KNOWLEDGE OF OSTEOPOROSIS AMONGFEMALE COLLEGE STUDENTS.

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ABSTRACTTo find out the Knowledge level of osteoporosis in college going females of Karachi.It was across sectional study. The sample size was 150. Data was collected from different women colleges Karachi. SPSS software version 20 was used for analysis. The results show that the participants had knowledge regarding the risk factors of osteoporosis where as knowledge regarding the dietary recommendation and physical activity was found to be low. 38% of the participants believed that regular exercise reduces the incidence of osteoporosis. 94% of the female group with age range 16 to 18 year. Only 21% female were participant have correct knowledge that eating a diet low in milk products can cause osteoporosis. There is a need to develop know the awareness program as to improve the health conditions of young females.

Index Terms— Bone Mass, Knowledge, Prevention, Osteoporosis.

1 Introduction

Osteoporosis is a metabolic disorder. It mainly deals with deficiency of Vitamin. D and Calcium. When the bone becomes weak the breakage becomes very easy. In old age any disease can cause drastic effects on life. As we all know that osteoporosis mainly affects the women after menopause this problem can develop several fractures and at this age the healing is very slow and due to which the life can become miserable(1).Women mainly develop fracture of proximal femur, vertebral, distal forearm by increasing age(2). When patient comes out from acute phase of fracture then new exercise regime will be followed (3).

Bones also play a major role to protect the vital organs like brain, lung, and heart from any type of trauma and also bone is act as storage of extra amount of minerals for body. (4).
Tension bearing strength of bone is gained by collagen. This ability of collagen making possible for bone to decrease occurrence of fracture. Mineralization of bone give rise to the further stiffness of bone prevents de-angulations forces on the bone. As the deposition of mineralization increase the strength (5).Stavros. et al in 1995 had given a review article on the mechanism of bone marrow, cytokines and remodeling process that inter link with the patho-physiology of osteoporosis.(6)
One of the factors of osteoporosis is diet which included in the modifiable category. Diet mostly influence on the bone mass. High nutritious diet of mother have a positive influence on fetal bone mass .If a person is taking balance diet from their juvenility have high bone mass and less chances of fracture. This diet should have leafy vegetable, protein, calcium, vitamin D and fruits. "Milk is one of the richest sources of calcium.(8)
Phosphorus, salt (sodium), Potassium, vitamin K,C,A, Magnesium, Fluoride ,Zinc, Manganese and copper also play an important role in bone remolding process. Recommended dietary allowance of sodium, phosphorus is, 2400 mg per day 100 mmol 700mg /d respectively. Sodium can loss 1mmol calcium by urinary system. High salt intake can be a cause of low calcium.(9)
Exercises increases bone mineralization at age i.e. childhood and teen age subsequently increases the bone mass and bone density that combat with high physical strain activity but in old and adult age group when bone maturescence ,exercises help in minimizing both bone loss and fall incidence.(10).
There are two types of physical activities,1) moderate and 2) high speed physical activity. During high speed physical activities breathing is much higher that talking is not possible. Examples of moderate activities are brisk walking, low impact aerobics and running and jogging are considered into high speed activities. Daily 20 to 30 minutes of physical exercises are necessary for healthy bone (11). Study evaluated that all around majority of women with osteoporosis have poor quality of life (12).
Exercise increases amount of calcium requirement in bone and increases bone density in result.(13)Robert et al in 2001 highlight the importance of parathyroid hormone effect on fracture and bone mineral density.
Exercise had different impact on both gender and its effects depends upon type of exercise and intensity and velocity of exercise. Women with post menopause can improve their bone strength at femoral neck and lumbar spine by performing exercises like jogging and low impact exercises (14) The purpose of choosing that test is just to figure out the knowledge level in students (8).

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While high cholesterol diet and alcohol consumption in heavy amount had negative influence on bone mass. (12).90% teen age girls living in Jordan had given correct response to the statement.

Table 1. Calcium and Vitamin D Requirements

Age	Calcium (mg/day)	Vitamin D (IU/day)
0-6 months	210	200
6-12 months	270	200
1-3 years	500	200
4-8 years	800	200
9-18 years	1300	200
18-50 years	1000	200
51-70 years	1200	400
Over 70 years	1200	600
(A cup of milk or fortified orange juice has about 300 mg of calcium and 50 IU of vitamin D.)		

Citation

U.S. Department of Health and Human Services. Bone Health and Osteoporosis: A Report of the Surgeon General. U.S. Department of Health and Human Services, Office of the Surgeon General, 2004.

MATERIAL AND METHODS

It was a cross sectional survey. Data was collected from different. Girls Colleges of Karachi(khatoon-e-pakistan, P.E.C.H.S, Sir sayed college). The duration of this study was 6 months from September 2013 to March 2014.The sample size was 150 Girls of Arts, Commerce and Premedical Students**.** Selection of sample was on convenient sampling. Female college students of intermediate level with age of between 16 to 21. Staff, teachers, male students of college and BA/B.Sc students of college are excluded from research. (Ellen 2011)I have excluded the male students from my study because females are more prone to develop osteoporosis as compare to men. The questionnaire is based on information related scales of osteoporosis. The data that was collected from questionnaire was coded and was put for analysis to calculate the Information related scales of osteoporosis For this purpose SPSS version 20 software was used, the collected data was put on the SPSS software and then the percentage was calculated.The questionnaire was printed on a white A4 size page with font size 10. The questionnaire used had 2 sections. First section contained questions related to age, gender and race. Second section contained questions regarding knowledge of Osteoporosis.The ethical review committee of Isra University had gone through the research proposal of this study and had given the permission to conduct the study.

RESULT

Table 2. Exercising on a regular basis.

	Frequency	Percent
More likely	44	29%
Neutral	36	24%
Less likely	57	38%
Dont know	13	9%
Total	150	100%

Table 3. Which of the following exercises is the best way to reduce a person's chance of getting osteoporosis?

	Frequency	Percent
Swimming	15	10%
Walking briskly	99	66%
Doing doing kitchen chores	16	10.70%
Dont know	20	13.30%
Total	150	100%

Table 4. Which calcium source of these you can take daily?

	Frequency	Percent
Yougurt	109	73%
Strawberries	16	11%
Cabbage	18	12%
Dont know	7	5%
Total	150	100%

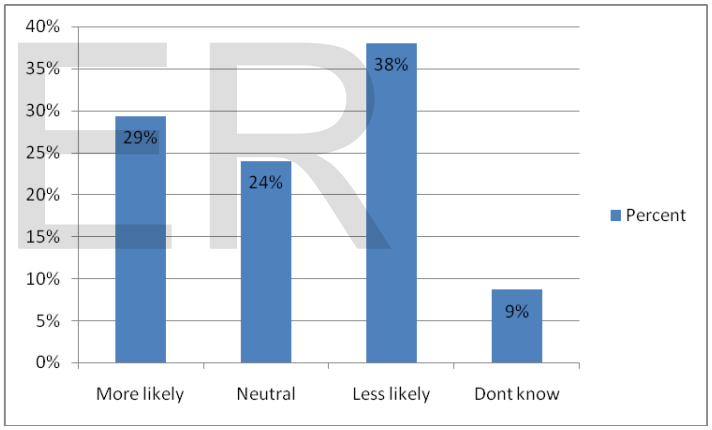
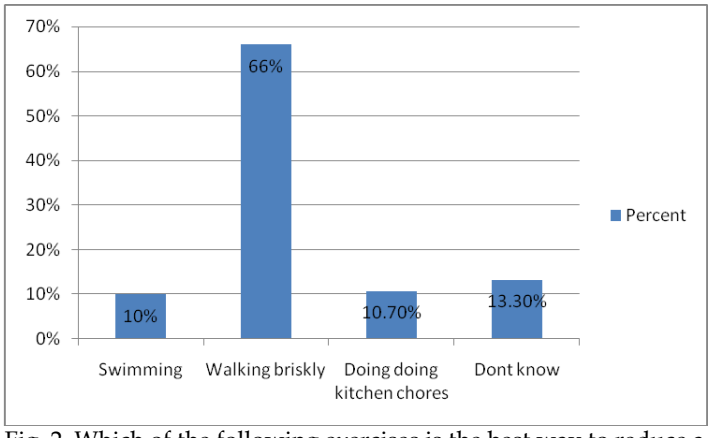


Fig. 1. Exercising on a regular basis.



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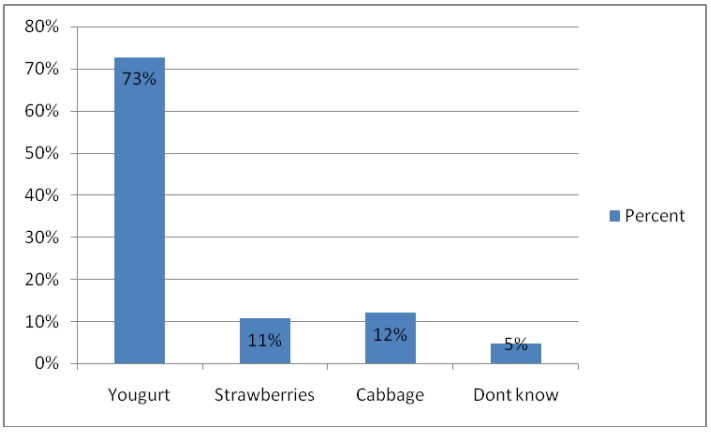

Fig. 3. Which calcium source of you can take daily?

DISCUSSION

Bones becomes strong by passing years from child hood to Adulthood. Minerals make the bone strong and tough. But when not strong enough it's prone to break. (15) If a person having problem in vision, neurological sensational loss or have balancing problem in addition to osteoporosis then he is on risk of fall. Physiotherapist must refer the patient to the eye or ear specialist (16). One study had given a review on the effect of vitamin D on bone density & fractures in post-menopausal women (17). Study in 1995 for the effect of oral Alendronate (Aminobisphosphonate) on bone mineral density (18). Some women have lack of trust in efficacy of medication, while people have more attraction towards the herbal recovery. (19)In another study 150 public & private sector physician were given telephonic interview. Practitioner was properly aware with each and every thing related to osteoporosis but implementation of that prevention program is weakened in public sector area than private sector. (20)Smaller percentage of people believed that soft drinks decreases the amount of calcium from the body and further induces obesity and osteoporosis. Cigarette smoking, female with early menopause and hereditary are main factors for osteoporosis (wahba et al.)Kine et.al study to find out the knowledge level and self efficacy perception of female patients.112 participant (76.7%) partially known about the risk factor related to the osteoporosis. (e.g.)Mostly participant known the importance of taking milk on daily basis. Egyptian female.

students had poor knowledge regarding the calcium intake & vitamin D usage. (21)In one study questioned were asked by participants in a face to face interview and finally end of that study conclude that house women of Iran southern had had a few knowledge regarding calcium intake of daily requirement and also about preventive measures for osteoporosis. (22).One study shows that there is a strong relationship of bone mineral contents with bone width(BW) and balance nutrition and adaptive life style in Asian woman with aged 19-25 years. According to this study skipping of meals ,no intake of milk, less physical activity are main factors that contributes in decreasing bone mass density of any individual (23). Common risk factors in males are alcohol drinking, cigarette smoking,and obesity which are associated with increased osteoclastic activity with that osteoporosis developed(24).Women whom smoked are on high risk of osteoporosis(25).Race is an endogenous risk factor which we can't change. According to one research American's have more BMD values than the Asians. This study was totally done on Asians. Recommendation of calcium differs for each age group people. Adolescence age group people have 400 mg to 600 mg daily calcium. But some controversies were found related to these recommendations. According to one research premenopausal women and men required 1000 mg of calcium daily while postmenopausal women require only 1500 mg of calcium daily. Those people, who are not taking calcium form their food, can get enough amount of calcium by using calcium supplements. But we must say that diet calcium is better than the calcium supplements. Relevant reason is not founded here.

CONCLUSION

The response rate of my study was 75% of female group with age range 16 to 18 year were the participants of that research. only 21% female participant have correct knowledge that eating a diet low in milk products can cause osteoporosis. Menopausal women have a risk of osteoporosis development 42.7% females don't know about change of life after menopause. 22% participant considered that having a big stature less likely induce osteoporosis. Dark green leafy vegetables like reduces the incidence of osteoporosis only 5% participants have this knowledge. 38% participant has belief that regular exercises reduce the incidence of osteoporosis.

35% participant correctly choose the answer cheese Is good source of calcium. 45% participants respond to canned sardines. 36% students correctly tick the broccoli leafy green vegetable) as a good source of calcium. While 73% highest knowledge level percentage is marked to yogurt as a source of calcium students have good knowledge regarding the source of calcium

LIMITATIONS:

Students are studying in intermediate level not understand the physiological processes as quickly as a medical student therefore mostly don't know about cortisone and cortisones effect on body. Students also facing problem in understanding of many medical terms some students first time heard the word osteoporosis.

References

1: RUNDLE ET,Early osteoporosis prevention in the adolescent a learning module, the university of arizona. 2006.

2: MELTON LJ, CHRISCHILLES EA, COOPER C, LANE AW, RIGGS BL, How Many Women Have Osteoporosis? JBMR.2005;20(5):886-892.

3:PERRY S B., DOWNEY P A. Fracture Risk and Prevention: Multidimensional Approach. PHYS THER. 2012 Jan;92(1):164-78.

4: ROTHSTEIN JM, On Women's Health PHYS THER.1996;76:704-705.

5:DOWNEY P A AND SIEGEL M I. Bone biology and the clinical implications for osteoporosis. PHYS THER. (2006);86:77-91.

6: Manolagas SC, Jilka RL.Bone marrow, cytokines, and bone remodeling. N Engl J Med. 1995 Feb 2; 332(5):305-11.

7: Levis S[1], Lagari VS., the role of diet in osteoporosis prevention and management, Curr Osteoporos Rep. 2012 Dec; 10(4):296-302.

8: Ahmad Al-Zu'bi, Naheyah Almuhtaseb, Ibrahim Amayreh, osteoporosis awareness in a sample of teenage girls in Jordan,J Med J 2010; Vol. 44 (4):420-426.

9: Nieves JW, osteoporosis: the role of micronutrients .The American journal of clinical nutrients,Am J Clin Nutr. 2005

May;81(5):1232S-1239S.

10: Sran MM[1], Khan KM,Physiotherapy and osteoporosis: Practice behavior and clinicians' perceptions- a survey Man Ther. 2005 Feb;10(1):21-7.

11: EDMONDS E. Turner, L. and Usdan, S. Osteoporosis knowledge, belief, and calcium intake of college students: Utilization of health belief model. Open Journal of Preventive Medicine,2012;2(1), 27-34.

12: Viégas M, Costa C, Lopes A, Griz L, Medeiro MA, Bandeira F.,Prevalence of osteoporosis and vertebral fractures in postmenopausal women with type 2 diabetes mellitus and their relationship with duration of the disease and chronic complications. J Diabetes Complications. 2011 Jul-Aug;25(4):216-21.

13: KINNON J L M.Osteoporosis: A Review, PHYS THER,1988; 68:1533-1540.

14: AISENBREY J A.Exercise in the Prevention and Management ofOsteoporosis. Phys Ther. 1987 Jul;67(7):1100-4.

15: PALOMBARO KM, HACK LM,MANGIONE KK. Gait variability detects women in early post menopause with low bone mineral density. PhysTher.2009; 89(12):1315–1326.

16: Tinetti ME, Baker DI, McAvay G, Claus EB, Garrett P, A Multifactorial Intervention to Reduce the Risk of Falling among Elderly People Living in the Community,N Engl J Med 1994; 331:821-827.

17:Papadimitropoulos E, Wells G, Shea B.Wheaver B,.Wheaver B,Meta-analysis of therapies for postmenopausal osteoporosis. Endocr Rev. 2002 Aug;23(4):560-9.

18:Liberman UA ,Weiss SR ,Broll.J,Effect of oral alendronate on bone mineral density and the incidence of fracture in postmenopausal osteoporosis.N England J Med,1995 Nov 30; 333(22):1437 – 43.

19:BAHEIRAE A,RITCHIE J E.EISMAN J A,NGUYEN TV.Exploring factors influencing osteoporosis prevention and control A qualitative study of Iranian men and women in Australia. Maturitas,2006; 54(2) 127-134.

20: MCKECHNLE D A, PATHER M K.Awareness and perception of published osteoporosis clinical guidelines a servey of primary care practitioners in the Cape Town metropolitan area. SA FamPract, 2008; 50(4)71.

21:WAHBA S A, Osteoporosis Knowledge, Beliefs, and Behaviors JASMR,2010; 5(2): 173-180.

22: JALILI Z, NAKHAEE N, ASKARI R, SHARIFI V. Knowledge, Attitude and preventive Practice of women concerning osteoporosis.Iranian J Publ Health,2007; 36(2), 19-24.

23: Hirota T,Nara M,Ohguri M,ManagoE ,and Hirota K ,Effect of diet and life style on bone mass in asian women. Am J C'/in Nuir 1992; 55(6): l 168-73.

24: Seaman D; Health care for our bones: a practical nutritional approach to preventing osteoporosis. J manipulative physio ther.2004 Nov-Dec; 27(9):591-5.

25:Gerend M A,causes and risk factors underlying women's perception of susceptibility to osteoporosis, the European mepaus journal,2006;www.elsevier.com/matriblocate/

26:Hafeez F ,Zulfiqar S,Hasan S,khurshid R .An assessment of osteoporosis and low back density in postmenopausal women ,Pak J Physio,2009;5(1)