



## Original Article

# Caregiving Appraisal by Family Caregivers of Stroke Survivors in Nigeria

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## ABSTRACT

**Introduction:** Attending to caregiving experiences of family caregivers of stroke survivors is important in person-centered stroke rehabilitation. This study explored caregiving appraisals by family caregivers of stroke survivors in Nigeria.

**Methods:** A cross-sectional survey of family caregivers' negative and positive appraisals of caregiving was conducted using the 24-item 4-domain revised Caregiving Appraisal Scale (rCAS). Mann Whitney U and Kruskal-Wallis tests were used to identify differences in caregiving appraisals based on specific caregiver and stroke survivor variables.

**Results:** Seventy-three caregiver and care recipient dyads participated in the study. Mean age of the caregivers was 31.51 (9.82) years. From a score of 5, and higher scores depicting higher appraisal, mean (SD) score for caregiving satisfaction and caregiving mastery (positive appraisal domains) was 4.23 (0.97) and 4.04 (0.92) respectively while 2.29 (0.98) and 2.11 (0.93) were respectively recorded for caregiving burden and environmental impact (negative appraisal). Caregivers' gender, age, and employment status resulted in significantly different appraisals with female caregivers having higher caregiving mastery ( $U = 446$ ,  $P < 0.05$ ), caregiving satisfaction ( $U = 384.5$ ,  $P < 0.01$ ), and also caregiving burden ( $U = 382.5$ ,  $P < 0.01$ ) compared to their male counterparts; while older ( $U = 330$ ;  $P < 0.05$ ) and employed ( $U = 437.5$ ,  $P < 0.05$ ) family caregivers reported higher caregiving satisfaction and burden respectively than younger and unemployed family caregivers.

**Conclusion:** Given the comparatively higher positive caregiving appraisal, and the documented benefits of positive caregiving appraisal, efforts should be geared towards identifying effective means of reinforcing positive appraisal, and reducing negative stroke caregiving appraisal, especially for female, older and employed family caregivers.

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## Introduction

Caregiving appraisal is a construct that describes how caregivers view or perceive the positive and negative aspects of the caregiving experience.<sup>1</sup> It is generally expected that involvement of individuals in a life role such as caregiving will result in, and benefit from appraisals.<sup>2</sup> For example, caregiving appraisal allows caregivers to determine their level of efficiency,<sup>3</sup> and affects a number of outcomes such as caregivers' physical and psychological wellbeing.<sup>4,7</sup> Given the fact that every individual will likely play the role of a caregiver at some point in their lives<sup>8</sup> especially with the rising prevalence of chronic disorders, continuous appraisal of the caregiving experience may constitute a daily reality for many people.

Stroke is a major disabling chronic neurological condition that often renders survivors dependent on family caregivers. After stroke, family caregivers of affected persons take up a lot of responsibilities including provision of social, emotional and instrumental support.<sup>9</sup> While there are reports that such support from caregivers enhances post-stroke functional outcomes<sup>10</sup> and stroke survivors' quality of life,<sup>11,12</sup> understanding how caregiving is perceived by the caregivers is also important. Although there is an arguably global

contribution to information on stroke caregiving topics such as caregivers' burden,<sup>13,14</sup> quality of life,<sup>15,16</sup> physical health,<sup>17,18</sup> and psychological well-being,<sup>19</sup> caregiving appraisal has not enjoyed such a universal attention. In fact, most available data on caregiving appraisals by stroke caregivers have emanated from studies conducted in Asia<sup>6,7</sup> while data is lacking from the African continent. Caregivers' appraisal of caregiving is however associated with individual cultural background,<sup>20,21</sup> hence the need for culture- or country- specific data on caregiving appraisal among family caregivers of stroke survivors.

With the increasing prevalence of stroke in Nigeria as in other African countries<sup>22</sup> and the fact that family caregivers bear a considerable amount of the burden of caregiving, the dearth of information on caregiving appraisal needs to be addressed. Furthermore, given the importance and reality of caregiving appraisal, there is a need for empirical data on the construct especially in terms of the influence of specific caregiver and care recipients' characteristics on caregiving appraisal. Availability of such data will not only provide insight into factors that predict or determine positive or negative appraisals but also enable the identification and provision of appropriate interventions that will engender

positive caregiving appraisal and reduce negative appraisal. This study, which can be regarded as a first, therefore examined caregiving appraisals by a cohort of stroke caregivers in Nigeria. The major objective of the study was to document caregiving appraisal by family caregivers of stroke survivors in Nigeria and the influence of specific caregivers' sociodemographic characteristics, and care recipient-related factors.

## Materials and methods

A cross-sectional survey of a cohort of consecutive family caregivers of community-dwelling stroke survivors was carried out at five physiotherapy facilities in four States in North-East Nigeria. The study was approved by the relevant institution ethics committees. Eligibility criteria were willingness to participate in the study expressed through the completion of informed consent form, and caregivers being aged  $\geq 18$  to  $< 65$  years.

Socio-demographic (age, gender, marital status, educational level, employment status) data of the caregivers as well as information on their relationship with their care recipients, that is the stroke survivors, were obtained and recorded on data forms prepared for that purpose. Information on post-stroke duration was also obtained and recorded while level of care recipients' physical disability was assessed with the Modified Rankin Scale (mRS). The mRS is one of the most commonly used, valid and reliable measure of global disability in stroke studies.<sup>23</sup> The mRS has six categories of global disability which was summarized, in this study, into two groups namely functional independence (mRS score 0-2) and dependence (mRS score 3-5).<sup>24</sup> Also for purposes of inferential statistics, age of the family caregivers was grouped as 19-24 years (young adults) and 25-59 years (older adults) while post-stroke duration was group into 3-6 months (acute/sub-acute phase) and  $\geq 6$  months (chronic phase).

The revised Caregiving Appraisal Scale (rCAS) was used to assess caregiving appraisal.<sup>25</sup> The scale comprises 24 items in four domains namely caregiving mastery (6 items), caregiving satisfaction (6 items), perceived caregiving burden (9 items), and environmental impact (3 items). The mastery and satisfaction domains depict positive appraisal while the perceived burden and environmental impact domains represent negative appraisal. The mastery domain dwells on self-efficacy and confidence in successfully carrying out caregiving activities while the satisfaction domain assesses the presence of positive feelings such as pleasure, affirmation or joy resulting from caregiving. The perceived burden domain deals with emotional distress experienced by caregivers arising from the effect of caregiving on their physical, psychological and social life. The environmental impact domain on its part addresses caregivers' perception of how caregiving affects their privacy, relationship with other family members and social activities.

Items on the rCAS are scored on a 5-point scale of 1 - 'not at all' to 5 - 'a great deal'. Domain scores are obtained by simple summation of the item scores divided

by the number of items in the domain to provide uniformity for domain score irrespective of the number of items in each domain. Hence, domain scores range from 1 to 5 and higher score depicts greater appraisals which implies better satisfaction and mastery for positive appraisals and more burden and environmental impact for negative appraisals. Internal consistency depicted by Cronbach's alpha of 0.87, 0.73, 0.89 and 0.78 have been reported for the domains of caregiving satisfaction, caregiving mastery, caregiving burden and environmental impact respectively.<sup>26</sup> In this study, Cronbach's alpha for caregiving satisfaction, caregiving mastery, caregiving burden and environmental impact was 0.87, 0.76, 0.80 and 0.52 respectively. All data were collected by the second author and two research assistants through face-to-face assessment in 2015.

Descriptive statistics of mean, standard deviation, frequency and percentage were used to summarise the socio-demographic (family caregivers' age, gender, marital status, educational level, employment status and relationship with stroke survivor), stroke-specific (post-stroke duration and level of physical disability) and caregiving appraisal data obtained. Mann Whitney U test was used to compare differences in positive and negative caregivers' appraisals based on caregivers' gender, age, marital status, employment status, post-stroke duration and level of care recipients' physical disability while Kruskal-Wallis test was used for differences in caregiving appraisals based on family caregivers' educational level, and relationship with stroke survivors. Level of statistical significance was set at alpha equals 0.05. All statistical analysis was carried out using SPSS version 15 (SPSS Inc., Chicago, IL USA).

## Results

Seventy-three family caregivers of stroke survivors participated in the study. Mean age was 31.51 (9.82) years and the majority of the caregivers were males (58.9%) (Table 1).

The highest obtainable score for each domain of the revised Caregiver Appraisal Scale is 5 and the highest mean (SD) score 4.23 (0.97) was obtained in the caregiving satisfaction domain followed by the caregiving mastery domain 4.04 (0.92) while lower mean scores were recorded for the negative attitude domains of perceived caregiving burden 2.29 (0.98), and environmental impact 2.11 (0.93).

Statistically significant differences were observed in some of the domain scores of the revised Caregiving Appraisal Score based on family caregivers' gender, age and employment status (Table 2). There were statistically significant differences in the caregiving mastery ( $U = 446$ ;  $P = 0.03$ ), caregiving satisfaction ( $U = 384.5$ ;  $P = 0.003$ ) and perceived burden ( $U = 382.5$ ;  $P = 0.003$ ) domain scores between male and female caregivers with females having higher scores in the three domains (Table 2).

The caregiving satisfaction domain score was also significantly different ( $U = 330$ ;  $P = 0.03$ ) between younger and older family caregivers with older family caregivers 4.36 (0.91) having higher caregiving

satisfaction score than their younger counterparts 3.84 (1.05). For the significant difference based on family caregivers' employment status (U = 437.5; P = 0.02), employed caregivers 2.50 (1.04) had significantly higher perceived caregiving burden score (higher negative appraisal) compared to unemployed family caregivers 1.98 (0.81) while there were no statistically significant differences in the caregiving mastery, caregiving satisfaction and environmental impact domain scores between employed and unemployed caregivers (Table 2). Other caregivers (education, marital status and relationship with stroke survivor) and care recipient (post-stroke duration and level of disability) variables however did not yield any statistically significant difference in all the domains of the revised Caregiver Appraisal Scale (Table 2).

### Discussion

To provide holistic patient- and family-centered stroke rehabilitation, appraisals of the caregiving experience by family caregivers of stroke survivors should be assessed and addressed. Ultimately, the goal should be the provision of effective interventions capable of facilitating positive appraisals and reducing negative appraisals. However identification of such interventions would require data on caregiving appraisals and specific factors

that influence appraisals, hence this present study.

**Table 1.** Characteristics of the family caregivers and stroke survivors (n = 73)

Characteristic	Value N(%)
Caregiver	
Age*(years)	31.51 (9.82)
Gender	
Male	43 (58.9)
Female	30 (41.1)
Formal education	
None	28 (38.4)
Primary/secondary	23 (31.5)
Tertiary	22 (30.1)
Employment status	
Employed	29 (39.7)
Unemployed	44 (60.3)
Marital status	
Married	40 (54.8)
Single	33 (45.2)
Relationship with stroke survivor	
Spouse	14 (19.2)
Offspring	53 (72.6)
Sibling	6 (8.2)
Stroke survivor	
Post stroke duration* (months)	20.73 (26.22)
Level of disability (modified ranking scale)	
Independent	29 (39.7)
Dependent	44 (60.3)

\*Mean (SD)

**Table 2.** Associations between caregiver and care recipient factors and caregiving appraisals

Factor	Mastery	Satisfaction Mean (SD)	Burden	Environmental impact
CG gender	446*	384.5**	382.5**	614
Male	3.86 (0.99)	3.96(1.07)	2.02(0.87)	2.11 (0.84)
Female	4.29(0.76)	4.60(0.65)	2.68(1.01)	2.12 (1.07)
CG age group (years)	489	330*	378	488
19-24	3.94(1.12)	3.84(1.05)	2.00(0.86)	2.08(1.02)
25-59	4.07(0.85)	4.36(0.91)	2.39(1.01)	2.12(0.91)
CG marital status	626	565.5	512	591.5
Married	4.14(0.76)	4.36(0.90)	2.43(0.97)	2.18(0.92)
Single	3.91(1.09)	4.06(1.03)	2.13(0.99)	2.02(0.96)
CG employment status	555.5	636.5	437.5*	609.5
Employed	4.09(0.94)	4.18(1.05)	2.50(1.04)	2.09(0.77)
Unemployed	3.95(0.91)	4.29(0.83)	1.98(0.81)	2.15(1.15)
CG education	13.10	2.07	2.54	3.04
None	4.31(0.76)	4.44(0.70)	2.53(1.12)	1.90(0.89)
Primary/secondary	4.21(0.86)	4.16(1.06)	2.34(1.03)	2.29(0.99)
Tertiary	3.51(0.99)	4.02(1.12)	1.94(0.61)	2.19(0.91)
CG-care recipient relationship	1.66	3.94	2.47	0.06
Spouse	4.28(0.51)	4.58(0.75)	2.64(0.98)	2.28(1.29)
Offspring	4.00(1.02)	4.11(1.02)	2.23(1.02)	2.07(0.85)
Sibling	3.77(0.74)	4.15(0.64)	2.02(0.30)	2.12(0.74)
Post-stroke duration (months)	520	530.5	448	545.5
3-6	3.87(1.15)	4.12(1.07)	2.14(1.10)	2.11(1.04)
≥6	4.11(0.81)	4.27(0.93)	2.36(0.93)	2.11(0.90)
Level of disability (MRS)	554	518.5	564	613.5
Dependent	3.96(0.95)	4.34(0.94)	2.37(0.98)	2.05(0.82)
Independent	4.16(0.88)	4.06(1.00)	2.18(0.99)	2.20(1.09)

Values in bold represent the statistic: Kruskal-Wallis for caregiver education and caregiver-care recipient relationship and Mann-Whitney U for other factors. \*statistically significant at P<0.05; \*\*statistically significant at P<0.01. CG: Caregiver. MRS: Modified Rankin Scale

### Positive and negative caregiving appraisals by the family caregivers of stroke survivors

Generally, the caregivers in the study had better positive caregiving appraisals represented by higher caregiving

mastery and caregiving satisfaction scores compared to negative appraisals depicted by lower scores in the perceived caregiving burden, and environmental impact domains. These findings are encouraging as they suggest

that the family caregivers' appraisal of stroke caregiving was more positive than negative. For the positive appraisals, it can be expected that family caregivers that are satisfied and confident about caregiving will be more willing and enthusiastic to carry out caregiving activities notwithstanding the demands or amount of caregiving required. A previous study on caregivers of persons with advanced cancer in Nigeria found a statistically significant relationship between perceived benefit of caregiving and the desire to remain a caregiver.<sup>27</sup>

Furthermore, having mastery in, and deriving satisfaction from activities and roles generally promote wellbeing,<sup>28,29</sup> and caregiving mastery and satisfaction are no exception.<sup>19,30</sup> Similarly, positive caregiving appraisals may likely serve as coping strategies in the face of negative caregiving experiences, and may also mitigate negative appraisals<sup>30</sup> and improve vitality in caregivers.<sup>31</sup> Hence, the beneficial deliverables of positive caregiving appraisal should serve as sufficient impetus for the design and provision of strategies capable of maximizing positive appraisal. While well designed intervention studies will assist in identifying such strategies, insight into the influence of specific caregiver and care recipient variables on caregiving appraisals would also be required.

#### **Factors associated with positive and negative caregiving appraisals**

Family caregivers' age, gender, and employment status were found to be significantly associated with caregiving appraisals in this study. While being a female caregiver was significantly associated with higher caregiving mastery, caregiving satisfaction and caregiving burden appraisals, older family caregivers derived more satisfaction from caregiving compared to their younger counterparts while employed caregivers highly appraised caregiving as burdensome compared to unemployed caregivers. The implication of these statistically significant findings is that only female caregivers had a combination of positive and negative appraisals, caregivers' age was associated with positive appraisal, while caregivers' employment status was only associated with negative appraisal. The observation regarding the female family caregivers exemplifies the coexistence of positive and negative appraisals for the same role. The fact that female caregivers often take up most of caregiving responsibilities makes it unsurprising that they concurrently experience both the upside and downside of caregiving. Regarded as attitudinal ambivalence, the coexistence of both positive and negative appraisals for the same role lends credence to calls for equal emphasis on the assessment of negative and positive impact of caregiving rather than the existing skewed focus on the negative effects of caregiving. The coexistence of positive and negative impacts of caregiving has also been reported among caregivers of the elderly.<sup>30,32</sup>

#### **Negative caregiving appraisal among employed and female family caregivers of stroke survivors**

The significantly higher appraisal of caregiving burden among female, and employed family caregivers is an

indication that these categories of family caregivers will require and benefit from interventions capable of minimizing negative caregiving appraisals. For instance, the demands of a job as well as that of stroke caregiving could be responsible for the higher self-appraised burden among employed family caregivers, hence effective interventions for this category of stroke caregivers would have to be individualized and tailored to the unique features and descriptions of the caregivers' jobs.

Similarly, female caregivers are likely to combine involvement in other caregiving activities, household chores, and individual career demands with stroke caregiving and these factors will result in the appraisal of stroke caregiving as burdensome. Hence, rehabilitation professionals would need to be responsive to the peculiar experiences and situation of female family caregivers of stroke survivors and devise strategies that would effectively address negative aspects of stroke caregiving.

Also, well-designed studies that would identify specific interventions capable of effectively reducing negative caregiving appraisals among female and employed family caregivers of stroke survivors will be required.

It is important to note that some of the previous studies that solely assessed stroke caregivers burden reported diverse findings such as significantly higher burden among female,<sup>14,31,33</sup> younger,<sup>31</sup> and unemployed<sup>33</sup> caregivers although a systematic review of literature reported that stroke caregivers' age and gender are generally not associated with caregiver burden.<sup>13</sup> There are however only a few studies on stroke caregiving appraisals,<sup>5,34</sup> with scanty information on associations between caregiver and care recipient variables, and caregiving appraisals among stroke caregivers. Factors such as caregiver-care recipient relationship, age, hours of caregiving and residence in either urban or rural setting were reported to influence caregiving appraisal in a study of Korean stroke caregivers.<sup>34</sup> One study on caregivers of patients with traumatic brain injury however showed that severity of the injury (a variable that is seldom associated with caregivers outcomes in stroke studies), among other factors such as social support and coping strategies, influenced caregiving appraisal.<sup>35</sup>

Future studies on the influence of other factors, such as availability of social support, health profile of caregivers and hours/time spent in caregiving, on family caregivers' appraisals of stroke caregiving may provide additional insight into the subject matter especially as such factors were not addressed in the present study. Also, identification of effective culturally appropriate interventions through intervention studies and trials would assist to effectively reduce negative appraisals and enhance positive ones. Such studies would be particularly beneficial given the dearth of information on effective interventions for enhancing caregiving appraisal among stroke caregivers.

Social desirability bias especially the desire to appear altruistic could have affected the family caregivers' responses to the items on the revised Caregiving



Appraisal Scale. However, appraisals could only be obtained by self-report and there was no means of verifying the responses. The non-probability sampling technique and hospital setting used for the recruitment of participants also constitutes a limitation that reduces the external validity of the study findings. Therefore, community-based studies of randomly recruited family caregivers of stroke survivors should be conducted for a more generalizable data on, and insight into stroke caregiving appraisals.

## Conclusion

The outcome of this study showed higher appraisals for caregiving mastery and caregiving satisfaction compared to caregiving burden and caregiving environmental impact among family caregivers of stroke survivors.

Female, and employed family caregivers significantly appraised caregiving as burdensome and may require and benefit from interventions that address negative caregiving appraisals while strategies capable of reinforcing positive appraisals would also be beneficial especially for female, and older family caregivers.

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## Ethical issues

None to be declared.

## Conflict of interest

The authors declare no conflict of interest in this study.

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