

Training Events Responsible for Injuries among Recruits in Selected Military Training Centers of Bangladesh Army

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ABSTRACT

Background: Bangladesh (BD) army has a continuous process of recruit training throughout the year in its different training centers. While training, recruits suffer from a lot of health problems which hinders their physical training as well as academic activities. The objective of the study is to ascertain training events responsible for injuries among recruits in selected military training centers of Bangladesh Army.

Materials and methods: This descriptive cross-sectional study was conducted in two selected training centers of BD Army for the initial 06 months of the training period from July 2018 to June 2019. The samples were selected purposively. Among 2702 study population the number of injured recruits (Respondents) were 152. A semi-structured pre-tested questionnaire and checklist were used as the research instrument.

Results: Among 152 respondents, 130(85.5%) respondents got injury while doing normal routine training activities. Of them highest 74(56.92%) got injury during run, 32(24.62%) during PT, 16(12.31%) during drill, and rest 8(3.16%) during doing other events. Games and sports events caused 17(11.2%) cases of injury and of them 14 respondents injured during football playing.

Conclusion: The study revealed that more safety measures need to take while doing the training events specially while doing events like run, PT and games & sports, to keep the recruits more fit to complete their training efficiently.

Key word: Injury; Training events; Recruits.

Introduction

Injury is recognized as a leading health problem worldwide among both civil and military personnel. In 2002, worldwide some 161,269 people died as the result of injuries¹. Musculoskeletal physical training-related injuries are major problem in military population. Injuries are important in terms of loss of time from work and training and decreased military readiness. The implications of injuries in terms of morbidity, attrition rates, and training costs for military personnel are staggering². In an attempt to develop more effective preventative strategies, epidemiological studies have been conducted in various military settings to quantify the scale of the injury problem and to identify the risk factors associated with increased injury risk³.

Training injuries can result in the loss of training time, causing reductions in physical fitness which may result in recruits being put back in training or, in cases of severe injury, discharged from the military. This is of high personal cost to individual recruits and financial cost to the military⁴.

In USA, there were 743,547 injury-related musculoskeletal conditions in 2006 and there has been a consistently high rate of attrition due to injury in military population within the initial training period^{5,6}. Physical training-related injuries have been identified as a major threat to the readiness of the USA Armed Forces and a high priority for injury prevention⁷. Prevention of injuries during Basic Combat Training (BCT) is specifically important due to the potential adverse effects of injuries on career longevity and trajectory in addition to health and force readiness⁸.

In Bangladesh due to the military activities of Armed forces personnels, games was the main event that has caused 53(27.5%) case of injuries, followed by operational activities 40(20.7%) exercise 10(5.2%) Physical Training (PT) 28(14.5%) and about one third 62(32.1%) cases received injury during administrative duties. Out of 28 injuries received during PT events, PT/drill caused maximum 7(3.6%) cases followed by crossing 6 feet wall 5(2.6%) crossing horizontal rope 4(2.1%) and during assault course 3(1.6%)⁹.

The only descriptive cross-sectional study so far found conducted by Mohsin M among the recruits of Bangladesh Army in 2007 to ascertain the pattern of injuries among army recruits during initial recruit training in two selected training centers¹⁰. Maximum number of injured respondents was caused by football game 13(11.9%). It was followed by physical field punishments 10(9.2%) 1.5 kilometer run 5(4.6%) 6 feet wall and basketball game 4(3.7%) each, 100 meter run and pre-firing drill 3(2.8%) each, horizontal rope 2(1.8%), high jump and boxing 1(0.9%) each.

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A number of studies related to physical stress induced injuries among recruits were being carried out in various countries of the world to observe incidence and prevalence of common types of injuries to recommend the preventive measures to reduce the occurrence. In Bangladesh AF, so far only one study was found about recruit injury which was done in 2007. Since 2012 in Bangladesh Army, a lot of changes have done in recruit training module, including significant increase of duration of training, changes in training events, changes in test procedures and so on. The physical facilities like training aids, accommodation, food etc. for the recruits are improved a lot.

This study can be another initiative for this purpose after a long period to find common injuries of recruits in the present context. If the types and reasons of injuries can be identified then appropriate measures can be taken to reduce the various injuries among recruits in future. This will reduce the drop-out of the recruits also.

Materials and methods

This descriptive cross-sectional study was conducted from 01 July 2018 to 30 June 2019 at Chattogram Cantonment, Chattogram where two of the largest training centers of BD Army are situated; one is East Bengal Regiment Center (EBRC) and another is Artillery Center & School (AS & C). Data were collected from the center's Medical Inspection Rooms (MI Room) and Combined Military Hospital (CMH) Chattogram purposively. The study populations were 1500 and 1202 in EBRC and AC & S respectively. In this study purposive type of non-probability sampling technique was used. Time frame sample size is taken. Recruits who developed any injury from January, 2019 to June, 2019 were taken as sample. A semi-structured pre-tested questionnaire and checklist were used as the research instrument. Data were checked and verified thoroughly to reduce inconsistency.

Results

Out of 2702 recruits 152 reported sick to the dependent health care facilities for having different types of injuries. Among the total 152 respondents, 81(53.3%) were from EBRC and 71(46.7%) were from AC&S. The overall frequency of injury in two centers was 5.63%. Whereas the injury frequency in EBRC was 5.4% and in AC & S was 5.9% respectively. The mean age of the total 152 respondents was 18.66 years with SD of ± 0.88 years. The minimum BMI was 17.14 kg/m² and maximum 31.52 kg/m². Only 9(5.9%) found underweight and 6(3.9%) found overweight. Among 152 respondents, highest 130 (85.5%) got injury while participating in normal training events. While games & sports events account for 17(11.2%) injury cases, special training events only 2(1.3%) cases and other miscellaneous events 3(2.0%) cases (Figure 1).

Among 130 respondents who got injury due to normal training events, sprain was 55(36.2%) followed by shin pain 40 (26.3%). Games & sports causes total 17 injury of which 8(5.3%) was sprain (Table I).

The 2(1.3%) cases of injury happened due to special training events where assault course and hill climbing was 1 of each (Table II).

Games and sports events caused 17(11.2%) cases of injury in the study. Of those football playing accounts for 14 injury cases, basket-ball playing 2, and volley-ball playing 1 (Table II).

Among 130 respondents, highest 74(56.92%) got injury during run, 32(24.62%) during PT, 16(12.31%) during drill, 4(3.08%) during rope climbing, 2(1.54%) during walk and another 2(1.54%) during 6 feet wall crossing (Figure 2).

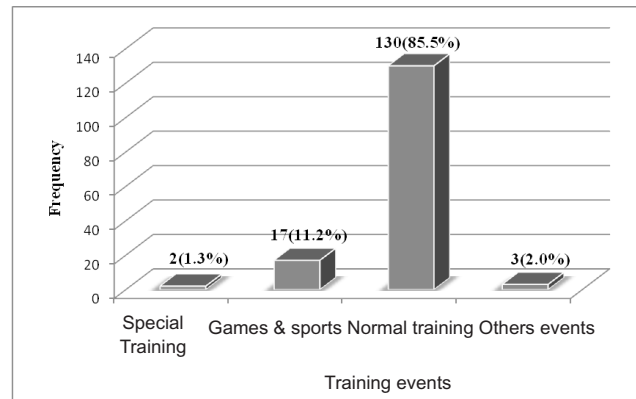


Figure 1: Distribution of the respondents by training category causing injury.

Table I : Distribution of the respondents by injury type and training events.

Injury type	Training events				Total
	Special training	Games & sports	Normal training	Other events	
Sprain	00	8(5.3%)	55(36.2%)	2(1.2%)	65(42.8%)
Dislocation	00	1(0.7%)	00	00	1(0.7%)
Fracture	00	1(0.7%)	19(12.5%)	00	20(13.2%)
Shin pain	1(0.7%)	1(0.7%)	40(26.3%)	1(0.7%)	43(28.4%)
Muscle strain	00	2(1.3%)	7(4.6%)	00	9(5.9%)
Low back pain	1(0.7%)	2(1.3%)	3(2.0%)	00	6(3.9%)
Other injuries	00	2(1.3%)	6(3.9%)	00	8(5.3%)
Total	2(1.3%)	17(11.2%)	130(85.5%)	3(2.0%)	152(100.0%)

Table II : Distribution of the respondents by games and sports events and special events.

Games & sports events n=17(11.2%)	Frequency
Football	14
Basket-ball	02
Volley-ball	01
Special training events n=2(1.3%)	
Assault course	01
Other special training	01

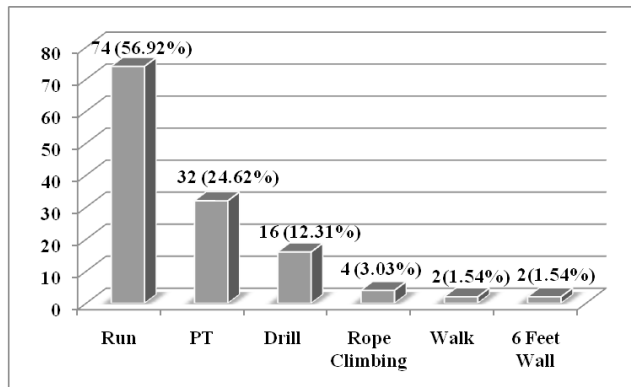


Figure 2 : Distribution of the respondents by normal training events (n=130).

Discussion

This study was carried out to ascertain the training events responsible for injuries among the recruits of Bangladesh Army. In the present study the overall frequency of injury in two training centers was 5.63%. Sulsky SI et al in their study found injury rates during military training were from 6% to 12% of recruits per month during basic training¹¹. Kaufman KR et al found incidence of injuries during military training of varying duration ranges from 8% to 51%². Injury rates range from 10% to 15% for recruits, and 6% to 12% per month for infantry soldiers as found in other studies¹². Incidence among British recruit was reported to range widely from 20%, to as much as 86% in parachute regiment^{13,14}. Variation in injury incidence rates among army recruits in different countries were due to difference in training practices, training populations, environmental conditions and injury prevention strategies.

In the present study among 152 respondents, highest 130(85.5%) got injury while participating in normal training events. While games & sports events account for 17(11.2%) injury cases, special training events only 2(1.3%) cases and other miscellaneous events 3(2.0%) cases which include running in line (01) and fatigue working (02) (Figure 1). In the study by Mohsin M maximum 18(16.6%) of respondents got injury due to normal training events¹⁰. It was followed by games 17(15.6%), physical field punishments 10(9.2%) and boxing 1(0.9%). Study by Khan NH et al stated that games was the main event that has caused 53(27.5%) cases of injuries⁹. The study result showed much more injury cases due to normal training events which need to be evaluated in future. Injury due to games events found almost same as in the study of Mohsin M¹⁰. Study of Khan NH et al differed and found more injury due to games event, because of that the study was not on recruits rather on trained soldiers⁹.

In the present study the 2(1.3%) cases of injury those happened due to special training events were assault course and hill climbing, 1 of each (Table II). Special training events starts usually in the third or last part of the training, as such respondents were very few for these events. In the

study of Mohsin M injury due to assault course was 13(11.9%)¹⁰. The contribution of all other events, such as assault bayonet fighting, parallel bar, long jump, volleyball and foot ball were 8.2% of cases altogether. Study by Khan NH et al stated that out of 28 injuries received during physical training events assault course causes only 3(1.6%) of the injuries⁹. As the study period varies, so the frequency of injury due to special training events also vary in studies.

Games and sports events caused 17(11.2%) cases of injury in the study. Of those football playing alone accounts for 14 injury cases, basket-ball playing 2, and volley-ball playing 1 (Table II). Study by Khan NH et al found that maximum 24(12.4%) injuries occurred during playing football followed by volley ball 13(6.7%) and basket ball 10(5.25%)⁹. Study by Mohsin M found injury caused by football game as 13(11.9%) followed by basket ball game 4(3.7%) and boxing 1(0.9%)¹⁰. The later study result has similarity with the present study as the populations have similarity. Hawlader MAR also revealed that games were the main events causing injury which occurred in 53(27.5%) cases¹⁵. A study conducted by Rahman MM on ankle sprain at CMH, Dhaka showed that the incidence of injury related to football was 40% and basket ball and volleyball 15%-17.5%¹⁶.

Among 130 respondents, highest 74(56.92%) got injury during run, 32(24.62%) during PT, 16(12.31%) during drill, 4(3.08%) during rope climbing and 2(1.54%) during walk (Figure 2). Fifty-three percent of training injuries occurred at PT ground¹⁷. Rudzki SJ in a study among Australian recruits revealed higher injury rate in the run group, which was 37.6% and 46.6% in the walk and run groups, respectively¹⁸. Van Mechelen in a review of running injury epidemiology, noted that the incidence of running injuries ranged from 24% to 77%¹⁹. Zaman UIC in their study on knee injury in Bangladesh Army found that Physical Efficiency Test (PET) is a prime cause of knee injuries in military personnel (38.09%)²⁰. This variation in frequency of injury due to different training events are due to the difference in training centers, corps difference and variation in training modules.

Conclusion

The study revealed that majority of the injury occurs during training doing the events like run, PT and games and sports. This study will help to take necessary steps to minimize injury during training. As a result training of the recruits can be completed efficiently avoiding injury morbidity.

Disclosure

Both the authors declared no competing interests.

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