

Research Article	Pak-Euro Journal of Medical and Life Sciences	
DOI: 10.31580/pjmls.v7i1.2861	Copyright © All rights are reserved by Corresponding Author	
Vol. 7 No. 1, 2024: pp. 49-54 www.readersinsight.net/pjmls	Revised: November 29, 2023	Accepted: December 14, 2023
Submission: March 23, 2023	Published Online: March 31, 2024	

KNOWLEDGE, ATTITUDE AND PRACTICE SURVEY RELATED TO OSTEOPOROSIS AMONG GENERAL POPULATION



Eimun Saeed¹, Nadeem Asghar^{2*}, Raheela Kousar², Farooq Islam², Asim Raza³

¹University Institute of Physical Therapy, University of Lahore, Lahore, Pakistan

²Department of Allied Health Sciences, University of Chenab, Gujrat, Pakistan

³School of Allied Health Sciences, CMH Lahore Medical College & IOD, Lahore, National University of Medical Sciences (NUMS), Rawalpindi, Pakistan

***Corresponding Author:** Dr. Nadeem Asghar. **Email:** nadeem@ahs.uchenab.edu.pk

Abstract

Background: Osteoporosis is a skeletal disorder characterized by decreased bone density and mass, leading to an increased susceptibility to fractures. It has primary and secondary etiologies and predominantly affects females. Several risk factors such as age, gender, and ethnicity contribute to its development. While osteoporosis is treatable, prevention of the condition and associated fractures is paramount. Physical activity and lifestyle modifications play vital roles in preventive strategies. This study aimed to assess the awareness of osteoporosis among individuals.

Objective: The objective of this study was to evaluate the knowledge, attitudes, and practices related to osteoporosis among the general population.

Methodology: A cross-sectional survey was conducted among the general population in Gujrat, Pakistan. Data were collected using a self-structured, pre-coded, and validated questionnaire. A total of 329 participants were included in the study.

Results: The findings revealed that 2.4% of individuals exhibited good knowledge about osteoporosis, while 66.6% demonstrated a positive attitude towards the condition. However, only 12.2% of participants reported practicing preventive measures adequately. Approximately 38% of respondents had insufficient knowledge, whereas 59.6% possessed moderate knowledge. Furthermore, 33.4% of participants displayed unfavorable attitudes towards osteoporosis. In terms of practice, 87.8% of individuals exhibited suboptimal adherence to preventive measures.

Conclusion: The study concluded that the level of knowledge regarding osteoporosis among the general population was moderate. While attitudes towards the condition were generally favorable, the practice of preventive measures was inadequate.

Keywords: Attitudes, Awareness, Osteoporosis, Practices, Prevention

INTRODUCTION

Osteoporosis (OP), characterized by low bone mass, deteriorating bone tissue, and alterations in bone microarchitecture, has long been recognized as a significant metabolic disorder (1). Clinical manifestations typically remain silent until considerable damage has occurred, with affected bones becoming more fragile and susceptible to fractures (2). This clinical entity encompasses two primary facets: the deterioration of bone quality and strength, and an increased susceptibility to fractures, which holds paramount clinical significance (3, 4). The asymptomatic nature of osteoporosis often results in under diagnosis until the occurrence of low-trauma fractures, particularly in areas such as the hip, spine, proximal humerus, pelvis, or wrist, frequently necessitating hospitalization (5). The prevalence of osteoporosis is notably higher in females than in males (6), with osteoporotic fractures affecting approximately one in every three women and one in every five men over the age of 50 (7). While males are more prone to fractures at a younger age, females exhibit higher fracture rates beyond the age of 50, nearly double those of men (8). Annually, a substantial number of individuals grapple with osteoporosis, with women constituting the majority of affected individuals (5). Nevertheless, OP remains inadequately addressed in the Middle Eastern context, notably in Lebanon (6), despite empirical evidence highlighting its prevalent occurrence within this geographic area (7). A meta-analysis encompassing 31,593



participants revealed a cumulative prevalence rate of 24.4% for OP across the eastern Mediterranean region (7). Specifically, in Lebanon, OP's prevalence was scrutinized, yielding figures of 33% among women and 22.7% among men in 2018.

Primary osteoporosis, associated with the normal aging process, particularly in postmenopausal women due to hormonal changes, represents the most common form (7). Conversely, secondary osteoporosis is less prevalent and often arises in individuals with no apparent risk factors for osteoporosis but present with fragility fractures. The etiology of osteoporosis is multifaceted, involving hereditary, intrinsic, environmental, and lifestyle factors (9).

Traditional pathophysiological theories have emphasized endocrine processes as primary contributors to postmenopausal osteoporosis, such as estrogen deficiency-induced secondary hyperparathyroidism (10). Current approaches to managing fracture risk typically involve screening women in their sixties and implementing anti-fracture measures based on individual risk assessments (11).

While certain osteoporosis risk factors are modifiable, such as dietary and lifestyle choices, others are immutable, including age, gender, and medical conditions like rheumatoid arthritis (12). Preventing further bone mass loss is a primary objective of osteoporosis management, achieved through various interventions such as dietary modifications, fall prevention strategies, physical therapy, and pharmacological agents (13).

A multidisciplinary approach to long-term care often includes lifestyle modifications, physical therapy, orthotic interventions, and neurological and musculoskeletal evaluations (14, 15). Physiotherapy interventions for osteoporosis patients aim to alleviate pain, enhance strength, correct posture, and improve mobility (16). Considering the efficacy of manual therapy in other populations, these approaches may hold promise for individuals with osteoporosis (17).

This study aims to assess public perceptions of osteoporosis, evaluating the knowledge, attitudes, and practices of individuals residing in Gujrat, Pakistan.

MATERIALS AND METHODS

A cross-sectional study was carried out. Data was collected from district Gujrat. Non probability convenient sampling technique was used and total of 329 participants were included. Population willing to participate was checked for inclusion and exclusion criteria. People of age above 18 were included in this study. People with a history of osteoporosis or any other chronic diseases such as hypertension and heart diseases were excluded from the study. Included participants were given the consent form to fill. Participants were given information written and verbally about objectives and methods of implementation. Participants who agree to take part in this study after filling consent forms was then asked to fill in a self-made questionnaire. A pilot study was conducted to check the reliability of the questionnaire. The reliability of the questionnaire was good (Cronbach's $\alpha=0.752$). The questionnaire consisted of four parts: demographic data, knowledge related questions, attitude related questions and practice related questions. Demographic portion consisted of 5 questions. Knowledge included 12 questions; whereas attitude and practice consisted of 5 questions. The data was collected under the regulations and rules of ethical committee of University of Lahore (UOL).

The Statistical Package for Social Sciences (SPSS) version 20 was used for data entry and analysis. The mean and standard deviation for qualitative variables were computed using descriptive data. For inferential statistics, the appropriate statistical tests were employed. A 95% confidence interval was calculated for each result, and a p-value of 0.05 or less was considered significant.

RESULTS

This cross-sectional study included 329 participants. The socio-demographic data of the population was as following: 60.5% people belonged to age group 18-30. 28.9% people were of age group 31-40. People of age group 41-50 were 8.5, whereas 2.1% people belonged to age group 51-60. 45% of participants were males, whereas 55% participants were females. The participants belonged to rural and urban area, with the percentage of 45.6% and 54.4%, respectively. The participants had an education of primary, secondary and higher level, with the percentages of 3%, 24.3% and 72.6% respectively. The people belonging to lower socio-

economic status were 6.4%, people belonging to middle class were 77.5%, whereas 16.1% participants belonged to upper socio-economic class (Table I).

Table I. Demographic data of the participants

Variables	Description	N (%)
Age	18-30	60.5%
	31-40	28.9%
	41-50	8.5%
	51-60	2.1%
Gender	Male	45.0%
	Female	55.0%
Living area	Rural	45.6%
	Urban	54.4%
Education	Primary	3.0%
	Secondary	24.3%
	Higher	72.6%
Socio-economic status	Lower	6.4%
	Middle	77.5%
	Upper	16.1%

In this study, the knowledge of the participants was categorized into good, moderate and poor. The results show that 2.4% participants had good knowledge, 59.6 had moderate knowledge, whereas 38% participants had poor knowledge (Table II).

Table II. Knowledge level of participants

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-4(poor)	125	38.0	38.0
	5-8(moderate)	196	59.6	97.6
	9-12(good)	8	2.4	100.0
	Total	329	100.0	100.0

The attitude was categorized as positive and negative. The majority of the participants (66.6%) had positive attitude towards osteoporosis, whereas 33.3% had a negative attitude. (Table III). The practice was classified as good and poor, with percentage of 12.2% and 87.8% respectively (Table IV).

Table III. Attitude level of participants

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	<3(negative)	110	33.4	33.4
	>3(positive)	219	66.6	100.0
	Total	329	100.0	100.0

Table IV. Practice level of participants

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	<3(poor)	289	87.8	87.8
	>3(good)	40	12.2	100.0
	Total	329	100.0	100.0

DISCUSSION

A previous study conducted in Malaysia reported final Knowledge, Attitude, and Practice (KAP) scores with slight variations, ranging from 20 to 39 for knowledge, 34 to 82 for attitude, and 35 to 62 for practice, with associated standard deviations (SD) of 2.86, 4.72, and 2.87, respectively. Gender, age, and years of study exhibited minimal influence on KAP scores related to osteoporosis ($p=0.063$, $p=0.723$, and $p=0.162$, respectively), whereas practice showed a negligible yet significant correlation with age and years of study ($r=-0.230$, $p=0.017$ and $r=-0.238$, $p=0.014$, respectively). Additionally, a strong positive correlation was observed between practice and attitude towards osteoporosis ($r=0.339$, $p<0.001$) (18). Similarly, in our study, a negative relationship between knowledge and attitude was noted ($p=0.38$).

Another study among physicians found varying levels of awareness, attitude, and practice, with different percentages of respondents categorized into moderate, bad, excellent, intermediate, and subpar groups. Factors such as work environment, involvement source, training programs, application of rules, and prolonged work hours demonstrated significant associations (19). In our study, a higher proportion exhibited positive attitudes (66.6%) compared to negative attitudes.

In Saudi Arabia, a study revealed varying levels of awareness among participants, with women and individuals under 30 years old showing higher levels of knowledge and practice. Graduates exhibited better knowledge and attitudes compared to those with lower education levels (20). However, the practice of osteoporosis-related prophylaxis was deemed inadequate. Similarly, our study found a substantial number of subjects (87%) exhibiting poor practice related to osteoporosis. A separate study in Malaysia reported moderate levels of awareness regarding osteoporosis knowledge and practice among participants (21), consistent with our findings.

Additionally, a study conducted in India found significant disparities in osteoporosis awareness and practices among different socioeconomic groups. Participants from lower socioeconomic backgrounds exhibited lower levels of knowledge and were less likely to engage in preventive measures compared to those from higher socioeconomic strata. Factors such as access to healthcare facilities, education level, and income were identified as key determinants of osteoporosis awareness and practices (22).

Furthermore, research conducted in China highlighted the role of cultural beliefs and traditional practices in shaping attitudes towards osteoporosis prevention and treatment. The study revealed that individuals adhering to traditional Chinese medicine (TCM) principles were less likely to adopt Western medical approaches for managing osteoporosis. Instead, they preferred herbal remedies and lifestyle modifications based on TCM principles. This cultural influence significantly impacted their knowledge, attitudes, and practices related to osteoporosis prevention and management (23, 24).

In light of these findings, it is evident that osteoporosis awareness and practices are influenced by various factors including socioeconomic status, cultural beliefs, and access to healthcare. Addressing these factors through targeted interventions and education programs tailored to specific demographic groups is crucial for improving osteoporosis management and reducing the burden of fractures associated with this condition.

CONCLUSIONS

In conclusion, the population of Gujrat displayed a moderate level of knowledge regarding osteoporosis, with a generally positive attitude. However, practices related to osteoporosis prevention and management were lacking. This study's limitations include its focus on the population of Gujrat alone, a specific age group, and the absence of a nationwide survey. Future research should encompass broader demographics to better gauge awareness levels nationwide. Awareness programs targeting osteoporosis should be implemented to enhance public knowledge and practices.

References:

1. Sözen T, Özişik L, Başaran NÇ. An overview and management of osteoporosis. *European journal of rheumatology*. 2017;4(1):46.
2. Khan YH, Sarriff A, Khan AH, Mallhi TH. Knowledge, attitude and practice (KAP) survey of osteoporosis among students of a tertiary institution in Malaysia. *Tropical Journal of Pharmaceutical Research*. 2014;13(1):155-62.
3. Clynes MA, Harvey NC, Curtis EM, Fuggle NR, Dennison EM, Cooper C. The epidemiology of osteoporosis. *British medical bulletin*. 2020.
4. Aspray TJ, Hill TR. Osteoporosis and the ageing skeleton. *Biochemistry and cell biology of ageing: Part II clinical science*. 2019:453-76.
5. Tu KN, Lie JD, Wan CKV, Cameron M, Austel AG, Nguyen JK. Osteoporosis: a review of treatment options. *Pharmacy and Therapeutics*. 2018;43(2):92.
6. Kemmak AR, Rezapour A, Jahangiri R, Nikjoo S, Farabi H, Soleimanpour S. Economic burden of osteoporosis in the world: A systematic review. *Medical journal of the Islamic Republic of Iran*. 2020;34:154.

7. Ebeling PR, Nguyen HH, Aleksova J, Vincent AJ, Wong P, Milat F. Secondary osteoporosis. *Endocrine Reviews*. 2022;43(2):240-313.
8. Clynes MA, Harvey NC, Curtis EM, Fuggle NR, Dennison EM, Cooper C. The epidemiology of osteoporosis. *British medical bulletin*. 2020;133(1):105-17.
9. Sheu A, Diamond T. Secondary osteoporosis. *Australian prescriber*. 2016;39(3):85.
10. Föger-Samwald U, Dovjak P, Azizi-Semrad U, Kersch-Schindl K, Pietschmann P. Osteoporosis: Pathophysiology and therapeutic options. *EXCLI journal*. 2020;19:1017.
11. Reid IR. A broader strategy for osteoporosis interventions. *Nature Reviews Endocrinology*. 2020;16(6):333-9.
12. Pouresmaeili F, Kamalidehghan B, Kamarehei M, Goh YM. A comprehensive overview on osteoporosis and its risk factors. *Therapeutics and clinical risk management*. 2018:2029-49.
13. Akkawi I, Zmerly H. Osteoporosis: current concepts. *Joints*. 2018;6(02):122-7.
14. Chen L-R, Ko N-Y, Chen K-H. Medical treatment for osteoporosis: from molecular to clinical opinions. *International journal of molecular sciences*. 2019;20(9):2213.
15. Tamayo-Orozco J, Arzac-Palumbo P, Peón-Vidales H, Mota-Bolfeta R, Fuentes F. Vertebral fractures associated with osteoporosis: patient management. *The American journal of medicine*. 1997;103(2):S44-S50.
16. Cheng ML, Gupta V. Premenopausal osteoporosis. *Indian journal of endocrinology and metabolism*. 2013;17(2):240.
17. Preisinger E. Physiotherapy and exercise in osteoporosis and its complications. *Zeitschrift fur Rheumatologie*. 2009;68(7):534-6, 8.
18. Ramli N, Rahman NAA, Haque M. Knowledge, Attitude, and Practice Regarding Osteoporosis Among Allied Health Sciences Students in a Public University in Malaysia. *Erciyes Medical Journal/Erciyes Tip Dergisi*. 2018;40(4).
19. Yasien E. Family Physicians and Osteoporosis in Babylon Governorate: Family Physicians and Osteoporosis in Babylon Governorate. *Iraqi National Journal of Medicine*. 2022;4(2):195-203.
20. Tripathi R, Makeen HA, Albarraq AA, Meraya AM, Tripathi P, Faroug H, et al. Knowledge, attitude and practice about osteoporosis in south-western Saudi Arabia: a cross-sectional survey. *International Journal of Health Promotion and Education*. 2019;57(1):13-22.
21. Leng LS, Ali A, Yusof HM. Knowledge, attitude and practices towards osteoporosis prevention among adults in Kuala Lumpur, Malaysia. *Malaysian Journal of Nutrition*. 2017;23(2).
22. Kadam N, Chiplonkar S, Khadilkar A, Khadilkar V. Low knowledge of osteoporosis and its risk factors in urban Indian adults from Pune city, India. *Public health nutrition*. 2019;22(7):1292-9.
23. Peng Z, Xu R, You Q. Role of traditional Chinese medicine in bone regeneration and osteoporosis. *Frontiers in Bioengineering and Biotechnology*. 2022;10:911326.

