



Green Cross for Safety® Awards 2022 Finalist | Advocate

Paul Cheak

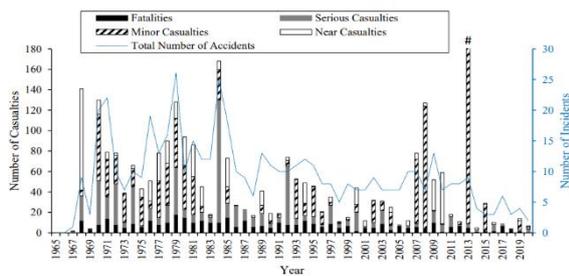
Military personnel face challenging workplace demands and unique occupational health and safety risks. The residual risks of many combat training activities, such as parachuting and working with live explosives, remain high even after safety mitigation. To accomplish their missions and duties, risk avoidance and risk transference are not always options in the armed forces. In addition, non-combat training activities, such as driving large logistics vehicles, physical fitness training and performing administrative duties, can also expose service personnel and others to the risks of injury.

Singapore has a mandatory conscription policy known as National Service. Safety in the armed forces is therefore a topic of significant public interest in the island city-state. This epidemiological study sought to examine safety in the Singapore Armed Forces based on publicly reported incidents that occurred between 1965 and 2020. At publication, this research was the longest and most comprehensive compilation of publicly reported incidents concerning the Singapore military.

The study surveyed 55 years of news reports and parliamentary proceedings concerning the Singapore Armed Forces. Sources included Singapore’s Parliamentary Hansard, the National Archives of Singapore, mainstream news websites, the national library, several university library resources and government press archives. From more than 100,000 news articles, it identified more than 500 publicly reported accidents and near misses, 82 parliamentary statements concerning safety, and more than 100 public announcements on armed forces safety initiatives.

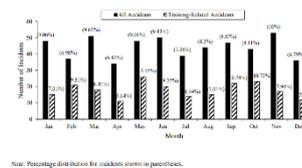
Adopting an epidemiological approach, this study examined armed forces incidents according to their severity, personnel service status, location, weather, vocation and activity performed, as well as time of occurrence including years, months, day of the week and time of day (see Figure 1). The identification of significant incident characteristics could indicate potentially systemic issues and supports the development of targeted safety interventions. This research was supported by a self-developed data analytics and report generation algorithm which can be applicable to other industries.

Number of Casualties and Near Casualties (Singapore Armed Forces-Related Incidents)



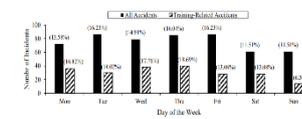
Note. One incident could have several severity outcomes. # An event in 2013 affected 300 personnel (gastrointestinal poisoning), and one near miss occurred in 2013 (not shown due to truncation). Note the secondary axis (on the right) for the accident envelope.

Publicly Reported Accidents and Near Misses (Distribution by Month)



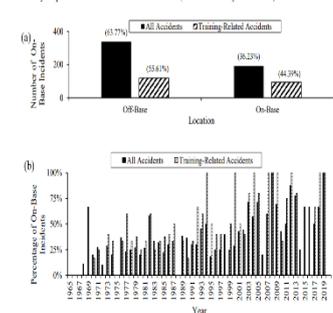
Note. Percentage distribution for incidents shown in parentheses.

Publicly Reported Accidents and Near Misses (Distribution by Day of Week)



Note. Percentage distribution for all incidents shown in parentheses.

Publicly Reported Accidents and Near Misses (Distribution by Locations)

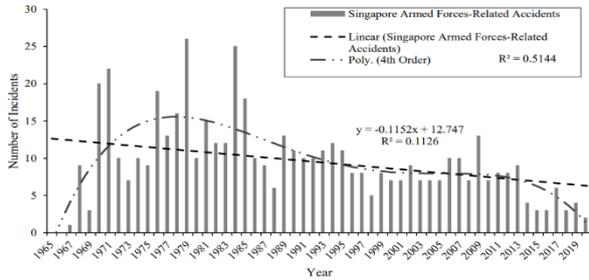


Note. Percentage distribution for all incidents shown in parentheses.

Figure 1 – Excerpts of research findings.



Publicly Reported Singapore Armed Forces-Related Incidents



Note. Collated from public reports between 1965 to 2020.

Figure 2 – Publicly reported Singapore Armed Forces-related incidents.

This study found safety in the Singapore Armed Forces improved between 1965 and 2020. There was a decrease in publicly reported incidents over the period of study (see Figure 2), particularly for aviation incidents. At the same time, there was an increase in organizational emphasis on safety (see Figure 3).

Organizational Safety Efforts

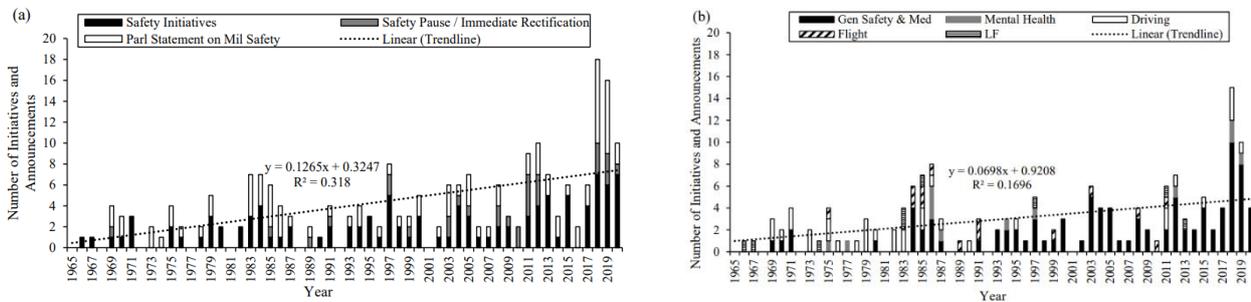


Figure 3 – Organizational safety efforts grouped according to their (a) form and (b) content.

It also found there were more non-training-related incidents than training-related incidents. This reinforced the importance of safety even during non-training activities. The Singapore Armed Forces has successfully prevented training fatalities for several years in a row, an indication of a strong systemic safety capability. In addition, the armed forces implemented several organizational safety measures consistent with academic research and commercial industry best practices.

This research has several acknowledged limitations. That said, this research has contributed to the body of knowledge in safety by addressing the gaps in officially released statistics and providing the longest evidence-based history of accidents in the Singapore Armed Forces. It advocated several areas for further research, including the value of aligning safety and the warrior ethos. Findings from this study have shaped safety education efforts for senior officers and other units in the Singapore military. Its insights are applicable to international militaries and other uniformed services as well. In honour of the service and sacrifice of members in the uniformed services, it is important for us to deepen occupational health and safety research and widen international collaboration in safety to support those professionals.