

PREVALENCE OF DIABETES AND HYPERTENSION IN GERIATRIC POPULATION OF URBAN AREAS OF PESHAWAR

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ABSTRACT

Objectives: To find the prevalence of diabetes and hypertension in old people of urban areas of Peshawar and its effect on literacy and financial dependency on geriatric health.

Material and Methods: Study type was cross sectional descriptive study design, conducted from April 2014 to May, 2014. Sample size of 250 was randomly selected from 5 urban areas of Peshawar. Data was collected through semi-structured questionnaires and Interviews.

Results: Prevalence of diabetes was 32% and hypertension was 48.4%. Males were 42.3% and 57.5% females were hypertensive, among whom 94.6% were totally dependent. Diabetes prevalence was 29.8% in males and 35.35% in females, among them 70.9% were totally dependent. Among literates 53.79% had diabetes, 66.89% had hypertension. Among illiterates 2% had Diabetes, 24% had hypertension. Chi-square showed significant association between sex, literacy, dependency and hypertension. Literacy and dependency had significant association with diabetes while sex had not.

Conclusion: Results showed that hypertension is more common in females but sex has limited role in prevalence of diabetes. Most of the illiterates are non-hypertensive and non-diabetic compared to literates. Financial dependency has direct impact on prevalence of both diseases.

Key Words: Diabetes, hypertension, sex, literacy, dependency.

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INTRODUCTION

Because of the availability of advanced medical facilities and greater interest of people in family planning, the population pyramid of future will shrink at the bottom and grow wider at the top which means we soon will have more older people than children and more people at extreme old age than ever before.¹ In 2010, an estimated 8% of the world's population were aged 65 or older. By 2050 this number is expected to nearly double to about 16%. Although more developed countries have the oldest population profiles, the vast majority of older people and the most rapidly aging populations are in poorly developed countries. WHO report (1998)

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projected that 5.6% of Pakistan's population was over 60 years of age, with a probability of doubling to 11% by the year 2025.²

Health score goes down and a reduction in the metabolic rate of about 7% occurs every 10 years after the age of 30 years. At the dawn of the 20th century, the major health threats were infectious diseases but currently non-communicable chronic diseases that more commonly affect older people impose the greatest burden on global health¹ among which Hypertension and diabetes are two chronic conditions that have caught public attention because of its increasing prevalence and high mortality ratios. In Pakistan 60% deaths among people above 60 years are due to diabetes and 59% due to cardiovascular diseases.³

Hypertension is a universal problem and about 1 billion people⁴ suffer from hypertension. It is the second commonest cause of mortality in developing countries. National health survey of Pakistan 1990-1994 revealed that one in five people aged 65 or older in the country

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had hypertension⁵ and the number is rapidly increasing. There were 10.8 million hypertensive in 1994 which increased to 12 million in 1998.⁴ The National Health Survey of Pakistan estimated that, at present, hypertension affects 18% of adults and 33% of adults above 45 years old.⁶

The world is said to be experiencing an epidemic of diabetes mellitus. The International Diabetic Federation estimates that worldwide 387 million people have diabetes and by 2035 this will rise to 592 million⁷ with the greatest increase occurring in the developing countries of Asia and Africa.⁸ In 1995 Pakistan had an estimated 4 million diabetics and was eighth in the world regarding its prevalence.⁹ For 2025 it is projected that if current demographic projections hold, Pakistan would jump up to having the fourth highest prevalence of 15 million diabetics.⁹

Diabetes is more common among aged people. Among elderly Americans 25.9% have diabetes.¹⁰ In Pakistan 60% deaths among people above 60 years age are due to diabetes.³ Several factors including poverty determines the poor quality of life for elderly in Pakistan.¹¹ This leads to socioeconomic insecurity which is more felt by older women because of various socioeconomic reasons such as family income, housing/living arrangements, nutritional status.¹² Literacy determines both the socioeconomic status as well as the awareness of preventive medicine. The adult literacy rate in Pakistan was 57% in 2012-2013.¹³ This proportion is much higher in urban areas than in rural areas as well as in men than in women.¹³ Khyber Pakhtunkhwa (KPK) had a literacy rate of 55% in 2012-13.¹³

In short, the geriatric population is on rise as for their health problems which are generally directly related to socioeconomic status. So the objectives of our study are:

1. To find the prevalence of diabetes and hypertension in old people of urban areas of Peshawar.
2. To find the effect of sex, literacy and financial dependency on geriatric health.

MATERIAL AND METHODS

Study type, which we adopted, was cross sectional descriptive study design. It was conducted from April, 2014 to May, 2014. Sampling technique was Simple random sampling and sample size was 250. Sample population included geriatric people living in 5 urban areas of Peshawar i.e. Hayatabad, University Town, University Campus, Saddar and Gulberg. Inclusion criteria were age more than 60 and residence in Peshawar for at least 1 year. While mentally disoriented

and severely ill were excluded. Dependent variables in our study are diabetes and hypertension while sex, literacy and dependency are chosen as independent variables. Both diabetic and hypertensive status was based on previous diagnoses or use of anti diabetic or anti hypertensive medications. Data was collected using semi structured questionnaire and face to face interviews were conducted after taking an informed verbal consent. Before starting data collection, questionnaire was approved by the ethical board of Khyber Medical College, Peshawar. Data was analyzed with the help of SPSS 20 and Graph pad prism 6 and chi sq test was applied to find the association between different variables. Chi square value greater than 3.84 or a P-value less than 0.05 shows significant association. Data was presented in the form of text, graphs and tables. The limitations of the study were that Standard diagnostic tests for diabetes and hypertension were not conducted because of lack of time and resources. So most of information used in the study was subject dependent. Modifier variables such as poverty, drug dependency or lack of provision of health care services were not considered in our research because of time limitation. Also our sample size was small so generalization should be made with caution.

RESULTS

Results of our study showed that prevalence of diabetes was 32% and of hypertension was 48.4%. Male to female ratio of geriatric population was 1.52. Among the studied population 58% were literate while 42% were illiterate. Half of the population was independent while 37.2% were fully dependent on their families while 12.8% were partially dependent on their families. Prevalence of diabetes among males was 29.8% while among females was 35.35% (chi square value = 0.8471, p value = 0.3574 i.e. statistically not significant). Moreover prevalence of diabetes among literates was 53.79% and 1.9% among illiterates (chi square value = 75.35, p value < 0.0001 i.e. statistically significant). Among dependent population 70.96% had diabetes while 29% were non diabetic (chi square value = 158.4, p value < 0.0001 i.e. statistically significant). See Figure 1.

Table 1: Interrelationship between diabetes and hypertension in geriatric people of urban areas of Peshawar

	Diabetic	Non- Diabetic	Total
Hypertensive	80(66.11%)	41(33.88%)	121
Non-Hypertensive	(0%)	129(100%)	129
Total	80	170	250

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Table 2: Interrelationship between gender, literacy and dependency among geriatric people of Peshawar

Sex	Literacy		Dependency			Total
	Literate	Illiterate	Dependent	Partially dependent	Independent	
Male	112(70.2%)	39(29.8%)	31(20.5%)	21(13.9%)	99(65.5%)	151
Female	33(33.33%)	66(66.66%)	62(62.6%)	11(11.1%)	26(26.3%)	99
Total	145	105	93	32	125	250

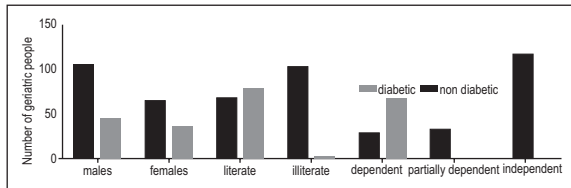


Figure 1: Prevalence of diabetes with respect to gender, literacy and dependency in geriatric people of urban areas of Peshawar

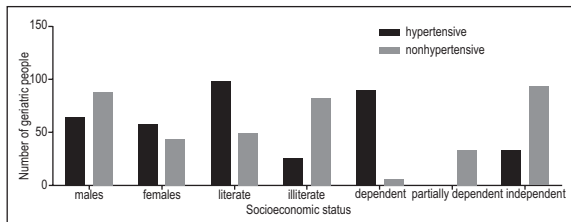


Figure 2: Prevalence of hypertension with respect to gender, literacy and dependency in geriatric people of urban areas of Peshawar

Prevalence of hypertension among males was 42.38% and 57.57% in females (chi square =5.526, p value 0.0187 i.e. statistically significant). Relation between literacy and hypertension showed that 66.89% literates were hypertensive while prevalence of hypertension among illiterates was 22.85% (chi square value 47.28, p value < 0.0001 i.e. statistically significant). Among dependent ones 94.62% were hypertensive while 5.38% were non hypertensive (chi square value=133.8, p value <0.0001 i.e. statistically significant). see Figure 2.

Tables 1 and 2 shows interrelationship between diabetes and hypertension and between sex, literacy and financial dependency respectively. Chi square test showed significant association between diabetes and hypertension. (Chi sq value 125.4, p value=<0.0001). Similarly significant association was shown between sex and literacy (Chi sq value=40.94, p value=<0.0001) sex and dependency (Chi sq value=47.32, p value=<0.0001) and literacy and dependency (Chi sq value=51.03, p value=<0.0001).

DISCUSSION

Most of geriatric people comprised of males as compared to females the ratio being 1.52. This is against the 2006 estimation of sex distribution in geriatric pop-

ulation of Pakistan which showed male to female ratio of 0.82 for people aged 65 or above.¹⁴ The high male to female ratio in our study population is because of several reasons such as high maternal mortality rate and financial constraints in seeking health care.

Our study showed that most people in urban areas of Peshawar are literate. The high literacy rate in this area is because of urbanization and easy approach to educational institutions. More men were found to be literate as compared to females, which is in accordance with male to female literacy ratio of 4.5 as declared by PIDE in 2003.¹⁵ Females are not allowed to seek education because of old cultural and traditional values, early marriages, deficiency of separate female schools and lack of general awareness among people about importance of female education.

The results of our study showed that in our culture most people in old age are independent. This is contrary to the results of study done by PMRC which showed that 80% elderly were dependant on others.¹⁶ The reason for such large number of old people to be independent in urban areas of Peshawar may be because most have got pension, properties and others have invested in some kind of business to get regular income. Also most of them want to remain economically active even in old age to remain independent because otherwise they would be neglected by their families. Some do so because they belong to poor families and want to contribute to overall family income instead of becoming burden for others.

Mostly females were among the dependent ones as compared to dependent men. This finding is also supported by PMRC showing 70% dependent elderly women.¹⁶ This can be attributed to lack of female education, physical weakness and most of women choose to be housewives.

Dependency generally is directly proportional to illiteracy as suggested by PIDE¹⁵ also supported by our study as majority of literates ones were independent. Unexpectedly most of the illiterates too, were independent because most of them have got properties or are economically active. The results of our study highlight the high prevalence of hypertension among geriatric people. A study conducted in 2008-09 in Peshawar by Dr. Anjum showed that the prevalence of hypertension

in geriatrics of age 60 and above was 67%.¹⁷ Results showed a high prevalence of hypertension among female in old age supported by a study of Dr Anjum's too¹⁷ is due to decreased oestrogen after menopause.¹⁸ Lack of exercise, obesity, and sedentary life style are other known risk factors.

These results may be closely related to advancing age, diet and socioeconomic conditions encountered specially at this age group. In addition to above other contributing factors found to be smoking, diabetes, lack of exercise, obesity, stress, dependency and family size. A high prevalence of diabetes among geriatric people of Peshawar was shown which is also supported by other studies such as that done in 2008-09 in Peshawar¹⁷ and another done at Agha Khan University in Karachi in 2006 and 2009.⁵

The most common cause of this high prevalence is age and family history. Diabetes type 2 is an age related problem, just as other functions of the body decline, same is with insulin function. Also obesity, fatty diet, high carbohydrate diet, sedentary life style lack of exercise contributes to its pathogenesis. Gestational diabetes along with above mentioned risk factors makes females more prone to have diabetes in old age. The results of other studies on geriatric population mostly showed only a slight difference in prevalence of diabetes among males and females.¹⁹

While generally the literacy and prevalence of diabetes mellitus are inversely related, as shown by other studies, but our study showed opposite results i.e. most of the diabetics lie in the category of literates while illiterate ones reported to be healthy. This is due to lack of knowledge and understanding about their illnesses. The effect of dependency on prevalence of diabetes mellitus as shown by our study is due to lack of proper care by family and financial constraints in seeking health care. Considering together hypertension is more common than diabetes. This finding is similar to other ones done on geriatric health AKU study in 2009.⁵

CONCLUSION

There was a high prevalence of hypertension as compared with diabetes and the importance of financial dependency, sex and literacy on geriatric health. It was also concluded that people who were non hypertensive they were non diabetics too.

RECOMMENDATIONS

Special policies need to be made to increase the literacy rate, number of public sector hospitals, lower the cost of health care facilities, carry out screening pro-

grams and awareness campaigns to address geriatric health and socioeconomic issues.

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AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under:

Rehman SU: Data collection, manuscript writing.

Nasir M: Discussion writing.

Gul R: Idea and final approval.

Hussain I: Bibliography.

Rehman SU: Statistics.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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