

The WHO estimates that in 2030 there will be 1.485.365 in the African region. Mozambique has no prehospital care system nor trauma centers despite having a high incidence of injuries. The few critical patients that arrive in the ER rely on self-arranged transport to reach emergency care and have a low chance of survival because of few resources and lack of training of the staff. Basic trauma resuscitation techniques are unknown to most hospital personnel in LMICs. The aim of this study is to evaluate the attitude and knowledge of the management of trauma care among clinical staff of three quaternary level Hospitals of Mozambique.

It will be conducted a prospective cross-sectional study between April and May 2020, in Maputo, Beira and Nampula Central Hospitals. The participants will include the medical doctors and technicians (general practitioners, general surgeons, orthopedic surgeons and anesthetists) that work on an ER. Data will be collected using a three-part questionnaire including: demographic information, trauma knowledge questionnaire and trauma attitude questionnaire. All the data will be analysed using SPSS version 22.0. Standard descriptive and summary statistics will be generated for the demographic part of the survey. Independent t-test and one-way ANOVA will be used to compare the level of knowledge and attitude with each other and with the demographic variables.

## 4A – Sport, March 24, 2021

### 4A.001 APPLICATION OF MULTILEVEL MODELING IN SPORTS AND RECREATIONAL INJURIES STUDIES

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10.1136/injuryprev-2021-safety.97

Over the past decade, there has been increasing interest in analyzing how risk factors defined at multiple levels affect individuals' health outcomes. Multilevel Model (MLM) has been presented as an appropriate statistical tool that may help with this need because it enables the simultaneous examination of individual-level and environmental-level effects on health outcomes. Despite the recently increasing application of MLM in public health research, the use of this technique in sports and recreational (SR) injuries studies has been very limited.

The risks of SR injuries have continued to increase as participation in SR activities have increased across age groups in the United States (U.S.). According to the U.S Centers for Disease Control and Prevention, the average annual estimate of SR injury episodes in the U.S. is 8.6 million with about 4 million treated in hospital emergency departments. While this number is significant, SR injuries have been largely under-researched and there is still less awareness on how individual-level (e.g. body composition and physical activity) and environmental-level factors (e.g. built environment) simultaneously and interactively affect SR injury outcomes.

This study i) reviewed literatures that have examined the effect of environmental-level risk factors on SR injuries, ii) determined the modeling techniques applied in the studies, and iii) discussed, with examples, the potential for using MLM to understand how environmental-level factors might alter the association between individual-level risk factors and SR injuries. The outcome from this study will help in developing SR injuries interventions at multiple levels of influence.

### 4A.002 THE IMPACT OF INJURY ON INSUFFICIENTLY ACTIVE WOMEN'S PARTICIPATION IN SPORT/PHYSICAL ACTIVITY

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10.1136/injuryprev-2021-safety.98

**Background** Injury is a barrier to sport/physical activity (PA) participation, but the impact of this barrier for insufficiently active (not meeting minimum PA guidelines) women is unknown.

**Method** Insufficiently active women, who identified injury as a barrier to engagement in sport/PA, participated in an online concept mapping exercise.

**Results** Brainstorming (n=45) elicited 208 impacts of injury. After synthesis and editing, participants (n=25) sorted 94 impact statements into groups (mean no. of groups, 9.3; mode 6; range 4–15). Multidimensional scaling and hierarchical cluster analysis identified a nine-cluster solution listed from highest to lowest mean importance rating out of 5: Fear and frustration (17 statements; importance 3.92); Physical implications of injury (15; 3.71); Activity restrictions (8; 3.66); Financial implications (4; 3.63); Worries (6; 3.46); Adjustment and management (14; 3.39); Mental and emotional wellbeing (14; 3.2); Impact on daily life (6; 3.03); and Social impact and engagement (10; 2.82).

**Conclusion** The impact of injury extends beyond physical engagement in sport/PA. To increase PA in insufficiently active women who experience injury as a barrier, public/health professionals, governing sport bodies, insurance providers, and program deliverers need to be educated to understand the breadth of this barrier.

**Learning Outcomes** The impact of injury is multi-dimensional. Women who experience injury need access to evidence-based advice, affordable rehabilitation options, support (psychological/physical/logistical), and information about suitable sport/PA options. The program deliverer has an opportunity to provide information that will potentially reduce the impact of this barrier, see these women return to sport/PA earlier, and increase their levels of PA.

### 4A.003 POST-CAREER TRANSITION EXPERIENCES OF PROFESSIONAL AMERICAN FOOTBALL PLAYERS RETIRING FROM BRAIN-HEALTH CONCERNS

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10.1136/injuryprev-2021-safety.99

**Background** The long-term effects of concussions have led to concerns regarding former professional American football players' post-career transitions. This cross-sectional study examines post-career transition experiences of former players retiring due to brain-health concerns.

**Methods** Former players (n=1,784), recruited via National Football League (NFL) and Players' Association contact lists, completed an online/paper questionnaire. Variables included: demographics, playing history, retirement reasons (pre-specified options), and factors helping/hindering post-career transitions (open-ended). We calculated descriptives for study variables from players reporting retirement due to brain-health concerns. Using template analysis, we coded open-ended responses to identify factors helping/hindering post-career transitions.

**Results** Overall, 211 (11.8%) former players retired due to brain-health concerns (mean age=50.9±18.1, mean years played professionally=6.9±3.3). Alongside brain-health, other retirement reasons included: concerns about long-term physical health (n=155), mental health (n=121), and chronic pain (n=120). Factors helping post-career transitions were problem-focused (e.g., future planning, advice from older players, saving money) and emotionally-focused (e.g., faith/religion, spousal support, health provider/therapist care). Hindering factors were personal (e.g., ongoing musculoskeletal injury/pain issues, mental health concerns, poor health insurance, lacking transition plans, losing former schedule/routine), interpersonal (e.g. lacking support/empathy, being asked why they need to still work), and organizational (e.g., poor post-career transition support). These themes were also present among former players not reporting retirement due to brain-health concerns.

**Conclusion** Numerous post-career transition issues concern former players. Multidimensional interventions that mitigate cognitive challenges, chronic pain, and occupational stressors may help optimize post-career transition coping strategies.

**Learning Outcomes** Describe the post-career transition experiences of former players retiring from brain-health concerns.

## 4B – Trauma, March 24, 2021

### 4B.001 QUALITATIVE ASSESSMENT OF TRAUMA CARE IN HANOI, VIETNAM

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10.1136/injuryprev-2021-safety.100

**Background** Injury is a great contributor to the Vietnamese disease burden. Road traffic injuries were the leading cause of injury mortality from 2005 to 2013. Our objective was to understand the intricacies of the trauma care system in Hanoi, Vietnam.

**Methods** We aimed to elucidate the trauma care continuum (pre-hospital, hospital and post hospital care) and identify perceptions of system functioning. This was done via in-depth interviews and focus group discussions.

**Results** Ten interviews and two focus groups were conducted. Participants were: community stakeholders, hospital leadership, the Ministry of Health, National Traffic Safety Committee and Hanoi Emergency Response Centre. 59% of respondents were

male and there was variation in education level and employment status. Thematic analysis was conducted using the NVivo 12 software. The major theme identified was prehospital care with the relevant issues being communication, transportation and human resources deficits. The minor themes were around hospital care, community education and governance. A common barrier to effective care across multiple themes was the lack of coordination and integration between various institutions.

**Conclusion** The trauma care landscape is multifaceted but there are areas which could potentially benefit with the major one being prehospital care. Specific policies that can arise as a result of this work include improving the logistical coordination of prehospital transportation, a legal framework to protect bystanders providing first aid, and bolstering a non-physician prehospital care workforce.

**Learning Outcomes** The results provide a direction to guide governmental (both local and national) and organizational efforts toward prehospital trauma care.

### 4B.002 ASSESSMENT OF TRAUMA CARE SYSTEMS IN HEALTHCARE FACILITIES IN KOLAR DISTRICT

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10.1136/injuryprev-2021-safety.101

**Background** Injuries are a public health problem worldwide accounting for significant mortality, morbidity and disability. The incidence of injury deaths was reported at 32.8 and 42.6 per lakh population in India and Karnataka respectively (NCRB-2015). Evidence indicates that well-organized trauma care systems reduce trauma deaths by 25–30% (WHO). With a vision to strengthen evidence-based trauma care programme in Kolar district, an assessment of trauma care systems was conducted.

**Methodology** The Study covered all Level 2,3 and 4 hospitals (n=39, Public=6, Private=33) and 8 ambulance service providers. Also, five key informant interviews were conducted. Information was collected regarding current trauma care systems (macro areas, manpower, ER infrastructure, emergency equipment and drugs) in Kolar district. Each hospital was scored based on the existing trauma care systems and these scores were compared with expected standards (WHO guidelines for trauma care).

**Results** We observed that there was no trauma care policy, SOPs or guidelines for trauma care in most of the HCFs. A severe shortage of CMOs was observed with none in the public sector. Among functioning doctors, only 40.65% were trained in trauma care with this proportion lesser among nursing staff. None of the HCFs from Level – 2 and Level – 3 had trauma care systems which were >75% of expected standards.

**Conclusion** Study revealed that there is a need for comprehensive strengthening of trauma care systems in the district especially in macro areas, human resources and capacity building. It is recommended to develop a district level trauma care programme.