### **Research Article**

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# Effectiveness of educational intervention on perception regarding rabies among women self help group members in urban Mysore, Karnataka, India

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#### **ABSTRACT**

**Background:** Each year 20,000 human deaths occur in India, which constitutes one third of the global burden. Majority of human rabies deaths occur due to inadequate knowledge regarding rabies and its prevention. Women self-help group (SHG) members can be trained and utilized to enhance rabies awareness in the community. Objective of the study is to assess the effectiveness of educational intervention on perception regarding rabies among women SHG members.

**Methods:** This prospective interventional study was undertaken in an urban locality of Mysore for the period of three months. 110 women self-help group members willing to participate in the study were included. Their socio-demographic profile and baseline knowledge regarding rabies was collected in a pretested structured proforma. Rabies education was given through lecture and through a video film in local language. The same subjects were resurveyed at the end of one month to assess the change in their perception regarding rabies.

**Results:** Among 110 subjects included in the pretest survey, 28 (25.5%) were aware of rabies but following educational intervention among 105 subjects participated in the post test survey, 85 (80.1%) had responded that they were aware of rabies. There was also significant improvement in the perception related to animals transmitting rabies, modes of transmission, first aid practices, post exposure prophylaxis following educational intervention. Overall, there was statistically significant difference in median knowledge scores before and after educational intervention.

**Conclusion:** There was a significant improvement in perception regarding rabies among SHG members following simple educational intervention.

Keywords: Rabies, Self-help group members, Post exposure prophylaxis, Educational intervention, Perception

#### INTRODUCTION

Rabies is both epizootic and enzootic disease of worldwide importance. The disease is transmitted to man by coming in contact with rabid animal either through bite, scratch or lick on broken skin and mucus membrane. The disease is almost always fatal both in humans and animals as there is no cure once the signs and symptoms appear. Though all mammals are susceptible to rabies some serve as hosts and vectors which include dogs, cats,

mongoose, foxes, ferrets, raccoons, skunks, wolves and bats. In India, the most common vectors are the dogs (96%) and cats (2%), besides other mammals like mongoose, foxes, etc. Despite the availability the state of the art tools which ensure near cent percent protection against rabies, India is the largest contributor to rabies mortality in the world.<sup>2</sup> Out of estimated annual incidence of 55,000 human rabies deaths globally, 20,000 (36%) deaths occur in India alone. 17.4 million animal bites occur each year which corresponds to the incidence rate

of 1.7%. The most important factor contributing for such high incidence of human rabies in India is lack of community awareness regarding rabies and its prevention.<sup>3</sup> People have lot of misconceptions and beliefs regarding management of animal bites. These include application of oils, mud, lime, coffee powder, turmeric powder, plant sap to the wounds. People believe in taking single dose of antirabies vaccine which is as good as remaining unvaccinated.<sup>4</sup>

Women self help group (SHG) members act as a self-motivated group in the society. They are expected to have higher level of interaction with people in the community at various occasions. Thus improving their perception regarding rabies and its prevention can help in effective dissemination of rabies awareness in the general community. With this background, the present study was undertaken with objective to assess the effectiveness of health educational intervention on perception of women Self Help Group Members regarding rabies and its prevention in an urban area.

#### **METHODS**

This prospective interventional study was conducted in the urban field practice area of a Medical College for the period of three months. A total five self-help groups existing in the above mentioned area constituting 120 members were initially explained regarding the purpose of the study. Among them 110 members who gave consent to participate were included in the study. Pretest survey was conducted to collect details regarding the socio-demographic characteristics, perception regarding rabies and post exposure prophylaxis using a pretested structured proforma by interview technique. Following the pretest survey, health education regarding rabies and its prevention was given by faculty of Community Medicine to these members by showing rabies awareness video film in local language and by delivering an interactive lecture using power point presentation. One month after the educational intervention, a post test survey was undertaken to assess the change in perception by interviewing the same subjects who had participated in the pre test survey. Among 110 subjects participated in the survey only 105 were able to participate in the post test survey. The reason for drop out was migration (job transfer of spouse), maternal house visit for delivery, not available in house even with three visits on consecutive days.

#### Statistical analysis

The data was entered in MS Excel-2010 and analyzed using descriptive statistical measures like mean, standard deviation and percentages. The difference in perception of individual variables regarding rabies and its prevention between pretest and posttest survey were tested by applying Z test for difference between proportions. Overall change in perception before and after intervention was assessed by applying non parametric Wilcoxan

signed rank test for total pre and post test scores. The difference was interpreted statistically significant at P < 0.05

#### **RESULTS**

#### General characteristics of study subjects

Among 110 women SHG members enrolled in the present study majority 43 (39.1%) were in the age group of 35-44 years with mean age of  $36.2 \pm 9.4$  years. 99 (90.0%) subjects were literates, 91(82.7%) were not working (housewives),109 (99.0%) were Hindus by religion, 41(37.3%) were belonging to upper lower socioeconomic status according to modified Kuppuswamy scale.

# Effectiveness of educational intervention on perception regarding rabies and its prevention

General information on rabies: Among 110 subjects included in the pretest survey, only 28 (25.5%) were aware of the disease rabies whereas after educational interventions among 105 subjects participated in the post test survey 85(80.1%) revealed that they are aware of rabies, this difference was found to be statistically significant. There was also statistically significant improvement in the knowledge regarding organism causing rabies, fatal nature of the disease. In pretest survey all the subjects were of perception that dog is the only animal responsible for the transmission of rabies but knowledge on other animals like cat, monkey transmitting rabies was poor. After educational intervention there was a significant improvement in the knowledge regarding role of other animals like cat and monkey in transmitting rabies. In similar lines in pre test survey, majority of the subjects were of opinion that bites by rabid animals to be the only mode of transmission of rabies. On educational intervention there was significant improvement in knowledge regarding other modes like lick on skin and mucus membranes, scratch by rabid animals to be the modes of transmission for rabies.

#### Post exposure prophylaxis

In pretest survey only 31 (28.2%) subjects were aware that the dog/animal bite wound should be washed with soap and water but following educational intervention 63 (74.1%) opined the same which was found to be statistically significant. The educational intervention has also brought down significant reduction the knowledge on improper practices like application of mud and lime on animal bite wound. In pretest survey majority 49 (44.6%) of the subjects were of perception that 7-14 injections should be received following dog/animal bite but only 40 (36.4%) were aware of 3-5 doses of Anti Rabies Vaccine. Educational intervention brought about significant improvement in knowledge on 3-5 doses of ARV 72 (84.7%) and reduction in perception of 7-14 doses 12(14.1%). In pre test survey majority of the

subjects perceived that ARV should be administered around umbilicus 79 (71.8%) and only 07 (6.6%) knew the site of administration to be arm/front of thigh. Following educational intervention there was significant improvement in the perception on arm/front of thigh as

site of administration of ARV 67 (78.8%). There was also significant improvement in the knowledge related to intradermal rabies vaccine, safety of ARV during pregnancy and pre exposure prophylaxis.

Table 1: Comparison of perception regarding rabies prevention before and after intervention.

Perception	Category	Pre test	Post test	Z*	P
Aware of disease rabies	Yes	28 (25.5)	85(80.1)	8.01	0.001
Organism causing Rabies	<b>Rabies</b> Virus		46(54.1)	2.34	0.019
Rabies is a fatal disease Yes		07 (25.0)	69(81.2)	5.49	0.001
Animals transmitting rabies	Dog	28 (100.0)	85(100.0)	1.0	1.0
	Cat	06 (21.4)	48(56.5)	3.22	0.001
	Monkey	04 (14.2)	20(23.5)	1.01	0.308
Modes of transmission	Bite	16 (57.1)	72(84.7)	2.95	0.003
	Scratch	05(17.8)	45(53.0)	3.32	0.0009
	Lick on broken skin and mucus membrane	01(5.3)	16(18.8)	1.75	0.079
First aid following dog/animal bites	Wash with soap and water	31 (28.2)	63(74.1)	4.36	0.0001
	Apply Dettol/savlon	28 (25.5)	53(62.3)	3.35	0.0008
	Mud/lime	33 (28.2)	02(2.3)	4.21	0.0001
	Don't know	10 (9.1)	01(1.1)	2.17	0.029
Dose of ARV following	01	08 (7.3)	01(1.1)	1.76	0.07
dog/animal bites	03-05	40 (36.4)	72(84.7)	5.01	0.001
	07-14	49 (44.6)	12(14.1)	3.35	0.0008
	Don't know	13 (11.8)	03(3.5)	1.52	0.12
Site of administration of ARV	Arm/ front of thigh	07 (6.6)	67(78.8)	6.84	0.001
	Gluteal	24 (21.8)	04(4.7)	2.64	0.008
	Around umbilicus	79 (71.8)	14(16.5)	5.52	0.001
ARV can be given by Intradermal route		47 (42.7)	66(77.6)	3.45	0.001
ARV is safe during pregnancy		53 (48.2)	61(71.7)	2.21	0.02
ARV can be given before dog/animal bite (Pre exposure)		34 (30.9)	62(73.0)	3.99	0.001
Rabies Vaccination in animals required		91 (82.7)	76(89.4)	0.96	0.33

Note: Figures in parenthesis indicate percentages,\* Z test for difference between proportions.

#### Overall difference in perception

There was a statistically significant improvement in the total knowledge scores before and after educational intervention indicating the effectiveness of the mode of intervention on perception regarding rabies and its prevention.

Table 2: Overall effectiveness of educational intervention on perception regarding rabies and its prevention.

Category	Median Rank	Inter- quartile range	Z	P
Pre test	5.00	3.0-8.0	6.542	0.001
Post test	13.00	10.0- 16.0		

Note: Wilcoxan signed rank test.

#### **DISCUSSION**

In the present study, there was a significant improvement in the perception of self-help group members on rabies and its prevention following educational intervention. This is in similar lines with the observations made by M K Sudarshan et al at Bangalore and Gino Matibag et al in Srilanka, where effectively implemented information education and communication strategies significantly improved the perception of rural population on rabies and its prevention. <sup>2,5,6</sup> Thus health education intervention involving a focused group like self-help group members using more than one method (lecture and video film in the present study) can be effectively used as a mode of dissemination of awareness regarding rabies.

In the present study all the respondents in pretest survey were of knowledge that dog is the animal transmitting rabies. U. S. Singh et al. in their study pointed out that,

98.6% individuals knew about transmission of rabies by dog bites. Ichhpujani et al observed that 60.7% respondents associate rabies with dog bite only. Following educational interventions there was a statistically significant improvement in the knowledge regarding role of other animals in transmission of rabies. Similar observations were also reported under Adopt a Village: A Rural Rabies Prevention Project at Bangalore, India5 and Gino Matibag et al at Srilanka. 6

In the present study 31 (28.2%) respondents were aware that dog/animal bite wound should be washed with soap & water and there were also higher levels of wrong perceptions like application of turmeric powder, mud and lime to the wound. This is similar to results of Ichhpujani et al where only 360 (31.9%) people felt that washing the wound with soap and water to be the best option.<sup>7</sup> Application of indigenous products like chillies (11.4%), turmeric (5.6%), lime (6.8%), kerosene oil (2.3%), herbal paste (4.2%) to the wound were also suggested to be useful. Agarwal N et al observed 42.4% of subjects prefer application of chilly on wound procured from the house of the dog owner can prevent rabies.8 Following educational intervention there was a significant improvement in the perception of wound wash and reduction in the misconceptions related to first aid. Similar observations were also reported under Adopt a Village: a rural rabies prevention project at Bangalore, India5 and Gino Matibag et al at Srilanka.<sup>6</sup> As the wound wash reduces the risk of rabies nearly to the extent of fifty percent and is the most feasible option, spreading the awareness regarding proper first aid practices can help in the burden of rabies.

In the present study during pre test survey 49 (44.6%) respondents replied that 7-14 doses and 40 (36.4%) mentioned that 3-5 doses of ARV should be taken following dog/animal bite. 79 (71.8%) and 07 (6.6) replied antirabies vaccines are administered around umbilicus and arm/front of thigh respectively. In contrast U. S. Singh et al in their study observed that 86.6% individuals were aware about anti-rabies vaccine and 79% knew that 14 injections have to be taken and 5.7% responded as 10 injections should be taken on abdomen.<sup>1</sup> Following education there was a significant improvement in knowledge related to doses and route of administration of ARV. Similar observations were also reported under Adopt a Village: a rural rabies prevention project at Bangalore, India5 and Gino Matibag et al at Srilanka.<sup>6</sup> Even a decade after abolition of nerve tissue vaccine in the country people still perceive that bite 14 injections should be taken around the umbilicus this may be a reason for not taking vaccination following animal bite thinking of number and pain associated with these injections. This clearly calls for wider dissemination of information regarding doses and site of administration of modern cell culture vaccines.

The study intended to educate a band of highly intellectual and well-motivated self-help group women in

the urban area who can be efficiently utilized for the dissemination of awareness regarding rabies and its prevention in the general community. As dog bite is considered as a medical urgency over emergency, empowered community members can act as first call resources who can contribute towards first aid practices and motivating animal bite victims for antirabies vaccination. Thus educating the focused teams like women self help group members can be a first step in community awareness programmes for rabies and its prevention

#### **CONCLUSION**

Educational intervention using simple audiovisual aids was found to be most effective in improving the perception of self help group members regarding rabies and its prevention. Community Medicine Departments of Medical Colleges across the country can conduct such awareness sessions to improve community knowledge and remove myths as prevalent in their locality/region about rabies.

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