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Impact of Education Program on Practical Knowledge on First Aid in Fracture

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Abstract

Practical knowledge of first aid in fracture among drives is important as the drivers will be on road with their vehicle most of the time and primarily available for initial management of fracture with minimal available materials like newspaper, stick, wooden boards, tags, bandages. The skill of managing fracture help in prevention of trauma during transport to hospital. One group pretest posttest design for 109 drivers using purposive sampling technique was used, pretest conducted with structured questionnaire followed by education program and the posttest which revealed the practical knowledge of drivers improved from 26.82% in pretest to 89.40% in posttest, a mean percentage improvement was 60.47% and the drivers were able to manage fractures using minimal available materials. The study concluded that the education program was effective in bringing the significant difference in practical knowledge score of drivers.

Keywords: First aid, fracture management, principles of first aid, drivers, practical knowledge, education program

INTRODUCTION

First aid is the mandatory preliminary layman management of medical condition. With minimal knowledge and practice, first aid can be performed by anyone, which restores life of an individual in critical emergency. Fracture is the discontinuity in bone caused due to trauma or pathology of the bone; fracture of bone can cause mild to massive bleeding, leading to hypovolemic shock [1–7]. First aid in fracture prevents worsening of bleeding, prevents further injury, and helps in healing and aligning the bone at right time. The practical knowledge of first aid in fracture is essential for layman especially people who will be on road for transport; hence the present study is aimed to improvise the practical knowledge of drivers regarding first aid in fracture [8–11].

METHODOLOGY

An interventional study; one group pretest-posttest designed for 109 drivers selected using purposive sampling technique; a structured practical questionnaire assessed pretest of the drivers; and educational program regarding first aid in fracture. The education program had information on principles of first aid management, identification of different types of fracture, initial steps in control of bleeding, splinting the fracture site and bone using available accessible materials like newspaper, sticks, slabs, boards, umbrella, tie, identity tag, shirt, slings, bandages, ropes, cloth pieces, cotton, etc. Following practical knowledge education using the same structured practical questionnaire, posttest was assessed. The practical knowledge mean score were collected, computed and analyzed using SPSS 16.0 version for descriptive and inferential statistics [12–19].

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RESULTS

The study findings revealed that majority of drivers were in age group of 20–30 years, almost all

of them were formally educated, and married with annual income less than Rs. 3 lakhs which depicts middle class socio-economic status (Table 1).

Aspects Wise Analysis of the Practical Knowledge Regarding First Aid in Fracture

The study findings showed a significant difference in mean and mean% of pretest and posttest practical knowledge score of drivers. The education program on first aid in fracture revealed the mean percentage enhancement in practical knowledge for: Meaning of first aid in fracture; Principles in first-aid in fracture; First aid management of fracture; Management during transfer to hospital and overall scores were 55.80; 58.60; 60.40; 67.00 and 60.47 respectively (Table 2).

The study observed that education program was significant for Meaning of first aid in fracture with t-value 33.6; Principles in first aid in fracture with t-value 27.68; First aid management of fracture with t-value 45.96; Management during transfer to hospital with t-value 36.60 and overall score t-value 59.48 at 108 degrees of freedom with p value **≤0.001** respectively (Table 3).

The study showed that out of 109 drivers, 89.90 and 10.09% had inadequate and moderate practical knowledge and none of drivers had adequate practical knowledge score. These scores were changed to adequate 76.14% and moderate 23.85% practical knowledge and none of drivers were left with inadequate practical knowledge score after undergoing education program on first aid in fracture (Table 4).

Table 1. Describes the demographic findings of the drivers in the study.

S.N.	Demographic variables		Number of drivers	Percentage
1	Age	20–30 years	67	61.46
		31–40 years	29	26.60
		41–50 years	13	11.92
2	Education status	Formal education	97	88.99
		Informal education	12	11.00
3	Marital status	Married	89	81.65
		Single/widower/divorced	20	18.34
4	Annual income (Rs.)	Less than 3 lakhs	98	89.90
		More than 3 lakhs	11	10.09

Table 2. Describes aspect wise pretest-posttest mean, standard deviation, mean% score and mean% enhancement.

S.N.	Aspect wise analysis	Pretest				Posttest			Mean% of Knowledge Enhancement
		Max score	*Mean*	*Standard deviation*	*Mean %*	*Mean*	*Standard deviation*	*Mean %*	
1	Meaning of first aid in fracture	5	1.63	0.48	32.60	4.42	0.49	88.40	55.80
2	Principles in first aid in fracture	5	1.30	0.46	26.00	4.23	0.67	84.60	58.60
3	First aid management of fracture	15	4.37	1.32	29.13	13.43	0.74	89.53	60.40
4	Management during transfer to hospital	5	1.38	0.49	27.60	4.73	0.44	94.60	67.00
Total		30	8.68	1.90	28.93	26.82	1.52	89.40	60.47

Table 3. Describes the aspect wise t value, p value and interference.

S.N.	Aspects	Pretest		Posttest		t-value	df	p-value	Interference
		Mean	*Standard deviation*	*Mean*	*Standard deviation*				
1	Meaning of first aid in fracture	1.63	0.48	4.42	0.49	33.67	108	≤0.001	Significant
2	Principles in first aid in fracture	1.30	0.46	4.23	0.67	27.68	108	≤0.001	Significant
3	First aid management of fracture	4.37	1.32	13.43	0.74	45.96	108	≤0.001	Significant
4	Management during transfer to hospital	1.38	0.49	4.73	0.44	36.60	108	≤0.001	Significant
Overall practical knowledge scores		8.68	1.90	26.82	1.52	59.48	109	≤0.001	Significant

Table 4. Describes the overall pretest and posttest practical knowledge scores of drivers on first aid in fracture.

Knowledge level categorization	Pretest scores		Posttest scores	
	Frequency	*Percentage*	*Frequency*	*Percentage*
Inadequate (≤50%)	98	89.90	NIL	0.00
Moderate (51–74%)	11	10.09	26	23.85
Adequate (≥75–100%)	NIL	0.00	83	76.14

DISCUSSION

The study aimed to assess the effectiveness of education program on practical knowledge of drivers on first aid in fracture; 109 drivers were selected by purposive sampling technique; one group pretest-posttest was designed, in which for pretest, a structured questionnaire assessed the practical knowledge of drivers; following which an education program on first aid in fracture was administered; after that, posttest using same questionnaire was assessed. The results of the study findings revealed that in pretest, the practical knowledge was poor and inadequate with mean percentage of 28.93%; these findings were similar to the study findings of Awasthi *et al.* [1], which revealed that the knowledge and attitude of drivers were below the acceptable range and not universal [20–22].

The education program on first aid in fracture was effective in bringing the desired improvement in practical knowledge of the drivers, these findings were similar to the findings of study conducted by Vakili *et al*. which revealed that the first aid training course for drivers was beneficial and helpful for prehospital care system in road traffic accidents [12, 23]. The study witnessed that there was significant difference in mean score of pretest and posttest of drivers on first aid in fracture [24–27].

CONCLUSION

The study was conducted with the aim to educate and practically train the drivers about first aid in fracture, with a perception that drivers are the first responders at the time of road accidents. The practical knowledge of managing fractures involves considering first aid principles, providing support and stabilization, and safely transferring the victim to a hospital for further care and support.

The education program was designed so that the drivers utilize the available materials in splinting, controlling bleeding and bandaging the fracture wound. The present study was able to impart the practical knowledge regarding first aid in fracture management and recommended a regular course and training program for drivers which will further help in reducing hospital delay time and safe transfer of victims for better medical care and support.

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