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Research Article

Evaluation of training program on knowledge of stroke among anganwadi workers in Chintamani taluk of Karnataka state, India

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ABSTRACT

Background: Established population based disease registry provides data on incidence, risk factors, determinants and trends of the disease. Population based rural stroke registry was started on a pilot basis with an objective to evaluate the feasibility of establishing population-based stroke registry in Chintamani taluk of Karnataka state, India. Training of health care personnel was undertaken to facilitate reporting of case. The objective of the present communication is to evaluate the training conducted for anganwadi workers by trained investigators in 2012.
Methods: Training was conducted using a validated training manual. Among the existing 438 anganwadi workers in the taluk, 405 (92.4%) attended the training. Pre and post-test questionnaire was administered before and after the training session to assess the improvement in the knowledge of stroke.
Results: Only 362 (89.38%) with both pre and post-test answered were included for analysis. Overall there was statistical significant improvement in knowledge of anganwadi workers on symptoms, risk factors and prevention of stroke. Regarding Knowledge on symptoms of Stroke, 85 (95.5%) who scored poor, 81 (98.8%) who scored average in pre-test improved to good in post test. It was observed that 94 (100%) and 120 (94.4%) of the workers who scored poor regarding knowledge on prevention and risk factors of stroke respectively improved to good in the post-test.
Conclusions: This endeavor substantiates the fact that anganwadi workers can be trained to identify suspects.

Keywords: Anganwadi workers, Knowledge, Stroke

INTRODUCTION

Non communicable diseases (NCDs) are on rise globally and India is no exception accounting for more than 43% of disability adjusted life years (DALY). Among the NCDs, cardiovascular diseases, diabetes and cancer alone account for 40% of NCD related DALYs in India.[1] Due to increase in ageing population in the country, the incidence of non-communicable diseases and stroke is likely to increase in the coming decades. It is observed that even the rural population also experiences burden of non communicable diseases and the prevalence of risk factors for NCDs is on the rise.

Disease registries have been source of information about various aspects of the disease in particular about incidence of the disease. They help in planning of health care delivery, resources and understand the

epidemiological patterns of the disease. The registry also reveals the costs and outcome of the disease, modalities of treatment that can be used and the efficacy of the same.

Lack of data on stroke from our country hampers efficient coordination of Stroke prevention, treatment, and rehabilitation. There have been very few and fragmented efforts in the country in estimating the incidence of stroke. The registries which have been in vogue are mostly hospital based and very few in rural area.

In one of the community based study conducted on prevalence of neurological disorders in rural and urban population, cerebrovascular disorders were the fourth common neurological disorder found in the study.[2] Prevalence rates of stroke in some of the major studies in India in the rural areas is as follows: Kuthar valley Kashmir -1.43; Ballabgarh, Haryana -0.88; East Malda, West Bengal- 1.26 and Baruipur, West Bengal - 1.47 per thousand respectively. The studies conducted in South Vellore, Gowribidanur and Bangalore rural reported prevalence rates of 0.57, 0.52 and 1.65 per 1000 respectively. These studies were conducted in years starting from 1968 to 1995. Stroke registry established at Trivandrum (2005) reported an annual incidence of 119.4 and 116 of stroke per 100,000 population in rural and urban area respectively. Annual incidence of stroke at Baruipur, West Bengal was reported as 124 / 100,000 population in the year (1993-1998) stroke incidence occurred at the rate of 7.1 per 1000 per year in people ≥55 years, and the rate escalated to 13.3 for the ≥75 years age-group.[3,4]

Well established population based disease registry provides data on incidence, risk factors, determinants and trends of the disease. Hence a population based rural stroke registry was started on a pilot basis to evaluate the feasibility of establishing population based rural stroke registry in Chintamani taluk of Chikkaballaur district of Karnataka state in a population of 2,98,000. This population based registry was established within the primary health care system involving primary health care workers. Training of the key informants was one of the essential steps to facilitate the reporting of stroke cases for the registry. Training was held to empower the key informants to identify, counsel, refer if needed and report the suspected cases of stroke so as to aid in creation of registry.

The objective of the present communication is to evaluate the training program conducted on stroke for anganwadi workers. All though several publication are available in the literature regarding evaluation of training programmes conducted for anganwadi workers, most of them are in the area of ICDS and maternal and child health but a few in the area of non-communicable disease.

METHODS

As part of the project "Establishment of population based rural stroke registry in India-a pilot project" conducted in Chintamani taluk, Karnataka state, India supported by Indian Council of Medical Research (duration of the project-March 2012 to December 2014), series of training were conducted for various health care personnel which included separate sessions for anganwadi workers.

Sample size

An attempt was made for complete enumeration of all the anganwadi workers in the taluk. However, a sample size was estimated expecting a positive change of 10% and negative change of 4% in knowledge of risk factors for stroke and to obtain a power of 80% and 95% confidence level a minimum of 303 anganwadi workers was required.

Appropriate permissions were sought to facilitate the attendance of the anganwadi workers to the training programme before it was conducted. Training was imparted to anganwadi workers, in batches of 20 each by the team of investigators in local language. Training was conducted from June to December 2012.

Structured training was conducted by a team of investigators of the project with medical background. The training team had undergone 10 hour refresher training by the neurologist in identification of signs and symptoms, risk factors, treatment options and prevention of stroke prior to training of the key informants.

The training for anganwadi workers focused on necessary knowledge on symptoms, prevention and risk factors of stroke which would help them identify and report suspected cases of stroke for registry as well as empowered them to educate the community on stroke. A training manual was developed in local language and the same was used for the training. The manual consisted of five learning units.

- Unit I: what was stroke, causes, risk factors, burden and impact of Stroke on individual, family and society.
- Unit II: specifically on risk factors, signs and symptoms of stroke
- Unit III: options available for management of Stroke
- Unit IV: role of the participants in prevention and management of stroke in their community
- Unit V: their role in the project, reporting formats and whom to report.

The content of the training manual was validated by a team of neurologist, health education experts and public health specialist. All the training activities were carried out with the involvement of district health functionaries. Each participant received a copy of the manual for their

use. Methodology used for training was presentation and discussion on each of the aspect of stroke in the local language. The training manual was pilot tested before implementation on a larger scale.

Preliminary knowledge on stroke was assessed using a pretest; and a post test was conducted after the training was completed. Pre and post-test questionnaire consisted of same set of 24 questions. In the questionnaire, there were 7 questions pertaining to Stroke, 6 questions on signs and symptoms, 10 questions on prevention, the last question was further subdivided into 14 questions on risk factors of stroke. Each of the question had three options - yes, no and don't know.

Each correct answer was scored one mark; wrong, unanswered questions and those answered as don't know were scored zero. The total score was calculated for each participants based on all the aspects. The scores were converted to percentage score and graded as poor (0-33%), average (34-66%), good (>66%).

Statistical analysis

Only those individuals with both pre and post-test answered were included for analysis. The data was entered in excel sheet and was analyzed using SPSS version 18 (IBM Corporation USA, 2006). Mc Nemar's test was used to assess the change in the grades from one level to other level. P <0.05 was considered for statistical significance.

RESULTS

Attempts were made to train all the anganwadi workers in the entire taluk area. However, of the total 438 anganwadi workers, 405 (92.4%) were able to attend the training program of which, only 362 (89.38%) who answered both pre and post-test were included for analysis. The reason for not including others for the analysis were either the anganwadi worker had joined the training late or left the training early or were on official work. This meets the minimum required sample size.

Our observation showed that there has been an overall improvement in the knowledge about stroke. In pre-test 39,120 and 202 of anganwadi workers scored poor, average and good respectively. Whereas in the post-test 1, 5, 356 scored poor, average and good grades respectively and this was found to be statistically significant. Of the 39 respondents who scored poor in the pretest, 36 (92.3%) of them improved to good score in post test after the training.

Statistically significant improvement of the score regarding knowledge on symptoms of stroke was observed. Eighty five (95.5%) and 81 (98.8%) of the workers who scored poor and average respectively in the pretest improved their scores to good in the post test.

Paralysis of a part of body was identified as a symptom of stroke by 341 (94.2%) of anganwadi workers in pre test, the same improved to 356 (98.3%) in the post test. Sudden numbness and weakness of a part of a body was identified as a symptom of stroke by 327 (90.3%) of anganwadi workers. In the post test 361 (99.7%) of them identified it as symptom of stroke. Sudden headache, confusion and difficulty in vision in one eye were symptoms where the percentage of anganwadi workers who identified it correctly ranged from 40% to 70% in the pretest however, there was an increase in the percentage of anganwadi workers who answered it right in the post test (94%-99%).

Table 1: Comparison of pre and post test scores on knowledge regarding aspects of symptoms, prevention and risk factors of stroke.

Pre-test Scores		Post test scores				P-value
		Poor (n%)	Average (n%)	Good (n%)	Total (n%)	
About stroke	Poor	1 (2.6)	2 (5.1)	36 (92.3)	39 (100)	< 0.001
	Average	0 (0.0)	1 (0.8)	120 (99.2)	121 (100)	
	Good	0 (0.0)	2 (1.0)	200 (99.0)	202 (100)	
	Total	1 (0.3)	5 (1.4)	356 (98.3)	362 (100)	
Symptoms of stroke	Poor	1 (1.1)	3 (3.4)	85 (95.5)	89 (100)	< 0.001
	Average	0 (0.0)	1 (1.2)	81 (98.8)	82 (100)	
	Good	0 (0.0)	2 (1.0)	189 (99.0)	191 (100)	
	Total	1 (0.3)	6 (1.7)	355 (98.1)	362 (100)	
Prevention of stroke	Poor	0 (0.0)	0 (0.0)	94 (100)	94 (100)	<0.001
	Average	0 (0.0)	2 (2.1)	94 (97.9)	96 (100)	
	Good	1 (0.6)	1 (0.6)	170 (98.8)	172 (100)	
	Total	1 (0.3)	3 (0.8)	358 (98.9)	362 (100)	
Risk factors of stroke	Poor	15 (10.3)	10 (6.9)	120 (82.8)	145 (100)	< 0.001
	Average	1 (0.7)	6 (4.4)	129 (94.9)	136 (100)	
	Good	1 (1.2)	3 (3.7)	77 (95.1)	81 (100)	
	Total	17 (4.7)	19 (5.2)	326 (90.1)	362 (100)	

It was observed that 94 (97.9%) of the workers who scored average regarding prevention of stroke improved to good in the post test. In the pre-test number and percentage of anganwadi workers who answered correctly on aspects of prevention of stroke is as follows- treatment of hypertension 236 (65.2%); maintenance of weight 228 (63%); consumption of healthy diet 274 (75.7%); treatment of diabetes 202 (55.8%); physical activity 250 (69.1%). In the post test number of anganwadi worker who answered correctly-treatment of hypertension 358 (92%); maintenance of weight 356 (98.3%); consumption of healthy diet 352 (97.2%); treatment of diabetes 354 (97.8%); physical activity 356 (98.3%).

Table 2: Knowledge on risk factors before and after training.

Risk factors for stroke	Pre test correct n (%)	Post-test correct answer n (%)
Hypertension	222 (61.3)	348 (96.1)
Heart disease	175 (48.3)	340 (93.9)
Diabetes mellitus	156 (43.1)	344 (95.0)
Obesity	132 (36.5)	330 (91.2)
Smoking	194 (53.6)	346 (95.6)
Consumption of alcohol	193 (53.3)	335 (92.5)
Lack of exercise	193 (53.3)	337 (93.1)
Older age	178 (49.2)	318 (87.8)
Unhealthy diet (more fat, less fruits and vegetables)	183 (50.6)	327 (90.3)
Family history of stroke	155 (42.8)	311 (85.9)

The differences in the pre and post percentages was found to be statistically significant (P< 0.001)

Knowledge on risk factors for stroke would help anganwadi workers to educate the public regarding the same. Regarding the knowledge on risk factors for stroke, it was observed that only 120 (82.8%) of them showed improvement from poor scores to good scores and 129 (94.9%) of them showed improvement from average to good. However, 17 (4.7%) of them still scored poor in the post test.

Knowledge on the following risk factors for stroke, hypertension, heart disease, diabetes mellitus, obesity, smoking, consumption of alcohol, older age and family history of stroke were assessed. There has been an improvement in knowledge on risk factors of stroke among the anganwadi workers. More than fifty percent of anganwadi workers recognized that hypertension, smoking and consumption of alcohol, unhealthy diet and lack of exercise were risk factors for stroke in pre-test. In the post test the percentage of correct answers regarding risk factors had improved with scores were above 90% in all the listed risk factors except for older age and family history of stroke. Hypertension is one of the important risk factor for stroke and only 222 (61.3%) of the anganwadi workers were aware of the fact as evident in the pre-test and the same had improved to 348 (96.1%) (Table 2).

Anganwadi workers were asked about their opinion if stroke could be prevented, 283 (78.2%) of them were of the opinion that stroke could be prevented in pre-test, the same in post-test was 355 (98.1%). As a part of the project anganwadi workers were expected to report stroke cases that have occurred in their villages. Anganwadi workers had perceived the importance of reporting of stroke cases after the training process as evident in the Table 3.

Table 3: Opinion of the anganwadi workers on prevention of stroke and reporting of stroke case.

Knowledge	Pre-test correct answer n (%)	Post-test correct answer n (%)
Stroke is preventable	283 (78.2)	355 (98.1)
Reporting of stroke case is important	324 (89.5)	361 (99.7)

DISCUSSION

Many studies on knowledge and attitude of anganwadi worker have been published. Most of them are in the area of ICDS, maternal and child health, nutrition and programs related to child health such as diarrhoeal disease and acute respiratory disease control programs. However, knowledge regarding non communicable diseases and in particularly about stroke has not been assessed.

As a part of the project a knowledge, attitude and practice study was conducted in the general population in the same geographical area among the adults, the study revealed that they were aware about stroke but knowledge regarding risk factors was low. Sudden weakness/ numbness of face, sudden weakness of arm or leg and difficulty in speech were correctly identified as warning signs of stroke by 89.7%, 88.9% and 89.8% of the general population respectively. Even among the anganwadi workers the awareness regarding stroke was similar to that found in the general population. Regarding symptoms of stroke the knowledge of the anganwadi workers was better than that of the general population (90%). More than 50% of the general population agreed that eating healthy diet, maintaining healthy weight and being physically active reduces once chance of getting

stroke. From this we may deduce that, though awareness about risk factor is low in the general population, they feel that general wellbeing may prevent stroke. Among the anganwadi workers unhealthy diet (more fat, less fruits and vegetables) lack of exercise, obesity, were identified as risk factors by around 50% of them in pre test. An improvement in scores was observed in post test. Stroke as a serious condition adversely affecting individuals and their families was agreed upon by 86.2% of the general population and 68.5% agreed that stroke is a preventable condition.[5] Before training 78% of the anganwadi workers were of the opinion that stroke is preventable. Pre-test scores of the anganwadi workers is comparable with that of the general population, improvement was seen in their knowledge after training as evident in post-test.

In a study by Pandian et al, that focused on knowledge of stroke among stroke patients and their relatives states that hypertension and diabetes were the two most common risk factors identified. Hypertension as a risk factor was identified by 64/93 (69%) of the subjects similarly diabetes was identified by 36/50 (72%) of the subjects. Heart disease, smoking and dyslipidemia was identified by 22%, 29% and 36% respectively by the study subjects.[6]

Study conducted by Sujata et al comparing knowledge, attitude and practice of stroke in India vs other developing countries. Their study suggests that most of the studies have documented predominantly inadequate knowledge about warning signs and risk factors for stroke.[7]

In a community based survey of knowledge attitude and practice done in West Bengal compared the knowledge among stroke affected families versus non stroke affected families. The study has revealed that both groups had significantly high knowledge about stroke however stroke affected families had better knowledge than that of non stroke affected families. Regarding signs and symptoms a substantial percentage of the study subjects identified that loss of conscious being one of the symptoms of stroke. Regarding risk factors, hypertension and diabetes mellitus were identified as important risk factors. Whereas other important risk factors such as age, obesity, smoking, alcoholism and family history were not identified. Strangely the knowledge of risk factors was low among the families affected with stroke.[8] The findings in the above discussed studies are similar to that observed among anganwadi workers before training in our study. National programme for prevention and control of Cancer, Diabetes, CVD and Stroke (NPCDCS) aims at integration of NCD interventions in the National Rural Health Mission framework for optimization of scarce resources and provision of seamless services to the end customer /patients as also for ensuring long term sustainability of interventions. The objectives of NPCDCS state: to provide early diagnosis and management of common NCDs, to build capacity at various levels of health care for prevention, diagnosis and treatment of common NCDs and to train human resource within the public health setup viz doctors, paramedics and nursing staff to cope with the increasing burden of NCDs.[9]

Anganwadi workers are grass root workers who predominantly are involved in maternal and child health care, nutrition and disability area. They are first level of contact in a village regarding health issues. Due to their proximity to the rural community, their services were utilized for reporting of suspected cases of stroke hence their knowledge about stroke and its risk factors plays vital role in reporting of suspected cases of stroke.

Training program has seen an improvement in knowledge on stroke. It was observed that the baseline knowledge about stroke and its symptoms was good and this can be attributed to the fact that the symptoms of stroke such as paralysis, weakness of one half of the body, are dramatic in nature and can be identified easily. The obvious symptoms of stroke such as weakness of limbs, inability to walk, inability to talk and deviation of angle of the mouth are easier to identify. However, the subtle symptoms such as confusions, inability to comprehend, dizziness and symptoms pertaining to transient ischemic attacks were not identified by the workers. This is evident by a fact that anganwadi workers reported the maximum number of stroke cases over a span of one year. Their reporting contributed to 60 out of 179 total number of Stroke cases reported i.e, 33.5% of the total number of cases reported in one year.

This endeavor substantiates the fact that grass root level workers in the primary health care setting like anganwadi workers can be trained to identify and report suspected cases of stroke.

Limitation

Post test was administered soon after the training program concluded. Recall period was short and hence the improvement in the post test scores could be a bias.

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