

Post-Stroke Psychiatric and Cognitive Symptoms

Subjects: Neurosciences

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Stroke survivors in developing countries have been documented to be marked with intransigent and debilitating disabilities. To combat these dire circumstances, the World Health Organization (WHO) launched 'Rehabilitation 2030', which aspires to "scale up rehabilitation so that countries can be prepared to address the evolving needs of populations up to 2030" (p. 12). Owing to the suboptimal emergency services, critical care and existing rehabilitation services for individuals sustaining strokes in a majority of developing countries, stroke survivors have shown high mortality as well as disability and dependency rates. Cerebral hypoperfusion among stroke survivors (whether triggered by ischemic or hemorrhagic events, coupled with arrhythmias, myocardial infarction, pulmonary embolism, pericardial effusion, or bleeding) leads to structural and functional changes in the brain resulting from damage. Around 85% of strokes are classified as ischemic and 12% as hemorrhagic. Approximately 75% of stroke survivors experience physical disability, emotional symptoms and cognitive symptoms, or a combination of these.

Keywords: post-stroke ; depression ; anxiety ; cognitive impairment ; prevalence ; meta-analysis ; systematic review ; West Asia ; South Asia ; Africa

1. Overview

Recent research has shown that the prevalence of stroke incidents and the number of survivors in developing countries surpass those from developed countries. This study aimed to enumerate the prevalence of post-stroke psychiatric and cognitive symptoms among stroke survivors from West and South Asia and Africa through a systematic review and meta-analysis. Data from each country was systematically acquired from five major databases (PsycINFO, Web of Science, Scopus, PubMed/Medline, and Google Scholar (for any missing articles and grey literature)). Meta-analytic techniques were then used to estimate the prevalence of various post-stroke psychiatric and cognitive symptoms. A total of 36 articles were accrued from 11 countries, of which 25 were evaluated as part of the meta-analysis. The pooled prevalence of post-stroke depression as per the Hospital Anxiety and Depression Scale (HADS), Hamilton Depression Rating Scale, Patient Health Questionnaire, Schedules for Clinical Assessment in Neuropsychiatry (SCAN), Geriatric Depression Scale, and the Montgomery–Asberg Depression Rating Scale ranged from 28.00 to 50.24%. Pooled prevalence of post-stroke anxiety based on the HADS and SCAN was 44.19% and 10.96%, respectively. The pooled prevalence of post-stroke cognitive impairment as per the Mini-Mental Status Examination was 16.76%.

2. Stroke Survivors

Recently, in the part of the world where approximately 80% of the global population resides—sometimes labeled as the 'Global South', 'emerging economies', 'low- and middle-income countries' or simply 'developing' or 'non-Western countries'—there has been a surge of health problems resonating with the metaphor of a '*double-edged sword*'. On one hand, while environment-related and infectious diseases continue to pose challenges, these developing countries are concurrently witnessing a spike in non-communicable diseases including neurological events that lead to the intransigent and debilitating sequelae of focal (or global) disturbance in cerebral function. In this regard, stroke has been widely established to compromise the integrity of emotional and cognitive functioning, often going on to disrupt an individual's premorbid self-directedness, quality of life, and meaningful existence. Stroke has also been recorded as being the second leading cause of death and dependency worldwide ^{[1][2]} and accounts for almost 5% of all disability-adjusted life-years and 10% of all deaths worldwide ^[3].

Research from many industrialized countries of North America, Western Europe and the pocket of countries in the Pacific Rim have shown that the most common risk factors contributing to the stroke epidemic include transient ischemic attacks, high blood pressure, tobacco smoking, end-stage kidney disease, atrial fibrillation disease, obesity, hyperlipidemia, and diabetes mellitus ^[4]. However, a rise in awareness campaigns, resource mobilization and the subsequent availability of emergency services, critical care, and rehabilitation services have contributed to the changing trends in these countries ^[5].

Such accessibility has also been shown to help pre-empt disability and dependency and the occurrence of death. In contrast, despite these debilitating health conditions being rife in many developing countries, with prevalence rates overtaking the West in some cases, the availability of the aforementioned resources is largely rudimentary [6]. Some populations, for example, those in South Asia, have been shown to have a high risk of stroke and account for almost 40% of the adverse stroke sequelae [7].

As a result, stroke survivors in developing countries have been documented to be marked with intransigent and debilitating disabilities [8]. To combat these dire circumstances, the World Health Organization (WHO) launched 'Rehabilitation 2030', which aspires to "scale up rehabilitation so that countries can be prepared to address the evolving needs of populations up to 2030" (p. 12) [9]. Owing to the suboptimal emergency services, critical care and existing rehabilitation services for individuals sustaining strokes in a majority of developing countries, stroke survivors have shown high mortality as well as disability and dependency rates [10]. Cerebral hypoperfusion among stroke survivors (whether triggered by ischemic or hemorrhagic events, coupled with arrhythmias, myocardial infarction, pulmonary embolism, pericardial effusion, or bleeding) leads to structural and functional changes in the brain resulting from damage. Around 85% of strokes are classified as ischemic and 12% as hemorrhagic [11]. Approximately 75% of stroke survivors experience physical disability, emotional symptoms and cognitive symptoms, or a combination of these. According to the 'GBD 2016 Lifetime Risk of Stroke Collaborators', over 80% of disability-adjusted life-years associated with stroke occur in low- and middle-income countries [12].

In the past decades, an increasing number of impressionistic and anecdotal reports along with a significant number of observational studies have reported the prevalence rates and types of emotional and cognitive symptoms persistent among stroke survivors in developing countries. In this regard, such studies must be applied in a wider context so that evidence-based quantification, prevention, and mitigation can be contemplated upon. To date, while there have been narrative reviews reported from developing countries [3][13], there are no critical appraisals such as systematic reviews or meta-analyses on psychiatric and cognitive symptoms among stroke survivors.

While there is an abundance of research on cognitive and psychiatric symptoms secondary to stroke from many industrialized countries [14][15][16], little has been forthcoming from countries of the 'global south', despite showing a high prevalence of stroke. The established high variability in the incidence of post-stroke cognitive and psychiatric symptoms found across varied populations might imply that the role played by various idiosyncratic socio-cultural or ecological factors in determining the types and expression of these post-stroke sequelae is substantial [17][18]. Thus, complete reliance on the data from industrialized countries might not be viable when ameliorating the situation in developing countries. Additionally, a critical appraisal of the prevailing secondary post-stroke conditions in developing countries has the potential to help standardize the taxonomy relevant to a screening approach which, in turn, could aid in the efforts towards intervention, remedy, and rehabilitation. Furthermore, these taxonomic assumptions could be used for the allocation of resources, the making of administrative decisions, professional communication, diagnostic formulations, research, epidemiology, and public policy.

3. Conclusions

The present region of interest that is often alternatively labelled the 'global south' or simply 'developing countries' has been widely described as being plagued with two health threats. One of them includes the traditional enemies of health such as malnutrition, child mortality, and environment-related and infectious diseases, while the other includes non-communicable diseases that entail, for example, neurological events that lead to the debilitating sequelae of focal (or global) disturbance in cerebral function. Around 80% of the global population resides in these regions and while existing rudimentary emergency services and critical care often lead to high death rates among the majority of those sustaining stroke, a significant number of them have gone on to survive, though with severely debilitating conditions. The present review has suggested that both psychiatric and cognitive symptoms are common among stroke survivors in the regions of West and South Asia and Africa, and form part of the unmet needs of such survivors. Concerted efforts are needed to institute more robust studies using culturally sensitive measures to contemplate mechanisms that would address the needs of these vulnerable populations.

References

1. Katan, M.; Luft, A. Global Burden of Stroke. *Semin. Neurol.* 2018, 38, 208–211.

2. Johnson, C.O.; Nguyen, M.; Roth, G.A.; Nichols, E.; Alam, T.; Abate, D.; Abd-Allah, F.; Abdelalim, A.; Abraha, H.N.; Abu-Rmeileh, N.M.; et al. Global, regional, and national burden of stroke, 1990-2016: A systematic analysis for the Global Burden of Disease Study 2016. *Lancet Neurol.* 2019, 18, 439–458.
3. Krishnamurthi, R.V.; Moran, A.E.; Feigin, V.L.; Barker-Collo, S.; Norrving, B.; Mensah, G.A.; Taylor, S.; Naghavi, M.; Forouzanfar, M.H.; Nguyen, G.; et al. Stroke prevalence, mortality and disability-adjusted life years in adults aged 20–64 years in 1990–2013: Data from the global burden of disease 2013 study. *Neuroepidemiology* 2015, 45, 190–202.
4. Boehme, A.K.; Esenwa, C.; Elkind, M.S. Stroke Risk Factors, Genetics, and Prevention. *Circ. Res.* 2017, 120, 472–495.
5. Fountouki, A.; Theofanidis, D. Service provision for stroke: The Greek paradox. *J. Vasc. Nurs.* 2017, 35, 136–140.
6. Morris, L.D.; Grimmer, K.A.; Twizeyemariya, A.; Coetzee, M.; Leibbrandt, D.C.; Louw, Q.A. Health system challenges affecting rehabilitation services in South Africa. *Disabil. Rehabil.* 2021, 43, 877–883.
7. Wasay, M.; Khatri, I.A.; Kaul, S. Stroke in South Asian countries. *Nat. Rev. Neurol.* 2014, 10, 135–143.
8. Brainin, M.; Teuschl, Y.; Kalra, L. Acute treatment and long-term management of stroke in developing countries. *Lancet Neurol.* 2007, 6, 553–561.
9. World Health Organization. *Rehabilitation 2030: A Call for Action*; World Health Organization: Geneva, Switzerland, 2017.
10. Ferri, C.P.; Schoenborn, C.; Kalra, L.; Acosta, D.; Guerra, M.; Huang, Y.; Jacob, K.S.; Rodriguez, J.J.; Salas, A.; Sosa, A.L.; et al. Prevalence of stroke and related burden among older people living in Latin America, India and China. *J. Neurol. Neurosurg. Psychiatry* 2011, 82, 1074–1082.
11. Robinson, R.G.; Jorge, R.E. Post-Stroke Depression: A Review. *Am. J. Psychiatry* 2016, 173, 221–231.
12. GBD 2016 Lifetime Risk of Stroke Collaborators. Global, Regional, and Country-Specific Lifetime Risks of Stroke, 1990 and 2016. *N. Engl. J. Med.* 2018, 379, 2429–2437.
13. Low, W.Y.; Lee, Y.K.; Samy, A.L. Non-communicable diseases in the Asia-Pacific region: Prevalence, risk factors and community-based prevention. *Int. J. Occup. Med. Environ. Health* 2014, 28, 1–7.
14. Pendlebury, S.T.; Rothwell, P.M. Prevalence, incidence, and factors associated with pre-stroke and post-stroke dementia: A systematic review and meta-analysis. *Lancet Neurol.* 2009, 8, 1006–1018.
15. Ayerbe, L.; Ayis, S.; Wolfe, C.D.; Rudd, A.G. Natural history, predictors and outcomes of depression after stroke: Systematic review and meta-analysis. *Br. J. Psychiatry* 2013, 202, 14–21.
16. Hackett, M.L.; Pickles, K. Part I: Frequency of depression after stroke: An updated systematic review and meta-analysis of observational studies. *Int. J. Stroke* 2014, 9, 1017–1025.
17. Ellis, C.; Hyacinth, H.I.; Beckett, J.; Feng, W.; Chimowitz, M.; Ovbiagele, B.; Lackland, D.; Adams, R. Racial/ethnic differences in poststroke rehabilitation outcomes. *Stroke Res. Treat.* 2014, 2014, 950746.
18. Jia, H.; Chumbler, N.R.; Wang, X.; Chuang, H.C.; Damush, T.M.; Cameon, R.; Williams, L.S. Racial and ethnic disparities in post-stroke depression detection. *Int. J. Geriatr. Psychiatry J. Psychiatry Late Life Allied Sci.* 2010, 25, 298–304.

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