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Influence of Health Education Programme on Community Re-Integration Among Stroke Survivors

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Abstract

Stroke has been described as a "Brain Attack" based on its recognition as a medical emergency that demands urgent attention, comparable to that of a heart attack. It is a disease condition with enormous challenges, with serious impact on survivor's quality of life. This is so because stroke can affect virtually all human functions with a sudden onset of decline in community integration that leaves the individual and the family members' ill prepared to deal with the impairments. The objective of this study was to establish the influence of 8-week of Health Education Programme (HEP) on community re-integration of stroke survivors. The findings of this study would help health professionals/workers to take health education into consideration in the management of patients with stroke thereby enhancing clinical outcome. This study was a quasi-experimental design. A total of 36 stroke survivors participated in the study. Community integration of the participants was measured using Community Integration Measure (CIM) prior to and following 8-week HEP. Data generated were analyzed using inferential statistics of one way analysis of variance (ANOVA) and the statistical significance was accepted for p value of <0.05. The findings of the study showed that HEP had significant influence on community integration of stroke survivors. It was concluded that HEP can substantially enhance community integration of stroke survivors. Therefore, health education should be considered a key element in the management of stroke survivors.

Keywords

Health, Education, Society and Stroke

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1. Introduction

Despite the progress made in the past to avert or diminish the occurrence of stroke, the incidence is still on the increase in recent times. This may be due to poor awareness of stroke risk factors\warning signs and poor health care facility in the background of an unstable/recessed economic, as treatment can linger for years. Yet, it can be significantly reduced, with millions of lives saved and untold sufferings avoided, through early detection/reduction in its risk factors and timely intervention. Stroke also known as cerebrovascular accident was described by [7] as a "Brain Attack" based on its recognition as a medical emergency that demands urgent attention, comparable to that of a heart attack. It is a disease condition with enormous challenges, with serious impact on survivor's quality of life. This is so because stroke can affect virtually all human functions with a sudden onset of decline in community integration that leaves the individual and the family members' ill prepared to deal with the impairments. Similarly, stroke was defined by [6] as a rapidly developing loss of brain function(s) due to disturbance in the blood supply to the brain. It could be due to ischaemia, which is lack of blood flow, caused by blockage (thrombosis or arterial embolism) or haemorrhage, which is leakage of blood

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into the brain. In fact, its physical manifestation is paresis or paralysis (partial or complete weakness) of the muscles of the limbs of the contralateral side, otherwise known as hemiparetic or hemiplegic side. It is imperative to note that patients afflicted with stroke are often faced with a lot of challenges which [6] reported to include reduced community integration and functional capacity, motor activity intolerance, muscle atrophy, partial paralysis, residual gait deviation, anxiety, job/economic stress and for some, an overwhelming sense of uncertainty. These can be dependent on some clinical characteristics/ anthropometric variables like age, gender, weight, height, stroke type, severity of neurological involvement and the like.

A major component of stroke management is aimed at facilitating community re-integration. Community re-integration is one of the most important elements of stroke rehabilitation and the most underestimated [10]. Community reintegration was defined by [5] as a way of re-establishing to a degree possible, previously existing roles and relationships, creating alternative ones and assisting people in re-establishing the pre-stroke roles and relationships. These previously existing roles includes the ability of the stroke patient to speak, bath, walk, visit places outside the home, get around, do things and pursue leisure activities. Moreover, in the study of [10], it was observed that of the 64 stroke patients recruited in the clinics of four selected hospitals in the southwest of Nigeria, none of them was fully satisfied with their level of re-integration into the community. Thus, the re-integration into community life marks the end point of stroke patient rehabilitation. Although, stroke rehabilitation starts in the hospital, it continues after the individual has returned to the community. Furthermore, stroke survivors often experience restrictions in community activities and this is why many of them express low level of satisfaction with community re-integration after their discharge from the hospital and return to community living [12]. Their ability to speak, visit places outside the home, get around, do things/pursue leisure activities, their usefulness to others, stress, absence of job, lack of independence/control of their own life and sex life are some of the factors that militate against their satisfactory re-integration into the community [14]. According to [2], in their study of 45 patients with stroke carried out in the United States of America (USA) found out that stroke survivors that had been discharged from the hospital for more than 6 months showed a lower degree of satisfaction with community re-integration when compared with those who were discharged more recently. This reveals that there is a possible progressive decline in community re-integration over time. Likewise, [8] examined community re-integration and their contributing factors in stroke patients and reported that home and social integration and productive activity were significantly decreased in stroke patients when compared to the control group; 8.5 and 18.3 points in total Community Integration Questionnaire (CIQ) score, respectively. The amount of time spent outside the home and frequency of social contact were also significantly reduced. Therefore, the unsatisfactory levels of participation in community activities reported by many stroke survivors is thus an indication that community re-integration should be a key treatment outcome in stroke patient. This study evaluated if Health Education Programme (HEP) (channeled at managing barriers to community re-integration) as an intervention for stroke survivors could be of enormous benefit in re-integrating them into the society.

Research questions

The following questions were raised to guide the study:

i. Would HEP influence stroke survivors' re-integration into the community?
ii. Would HEP have any influence on home integration of stroke survivors?
iii. Would HEP have any influence on social integration of stroke survivors?
iv. Would HEP influence stroke survivors' integration into productive activities?

Research hypotheses

The following hypotheses were formulated and tested at 0.05 significant level.

i. There is no significant influence of HEP on community re-integration of stroke survivors.
ii. There is no significant influence of HEP on home integration of stroke survivors.
iii. There is no significant influence of HEP on social integration of stroke survivors.
iv. There is no significant influence of HEP on integration into productive activities of stroke survivors.

2. Method

Research design

This study was a quasi experimental design concerning the influence of health education on community re-integration among stroke survivors.

Population

The population of this study included fifty four (54) stroke patients between the biological ages of 52 and 78 years who were not having communication deficits and cognitive impairment receiving treatments at Aweni Stroke

Rehabilitation Centre, Shaki, Oyo State, Nigeria, within the period of August, 2016 to August, 2017.

Sample size and sampling technique

A total of thirty six (36) patients with stroke in the above mentioned hospital participated in this study. They were recruited using the simple random sampling technique. Balloting without replacement was used to select two-third (2/3) of the population for the study. The names of the patients were written on pieces of paper and these pieces of paper were put in a bag from where one piece of the paper was picked at a time and the name on the piece of paper picked was recorded. This process was repeated until the desired sample size was obtained. Thereafter, the recorded names were serialized and systematically assigned randomly into two (2) groups (experimental and the control groups). Eighteen (18) participants were assigned to experimental group and the other eighteen (18) to the control group using the same process. The first name in the list was assigned to experimental group and the second name to the control group, the procedure was continued till the last name in the list was assigned.

2.1. Data Collection Instruments

The instruments for data collection that were utilized in this study were HEP and the Community Integration Measure (CIM). They were used to assess the community integration of the stroke survivors. The CIM which is an adaptation of [18] protocol was designed to quantify an individual's integration into home and family life, social activity, and productive activity. The CIM is a 15-item questionnaire, which is a simple and reliable tool for assessing integration levels at home and in the community. It consists of three main domains, involving home integration (i.e., market, meal preparation, household activities, finance), social integration (i.e., shopping, avocation, going out), and productive activity (i.e., work, school, volunteer activity). Most items in each domain were scored in a scale of 0 to 2 with 2 representing greater independence and integration. The home integration was scored in a scale of 0 to 2 with 10 as the highest score; the social integration was scored in a scale of 0 to 2 with 12 as the highest score however, the first item (item 12) in the integration into productive activities was scored in a scale of 0 to 2 while the other three items (items 13 to 15) in the domain which is called jobschool variable was scored together in a scale of 0 to 5 (i.e. The productivity score = item 12 score + Jobschool variable) with 7 as the highest score. A total or overall score of community integration was also calculated, with a possible range of 0 to 29 points (The total CIQ score = Home integration score + social integration score + productivity score). A higher score indicates a higher level of community integration.

Validity and reliability of data collection instruments

Health Education Programme (HEP)

The HEP was validated by three different professionals viz, health educator, psychologist and sociologist. Equally, a pilot study was conducted to establish the suitability of using the instrument for stroke survivors to which eight (8) stroke patients, four (4) were for the experimental group while the other four (4) were for the control group. The split-half method of reliability was used in obtaining the data that were subjected to Pearson Product Coefficient of Correlation. A Coefficient of 0.76 was obtained and it was considered a high reliability and therefore justified the suitability and relevance of using the instrument and protocol for the study.

Community Integration Measure (CIM)

The CIM has been generically validated for use among patients with brain injuries. However, the instrument was certified by exercise physiologists, health educators and sociologists who were experts in their respective disciplines as appropriate for use among stroke survivors, and its reliability was calculated to be 0.81 to 0.85 (r = 0.81-0.85) using Cronbatch Alpha statistics.

2.2. Method of Data Collection

An approval letter from the Ethical Committee of Aweni Stroke Rehabilitation Centre, Shaki, Oyo State was obtained for permission to conduct this study. All the participants were then recruited consecutively through their hospital files at Aweni Stroke Rehabilitation Centre, Shaki, Oyo State. Also, an informed consent form was issued to each of the participants who signed it before participating in this study. Then the objectives and intricacies of the study were explained to them. Then, the CIM was administered to both groups (experimental and control groups) to measure their community integration prior to an 8-week HEP. After the 8th week of the HEP (intervention), a post intervention measure was taken from each of the participants.

Furthermore, for experimental group, in addition to their usual rehabilitation programme, they were given 8 weeks of HEP of a frequency of 3 times per week (Monday, Wednesday, and Friday) with each session lasting for 30 minutes. Here, group discussion method of education was adopted in accordance with [1] recommendation. In this method, participants got together to exchange information, feelings, and opinions with one another and with health care professional focusing on the three domains of community integration involving home integration, social integration and integration into productive activities. Each participant was exposed to all the three domains starting from home integration on Mondays, social integration on Wednesdays and integration into productive activities on Fridays. The

audience size fell within the range of 6 to 12 people from homogenous background in terms of age, sex, educational level, occupational background (to avoid dominant participant who dominates the discussion or passive participant who never contributed any information). Moreover, the CIM was administered through personal contact at the project site late in the morning to each participant and the questionnaire was completed within few minutes. The completed copies of the questionnaire were retrieved immediately at the site of the project to avoid misplacement. All questions were scored on a scale from 0 to 29; with 29 representing the highest level of community integration. The scores from those questions that addressed each specific area of community integration were then averaged and added to get the mean of means for a final score within each of the three (3) domains measured. It is the outcome of the three domains perceived as mean of means that actually depicted the community integration.

2.3. Method of Data Analysis

An inferential statistics of one-way analysis of variance (ANOVA) was used to test the hypotheses. Then, when there was significant result, Turkey's honesty significant difference post-hoc test was used to identify the source of the difference between the groups. Statistical significance was accepted for p value of <0.05. All the analyses were performed using the Statistical Package for the Social Sciences (SPSS) version 22.0.

3. Results

The results are presented in Tables 1 - 8.

Table 1. Analysis of Variance (ANOVA) Showing Difference in the Community Re-integration of the Participants.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	329.708	3	109.903	10.948	.000
Within Groups	682.611	68	10.038		
Total	1012.319	71			

Df-degree of freedom, F-test is a ratio of sample variance, Sig.-the two-tailed p-value associated with the null that the groups have the same variance.

The one-way analysis of variance (ANOVA) conducted to determine the significance of the difference in the community re-integration prior to and following an 8-week health education information is presented in Table 1. The F-value of 10.948 with 3 and 71 degree of freedom was observed to be statistically significant at 0.05 ($p<0.05$). Thus, the hypothesis which stated that there was no significant difference in the community re-integration of stroke patients prior to and following 8-week of HEP was rejected. This implies that the health education information had substantial influence on the community re-integration of the participants. However, this difference necessitated the conduct of post-hoc test to identify where the difference lies as presented in Table 2.

Table 2. Turkey's Honesty Significant Difference Post Hoc Test Showing Difference in the Community Re-integration of the Participants.

(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig.
	Pre-control	-.11111	1.05611	1.000
Pre-exp	Post-exp	-5.16667*	1.05611	.000
	Post-control	-.66667	1.05611	.922
	Pre-exp	.11111	1.05611	1.000
Pre-control	Post-exp	-5.05556*	1.05611	.000
	Post-control	-.55556	1.05611	.953
	Pre-exp	5.16667*	1.05611	.000
Post-exp	Pre-control	5.05556*	1.05611	.000
	Post-control	4.50000*	1.05611	.000
	Pre-exp	.66667	1.05611	.922
Post-control	Pre-control	.55556	1.05611	.953
	Post-exp	-4.50000*	1.05611	.000

From Table 2, Turkey's honesty significant difference test was conducted to determine the difference in variation in the community re-integration of the participants. Statistically significant differences were found in all the pair wise of mean difference except pre-exp versus pre-control (-.11111), pre-exp versus post control (-.66667), pre-control versus pre-exp (.11111), pre-control versus post-control (-.55556), post-control versus pre-exp (.66667) and post-control versus pre-control (.55556). This indicates that the entire pair wise mean had variable influence and thus, the health education influenced the variation in the community re-integration of the participants.

Table 3. Analysis of Variance (ANOVA) Showing Difference in the Home Integration of the Participants.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	39.889	3	13.296	11.011	.000
Within Groups	82.111	68	1.208		
Total	122.000	71			

Df-degree of freedom, F-test is a ratio of sample variance, Sig.-the two-tailed p-value associated with the null that the groups have the same variance.

The one-way analysis of variance (ANOVA) conducted to determine the significance of the difference in the home integration prior to and following an 8-week HEP is presented in Table 3. The F-value of 11.011 with 3 and 71 degree of freedom was observed to be statistically significant at 0.05 ($p<0.05$). Thus, the hypothesis which stated that there was no significant difference in the home integration of stroke patients prior to and following 8-week health education information was rejected. This implies that the health education information had substantial influence on the home integration of the participants. However, this difference necessitated probing into the post-hoc test to identify the source of the significance as presented in Table 4.

Table 4. Turkey's Honesty Significant Difference Post Hoc Test Showing Difference in the Home Integration of the Participants.

(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig.
	Pre-control	.11111	.36629	.990
Pre-exp	Post-exp	-1.72222*	.36629	.000
	Post-control	-.16667	.36629	.968
	Pre-exp	-.11111	.36629	.990
Pre-control	Post-exp	-1.83333*	.36629	.000
	Post-control	-.27778	.36629	.873
	Pre-exp	1.72222*	.36629	.000
Post-exp	Pre-control	1.83333*	.36629	.000
	Post-control	1.55556*	.36629	.000
	Pre-exp	.16667	.36629	.968
Post-control	Pre-control	.27778	.36629	.873
	Post-exp	-1.55556*	.36629	.000

From the Table 4, Turkey's honesty significant difference test was conducted to determine the difference in variation in the home integration of the participants. Statistically significant differences were found in all the pair wise of mean difference except pre-exp versus pre-control (.11111), pre-exp versus post control (-.16667), pre-control versus pre-exp (-.11111), pre-control versus post-control (-.27778), post-control versus pre-exp (.16667) and post-control versus pre-control (.27778). This indicates that the entire pair wise mean had variable influence and thus, the health education influenced the variation in the home integration of the participants.

Table 5. Analysis of Variance (ANOVA) Showing Difference in the Social Integration of the Participants.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	53.375	3	17.792	17.464	.000
Within Groups	69.278	68	1.019		
Total	122.653	71			

Df-degree of freedom, F-test is a ratio of sample variance, Sig.-the two-tailed p-value associated with the null that the groups have the same variance.

The one-way analysis of variance (ANOVA) conducted to determine the significance of the difference in the social integration prior to and following 8-week of HEP is presented in Table 5. The F-value of 17.464 with 3 and 71 degree of freedom was observed to be statistically significant at 0.05 ($p<0.05$). Thus, the hypothesis which stated that there was no significant difference in the social integration of stroke patients prior to and following an 8-week HEP was rejected. This implies that the HEP had substantial influence on the social integration of the participants. However, this difference necessitated the conduct of post-hoc test to identify where the difference lies as reflected in Table 6.

Table 6. Turkey's Honesty Significant Difference Post Hoc Test Showing Difference in the Social Integration of the Participants.

(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig.
	Pre-control	.33333	.33645	.755
Pre-exp	Post-exp	-1.88889*	.33645	.000
	Post-control	-.16667	.33645	.960
	Pre-exp	-.33333	.33645	.755
Pre-control	Post-exp	-2.22222*	.33645	.000
	Post-control	-.50000	.33645	.451
	Pre-exp	1.88889*	.33645	.000
Post-exp	Pre-control	2.22222*	.33645	.000
	Post-control	1.72222*	.33645	.000
	Pre-exp	.16667	.33645	.960
Post-control	Pre-control	.50000	.33645	.451
	Post-exp	-1.72222*	.33645	.000

From Table 6, Turkey's honesty significant difference test was conducted to determine the difference in variation in the social integration of the participants. Statistically significant differences were found in all the pair wise of mean difference except pre-exp versus pre-control (.33333), pre-exp versus post control (-.16667), pre-control versus pre-exp (-.33333), pre-control versus post-control (-.50000), post-control versus pre-exp (.16667) and post-control versus pre-control (.50000). This indicates that the entire pair wise mean had variable influence and thus, the health education influenced the variation in the social integration of the participants.

Table 7. Analysis of Variance (ANOVA) Showing Difference in the Integration into Productive Activities of the Participants.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5.944	3	1.981	3.406	.022
Within Groups	39.556	68	.582		
Total	45.500	71			

Df-degree of freedom, F-test is a ratio of sample variance, Sig.-the two-tailed p-value associated with the null that the groups have the same variance.

The one-way analysis of variance (ANOVA) conducted to determine the significance of the difference in the integration into productive activities prior to and following an 8-week HEP is presented in Table 7. The F-value of 11.011 with 3 and 71 degree of freedom was observed to be statistically significant at 0.05 ($p<0.05$). Thus, the hypothesis which stated that there was no significant difference in the integration of stroke survivors into productive activities prior to and following an 8-week HEP was rejected. This implies that the health education information had substantial influence on the integration of the participants into productive activities. However, this difference necessitated probing into the post-hoc test to identify the source of the significance as reflected in Table 8.

Table 8. Turkey's Honesty Significant Difference Post Hoc Test Showing Difference in the Integration into Productive Activities of the Participants.

(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig.
	Pre-control	.22222	.25423	.818
Pre-exp	Post-exp	-.55556	.25423	.138
	Post-control	.00000	.25423	1.000
	Pre-exp	-.22222	.25423	.818
Pre-control	Post-exp	-.77778*	.25423	.016
	Post-control	-.22222	.25423	.818
	Pre-exp	.55556	.25423	.138
Post-exp	Pre-control	.77778*	.25423	.016
	Post-control	.55556	.25423	.138
	Pre-exp	.00000	.25423	1.000
Post-control	Pre-control	.22222	.25423	.818
	Post-exp	-.55556	.25423	.138

From Table 8, Turkey's honesty significant difference test was conducted to determine the difference in variation in the integration of the participants into productive activities. Statistically insignificant differences were found in all the

pair wise of mean difference except pre-control versus post-exp (-.77778) and post-exp versus pre-control (.77778). This indicates that the entire pair wise mean had variable influence and thus, the health education influenced the variation in the integration of the participants into productive activities. In effect, the HEP was less effective in enhancing productive activities compared to the other two domains.

4. Discussion

This study showed that the HEP administered to the stroke survivors had substantial influence on the participants' community re-integration. Previous studies have reported similar findings that health education had marked influence on community re-integration in individuals with stroke [11, 16, 4, 13, 9]. However, the significant improvement in community re-integration observed in this study can be viewed in two different perspectives. Firstly, quality patient health education leads to fewer unnecessary hospital visits, greater satisfaction among patients and better re-integration outcomes as it is geared towards increasing participation in decision making and in continuing care, increasing potential to follow agreed-upon treatment regimen, maximizing patient and family stroke care skills, improving patient and family coping skills, and promoting a healthy life style. This is because health education among stroke survivors covered by health care professionals includes depression and distress, cognitive difficulties, continence mobility and movement, communication, and everyday care activities. Secondly, education promotes awareness of the many possibilities provided to the patient through re-integration for quality in activities of daily living after possible physical or cognitive impairment in the home and within the community. Ordinarily, stroke survivors find it difficult to integrate in the home and family life, adjust socially and perform their roles in the productive activities. It is the need to effect beneficial coping strategies that health education was introduced to them to help cause some behavioural changes in them that will bring about the desired adjustments.

Stroke patients have tremendous needs and concerns that the medical field is only beginning to fully understand. Despite being in the top of the lists for causes of death, stroke and its lifelong repercussions for survivors are little understood as the misconceptions that arise from the misunderstanding concerning stroke care seem to be universal [9]. [15] found out that 59% of stroke patients had inadequate to marginal health literacy. Furthermore, in Nigeria, there is poor awareness of stroke warning signs among Nigerians [17]. Health education could therefore be used to address emotional and psychosocial barriers to community reintegration as a patient may be physically and psychologically overwhelmed by the life-changing event of suffering through a stroke and go through phases of denial and fatigue or be busy with the rigors of the treatment programme while in hospital [11]. The high mortality rate and long-term disability associated with stroke could be reduced with an effective and thorough rehabilitative process through patient education early on after the onset of stroke. Stroke patient health education covered by health care professionals include: mobility and movement, communication, everyday care activities like dressing, washing, meal preparation, depression and distress, swallowing, nutrition, cognitive difficulties, continence, relationships and coitus [3]. Nevertheless, there is no precise teaching method used in providing health education for stroke patients, as whatsoever method to be used must be combined with other instructional approaches for it to be effective in enhancing the learning process. Factors such as stroke survivor's age, educational background, culture, preferred learning style, setting for teaching, audience size must be considered when choosing which methods to use for communicating with stroke survivors.

5. Conclusion

It has been found out that health education is a variable tool for re-integrating stroke survivors into the family/home, society and productive activities. Therefore, those working on stroke survivors should fashion in health education as one of the referral strategies in stroke rehabilitation engagement in order to fast-track the survivors' re-integration opportunities.

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