

## PREVALENCE OF STROKE IN HAYATABAD PESHAWAR

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### ABSTRACT

**OBJECTIVES:** The objective of this study was to determine the prevalence of stroke in Hayatabad Peshawar.

**METHODS:** A cross sectional study was conducted in the community setup in Hayatabad Peshawar. Data was collected from 390 residents who willingly participated by filling a self-reported questionnaire which focused on diagnosis of stroke. The data was later analyzed by SPSS version 20.

**RESULTS:** Out of 390 participants 39 (10%) participants were suffering from stroke in which 4.82% participants were male and 5.17% participants were female.

Out of 390 participants, 3.59% participants were between 56-65 ages, 2.56% participants were between 66-75 ages (P-value=0.007). Out of 390 participants, 2.56% were working people while 7.43% were retired (P-value <0.001).

**CONCLUSION:** Prevalence of stroke in Hayatabad is ten percent. Moreover, majority of stroke survivors in Hayatabad are between 56-65 ages and majority them are retired.

**KEYWORDS:** Stroke, Cerebrovascular accident, Transient ischemic attack (TIA)

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### INTRODUCTION

Stroke is public health problem in emerging countries of South Asia and one of the most malicious condition among neurological disorders (1, 2). It is considered the 3<sup>rd</sup> most frequent reason of death worldwide and one of the most common causes of long-lasting disability(3). Stroke proportion in middle-aged people are 5 to 10 times higher in Pakistan, India, Russia, China, and Brazil, as compared to the United Kingdom or the United States (4, 5). The projected incidence of stroke per annum in Pakistan is 250 /100,000, which is thought to be increased to an estimate of 350,000 cases every year.

The key causative factor of stroke is high blood pressure, tobacco smoking, obesity, high blood lipids, diabetes mellitus, coronary heart disease and previous transient ischemic attacks (TIA) (6). A study on patients, for preventive check-ups shown that 39%

had high blood pressure, dyslipidemia or active smoking history. In addition, it turned out that 24% had obesity, 19% had high blood pressure, 15% had diabetes, and 42% had family history of coronary heart disease (7). The high occurrence of these causative factors is exacerbated by lack of awareness in both public and general physicians (8).

Pakistan has the 6th largest population in the world and is increasing at approximately 1.83% each year(9). There is enough record signifying a high occurrence of vascular risk features in Pakistan, which leads to the basis that the load of stroke is high (8). A survey suggested an estimated prevalence of stroke to be 21.8% and/or TIA in Karachi. Stroke-related mortality has been stated between 7% and 20% in several studies from Pakistan (9). Stroke not only escalate death and disease rate but also put great financial burden on society (10).

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In Pakistan there are limited health resources and the health insurance system is unsubstantial. The health system is centered on self-financing. The average budget per annum of Pakistan is Rs.742 billion, and the percentage of health budget is Rs.135 million (1.8% of the budget). The average annual income of an individual in Pakistan is Rs.4881 (85 US dollars) (10). There is little data on how much it will cost to treat a single-case of an acute ischemic stroke attack. According to survey in Karachi, the biggest medical private hospital, the average cost per patient of acute stroke care is stated to Rs.70, 714 (\$ 1179 USD), greatly higher than the average yearly income of a Pakistani (10).

Therefore, it is important to recognize the characteristics of stroke in South Asia to decrease the load of stroke. It is evident from literature that awareness about prevalence of stroke in developed and developing countries is significantly lacking. Furthermore, to the investigators' knowledge there is scanty of data available

about prevalence of stroke in Pakistan, and particularly in KPK. Therefore, this study was designed to determine prevalence of stroke in Hayatabad.

**METHODS**

This survey was conducted on residents of Hayatabad Peshawar from September 2017 to December 2017. The eligibility criteria of this study include those who were the resident of Hayatabad Peshawar. People of both gender and of all ages were included in the study. The participants were explained about the study and a signed consent was obtained from all of them.

Approval was taken from Institutional Review Board (IRB) for our research project. After finding total population of Hayatabad from PDA Director's office Peshawar, sample size was calculated, using EPI Info calculator which turned out

to be 383, the sample for each phase (phase I, 2,3,4,5,6,7) was then calculated separately according to percentage of population they make out of the total population, which were; 79, 52.37, 76.01, 40.65, 14.54, 96.47, 23.63 for phase 1,2,3,4,5,6,7 respectively.

Using simple random sampling technique, first of all randomly selected different sectors in each phase, then streets with in each sector and finally houses in each street. Information regarding the project was conveyed to all participants and an informed consent was taken. A door to door survey was conducted. We used self-administered questionnaire which included questions related to risk factors, pain and disability while performing different activities. The criterion used for diagnosis of stroke includes sensory loss, motor loss, vision impairment, and hearing deficits in the unilateral side of the

body. Participation in this cross sectional survey was on willingly basis without being presented any financial or other profits. After obtaining all the information, the data was analyzed using SPSS version 20. Statistical evaluation was made by applying the chi square test. The outcomes were to be considered significant if  $p < 0.05$ .

**RESULTS**

A total of 390 sample size was taken in the study. The age ranged from a minimum of 25 years to a maximum of 102years. 62.3% participants were male and 37.7% participants were female. The prevalence of stroke in Hayatabad was 10% (n=39). Majority (5.12%) of stroke survivors were female while 4.87% were male (Table 1).

**Table 1: prevalence of stroke on gender basis**

gender of participant	Frequency	Percent	Stroke Frequency	stroke %
Male	243	62.3	19	4.87
Female	147	37.7	20	5.12
Total	390	100	39	10

On the basis of age, out of 390 participants 6.9 % were between 25-35 age range, 17.2% participants were between 36-45 ages, 27.9% participants were between 46-55 ages, 31% participants were between 56-65 ages, 12.1% participants were between 66-75ages, 3.1% participants were between

76-85 ages, 1.5% participants were between 86-95 ages and 0.3% participants were between 96-105 ages.

Out of 390 participants 0.25 % were suffering from stroke between 25-35 age range, 1.54% participants were between 36-45 ages, 0.76% participants were between 46-55 ages, 3.59% participants

were between 56-65 ages, 2.56% participants were between 66-75ages, 0.51% participants were between 76-85 ages, 0.51% participants were between 86-95 ages, 0.25% participants were between 96-105 ages with the significant value of 0.007, which shows significance differences exists (Table 2).

**Table 2: prevalence of stroke age wise**

Age of the participant	Frequency	Percent	stroke frequency	stroke %age
25-35	27	6.9	1.0	0.25
36-45	67	17.2	6.0	1.54
46-55	109	27.9	3.0	0.76
56-65	121	31.0	14.0	3.59
66-75	47	12.1	10.0	2.56
76-85	12	3.1	2.0	0.51
86-95	6	1.5	2.0	0.51
96-105	1	.3	1.0	.25
Total	390	100.0	39.0	10.0

Out of 390 participants 60% were working people, 39.74% were retired people. 10 (2.56%) working people and 29(7.43%) retired were suffering from stroke with the p value<0.001 which means significant differences exists between working persons and retired persons (Table 3).

**Table 3: prevalence of stroke on occupation basis**

occupation of participant		Frequency	stroke frequency	stroke %age
Occupation	working person	234	10.0	2.56
	Retired	155	29.0	7.43
	Total	390	39.0	10

**DISCUSSION**

Stroke prevails one of the most malicious condition of all the neurological disorders (2).The 3rd most frequent reason of death worldwide is stroke and has been stated to be one of the most common causes of long-lasting disability (3). In advanced and emerging countries stroke is the 1st common cause of persistent disability and 3rd leading cause of death (4).

The objective of current study was to determine prevalence of stroke in Hayatabad Peshawar. This cross-sectional study illustrates occurrence of stroke is 10% in entire age groups. Wassay et al. conducted a study in the urban slums of Karachi and reported 21.8% lifetime prevalence of stroke and/or transient ischemic attack (TIA) in persons of age 35 years (11). Similar, results were also reported by Ahmed Itrat et al.(12). Our prevalence on stroke is small as compared to others because our research was limited to a small community in Hayatabad, Peshawar while there study was conducted on a large scale.

In current study majority of stroke survivors were between 56-65 years. Similar, results were also reported by Khealani et al.(13). According to current study there was no significant difference found on basis of gender. This is consistent with results of Petrea et al. who also found no significant difference on the basis of gender (14).However, in the literature it was reported that stroke is higher in female than male (15,14). Our study shows the prevalence of stroke in

male is 4.87% and 5.12 % in female but statistically, there were no significant difference. The higher stroke prevalence female in various studies in older ages are due to post menopausal affects because of lack of estrogen hormone which is cardio protective hormone (15).

Stroke rate was found to be 2.56% in working people (active lifestyle) and 7.43% in retired (sedentary) adults. Another study conducted by Galimanis et al. in showed similar result to our study that stroke can be considerably reduced by an active lifestyle (16). According to Paffenbarger et al., male with more sedentary jobs consumed less calories per work day and sustained coronary death rates one third higher than those who perform heavy work and spends more calories (17). A study conducted by Bousser et al. reported that lack of physical activity was a causative factor for stroke (15).

**CONCLUSION**

Prevalence of stroke in Hayatabad is ten percent. Moreover, majority of stoke survivors in Hayatabad are between 56-65 ages and majority them are retired.

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