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## Stroke knowledge and screening in a high prevalence, low income community

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### Keywords

Stroke; Developing Countries; Detection; Community Health Workers; Knowledge; Questionnaire

### Dear Editor

The burden of stroke is rising in low to middle income countries (LMIC) (1). These countries, however, do not possess the resources for this transition from communicable diseases to a greater proportion of chronic disease.

With this in mind, we performed a study in a peri-urban slum in Karachi, Pakistan to validate a stroke symptom questionnaire that can be used by community workers to identify community dwelling stroke patients. We also assessed participants' knowledge regarding stroke symptoms and risk factors.

Two community workers interviewed 322 participants after receiving initial training. The sensitivity and specificity of the questionnaire for detecting stroke was 77.1% (CI: 64.1%-86.9%) and 85.8% (CI: 83.5%-87.5%). Hemianesthesia (72.9%) and hemiplegia (64.6%) were the most sensitive symptoms.

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**Author Contributions:** Maria Khan and Ayesha Kamran Kamal conceived the study idea and design, performed the study and interpreted data. Hasan Rehman assisted in writing and editorial process. All authors have read the manuscript and provided input on its content and final version.

**Conflict of Interest:** None declared.

The overall knowledge of participants was poor (Table 1) with an average of 2.9 correct responses per participant. 182 participants (59.2%) failed to answer any question correctly. Around 25% identified stroke as a preventable condition. Only 13% to 15% subjects identified hypertension, diabetes and tobacco as risk factors for stroke despite the self-reported prevalence of the conditions being 60%, 12% and 80% respectively.

Our study identifies a pragmatic and cost effective tool that can be useful in communities that lack healthcare infrastructure. It allows task shifting of screening stroke patients in the community to CHWs who demonstrated high acceptability rates. Our study also shows the need to improve the knowledge regarding stroke risk factors and management in the community that seems to resort to indifference in the face of what they consider inevitable fate.

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## References

1. Feigin VL, Lawes CM, Bennett DA, Barker-Collo SL, Parag V. Worldwide stroke incidence and early case fatality reported in 56 population-based studies: a systematic review. *Lancet Neurol.* 2009 Apr; 8(4):355–69. [PubMed: 19233729]

**Table 1**  
**Knowledge of Stroke Participants**

True/False statement regarding stroke	Correct Responses n (%)
Stroke is a short-lasting illness	54 (17.6)
It is possible to prevent stroke	78 (25.4)
Stroke is a treatable condition	60 (19.5)
Hemiplegia is a symptom of stroke	78 (25.4)
Chest pain is a symptom of stroke	26 (8.5)
People who have had a stroke, need to take medicine for the rest of their lives	44 (14.3)
High Blood Pressures increase risk of stroke	40 (13.0)
Some people can tell that they have high Blood Pressure	16 (5.2)
People with Diabetes Mellitus have higher risk of stroke	45 (15.0)
Tobacco use increases the risk of stroke	46 (15.0)
Stress is also a cause of stroke	85 (27.7)
Diet rich in fruits and vegetables can protect against stroke	86 (28.0)
High cholesterol can also cause stroke	43 (14.0)
Men and women are at equal risk of stroke	86 (28.0)
Physical activity decreases risk of stroke	50 (16.3)
Obesity is a cause stroke	45 (14.7)