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Original Article

The Socio-economic Impact of Stroke on Households in Livingstone District, Zambia: A Cross-sectional Study

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Abstract

Background: Stroke is the leading cause of adult disability. Stroke, which affects mostly the productive age group, leaves about 65% of its victims disabled, leads to increased loss of manpower both at individual and national levels. Little is known about the socio-economic burden of the disease in terms of its impacts on the individual, family and community both directly and indirectly in Sub-Sahara Africa region and Zambia at large. **Aim:** The study was aimed at assessing the socio-economic impact of stroke households in Livingstone district, Zambia. **Subjects and Methods:** A total of 50 households were randomly selected from the registers of Livingstone General Hospital. Self-administered questionnaires and focus group discussions were used to collect quantitative and qualitative data respectively. The data was analyzed using Statistical Package for Social Sciences version 16 (IBM Corporation) and content analysis. Chi-square test was used to make associations between variables. **Results:** The social impacts on the victim were depression, difficult to get along with, resentfulness, apathy, needy, separation, divorce, general marital problems, neglect on the part of the victim and fear. The economic impacts were loss of employment, reduced business activity and loss of business on the part of the victim. Economic activities such as food provision, payment of school fees, accommodation were affected as a result of stroke and this led to financial insecurities in households with lost incomes in form of salaries and businesses. The activities forgone by stroke households were food provision, housing and education. The study also revealed an association between period of stroke and relationship changes ($P < 0.001$). Gender and family relationship changes were highly associated ($P < 0.00$), as more females than males experienced relationship changes. **Conclusion:** The results of the present study show that stroke has considerable socio-economic impact on households in Livingstone district, which can deter the victims' development as well as the household and the nation at large.

Keywords: Household, Impact, Livingstone, Socio-economic, Stroke

Introduction

Stroke is the leading cause of adult disability.[1] Stroke, which affects mostly the productive age group, leaves about 65% of its victims disabled, leads to increased loss of manpower both at individual and national levels.[2] Little is known about the economic burden of the disease in terms of its impacts on the individual, family and community both directly and indirectly and socially in Sub-Sahara Africa region where Zambia belongs.[3] Traditionally, stroke has been labeled as a disease of the affluent, but reports have shown that Africa, which is not affluent, bears a heavy burden of stroke.[4] With the changing life-styles, the incidence of stroke is increasing and thus, 28 million people are estimated to die in 10 years time, just in Africa, due to non-communicable diseases, largely stroke.[5] In Zambia, stroke has been documented to affect the younger population, hypertension being the most common risk factor and the trend is increasing following the advent of human immunodeficiency virus/acquired immunodeficiency syndrome.[6] Livingstone district, of Southern Province,

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Quick Response Code:

Website: www.amhsr.org

DOI: 10.4103/2141-9248.138030

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Zambia has not been spared by this increase.[7] The study was aimed at assessing the socio-economic impact of stroke on households in Livingstone, Zambia. Specifically, the study aimed at determining the relationship and role changes in households due to stroke, to verify lost incomes in households due to stroke, to verify opportunity costs in households due to stroke, to assess victims' willingness to form a stroke support group in Livingstone district.

Subjects and Methods

A cross-sectional study design was used. Both qualitative and quantitative data was collected. Self-administered questionnaire and focus group discussions were used to collect data. The study was conducted in Livingstone district, Southern Province of Zambia.

The study consisted of households who have stroke victims, in Livingstone district. Livingstone is an urban district of Southern Province. The target population was the victim of stroke, with the spouse or caregiver or guardian.

The formula $n = z^2PQ/d^2$ was used to calculate the sample size, where is Z the degree of freedom at 95%, confidence interval being 1.96 and P was the target proportion required being 30% (being the indication for socio-economic problems among stroke victims) hence 48 households were to take part in the study and therefore 50 stroke victims and their households were randomly selected from the hospital register.

The focus group discussions involved 20 spouses or caregivers or guardians who were conveniently selected from the hospital register following their availability and willingness to discuss and, their being key informants. The participants were grouped according to the sex of the stroke victim but regardless of their relationship with the stroke victim. Each group had 10 participants.

Data from the questionnaire was analyzed using the Statistical Package for Social Sciences and content analysis was used for data from focus group discussions. Chi-square to test associations between gender and family relations, family roles, marital relations was used. Associations were also observed for period of stroke and relationship changes for significance.

The inclusion criteria were clients, who had have stroke for more than 1 month and their case being diagnosed as stroke and resided in Livingstone district.

Ethical clearance for the study was obtained from The Research Ethics Committee of the University of Zambia, School of Medicine. Written permission to conduct the study was sought from Livingstone General Hospital Management for use of the hospital register and from the Livingstone District Commissioner.

Results

Demography

The total number of the stroke victims was 50 with their households. The respondents age ranged from 19 to 57 years. Those who were 50 years and above represented 46% (23/50) of the respondents. There were more female respondents represented by 56% (28/50). Almost half of the stroke victims had been in formal employment prior to stroke (48%, 24/50), followed by those in self-employment while dependents were the fewest. About half of the respondents had had stroke for 3 years or more (52%, 26/50). Each group of the focus group discussion represented one sex and had 10 participants. The majority of the discussants were females (75%, 15/20).

Impact of stroke

Social impact

Most of the respondents reported to have had change in their family relationships, of which most females were affected [Table 1] of which a significant relationship between change in family relationship and gender of the victim was observed ($P < 0.001$). Table 2 shows the association was observed between the period of stroke and the relationships changes ($P < 0.001$). Table 3 shows the different types of changes experienced by those who had some changes in their relationship due to stroke. Female victims experienced more family role changes when compared to their male counterparts, but there was no significant relationship between family role change and gender observed ($P = 0.20$). Of those who experienced family role changes, 63.6% (28/44) of the respondents reduced to dependency. The types of changes in

Table 1: Change in family relationship with gender

Presence of change	Male %	Female %	Total %
Change in relationship	16	52	68
No change in relationship	26	4	32
Total	44	56	100

Table 2: Change in family relationship with period with stroke

Period of stroke	Change in relationships %	No change in relationships %	Total %
Below 3 years	22	26	48
3 years and above	46	6	52
Total	68	32	100

Table 3: Type of family relationship changes

Type of change	Total %
Abandonment	32.4
Apathy	23.5
Neglect	23.5
Other	20.6
Total	100

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marriage ranged from marital problems to neglect and other unspecified problems. No association was observed between change in marital relationship and gender (P = 0.41). Of those who were either divorced or separated, the majority (52%, 13/25), pointed to stroke as a contributing factor.

Economic impact

Of the total stroke victims who were formally or self-employed, only 38.5% (15/39) retained their previous occupational status, of which the most of them were males (60%, 9/15) [Table 4]. However, no association was observed between retention of occupational status and gender (P = 0.32). Most of the respondents had lost salaries and businesses. Table 5 shows that the type of activities affected most following stroke was feeding (43.6%, 17/39), followed by education at 33.3% (13/39). Of the economic adjustments made in households, housing was the most negotiated, followed by School fees and food consumption [Table 6]. The males made more adjustments in feeding, clothing and other unspecified adjustments while the females made more adjustments in school fees and accommodation.

The focus group discussion changes in the stroke victim which affected the households. Following stroke, more victims became resentful, depressed and was difficulty to please. As a result, households became unhappy, with low moods and fear of the condition. More female stroke victims who were married were reported to be neglected because they were not cared for by their husbands who could take leave from work. Most of the caregivers had to forgo other activities to care for stroke victims.

Table 4: Retention of occupational status after stroke

Retained occupational status	Male %	Female %	Total %
Retained	23.1	15.4	38.5
Lost occupation	28.2	33.3	61.5
Total	51.3	48.1	100

Table 5: Type of activities affected

Type of activity affected due to stroke	Total %
Education	33.3
Assistance to family members	18.0
Food	43.6
Other	5.1
Total	100.0

Table 6: Economic adjustments

Economic adjustment made	Male	Female	Total
Reduced food consumption	5	4	9
Reduced school fees	4	6	10
Accommodation	3	8	11
Clothing	3	1	4
Reduce support to family	1	2	3
Other	2	0	2
Total	18	21	39

Discussion

The results show that stroke has an impact on the social relationships and economic status of the victim. This impact on social relationships, as psychological sequelae of stroke in terms of social and emotional facets can lead to depression and anxiety, changes in identity and personality process and this is potential for social isolation on the part of the victim him/herself.[8] This leads to a victim being resentful, depressed and difficulty to please. Stroke, which leads to physical disability itself and can also pose as a threat to relationship ties due to the immobility of the victim and hence lack of socialization.[9] Concerning multidisciplinary management of stroke, there is a need to address the issue of social withdrawal and familial relationships targeted at family to alleviate familial relationship changes.[10]

Stroke victims experience changes in their marital relationships. The co-morbidity, general health status with psychological factors are the determinants of post-stroke sexual dysfunction.[11] Victims with sexual dysfunction may end-up with marriage problems, as sex, which is a very important part of marriage is not assured in such cases. As a result of lack of duties expected in matrimony, from affection to intimacy and when the victim is unable to offer or to be offered, this could bring strains on a marriage. The relationship changes in marriage due to stroke could have led stroke to be a contributing factor to either divorce or separation and most of the victims accused stroke as the cause for their marital breakdown. Due to disability, stroke survivors experienced profound, complex and multi-faceted difficulties in many areas of their spousal relationships, which were distressing to both them and their spouse. This study is further supported by the fact that there is sexual impairment in both the victim and spouse and this calls for multi-dimensional evaluation of stroke patients and provides new challenges for stroke rehabilitation.[12]

Stroke affects the younger population in Africa, when compared to high income countries due to different life expectancies. As a result, its maims the workforce in low income countries and affects productivity and therefore national income.[13] The incomes lost by the affected workforce could help sustain families economically by bringing development to households and the nation at large. Such losses are termed as "health related set back to development".[14] As a result of stroke, the economic change was present in 78% of the respondents in this study; hence the impact is very considerable.

Food and education were most affected and yet these are what are needed for household growth and development as these are the basis for any development, be it at household or national level. In this case, it can be said that the affected families' development has been deterred by stroke.

No study has been done about the socio-economic impact of stroke in Zambia and Sub-Sahara Africa and as a result, the

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cost or economic burden of the disease in terms of its impacts on both directly and indirectly, financially and psychosocially has never been documented.

At the moment, Zambia has no social system to support disadvantaged individuals after stroke. The fact that stroke leads to impairment of all facets of Health Related Quality of Life, particularly domains in the physical sphere (physical, cognitive, psycho-emotional and eco-social domains) renders the victim incapable of execution of various duties and hence the socio-economic impact. These findings are similar to that of Nigeria, where the condition was found to be costly due to large numbers of premature deaths, ongoing disability in many survivors, impact on families and in health delivery.[4]

Implications of the study

The study has shown that stroke has considerable impact on victims and households socially and economically, which can deter the victim's development as well as the household and the nation at large. This implies that if stroke is unchecked, social relations could be affected making the society socially unfit for any kind of progression or development. A socially sick society may be followed by increased depression, family breakdowns resulting in delinquency, reduced family ties.[15] Since a nation is comprised of societies, a socially sick society leads to a socially sick nation. A socially sick nation will be deterred in development because citizens will fail to see reason let alone progression. A condition which affects the productive population puts households at risk of economic setback. The significance of the results of the study is based on the low economic level of the country, which does not afford welfare services for the disabled.

Stroke is a non-communicable disease and hence can be prevented. Prevention can be in schools, workplaces and communities. The highest parameter of prevention is knowledge empowerment through education. Health education can be achievable through the media and information education communications. Management of stroke in Zambia has concentrated more on physical rehabilitation, whilst the social aspect has been left out. The social aspect therefore needs to be included in a multidisciplinary management of stroke because there are multi-dimension effects following stroke. Meanwhile, occupational therapy needs to be promoted in Zambia alongside physiotherapy as its focuses mainly, is on the occupation of the victim and addresses some other social facets as well. With excellent occupational therapy, the economic impact of stroke can be reduced. Community based interventions in the management of stroke could be favorable if the impact of stroke is to be reduced. This is shown by the stroke victims and their households desire to form a support group in Livingstone district.

Conclusion

Stroke has considerable socio-economic impact on households and as a result, stroke victims need support in order to alleviate the impact of stroke on individuals and households. It is common knowledge that stroke affects adult individuals, who are assets to their families as well as the nation. The myth is that, stroke is for the affluent nations but literature review has shown that the burden is increasing in the low and middle income countries like Zambia. The study findings in Livingstone, Zambia show that its impact is considerable and is felt by more than half of its victims. The findings also show that the impact of stroke goes way beyond daily living and extends into the victims' welfare and development. According to this study, social impacts such are depression, neglect, apathy, separation, divorce on the individual part and low moods in households are the sequelae of stroke and hence the impact is considerable. While the economic impacts of stroke have been documented in other countries, developing nations like Zambia are affected differently due to lack of social services. The opportunity cost in this case where food provision, accommodation and education could serious deter the household's development and the nation at large.

Limitation of the study

The study was conducted in Livingstone district with the use of the hospital register as a sampling frame. A future population based study need to be conducted to enhance population representation. Future socio-economic studies to look into the types of stroke and disability scores need to be undertaken, with the caregivers' time spent on caring for stroke victims taken into consideration.

Acknowledgement

The authors would like to thank Ministry of Health, Zambia for sponsoring the study.

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How to cite this article: Mapulanga M, Nzala S, Mweemba C. The socio-economic impact of stroke on households in Livingstone district, Zambia: A cross-sectional study. Ann Med Health Sci Res 2014;4:123-7.

Source of Support: Ministry of Health, Zambia. **Conflict of Interest:** None declared.