Original Article

# Influence of Sociodemographic and Stroke-related Factors on Availability of Social Support among Nigerian Stroke Survivors

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## Abstract

**Background:** Availability of social support has been identified as an important prerequisite for positive outcomes after stroke. There is however, little information on variables that influence the availability of social support after stroke. **Aim:** This study explored the influence of selected sociodemographic and clinical variables on social support of stroke survivors in Nigeria. **Subjects and Methods:** One hundred stroke survivors undergoing rehabilitation at two tertiary-care hospitals in Northern Nigeria participated in the study. Data on age, gender, living arrangement, marital, education and prestroke employment status, and time after stroke were obtained through interview, while poststroke disability was evaluated with the modified Rankin Scale. Social support was assessed with the multidimensional scale of perceived social support (MSPSS). Univariate and multiple linear regression analyses were conducted. A *P* value of less than 0.05 is considered as significant. **Results:** Univariate analysis showed that gender, education, and prestroke employment status were significantly associated with the availability of social support. In a regression model that accounted for 11 % of the variance in social support, prestroke employment was the only variable that independently influenced availability of social support ($\beta = -0.33$, $P < 0.01$) with previously employed stroke survivors having higher MSPSS score (5.28 [0.98]) compared to the unemployed (4.57 [0.82]). **Conclusion:** Employment is a known significant contributor to social network and was also found to influence significantly, the availability of poststroke social support in this study. Further studies are required to identify factors that more substantially influence the availability of social support after stroke.

**Keywords:** Nigeria, Social support, Stroke, Stroke survivors

## Introduction

Individuals who enjoy help from friends, neighbors or family are deemed to be in receipt of social support.[1] Social support can, therefore, be regarded as the information or experience of being cared for, loved, valued, and esteemed by others.[2] In disease, social support has been found to help patients cope with their conditions and adhere to various aspects of treatment.[3,4]

Stroke is one of the most common disease conditions globally.[5] In Nigeria, it is the most frequent cause of neurologic admissions.[6,7] In addition, stroke is the largest cause of complex disability in adults[8] and 50–75% of stroke survivors are reported to experience varying degrees of disability.[9] Participation restriction and impaired quality of life are also prominent features of the stroke sequelae,[10] while a growing body of evidence indicates that suffering a stroke increases the risk of suicide and suicide ideation.[11,12] Given the negative consequences of stroke, several studies have explored factors that modulate stroke outcomes. One of such factors that have been identified is social support.

Social support from family, friends, and community has been shown to provide protection against poor psychosocial and functional outcomes after stroke.[13,14] The mediating role of social support between functional ability and poststroke depression, and poststroke quality of life has also been identified with social support regarded as an intervening variable in stroke outcomes.[15] Furthermore, social support in the form of emotional support may promote cognitive

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resilience[16] and prevent depression[17] after stroke. Enhancing social support could, therefore, serve as an important strategy for reducing or preventing psychiatric distress and warding off poststroke depression and improving the quality of life of stroke survivors.[17,18]

Designing appropriate social support enhancing interventions may require information on factors that influence the availability of the support. This is more so as there is evidence that the provision of social support for stroke survivors will be more effective when such support is tailored to the needs of individuals, rather than being based on prestructured programs.[19] There is however, insufficient information on the influence of specific personal factors on social support after stroke. This study examined the influence of stroke survivors' demographic and stroke-related attributes on the availability of social support. We hypothesized that age, gender, marital, educational, and prestroke employment status, time after stroke and level of disability would significantly influence the amount of social support available to stroke survivors.

## Subjects and Methods

### Study design

This was a cross-sectional study approved by the Research and Ethical Committee of the University of Maiduguri Teaching Hospital, Borno State.

The study involved 100 consecutively recruited stroke survivors receiving physiotherapy at the Physiotherapy clinics of two tertiary care health institutions in two states in Northeastern Nigeria. To participate in the study, stroke survivors were approached prior to or after their physiotherapy sessions and were requested to participate in the study after a detailed explanation of what the study entailed. Those who indicated a willingness to participate in the study provided written informed consent and this constituted one of the inclusion criteria. Other criteria were age above 18 years and first-incidence stroke. Stroke survivors with co-morbidities such as carcinomas, and disabling orthopedic and other neurological disorders were excluded from the study. Recruitment of stroke survivors and data collection was carried out between April and June 2012 by the second author (MM) and two trained research assistants.

### Instruments

Demographic (age, gender, marital, education, prestroke employment status, living arrangement) and clinical (poststroke duration) data were obtained from the stroke survivors and recorded in data forms while level of disability was assessed with the modified Rankin Scale (mRS). The mRS is a valid and reliable interviewer-administered instrument that describes six levels of disability ranging from 0 (no symptoms/disability) to 5 (severe disability) and patients are scored based on their level of disability.[20,21] The scale is one of the most commonly used in assessing global disability after stroke.[21]

The multidimensional scale of perceived social support (MSPSS)[22] was self-administered to assess the stroke survivors' level of perceived social support. The scale consists of 12 items in three subscales namely family, friends, and significant subscales. Each item is scored on a 7-point Likert-type scale ranging from "strongly disagree" to "very strongly agree." The overall scale score was utilized in this study, which was obtained by finding the arithmetic mean of the sum of the scores on all the items. High score indicates the high level of perceived social support. The items on the MSPSS has excellent internal consistency (Cronbach's alpha = 0.84–0.92) and strong test-retest reliability ($r$ = 0.72–0.85).[23] The MPSS has been validated for use in Nigeria.[24]

### Data analyses

Data was analyzed using SPSS version 17.0 (Chicago illinios, USA). Descriptive statistics of mean, standard deviation, frequencies, and percentages were used to summarize data. Factors tested for their influence on the availability of social support were age, gender, living arrangements, educational, marital and prestroke employment and marital status, level of disability, and time after stroke. Univariate analyses using independent $t$-test and one-way analysis of variance were used to assess significant factors while multiple regression analysis ("enter" method) was carried out to identify factor(s) that independently influenced availability of social support. Level of statistical significance was set at $P < 0.05$.

## Results

Stroke survivors in this study had suffered stroke for an average of 18.8 months (22.6 months) prior to their participation in the study, and their mean age was 51.4 (13.5) years (range = 28–85 years). 51% were males with a preponderance (72%) of married individuals. Mean MSPSS scale score of the stroke survivors was 5.07 (0.99) [Table 1].

### Univariate analysis

Table 2 shows the result of the univariate analysis in which gender, education, and prestroke employment were significantly associated with the availability of social support while age, time after stroke, living arrangement, marital status, and level of disability recorded no significant influence.

### Gender

Amount of social support available to stroke survivors was significantly different between males and females. Males had higher mean scores on the MSPSS (5.29 [0.91]) compared to females (4.75 [1.02]).

### Prestroke employment

Stroke survivors in this study were assigned to two prestroke employment categories namely employed and unemployed.

**Table 1: Sociodemographic and stroke-related characteristics of participants (*n*=100)**

| Variable | *n* (%) |
|---|---|
| Age (years) | |
| Mean (SD) | 51.4 (13.5) |
| Range | 28-85 |
| Gender | |
| Male | 59 (59) |
| Female | 41 (41) |
| Living arrangement | |
| Alone | 7 (7) |
| With family/friends | 93 (93) |
| Marital status | |
| Single | 9 (9) |
| Married | 72 (72) |
| Divorced/Widowed | 19 (19) |
| Educational status | |
| Primary | 13 (13) |
| Secondary | 21 (21) |
| Tertiary | 30 (30) |
| Quranic | 31 (31) |
| None | 5 (5) |
| Employment status | |
| Employed | 70 (70) |
| Unemployed | 30 (30) |
| Poststroke duration (months) | |
| Mean (SD) | 18.8 (22.6) |
| Range | 1-108 |
| Level of disability (mRS) | |
| Not significant | 36 (36) |
| Moderate | 43 (43) |
| Moderately severe | 21 (21) |

mRS: Modified Rankin Scale, SD: Standard deviation

Significantly ($P < 0.001$) higher social support was observed among stroke survivors who were in employment prior to their stroke with a mean score of 5.28 (0.98) compared to the 4.57 (0.82) mean score obtained by unemployed stroke survivors.

## Education

Significant difference was observed in the mean social support score based on the stroke survivors' educational status. Stroke survivors with tertiary education had the highest mean score (5.59 [0.91]) while those with not more than primary education had the lowest mean score (4.54 [0.81]). Outcome of *post-hoc* analysis showed that the availability of social support was significantly different between stroke survivors with tertiary education and those with primary education, and secondary education.

## Multivariate analysis

Table 3 shows the result of the multiple linear regression analysis in which prestroke employment status emerged as the only variable that independently influenced the availability of social support ($\beta = -0.33$; $P < 0.01$).

**Table 2: Univariate analyses for factors influencing availability of social support after stroke**

| Variables | MSPSS[a] score Mean (SD) | *t*-test/*F* ratio | *P* |
|---|---|---|---|
| Gender | | | |
| Male | 5.29 (0.9) | 2.76 | 0.01* |
| Female | 4.75 (1.0) | | |
| Age (years) | | | |
| Below 40 | 4.95 (1.3) | 0.22 | 0.81 |
| 40-65 | 5.11 (0.9) | | |
| Above 65 | 5.07 (0.8) | | |
| Living arrangements | | | |
| Alone | 5.06 (1.4) | −0.03 | 0.98 |
| With others | 5.07 (1.0) | | |
| Marital status | | | |
| Married | 5.13 (1.0) | 0.84 | 0.43 |
| Single | 5.02 (1.4) | | |
| Divorced/Widowed | 4.80 (0.8) | | |
| Education | | | |
| None | 5.06 (0.9) | 5.13 | 0.001** |
| Primary | 4.55 (0.8) | | |
| Secondary | 4.57 (1.1) | | |
| Tertiary | 5.59 (0.9) | | |
| Quranic | 5.12 (0.9) | | |
| Employment prestroke | | | |
| Employed | 5.28 (1.0) | 3.50 | 0.001** |
| Unemployed | 4.57 (0.8) | | |
| Level of disability | | | |
| Not significant | 5.04 (1.1) | 0.46 | 0.64 |
| Moderate | 5.16 (1.0) | | |
| Moderately severe | 4.91 (0.9) | | |
| Poststroke duration (months) | | | |
| 1-6 | 5.15 (1.0) | 0.75 | 0.56 |
| 7-12 | 4.93 (0.9) | | |
| 13-24 | 5.05 (1.2) | | |
| 25-36 | 1.46 (0.7) | | |
| Above 36 | 5.38 (0.3) | | |

*Statistically significant at $P<0.05$, **Statistically significant at $P<0.0001$. [a]MSPSS: Multidimensional scale of perceived social support (measure of social support), SD: Standard deviation

**Table 3: Factors influencing availability of social support poststroke**

| Variables | $R^2$ | $\beta$ | *P* |
|---|---|---|---|
| Gender | 0.11 | −0.09 | 0.46 |
| Educational status | | 0.12 | 0.25 |
| Employment status[#] | | −0.33 | 0.001* |

*Statistically significant at $P<0.01$, [#]Prestroke employment status

# Discussion

Development of strategies to enhance social support poststroke would require identification of factors that are significantly associated with the construct. We present the findings of a study that examined factors influencing the availability of social support among Nigerian stroke survivors.

Social support was found to be significantly different between men and women in the univariate analysis with men reporting greater degree of social support. This finding appears somewhat unexpected and at variance with a Chinese study that indicated a higher degree of social support among female stroke survivors.[25] In most cultures including Nigerian, women are considered to be more dependent on support from others compared to men, which may in turn result in their receipt of more social support than men. Although the reason for the lower level of social support available to female stroke survivors in this study cannot be ascertained, it can be deduced from the foregoing that women are likely to value social support to a greater degree and experience more severe consequences when it is unavailable or insufficient.[26] It is however, important to note that gender was a significant factor only in the univariate analysis in this study and did not independently influence the availability of social support to stroke survivors.

Stroke survivors often experience diminished functional abilities and experience stigma and poor body image, all of which may lead to social isolation. This study, however, did not observe a significant difference in social support among stroke survivors with varying degrees of disability. Time after stroke, another stroke-related attribute, showed no significant influence on the availability of social support. It could, therefore, be assumed that these stroke-related characteristics did not influence the amount of social support available to survivors. Similarly, a previous study reported a lack of correlation between stroke severity and social support after stroke.[16]

Prestroke employment status was the only variable that independently influenced social support of the stroke survivors. Employment is an important aspect of life[27] that not only provides a source of livelihood but serves as a source of social ties and a means of social interaction. As social support involves relationships among individuals, it is not surprising that stroke survivors who were employed prior to stroke enjoyed significantly more social support than the unemployed. This finding suggests that the amount of social support and interaction an individual enjoys is not likely to change immediately after stroke. Therefore, stroke survivors' employment activities prior to the stroke event may remain relevant in documenting their social ties and support poststroke.[16] Data from a focus group interview with stroke survivors revealed that co-workers of the stroke survivors remained supportive and "stood by them" after stroke.[28] The potential for obtaining social support through employment was also exemplified in a study involving a group of apparently healthy employees in which only occupational characteristics were significant determinants of the availability of social support.[29] Information on the specific occupation of the stroke survivors in this present study might however, have provided more insight into the impact of employment on the availability of social support after stroke. This study also did not assess return to work and based on our finding of the significance of prestroke employment, the lack of information on poststroke employment status and how it impacts availability of social support can be regarded as a limitation of this study.

It is worthy of note that the regression model in this study was responsible for just 11% of the variance in social support and prestroke employment status was the only significant determinant of social support. On the one hand, this finding may be an indication that demographic and clinical factors have only minimal influence on the availability of social support after stroke in the group studied. In a study of apparently healthy Spanish seniors, a similar finding was reported in which perceived social support was not significantly influenced by sociodemographic variables.[30] On the other hand, however, our finding may imply that several variables that influence the availability of social support after stroke were not assessed. Being a psychosocial variable, social support may perhaps depend on other psychosocial variables such as absence or presence of depression, social participation, and self-efficacy among others. Therefore, there is a need for future studies to investigate other variables that may be more likely to influence the availability of social support in stroke survivors in order to effectively address any deficiency of support especially as social support plays a crucial role in stroke outcomes.[13-17,28]

### Limitations of the study

The small size of the sample of stroke survivors that participated in this study represents a major limitation, which may be responsible for the minimal significant findings. The hospital-based design of the study also constitutes a limitation that may affect the generalizability of findings. It is equally important to note that social support was assessed in this study based on the perception of the stroke survivors notwithstanding the actual availability of support. This should be taken into consideration in interpreting the findings of this study although it is believed that social support is a subjective construct that centers primarily on the recipient's perception and its assessment should be based on perception.[2]

## Conclusion

Social support moderates stroke outcomes with documented evidence on the positive impact of its availability poststroke. It was observed in this study that none of the demographic and stroke-related attributes assessed independently influenced availability of social support rather, being employed prior to stroke was the sole determinant of availability of more social support after stroke. Although more information is still required on factors that influence the availability of social support after stroke, the important role of employment was brought to the fore in this study and this perhaps implies that individuals who were unemployed prior to their stroke would require more social support enhancing efforts and strategies poststroke.

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