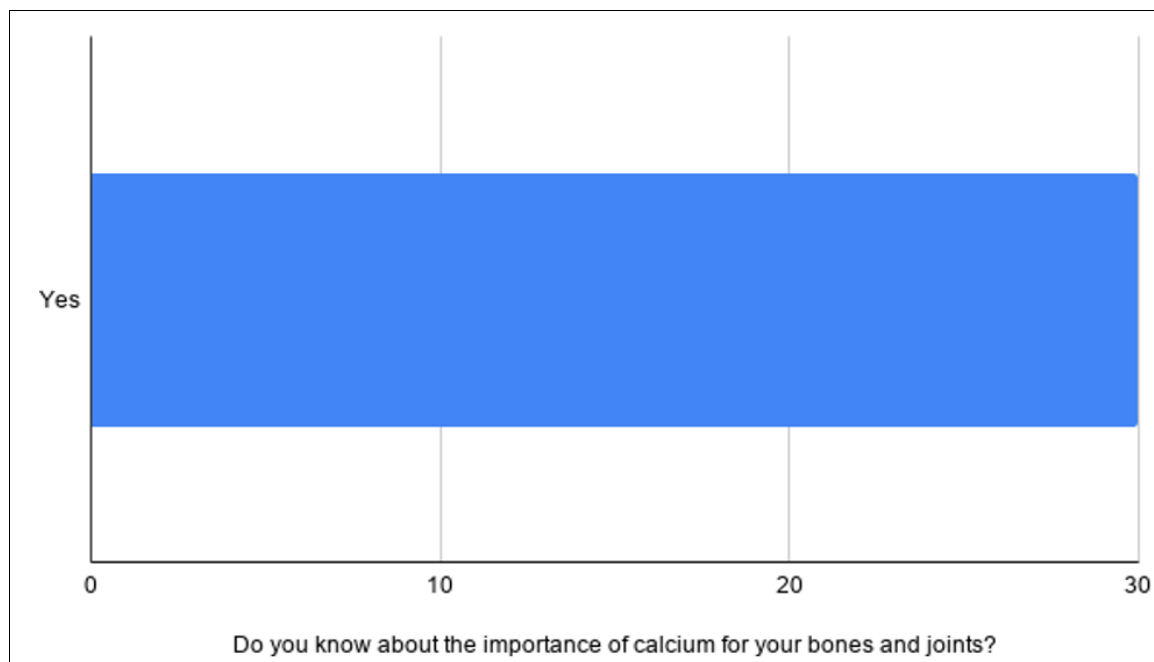
- Women in good health with no metabolic diseases.

Exclusion criteria

- Age less than 18 years
- Pregnant or Lactating mothers
- Women suffering from any endocrine disorders like Hyper or Hypothyroidism.
- Any form of acute illness.
- Uncontrolled hypertension or diabetes mellitus.

Results

Q.1 Do you know the importance of calcium for your bones and joints?



Methodology

The survey being done further splitted into three parts; Pretest Presentations, Folder Presentations and Post test Presentations. All the women were educated the survey forms were filled in English language by themselves with little assistance

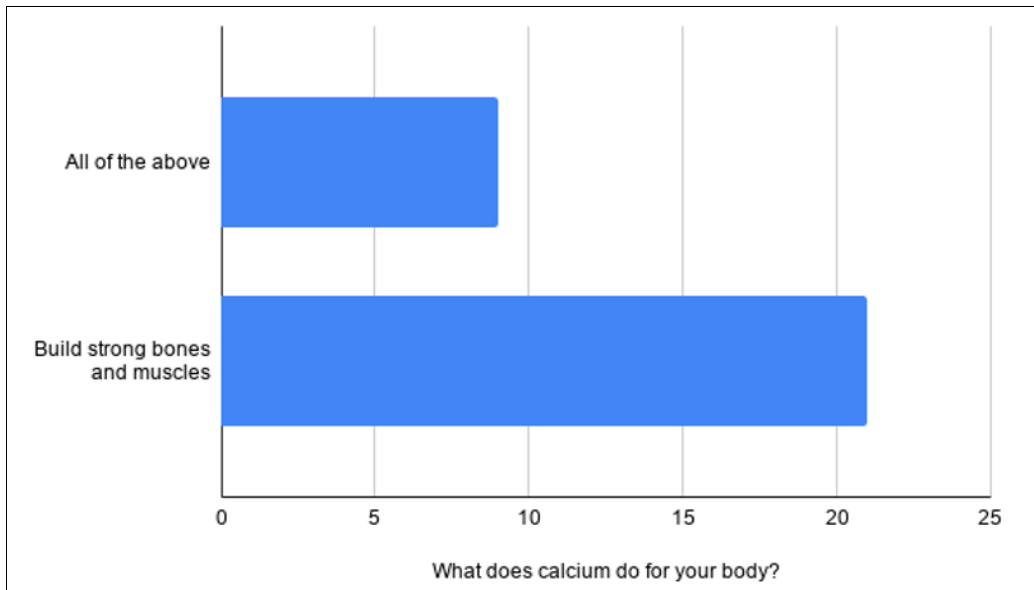
Survey form - The survey form was made through google forms which include details about the age, level of education, occupation and socio-economic background of 30 women. In the survey form questions were asked about the knowledge of importance of calcium and also details about its benefits and complications in the body. All the data was recorded through google forms and was analyzed further in the study.

Pre - Test Survey - The survey was conducted among 30 women of different age group, belonging to different levels of education, occupation and socioeconomic backgrounds about their current level of education and knowledge about the topic. Through pre test survey data was recorded according to their present level of knowledge and awareness about Calcium before the activity.

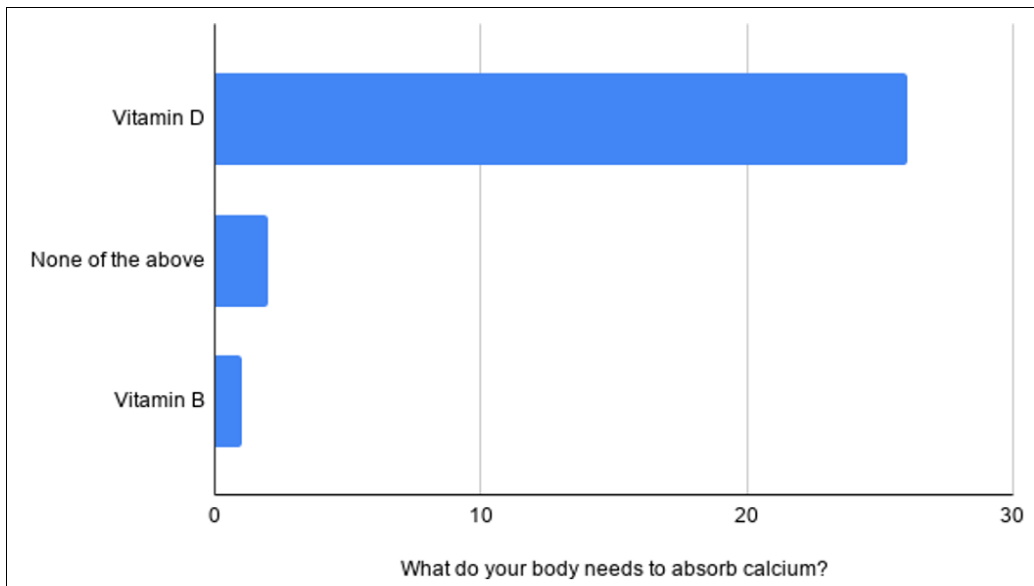
Activity or Folder Presentation - In this education was provided with the help of Non- Machine Media. A Folder was designed which contains all the necessary information about the benefits of calcium, the action of calcium in human body, its sources through diet, its deficiency and complications among women. This folder was circulated among all the 30 women after the pre-test survey which is followed by general explanation about the topic.

Post - test Survey - A post test survey was then conducted to assess the amount of knowledge gained by the women after the activity involving folder presentation. The same survey form was then filled again by all the 30 women and the level of awareness was recorded.

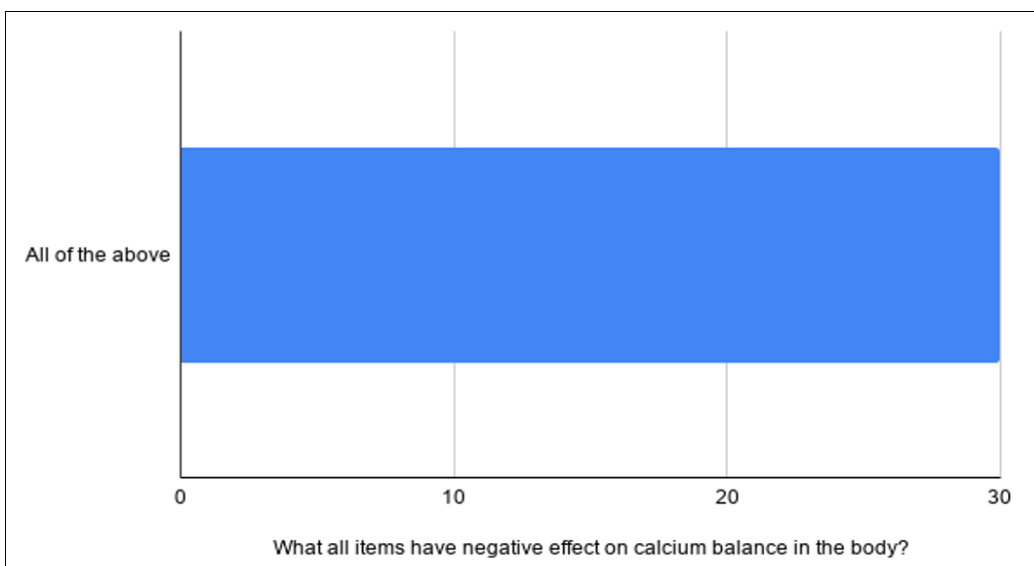
Q.2 What does calcium do for your body?



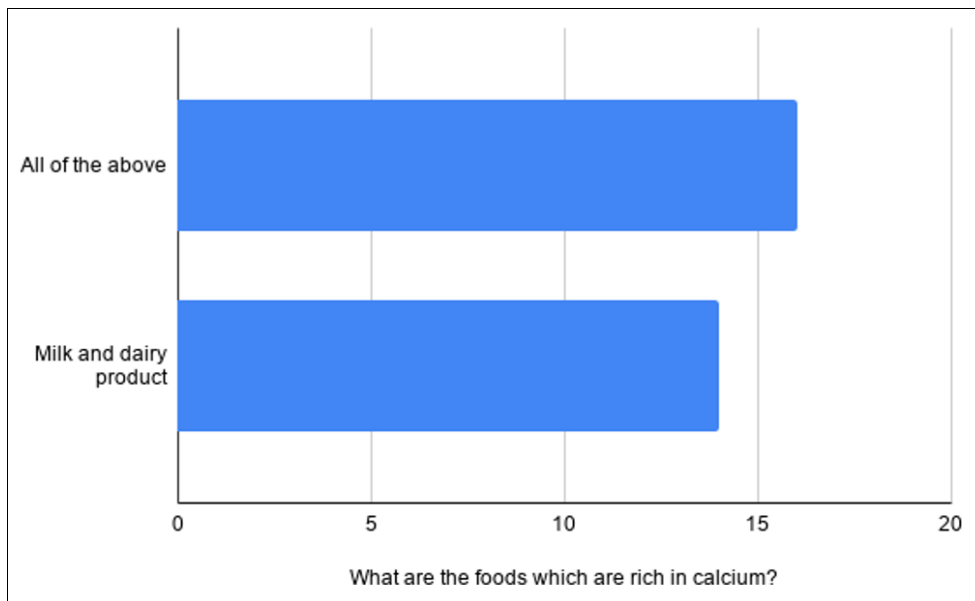
Q.3 What do your body needs to absorb calcium?



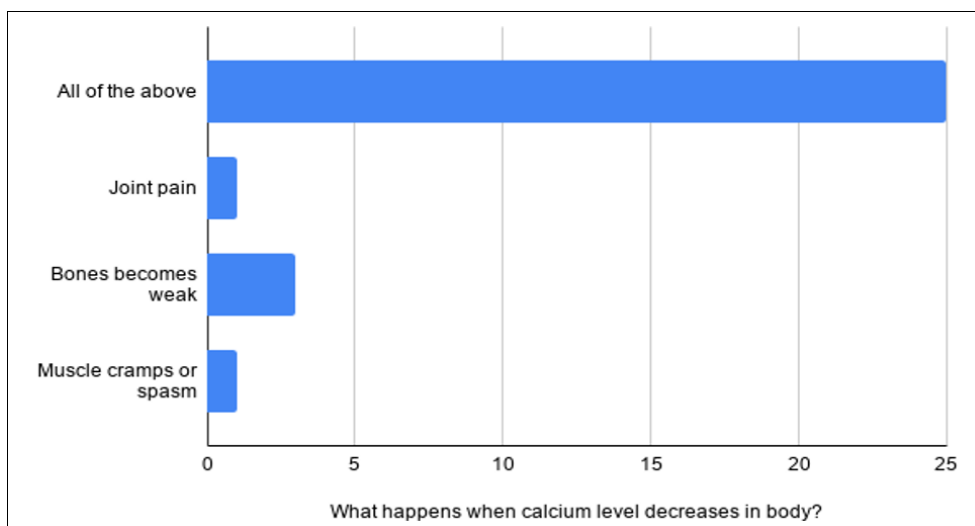
Q.4 What all items have negative effect on the calcium balance in the body?



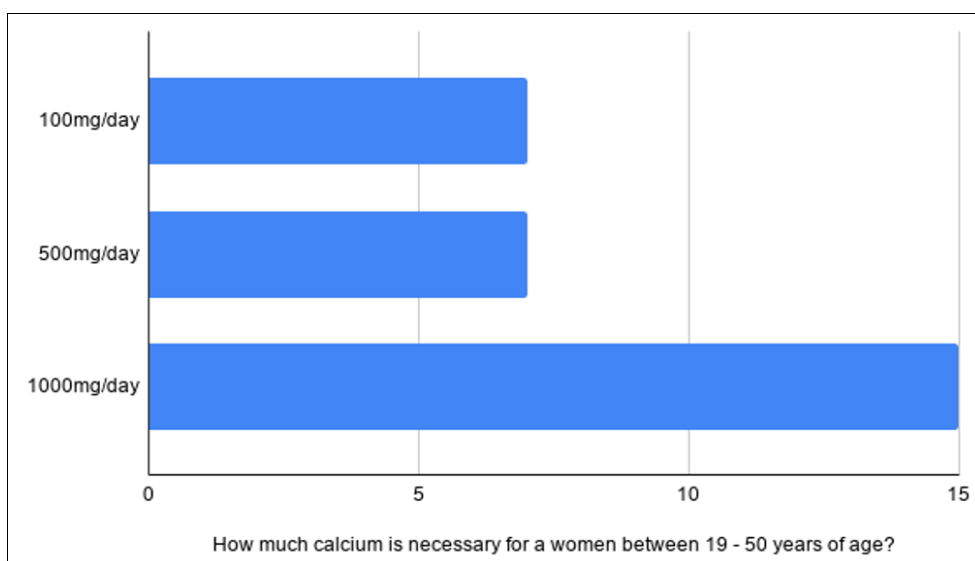
Q.5 What are the foods which is rich in calcium?



Q.6 What happens when calcium level decreases in the body?



Q.7 How much Q.7 calcium is necessary for women between 18-50 years of age?



Q.8 Is it necessary to exercise daily to increase absorption of calcium?

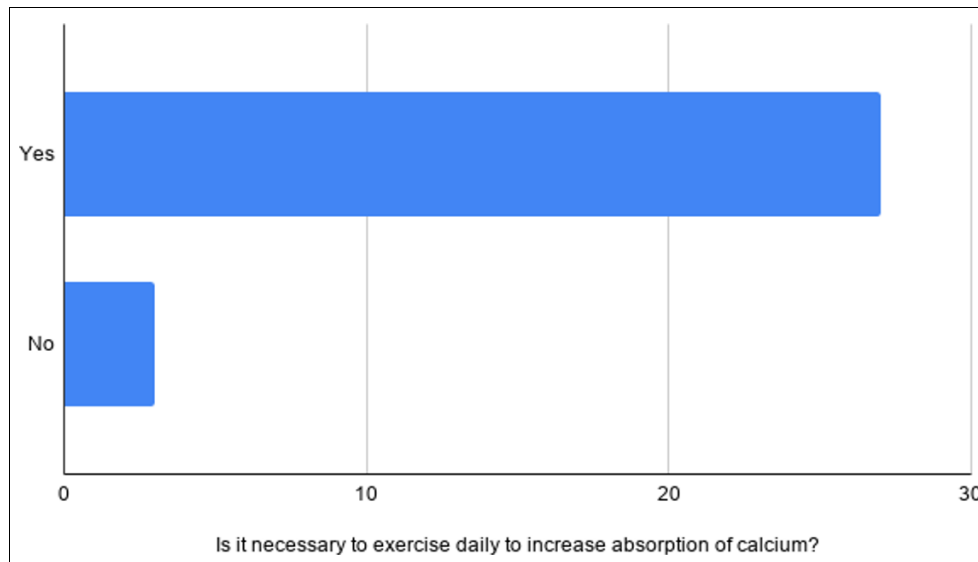


Table 1: Case details of the samples with their scores

S. No.	Participant's name	Pre-test score (X1)	Post-test score (X2)	Difference called (X2 - X1)
1.	Sukriti	7	8	1
2.	Pritika	6	8	2
3.	Garima	7	8	1
4.	Shyamal	7	8	1
5.	Mahima	5	8	3
6.	Gayatree	6	8	2
7.	Firdosh	8	8	0
8.	Neha	6	8	2
9.	Shraddha	7	8	1
10.	Madhulika	3	8	5
11.	Uthica	4	7	3
12.	Pallavi	7	8	1
13.	Kirti	5	8	3
14.	Shobha	8	8	0
15.	Bushra	7	8	1
16.	Pragya	5	8	3
17.	Garima H	8	8	0
18.	Alka	6	8	2
19.	Ritu	6	8	2
20.	Laxmi	5	8	3
21.	Shaheen	3	8	5
22.	Agnes	6	8	2
23.	Soniya	5	8	3
24.	Renuka	7	8	1
25.	Ankita	5	8	3
26.	Sushma	8	8	0
27.	Nibha	5	8	3
28.	Vijeta	7	8	1
29.	Ruchi	5	8	3
30.	Rozina	7	8	1
	Total			55

Discussion

In our study, maximum age of the female patient were 31-40 years of age from that 66.7% having done postgraduation and 26.7% graduation. 83.3% were married and the remaining 16.7% were unmarried are prone to calcium deficiency which are 41-50 years age-group females. While in another study conducted by uzutte polequien⁷ found older adults are risk of calcium deficiency. In also another study did by Our study reflect high socioeconomic factors doesn't effect the dietary intake of person but one of the study done by Nighat Yaseen Sofi^[8] shows in its study; the dietary intake of calcium improved with an increase in socioeconomic class. In our study after doing Pretest survey, Folder presentations and Post

survey the awareness were increased the females for calcium similar found in the study conducted by Piste Pravina^[9], D that Eating a well-balanced diet can provide all the necessary nutrients and help prevent calcium deficiency. In one study did by Safia Naveed^[10], he found that many females are Vitamin D and calcium deficient but they are not aware about their deficiencies. Very less number of females has tested their vitamin D and Calcium levels. Awareness about the Osteopenia and Osteoporosis is also less in females. Jefferrey Pradeep Raj^[11] done a study in 2015, and concluded that DCI was below the Recommended Dietary Allowance (RDA) and the majority of postmenopausal women were physically inactive, indicating the need for better education regarding

DCI and the need for calcium supplements and physical activity. Chittari Venkata Harinarayan ^[12] done a study in 2019 and found that Revisiting of RDA guidelines for calcium along with public health measures is required to tackle the morbidity arising due to the deficiency in these nutrients. Any measure to addresses this issue in isolation, without achieving the desired benefits, is a disservice to the population. In our study at last, we found that after the activity there is almost 99% increase in the scores which indicates there is increase in the level of awareness among the participants.

Conclusion

The role of calcium specially in women is very important due to changing patterns of hormones throughout the life. This study assessed their knowledge and created awareness among them. The knowledge about Calcium the understanding of participants has increased and they are now well aware of its vital role and also about its deficiency and complications.

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