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Original Article

Determinants of injuries and Road Traffic Accidents amongst service personnel in a large Defence station



Surg Cdr Anand Neelakantan^{a,*}, Brig Atul Kotwal, SM^{b,c},
Surg Capt Mookkiah Ilankumaran^d

^aJDMS (CSL), O/o DGMS (N), IHQ of MoD (Navy), Sena Bhawan, New Delhi 110011, India

^bDy DGAFMS (Pensions), O/o DGAFMS, Ministry of Defence, 'M' Block, New Delhi, India

^cConsultant & Professor, Dept of Community Medicine, Army College of Medical Sciences, New Delhi, India

^dDirector Medical Services (Health), IHQ of MoD (Navy), New Delhi 110011, India

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ABSTRACT

Background: Injuries are assuming epidemic proportions globally; and in India. Also, previous decade witnessed carnage on Indian roads, with nearly 12 lakh people killed and 55 lakhs disabled in road crashes. The trend in Armed Forces is reflective of the aforesaid patterns. Behaviour and socio-demographic background of the victims are significant determinants of injuries and road accidents. Community-based epidemiological information on these aspects is envisaged to contribute in their preventive strategy. Towards this direction, the present study was conducted with aim to generate socio-behavioural profile of injuries and Road Traffic Accidents (RTAs) amongst service personnel in a large defence station; and to evaluate their determinants.

Methods: A cross sectional descriptive study was carried out among 796 Naval personnel onboard warships in large Naval station. Data on socio-behavioural aspects and determinants of injuries and road accidents was collected using a pre-validated questionnaire; and by scrutiny of relevant records. Data was analysed using MSExcel, Epi-info and SPSS 17.

Results: Young and middle-aged persons were predominantly involved in injuries and road accidents. Two-wheeler users sustained maximum road accidents. Human factor was a significant determinant in RTAs and injuries. A majority of victims admitted that human factors were the predominant cause of road accidents; and opined that the events were preventable.

Conclusions: Age-specific Behavioural Change Communication strategies aimed at refining user outlook are imperative; tailored to sociodemographic milieu of user/victim. Incorporation of a dynamic feedback/reporting mechanism, creation of 'armed forces-specific road safety and injury prevention policy' and safety audits on injuries and road crashes are measures in this direction.

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* Corresponding author.

E-mail address: vivekk75a@yahoo.com (A. Neelakantan).

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Introduction

Injuries are evolving into a 'universal' problem. As per latest estimates, more than 5 million people succumb to injuries every year the world over. By the year 2020, injuries are anticipated to become one of the leading causes of morbidity.¹ Poor people in low and middle income countries are the most affected group. As India is passing through a major transitional phase in the social, demographic and epidemiological realms, injuries are emerging as a major public health problem. In India too, injury ranks next only to diarrhoeal diseases and respiratory infections in terms of burden of disease inflicted on the society.²

As a corollary, the spectrum of Road Traffic Accidents (RTAs) and the consequent morbidity and mortality, are gradually assuming epidemic proportions. One of the working definitions of an RTA is 'a fatal or non-fatal injury incurred as a result of a collision involving at least one moving vehicle'.³ Across the globe, about 1.3 million people die annually consequent to RTAs, thus translating into just more than 3500 daily deaths. In addition, injuries (non-fatal) are sustained by 20-50 million persons every year, thus forming a significant cause of disability. Significantly, road accidents are among the top three causes of death among people of productive age (15-44 years). It is anticipated that in the absence of urgent interventions, RTAs will climb to fifth position in leading cause of deaths the world over, by causing about 2.4 million deaths each year.⁴ About 10% of road crash fatalities worldwide take place in India. The number of people dying due to road crashes is maximum in India as compared to any other nation including China, the most populous nation. Incidence of deaths due to road accidents has witnessed an alarming rising trend in the past decade, with a 44.2% rise for year 2011 over 2001. This means a death every five minutes on Indian roads, which is expected to escalate to one death every three minutes by 2020.⁵ Injuries Non-Enemy Action (Injuries NEA), which includes road accidents, are among the leading cause of hospital admissions in the Armed Forces, accounting for 19.50 per 1000 hospital admissions; amounting to 16.65% of the total hospital admissions.⁶

Both RTAs and injuries (Non RTAs) are no longer perceived as random, unavoidable events but rather as ones that are largely preventable. Behaviour, of an individual in particular and the community in general plays a vital role in causation or aggravation of the circumstances related to both RTAs and injuries. The human factor appears to be the most prevalent contributing factor of road traffic crashes and injuries. This includes driving behaviour, impaired skills personal traits such as impatience, type A personality, a sense of urgency, impulsive attitude and the like.

In order to develop and implement mechanisms for prevention and control of both RTAs and injuries from other causes in the Armed Forces, community-based epidemiological information on the burden posed by RTAs and injuries is required. This study is an attempt in this direction.

The aim of this study was to evaluate certain determinants of RTAs and injuries among service personnel in a large Naval station. The objectives are to evaluate the social and behavioural determinants of RTAs and injuries among the

study population; to create a socio-behavioural profile and thereon to make specific recommendations on preventive strategies to be adopted, towards reducing the adverse impact caused due to RTAs and other injuries (both Training and Non-training).

Materials and methods

The study was a descriptive observational study, which was based on questionnaire and review of records. It was conducted in various establishments of the Indian Navy in a large Naval station. The reference/target population comprises all serving personnel of the Indian Navy, which included both Officers and Sailors. The study population consisted of a representative sub-set of serving personnel, which involved a cross-section of Officers and Sailors. Personnel of all ranks, trades and branches were taken as study population. Both afloat and ashore units were included in the study. Relevant data on the number of personnel at various establishments and the rank-wise break-up was obtained from records section. Serving personnel of the Indian Navy posted/serving in various billets in the station were included in the study; while personnel who were in the station on Temporary duty or were on leave were excluded from the study, as also were retired personnel staying in the station and personnel released from Naval Service.

The prevalence of RTAs and Non-RTA injuries among serving personnel was taken as 60%; this assumption was based on the findings of a pilot study carried out among a representative sample of study subjects. Error of margin was taken as 5%, confidence interval as 95% and power as 80%. Consequently, the sample size was worked out to be 738 (Epi-info 7). To cater to refusals, a target of 812 was planned by adding 10%, however a total of 796 personnel participated, with a refusal rate of 2%. Stratified Random Sampling technique was used, wherein each sub-set of the sample was proportionately representative of the strata from which it was measured. The units/establishments in the station were divided into various strata for the purpose of sampling; for example, Training Establishments, Naval Air Station, Provost Unit, Naval medical establishments, Shore establishments and Ships and Submarines. From the break-up/details of personnel borne in each unit in the station, a representative sample was drawn randomly from each stratum/unit of the study population, using Population Proportionate to Size (PPS) method. The sample size thus drawn included study subjects who had sustained either RTAs or injuries due to Non-RTA events, or both, which worked out to 796 (seven hundred and ninety-six).

The study was conducted from May 2011 to April 2013. Data was collected using the following modalities: (a) Scrutiny of records available with Naval Provost Unit, Naval Hospital and other units on RTAs and injuries (Non-RTA). All relevant records/data sheets from the respective units (such as medico-legal case documents from and injury reports from Medical centres) were analysed towards this end. (b) Through the means of a questionnaire. A structured Interview schedule (Questionnaire) was used to record information on the socio-behavioural profile and determinants of RTAs and Non-RTA

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