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Killed while traveling – Trends in tourism-related mortality, injuries, and leading causes of tourist deaths from published English news reports, 2000–2017 (1H)

Leonardo (Don) A.N. Dioko[a,*], Rich Harrill[b]

[a] Institute for Tourism Studies (IFT), Macao, Rm I-127, I-Building, Colina de Mong-ha, Macao S.A.R., China
[b] School of Hotel, Restaurant and Tourism Management, College of Hospitality, Retail and Sport Management, University of South Carolina, Carolina Coliseum, Room 1009, USA

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ABSTRACT

Save for a few studies from the medical literature, little is known about the frequency, causes, and long-term trends of tourist deaths and injuries. Our obliviousness to the phenomenon, however, seems less disturbing than the notion it suggests: A general disregard that leisure travel and mortality are co-occurring events and therefore worthy of investigation. Worse, the absence of solid facts surrounding tourist mortality is often obscured if not supplanted outright by inordinate media attention on or treatment of tragedies befalling tourists. To redress this state of inadequacy, this study relies on English news reports published between 2000 up to the first half of 2017 to estimate the frequency and long-term trends of tourist-related fatal and non-fatal incidents. Findings reveal tourist killings or deaths to be the most commonly occurring incidents, with the major cause of tourist mortality being road injuries and falls. Tourists dying from cardiovascular causes are also increasing. The study proffers an alternative method for tracking tourist mortality, injuries, and other traveler misfortunes, and weighs its efficacy for tourism safety planning and management. Finally, the study discusses the import of knowing how tourists die for theorizing the inexorable advance of tourism.

1. Introduction

The body of knowledge comprising the sociology of travel would be incomplete without a basic understanding and grasp of how travelers die or how often and what type of unfortunate circumstances befall them. Based on a review of literature conducted for this study, there appears a considerable deficiency in our knowledge of death-in-travel phenomenon. Encountering mortality seems not normally associated with travel and leisure behavior and therefore remains understudied. While it is generally acknowledged that specific types of leisure activities, especially those undertaken during travel, are known to be inherently risky and carry a chance of injury or death, such events are distinct from the unexpected phenomenon of encountering death while traveling. Many travelers live by the dictum "to travel as much as possible before one dies" or are inspired by it. But the gruesome reality for some is that they encounter their mortality in the course of their travels (Cohen, 2009, p. 184).

Unfortunately, the reality of dying while traveling remains an obscure knowledge area and, as Cohen (2009, p. 184) laments, "there exist no aggregate data on the frequency of tourist fatalities," and speculates that the figure should not be negligible even if small, compared to the number of international tourists worldwide. Few reliable data or systematic estimates currently exist about the number of tourists who die while traveling. Though it is common to hear of tourists dying or getting killed reported in popular media and news outlets, no systematic record-keeping of the number of visitors killed while traveling currently exists that is global and comparable enough in aggregate to be meaningful and practically useful.

While all occurrences of death are officially and systematically recorded in local and national government statistics, tourists getting killed or injured tend to be reported more prominently in news and popular media because of their 'non-local' novelty, that is, since the victim is not a local resident, the incident tends to be given more spotlight compared to other reported deaths. Given this premise, the purpose of this study is to attempt a systematic data collection and estimation of recorded deaths, injuries, and other misfortunes befalling travelers, as reported in popular news media, and to examine trends of incidence and mortality over a long-period of observation. The aim is to

* Corresponding author.
E-mail addresses: don@ift.edu.mo (L.D.A.N. Dioko), rharrill@hrsm.sc.edu (R. Harrill).

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establish, on an exploratory basis, a preliminary multi-cause and multi-country base of estimates with which tourists encounter unfortunate demise or injury and to delve into the circumstances surrounding such tragic events. Key among these is estimating the mortality rate of the various causes of tourist deaths.

It is difficult to begin theorizing causes and correlates of tourist-related deaths and misfortunes without firmly grounded data on which to develop theories and hypotheses. Another aim of this study, therefore, is to build a nascent database that hopefully will allow avenues for this topic to be explored further.

Death in the course of travel is probably the most prominently reported misfortune befalling tourists, but certainly not the only one. The World Health Organization regularly publishes a catalogue and precautionary guide of risks associated with international travel (World Health Organization (WHO), 2012). Clearly, the issue of travel-related risk is widespread and varied enough from a global health perspective. The WHO-published International Travel and Health report (World Health Organization (WHO), 2012) is instructive because it not only lists down the most commonly associated travel-related health issues such as malaria and infectious diseases (e.g., flu and HIV) or illnesses associated with particular modes of travel (e.g., sea or air sickness) but also lists other major risk categories such as the environment (e.g., altitude) and interpersonal violence. International health organizations and national health agencies thus recognize risks associated with travel but, sadly, the ITH report and others like it do not include an estimate of how prevalent such risks are, what the trends are, or whether travel mitigates or aggravates such risks.

From a tourism policy and advisory standpoint, current knowledge of the actual and objectively measured risks that tourists are exposed to is highly deficient. Indeed, studies in tourism tend to address perceived rather than concrete and tangible risks (Cater, 2006; Quintal, Lee, & Soutar, 2010). This is reasonable because most leisure travelers are just as (if not more so) swayed by the former as much as by the latter. Thus, the occasional occurrence of prominent and punctuated events such as terrorist attacks, viral outbreak, and rape or sexual assaults tend to dominate travel discourse and often bear a lingering influence on travel decision-making for some time. It is also intriguing that studies that account for and measure the objective and actual exposure of travelers to various fatal and non-fatal events do not often emanate from the tourism field but from the distinctive scholarly niche of travel medicine.

With tourism expanding at a rate never before seen and developing in a way that blurs traditional host-guest boundaries, the issue of tourist-related deaths and injuries can only grow. Rosselló and Saenz-de-Miera (2011) demonstrated, for example, how increased tourism in the Balearic Islands is directly linked to increases in deaths from accidents. Stemberga et al. (2013) claimed that between 1980 and 2010 in Croatia, most deaths from diving occurred among tourists and that visitors are inordinately much more at risk compared to non-visitors. In an earlier study, Bentley, Meyer, Page, and Chalmers (2001) observed a high injury and morbidity rate among visitors attributable to recreational and adventure activities in New Zealand. It is imperative therefore that studies address the question of how common tourist-related deaths and injuries occur, at what rate, where, and what the trends are. A complete sociology and theory of tourism should not be limited to identifying driving forces, developing typologies and phenomenology, or expounding conceptual relationships; it should also address the various causes for the unfortunate termination of tourist behavior itself. There is a dire need to examine not only the full spectrum of risks and crises to which tourists are exposed (Park & Reisinger, 2010) but also, of more practical importance, to estimate its prevalence on a systematic and more encompassing basis. An initial way to accomplish this is to explore the temporal trends and geographic profile—that is, when and where—different risks in the spectrum occur.

From a scholarly and policy research standpoint, the issue of tourist mortality and casualty is pressing. The lack of data and systematic collection thereof precludes investigation of risks and risk-mitigating policies or interventions such as the appropriate deployment of developmental or emergency public resources. What this study aims to contribute to more profoundly is to re-position the locus of tourism studies away from the narrow lens of leisure, consumption, and experience, and converge it more proximately toward broader public-health issues, the implications of which may be crucial. For example, does increasing tourism in a given area create greater burden on the community's public health resources? Some studies suggest it to be so (Schmierer & Jackson, 2003). From a theory-building standpoint, knowledge of the nature and causes of tourist death over time reveals the ever far-reaching boundaries which tourism as an industrial system is taking visitors on one hand, and tourists as experience-seeking consumers are pushing themselves toward on the other. In either case, tourist deaths and injuries become unfortunate indicators of tourism's capacity—and its implied limits—to safely welcome visitors. This seems to be the case when Stemberga et al. (2013) examined scuba diving-related fatalities in Croatia and found that tourists were dying at a faster rate than residents.

The most pressing questions in this area remain unanswered because of the lack of robust, comprehensive, and comparable data. Questions such as whether tourists have higher rates of injury and mortality compared to non-tourists, or whether significant differences in age and gender (among other demographic factors) account for tourist fatalities and casualties, remain largely unanswered. Important insights regarding the geography of tourist deaths and morbidity, and, more importantly, the trends as to what types of injuries and causes of death account for the majority of cases afflicting tourists, continue unaddressed.

This study first reviews available data and studies addressing tourist casualties and fatalities, identifying their merits and providing a critique of shortcomings where warranted. The study then attempts to utilize data mining of news reports drawn from extensive databases and archives as an alternative data source for establishing preliminary estimates of the nature, extent, and trends of unfortunate events tourists are subjected to, which can then be used for further knowledge building, policy-making, and better tourism management. The study then assesses such methods for validity, reliability, and comparability with other approaches previously attempted.

1.1. Encountering death and injury while traveling—A review

1.1.1. Incomparable causes of mortality and morbidity and limited scope of period or subjects

Early studies of tourist fatalities and casualties looked specifically at tourist accidents as a major contributor to tourist deaths visiting New Zealand (Page & Meyer, 1996). Other studies are broader in scope for identifying causes of tourist death and injuries but narrow in time range, as exemplified by Leggat and Wilks' (2009) investigation of overseas visitor deaths in Australia from 2001 to 2003 and from 1997 to 2000 (Wilks, Pendergast, & Wood, 2002). Some studies covered a long period of observation (ten years) but were confined in both geography and causes of death, as Durrheim and Leggat's (1999) study was regarding tourist encounters with wild mammals in South Africa. Rosselló and Saenz-de-Miera (2011) examined road accidents in particular while Pizam (1999) examined crime and violence. More recently, Stemberga et al. (2013) studied deaths involving tourists engaging in scuba-diving in Croatia. Interesting, too is Pane et al.'s study (2013) which tracked and surveilled Indonesian pilgrims to the Hajj whereby they recorded instances of death or injury based on reliable and meticulous data sources such as death certificates, autopsy reports, and hospitalization records.

Several studies, however, are notable for their breadth of coverage of the various mortality causes or range of period covered. Though dated, Sniezek and Smith's study (1991) of injuries and deaths among non-residents in the US and Hargarten, Baker, & Guptill's (1991) analysis of US citizens' death related to international travel are exemplars,

as is MacPherson, Gushulak, & Sandh's study (2007) of deaths befalling Canadians traveling abroad, and McInnes, Williamson, & Morrison's (2002) thorough review and synthesis of available data and literature. Another less prominent but respectable study of tourist mortality and related causes comes from Croatia (Bečić et al., 2013).

1.1.2. Incompatible data sources

Though insightful within its own scope, each of the aforementioned studies is grounded on very different sources of data, making them altogether generally incomparable for convergent re-analyses, meta-analyses, or replication. For example, several studies are based on data from government offices dealing with foreign affairs such as the US State Department, which maintains an online database of US citizens deaths abroad (Tonellato, Guse, & Hargarten, 2009), as do countries like Canada (MacPherson, Gushulak, & Sandhu, 2007).[1] Other studies utilize data from official state registries which includes records of visitor deaths, as was done in a study in Australia (Leggat & Wilks, 2009; Wilks et al., 2002). Several studies, mostly those from the rapidly evolving travel medicine literature (Page, 2009), are based on medical records, hospital discharge data (Bentley et al., 2001), or death certificates (Hargarten, Baker, & Guptill, 1991; Leggat & Wilks, 2009), records of bodies returned for cremation (Redman, MacLennan, & Walker, 2011), autopsy reports (Bečić et al., 2013), accident or police reports (Stemberga et al., 2013), or accident-compensation and traffic safety or transport authorities (Page & Meyer, 1996; Rosselló & Saenz-de-Miera, 2011). A study conducted on Dutch overseas travelers, however, employed a systematic survey of physicians to estimate the risk of mortality abroad (Groenheide, van Genderen, & Overbosch, 2010).

Rather ingeniously, a few studies have relied on popular media and news reports to provide estimates and types of traveler mortality, injury, as well as the geographic extent, range and demographics of such unfortunate events occurring. Durrheim and Leggat (1999) tapped commercial press records to estimate injuries and deaths due to interaction with wild mammals in South Africa. Pizam (1999) developed a typology of violent acts and crimes committed against tourists based on mining, identifying, and systematically categorizing case studies and reports found English-language newspapers across a 10-year observation span. In Cohen's (2009) thanatology of the circumstances surrounding post-mortem experiences of tourists after the 2004 tsunami in Thailand, media coverage and press reports figured prominently as a source of observation. In cases wherein events are assumed to be rare or remain largely unstudied, newspaper or press media coverage and content may provide a valuable initial data source for establishing preliminary estimates or a platform for scoping the extent of phenomena of interest. Media sources were important, for example in identifying themes underlying the experiences of medical tourists (Crooks, Kingsbury, Snyder, & Johnston, 2010), identifying trends of Australians traveling to low- or middle-income countries for medical and healthcare purposes (Imison & Schweinsberg, 2013), and for grounding initial knowledge of tourism's rarer subsets such as 'cosmetic surgery tourism' (Turner, 2012). Newspaper content was also critical in examining the anti-social behavior of British travelers abroad (Andriotis, 2010). Where statutory or systematic reporting of fatal and non-fatal incidents is often unavailable, unreliable, or incomparable, press releases or media communiques provide an alternative record, the contents of which can be mined for insights, a method utilized by Heggie (2005) in studying the epidemiology and etiology of visitor injuries at Hawaii's Volcanoes National Park.

[1] Long before the availability of online databases, researchers had to specifically request access to data from consular representatives and passport sections, as S. W. Hargarten, Baker, and Guptill (1989) did in one of the earliest studies conducted in this area.

1.1.3. Disparate definitions and concepts

Another shortcoming of extant studies is that their scope and corresponding definitions can vary considerably depending on the nature and purpose of data collection. For many studies, the term 'tourists' or 'overseas visitors' include citizens or nationals currently situated abroad. However, the converse of that statement is not necessarily true as not all overseas nationals or citizens are tourists. Thus, many studies use the term "citizens abroad" even if the term could include dual citizens or retirees living abroad, among others.

Because the remains of diseased travelers often undergo a laborious and detailed process of documentation and processing for repatriation, such records provide reliable data on which some published research (such as that of Tonellato et al. (2009)) or public reports can be based on. Unfortunately, even if informative, such studies provide a rather limited perspective covering the nationals of a few concerned countries. Death certificates and registries record data of nationality or residence but not whether deceased individuals were visiting or engaged in leisure activity. Interestingly, and as opposed to studying citizens dying abroad or inbound overseas visitors, a few studies instead examined deaths by non-residents (Leggat & Wilks, 2009; Sniezek & Smith, 1991; Wilks et al., 2002). But even for these studies, there is considerable ambiguity regarding what constitutes non-residents and whether they are distinguishable from tourists, as both terms could generally include or encompass "visitors."

The official classification of non-residents in many countries includes foreign nationals (i.e., overseas nationals or "aliens" in US terminology) engaging in paid economic activities and thus in practice, non-residents can assume the status of local citizens (or 'non-overseas-visitors'). Studies that use non-residents as a base in analyzing mortality rate could therefore reveal higher than actual figures compared to if the scope were limited to the narrow definition of visitors as per UNWTO conventions, which regards a visitor as a *"traveler taking a trip to a main destination outside his/her usual environment, for less than a year, for any main purpose (business, leisure or other personal purpose) other than to be employed by a resident entity in the country or place visited"* (UN Secretariat Department of Economic and Social Affairs, 2010, p. 10). To avoid further confusion, instead of visitors, this paper adopts the use of the specific term "tourist", which the UN uses to categorize visitors that stay at least one night in a destination (UN Secretariat Department of Economic and Social Affairs, 2010, p. 10). This study assumes that journalistic conventions also refer to this UN definition when used in news reports.

1.1.4. Variations in estimates and lack of unanimity

Despite differences in data sources, definitions, subjects, and focus that characterize most research in this area, many studies achieve some appreciable degree of convergence. For example, although numerous factors and causes moderate its extent, there is overall consensus that travel increases the mortality and morbidity of tourists (Steffen, Keystone, Kozarsky, & Freedman, 2004). Still, there remains a general lack of unanimity. Several studies coincide in pointing out natural causes such cardiovascular failure (often accounted for by senior-aged individuals) as the leading cause of overseas traveler deaths (Bečić et al., 2013; Leggat & Wilks, 2009; Redman et al., 2011). Other studies, however, agree that trauma or injury deaths, usually by road accidents or vehicle crashes, are the most prevalent cause of tourist deaths (Tonellato et al., 2009) or injury (Rosselló & Saenz-de-Miera, 2011).

In sum, our current knowledge of tourist fatalities and casualties is for the most part outdated, narrow or fragmented in scope, and relies on highly disparate sources of data. Most of our knowledge on the prevalence and causes of tourist deaths is based in large part on medical reporting and studies in travel medicine journals, with only few inputs from tourism scholars. It is urgently incumbent upon tourism scholars and practitioners therefore to shed more light upon the death-in-travel phenomenon, understand its nature, extent, and directional trends.

2. Method

This study departs significantly from prior studies by exploring an alternative method of data and data collection for the purpose of providing more convergent and comparable estimation of travel related fatalities and injuries (Behrens & Carroll, 2012) on a wider scale and to monitor long-term trends and patterns. It seeks to overcome the disparate nature of data sources, definitions, and scopes which previous studies suffered from and possibly allows for comparative, meta- and re-analyses to be conducted by others. The aim is neither to show correlation nor causation between travel behavior and mortality; rather, it is to provide baseline estimates as a basis for discussion and highlighting this global tourism issue via positing a novel methodology on which future efforts to build more reliable data can be grounded.

2.1. Data

The study developed a database of fatal and non-fatal injuries or unfortunate events befalling tourists by accessing and mining English-language news reports from two sizable news archives and databases, the EBSCO Information Services Newspaper Source (EBSCO Information Services, n.d.) and ProQuest News & Newspapers (ProQuest, n.d.). The search procedure began with using general Boolean terms such as “tourist”, “death”, or “dies”, or “killed.” Guided by Pizam's (1999) identification and classification of violent and criminal acts directed at tourists, the search strategy also included terms such as “attacked”, “killed”, “murdered”, “injured”, “raped”, “assault or assaulted”, “robbed”, “kidnapped”, “abducted”, and other exploratory terms such as “ill”, “hospitalized”, or “missing”. The period covered by the search ranged from 1 January 2000 to 31 July 2017. The search sought to include records with full-text contents.

The search yielded a total of 4712 news articles from Proquest and 1750 from EBSCO databases, respectively, which were downloaded for analysis. Data cleaning was undertaken so that duplicate records from either or within each of the two databases were identified and deleted, resulting in a filtered database that included only unique records of reported events or incidents. This process reduced the number to 2141 news reports which was further filtered down to 2126 after a subsequent review in which 15 articles were identified as not reporting any specific fatal or non-fatal details, even though they appeared as relevant in initial database search results. The final corpus of 2126 news articles were then subjected to a coding and categorization process. A sample of a news record that comprised the entire database corpus can be seen in Fig. 1. An inventory of the English news sources per country from which news articles were drawn is shown in Table 1.

2.2. Variables and coding procedures

Each news record contained the title, full-text, date, as well as place of publication, which were all entered into the database as separate variables. Each news record was read and the content parsed by two encoders working independently, with the relevant details encoded (if explicitly mentioned in the text) into the following pre-defined codes:

- *Event (or ultimate outcome):* Died (or killed)/injured/robbed/attacked (or assaulted)/raped/fell ill/kidnapped (or abducted)
- *Tourist victim gender and composition:* Individual (male/female)/group (if two or more victims; gender encoded as unspecified)/not specified
- *Tourist victim nationality*
- *Tourist victim/s age (coded for individuals only)*
- *Number of victims mentioned*
- *Place of occurrence:* City/country/region
- *Specifics of location:* Road/sea/beach/etc.
- *Cause of death (if death was ultimate outcome):* Global Burden of Disease Codes (Institute for Health Metrics and Evaluation (IHME), 2017)

Each news record could be encoded with multiple victims suffering different ultimate outcomes or different causes of death. Where a discrepancy in reported details was found, both coders met and developed a consensus for dealing with each. Most cases with discrepancies centered on the number of victims, rather than the cause or nature of the event. When the reported number of victims was a range or ambiguous, the average of estimates or the highest or lowest of estimates in the case of ranges, was encoded. If the two coders could not reach a consensus on ambiguous details, these were not encoded and ‘unknown’ or ‘not specified’ was inputted and if details were missing or not reported.

2.3. Analysis

Frequency tabulations of the different coded variables were generated to identify and measure the prevalence (1) for each type of event or ultimate outcome and (2) the specific cause of reported tourist deaths (or killings). Tabulated frequency counts were needed to generate the key metric of the study, which was an estimation of (a) the incident rates of tragic events befalling tourists, and (b) mortality rates of the various causes of tourist deaths, across different years, to determine directional trends over time. The crude rates of incidence and mortality per million visitors were calculated for each incident category and for each cause of death, respectively, per year from 2000 to 2016,[2] with the denominator for the rate calculation being the annual total number of visitors reported by the UNWTO for each year (UN World Tourism Organization). Trend analyses of prevalence, incidence, and mortality rates for unfortunate events and different causes of tourist mortality were undertaken using Joinpoint Trend Analysis Software (Joinpoint Regression Program, Version 4.5.0.1 - June 2017), which detects significant changes in patterns of trend data (such as prevalence or mortality rates) over time via the Monte Carlo Permutation method based on the annual percentage change (APC) in rates (incidence or mortality) of observations. Joinpoint regression is often used by the medical community to detect trends in cancer rates (Kim, Fay, Feuer, & Midthune, 2001).

2.4. Findings

2.4.1. Frequency of unfortunate events

Among all the unfortunate incidences occurring to tourists reported in the analyzed corpus of published news articles between 2000 and the first half of 2017, the most prevalent was death by natural or unnatural causes (e.g., killings), mean occurrence per year = 82.7 (95% CI: 71.1–94.2), and making up 70% (n = 1488) of all unique incidents tallied. See Table 2. The next most frequent incident is injuries (mean occurrence per year = 19.1; 95% CI 14.6–23.5) followed by robberies (mean occurrence per year = 7.0; 95% CI: 4.9–9.1). Injuries make up 16% (n = 343) of all incidents reported involving tourists while robberies make up 6% (n = 126). Although incidences of tourist rapes and sexual assaults tend to receive sensational media attention in news and journalistic reports when they occur, the observed mean occurrence per year is = 5.1 (95% CI 3.4–6.8), comprising 4% (n = 92) of all news-reported events involving tourists over the 17½-year observation period. Reports of attacks on tourists is uncommon (mean occurrence per year = 66; 95% CI: 2.4–5.0) and kidnapping of tourists were found to be rare (n = 11 or 1% of all incidents reported).

The incident rates of various unfortunate events befalling tourists between 2000 and 2016 are reported in Table 3 while directional trends over the same period are depicted graphically in Fig. 2 (alongside bar charts depicting the frequency of the different incidences). Overall and

[2] Because this study was conducted mid-year 2017, no full-year fatality and casualty figures for 2017 as well as full year UNWTO visitor numbers could used or generated to estimate incidence and mortality rates for the whole of 2017.

Tourist dies in B.C. tour bus accident

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THE CANADIAN PRESS [Eth]VANCOUVER

A tourist is dead after a charter bus hit several pedestrians and a parked vehicle in Vancouver's bustling downtown, police say.Sgt. Jason Robillard with Vancouver Police said the 49-year-old man was rushed to hospital Sunday morning, and later died.

At least two other people were taken to hospital, including an elderly man whose injuries were described as serious, and a 15-year-old girl who suffered minor injuries. All three had to be "extracted" from the crash by fire crews, Robillard said.

Video from the scene showed firefighters working to free people from under the large bus. A running shoe could be seen lodged beneath the bus's front wheel early Sunday afternoon and the liftgate on the back of the parked vehicle had smashed through the driver's side window of the bus.

The crash happened on a waterfront street populated by hotels, tourist attractions and the city's convention centre, an area heavy with pedestrian traffic, particularly during the summer. The dead man, the injured elderly man and the injured teen were all tourists, Robillard said. Police are trying to determine how the accident happened. Robillard said the pedestrians were around the parked vehicle when it was struck by the bus, which was travelling at a low speed. "Whether they were loading or unloading, I do know that they were parked there, curbside, and there was pedestrians around (the vehicle)," he said. Mushfiqur Rahman was out on the busy street on Sunday afternoon, taking a break from work when he heard a loud cracking sound.

"When I heard the crash I just went in to see and found the two people under the (bus) tire," he said. "One was unconscious and the other was actually groaning in pain. And there was no way that we could help." The bus driver appeared to be "in emotional pain," Rahman said. The Vancouver Trolley Company issued a statement from general manager Stuart Coventry on Sunday, confirming the bus was owned by the company.

"We are shocked and saddened and our focus right now is on the people who were injured and the families of those injured and deceased," Coventry said. He said it's too soon to speculate on "what has happened" and the company will co-operate fully with the police investigation. Investigators will be looking at a variety of information in the case, including witness statements, video and a mechanical inspection, Robillard said.

"The investigation will be quite complex. Our collision investigation unit will look at everything," he said.
Criminal charges may be considered, but fault won't be determined until the end of the investigation, he added.
"It does take some time for the facts to come out and for the investigation to be concluded." The crash is the seventh traffic death tallied in Vancouver so far this year.

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Fig. 1. Sample news record comprising the entire database corpus.

Table 1
List of news sources per country.

Country and name of news sources	Total
Australia	**35**
AAP Bulletin Wire	
AAP General News Wire	
ABC Premium News	
Advocate; Burnie, Tas. [Burnie, Tas]	
APN Newspapers Pty Ltd	
Asia Pulse Pty Ltd	
Australian Associated Press Pty Limited	
Australian Broadcasting Corporation	
Blacktown City Sun; Blacktown, N.S.W. [Blacktown, N.S.W]	
Daily Examiner; Grafton, N.S.W. [Grafton, N.S.W]	
Fairfax Digital	
Fairfax Media Publications Pty Limited	
Geelong Advertiser; Geelong, Vic. [Geelong, Vic]	
Herald Sun; Melbourne, Vic. [Melbourne, Vic]	
Hills News; Castle Hill, N.S.W. [Castle Hill, N.S.W]	
Melbourne, Vic. [Melbourne, Vic]	
Newcastle Herald; Newcastle, N.S.W. [Newcastle, N.S.W]	
News Limited	
News Mail Bundaberg; Bundaberg, Qld. [Bundaberg, Qld]	
Seven West Media	
Sydney Morning Herald; Sydney, N.S.W. [Sydney, N.S.W]	
The Advertiser; Adelaide, S. Aust. [Adelaide, S. Aust]	
The Cairns Post	
The Canberra Times; Canberra, A.C.T. [Canberra, A.C.T]	
The Chronicle; Toowoomba, Qld. [Toowoomba, Qld]	
The Courier - Mail; Brisbane, Qld. [Brisbane, Qld]	
The Daily Mercury; Mackay, Qld. [Mackay, Qld]	
The Daily Telegraph; Surry Hills, N.S.W. [Surry Hills, N.S.W]	
The Examiner; Launceston, Tas. [Launceston, Tas]	
The Mercury; Hobart Town, Tas. [Hobart Town, Tas]	
The Morning Bulletin; Rockhampton, Qld. [Rockhampton, Qld]	
The Northern Star; Lismore, N.S.W. [Lismore, N.S.W]	
The Northern Territory News; Darwin, N.T. [Darwin, N.T]	
Townsville Bulletin; Townsville, Qld. [Townsville, Qld]	
Weekend Australian; Canberra, A.C.T. [Canberra, A.C.T]	
Azerbaijan	**1**
Trend News Agency	
Cambodia	**1**
Open Forum of Cambodia	
Canada	**17**
Calgary Herald; Calgary, Alta. [Calgary, Alta]	
Calgary Herald; Calgary, Alta. [Calgary, Alta]	
Canadian Broadcasting Corporation	
Canadian Press Enterprises Inc.	
CEDROM-SNi INC.	
F.P. Canadian Newspapers Limited Partnership	
Global News Transcripts; Toronto, Ont. [Toronto, Ont]	
Infomart, a division of Postmedia Network Inc.	
Niagara This Week; Thorold, Ont. [Thorold, Ont]	
Prince George Citizen; Prince George, B.C. [Prince George, B.C]	
The Canadian Press; Toronto [Toronto]	
The Globe and Mail	
The Ottawa Citizen; Ottawa, Ont. [Ottawa, Ont]	
The Vancouver Sun; Vancouver, B.C. [Vancouver, B.C]	
Times - Colonist; Victoria, B.C. [Victoria, B.C]	
Torstar Syndication Services, a Division of Toronto Star Newspapers Limited	
Waterloo Region Record	
China	**3**
China Daily	
Shanghai Daily; Shanghai, China [Shanghai, China]	
Xinhua News Agency	
Cyprus	**1**
Cyprus Mail; Nicosia	
Czech Republic	**2**
CTK English-Language News Service; Prague [Prague]	
CTV Television, Inc.	
Egypt	**2**
Al - Ahram Gate; Cairo [Cairo]	
Daily News Egypt; Cairo [Cairo]	
Fiji	**1**
Fiji Times	
France	**1**
Agence France-Presse	
Germany	**1**
dpa Deutsche Presse-Agentur GmbH	
Hong Kong	**1**
South China Morning Post Ltd.	
India	**27**
Asian News International; New Delhi [New Delhi]	
Athena Information Solutions Pvt. Ltd.	
Bennett, Coleman & Company Limited	
Coleman & Company Limited	
Daily News & Analysis; Mumbai [Mumbai]	
Diligent Media Corporation, Ltd., DNA - Research, Archives & Syndication	
Early Times; Jammu [Jammu]	
Garhwal Post; Dehradun [Dehradun]	
Herald; Panaji [Panaji]	
HT Media Ltd.	
IANS English; New Delhi [New Delhi]	
Indo Asian News Service (IANS)	
Kashmir Images; Srinagar [Srinagar]	
Kashmir Monitor; Sprinagar [Sprinagar]	
Kashmir Times; Srinagar [Srinagar]	
Kasturi and Sons Ltd	
Living Media India, Limited	
Mail Today; Noida [Noida]	
Star of Mysore; Mysore [Mysore]	
The Hindu	
The Hindustan Times; New Delhi [New Delhi]	
The New Indian Express; Chennai [Chennai]	
The Pioneer; New Delhi [New Delhi]	
The Press Trust of India; Delhi [Delhi]	
The Times of India	
The Times of India (Online); New Delhi [New Delhi]	
United News of India; New Delhi [New Delhi]	
Iraq	**1**
National Iraqi News Agency; Baghdad [Baghdad]	
Ireland	**8**
BreakingNews.ie; Cork [Cork]	
Independent News & Media	
Irish Independent; Dublin [Dublin]	
Landmark Digital Limited	
News International Trading Limited.	
The Irish Times Ltd.	
Waterford News & Star; Waterford [Waterford]	
Wexford People; Wexford [Wexford]	
Israel	**3**
Info-Prod Research (Middle East) Ltd.	
Jerusalem Post; Jerusalem [Jerusalem]	
Jerusalem Report	
Japan	**1**
Jiji Press English News Service; Tokyo [Tokyo]	
Jordan	**4**
Albawaba (London) Ltd.	
Petra Jordan News Agency; Ammale [Ammale]	
SyndiGate Media Inc	
SyndiGate Media Inc	
Kenya	**1**
Daily Nation; Nairobi [Nairobi]	
Kyrgyzstan	**1**
Central Asia Media Institute	
Malaysia	**4**
BERNAMA: Malaysian National News Agency	
Malay Mail Sdn. Bhd.	
Malaysian National News Agency	
New Straits Times; Kuala Lumpur [Kuala Lumpur]	
Namibia	**1**
The Namibian	
Nepal	**3**
Himalayan Times; Kathmaledu [Kathmaledu]	
Republica; Kathmaledu [Kathmaledu]	
The Kathmandu Post; Kathmandu [Kathmaledu]	
New Zealand	**18**
Bay of Plenty Times; Tauranga, New Zealand [Tauranga, New Zealand]	
Dominion Post	
Fairfax Digital	

(*continued on next page*)

Table 1 (*continued*)

Country and name of news sources	Total
Fairfax Media: Fairfax New Zealand Limited	
Fairfax Media Publications Pty Limited	
Fairfax New Zealand Limited	
Hawkes Bay Today; Hastings, New Zealand [Hastings, New Zealand]	
Manawatu Standard; Palmerston North, New Zealand [Palmerston North, New Zealand]	
NZ Newswire; Wellington [Wellington]	
Taranaki Daily News; New Plymouth, New Zealand [New Plymouth, New Zealand]	
The Daily Post; Rotorua, New Zealand	
The Marlborough Express; Blenheim, New Zealand [Blenheim, New Zealand]	
The Nelson Mail; Nelson, New Zealand [Nelson, New Zealand]	
The Northern Advocate; Whangarei, New Zealand [Whangarei, New Zealand]	
The Press; Christchurch, New Zealand [Christchurch, New Zealand]	
The Southland Times; Invercargill, New Zealand [Invercargill, New Zealand]	
Timaru Herald; Timaru [Timaru]	
Waikato Times; Hamilton, New Zealand [Hamilton, New Zealand]	
Oman	**1**
Times of Oman; Muscat [Muscat]	
Pakistan	**4**
AsiaNet Pakistan (Pvt) Ltd.	
Daily Times; Lahore [Lahore]	
Right Vision News; Lahore [Lahore]	
South Asian Media Net; Lahore [Lahore]	
Philippines	**1**
The Philippines News Agency (PNA); Manila [Manila]	
Russia	**4**
Daily News Bulletin, English; Moscow	
Interfax: Russia & CIS General Newswire; Moscow [Moscow]	
Interfax: Russia & CIS Insurance Weekly; Moscow	
Interfax-America, Inc.	
Saudi Arabia	**1**
Saudi Press Agency; Riyadh [Riyadh]	
Senegal	**1**
Agence de Presse Africaine	
Singapore	**2**
The Straits Times; Singapore [Singapore]	
Singapore Press Holdings Limited	
South Africa	**2**
Independent Newspapers, Ltd.	
Independent Online (South Africa)	
Spain	**1**
EFE News Service; Madrid [Madrid]	
Sri Lanka	**1**
Daily Mirror; Colombo [Colombo]	
Taiwan	**1**
China Post, [Local ed.]; Taipei, Taiwan [Taipei, Taiwan]	
Thailand	**4**
Asia News Monitor; Bangkok [Bangkok]	
Nation Multimedia Group	
Thai News Service Group	
The Nation; Bangkok [Bangkok]	
Uganda	**2**
Daily Monitor; Kampala [Kampala]	
The New Vision; Kampala [Kampala]	
UK	**53**
BBC Monitoring Former Soviet Union	
BBC Worldwide Limited	
Belfast Telegraph; Belfast [Belfast]	
Benchmark Information Limited	
Birmingham Mail; Birmingham (UK) [Birmingham (UK)]	
D C Thomson	
Daily Mail; London (UK) [London (UK)]	
Daily Post; Liverpool (UK)	
Daily Record; Glasgow (UK) [Glasgow (UK)]	
Daily Star	
Daily Star (Online); London (UK) [London (UK)]	
Daily Telegraph	
Dennis Publishing Ltd.	
Dumfries & Galloway Standard, Wednesday edition; Dumfries (UK) [Dumfries (UK)]	

Table 1 (*continued*)

Country and name of news sources	Total
East Grinstead Courier and Observer; East Grinstead (UK) [East Grinstead (UK)]	
Eastern Eye; London (UK) [London (UK)]	
Evening Standard; London (UK) [London (UK)]	
Evening Standard Limited	
Evening Times; Glasgow (UK) [Glasgow (UK)]	
Express (Online)	
Express Newspapers PLC	
Guardian News & Media Limited	
Huddersfield Daily Examiner; Huddersfield (UK) [Huddersfield (UK)]	
Independent Digital News & Media	
Independent Print Ltd	
Johnston Press New Media	
Liverpool Echo; Liverpool (UK) [Liverpool (UK)]	
London (UK) [London (UK)]	
Manchester Evening News; Glasgow (UK) [Glasgow (UK)]	
MGN Ltd.	
Mirror Regional Newspapers	
Newsquest (Herald & Times) Ltd	
Newsquest (North East) Ltd.	
Northern Echo; Darlington (UK) [Darlington (UK)]	
Scotland on Sunday; Edinburgh (UK) [Edinburgh (UK)]	
Scotsman Publications	
Solo Syndication, a division of Associated Newspapers Ltd.	
Sunday Telegraph	
Sunday Times	
Telegraph Media Group Limited	
Telegraph.co.uk; London [London]	
The Argus	
The Daily Mirror; London (UK) [London (UK)]	
The Daily Telegraph; London (UK) [London (UK)]	
The Financial Times Limited	
The Guardian; London (UK) [London (UK)]	
The Herald; Glasgow (UK) [Glasgow (UK)]	
The Independent; London (UK) [London (UK)]	
The Sun	
The Times; London (UK) [London (UK)]	
The Western Morning News; Plymouth (UK) [Plymouth (UK)]	
TTG Media Limited	
Western Mail; Cardiff (UK) [Cardiff (UK)]	
Country of publication unknown or not stated	**3**
Middle East News Online	
Newspapers PLC	
Prisacom	
US	**73**
Albuquerque Publishing Company	
AllAfrica.com, French ed.; Washington [Washington]	
AllAfrica.com; Washington [Washington]	
AP English Language News	
Bay Area News Group	
Boston Globe Media Partners, LLC	
Charleston Newspapers	
Chicago Sun Times	
CMG Corporate Services, Inc. on behalf of itself and the Newspapers	
CNN Newsource Sales, Inc.	
Columbian Publishing Company	
CQ Roll Call	
Daily News, L.P.	
Daytona Beach News - Journal, The; Daytona Beach, Fla. [Daytona Beach, Fla]	
Dow Jones & Company Inc	
El Paso Times	
Federal Information & News Dispatch, Inc.	
Gannett Co., Inc.	
Halifax Media Group	
Hearst Communications Inc., Hearst Newspapers Division	
Honolulu Star - Advertiser; Honolulu, Hawaii [Honolulu, Hawaii]	
Honolulu Star - Bulletin	
Journal Sentinel Inc.	
Las Vegas Review - Journal	
Las Vegas Sun	
Los Angeles Newspaper Group	
Madison Newspapers, Inc.	
McClatchy - Tribune Business News; Washington [Washington]	
New Haven Register	

(*continued on next page*)

Table 1 (*continued*)

Country and name of news sources	Total
New York Post	
New York Times Company	
Newsday Inc.	
North Jersey Media Group Inc.	
Oahu Publications Inc.	
Oakland Tribune; Oakland, Calif. [Oakland, Calif]	
Orange County Register; Santa Ana, Calif. [Santa Ana, Calif]	
Orlando Sentinel; Orlando, Fla. [Orlando, Fla]	
Pacific Daily News; Hagatna, Guam [Hagatna, Guam]	
Philadelphia Media Network (Newspapers) LLC	
Philadelphia Tribune; Philadelphia, Pa. [Philadelphia, Pa]	
Pittsburgh Post	
Pittsburgh Post - Gazette	
Portland Newspapers	
Pulitzer, Inc.	
RTTNews; Williamsville [Williamsville]	
Santa Fe New Mexican	
Savannah Morning News	
Scripps Howard	
Sonoma Media Investments, LLC	
South Florida Sun - Sentinel; Fort Lauderdale, Fla. [Fort Lauderdale, Fla]	
St. Joseph News - Press	
TCA Regional News; Chicago [Chicago]	
Telegram; Long Beach, Calif. [Long Beach, Calif]	
Telegraph Herald	
The Associated Press	
The Baton Rouge Advocate	
The Christian Science Publishing Society (d/b/a "The Christian Science Monitor")	
The Gazette; Colorado Springs, Colo. [Colorado Springs, Colo]	
The Post and Courier	
The Register-Guard	
The Salt Lake Tribune	
The Washington Post; Washington, D.C. [Washington, D.C]	
Times Picayune Publishing Company	
Times Publishing Co.	
Tribune Content Agency LLC	
Tribune Interactive, LLC	
Uloop, Inc.	
United Press International	
Voice of America News/FIND; Lanham	
Washington Jewish Week	
WP Company LLC d/b/a The Washington Post	
Xinhua News Agency - CEIS; Woodside [Woodside]	
Virgin Islands	**1**
The Virgin Islands Daily News; St. Thomas [St. Thomas]	
Yemen	**1**
Yemen Times	
TOTAL	**295**

given the 1.235 billion international visitors recorded in that year (UN World Tourism Organization, n.d.).

In terms of trends (see Fig. 2 and Table 4), the annual percentage change (APC) in incidence rates for all tourist fatalities and injuries suggests a statistically significant 21.2% annual increase between 2013 and 2016, after declining annually by 16.7% in the immediately preceding four-year period. This trend pattern parallels that observed for tourist injuries, which suggests that it is injuries, more than killings or deaths, that is driving the recent increase in overall tourist fatalities and injuries. Abductions and kidnapping of tourist tend to attract high-profile attention whenever it occurs but the study finds these incidents not only to be rare but also significantly declining in occurrence over the 17-year observation period (APC = −9.7). Incidence rate data also suggests attacks against tourists also declined (APC = 41) between 2011 and 2016. Data suggests little or no change in the incidence rate of tourists getting killed or death over the entire observation period (APC = 0.7), as is similarly observed for robberies (APC = 3.3) and rapes or sexual assaults (APC = −3.5).

2.4.2. Leading causes of tourist deaths

Although its incidence rate has neither worsened nor increased significantly over a 17-year period, killings and deaths of tourists represent the most frequently occurring unfortunate event reported in news articles. But what causes tourist deaths? Based on published news reports, the study finds that road injuries (code C.1.1 in the Global Burden of Disease classification (Institute for Health Metrics and Evaluation (IHME), 2017)) is the most prevalent cause of tourist deaths, comprising 34.9% of all reported death during the observed period (mean occurrence per year = 51.4; 95% CI 37.1–65.8). See Table 5. This is followed by deaths caused by falls (C.2.1), mean yearly occurrence = 15.4 (95% CI 6.8–24.2), comprising 10.5% of all news reported tourist deaths. The next two leading causes of tourist deaths are killings or deaths due to conflict and terrorism (C.4.3), mean yearly occurrence = 14.2 (95% CI 6.0–22.3) and comprising 9.6% of all observed deaths, followed by death caused by physical violence by firearm (C.3.2.1[3]), comprising 6% of all killings or deaths with mean occurrence per year = 8.8 (95% CI 2.6–15.0).

Referencing previously published studies, most of which utilize different data sources or target travelers not precisely defined as tourists (e.g., citizens abroad), the aforementioned cause-of-death findings tally well with a study of US citizens' death overseas based on data collected by the US State Department between 2004 and 2006, which found that as much as 37.8% of US citizens injury deaths were attributable to vehicle crashes (Tonellato et al., 2009). The findings also correspond with results of studies such as that conducted by Wilks

Table 2
Tourist fatalities and casualties reported in published English news outlets, 2000–2017(1H).

	No. of unique incidence reported	%	Mean incidence (per year) (s.d.)	95% CI	Min	Med	Max
Killings or deaths	1488	70	82.7 (23.2)	(71.1–94.2)	45	83	143
Injuries	343	16	19.1 (9.0)	(14.6–23.5)	9	15	34
Robberies	126	6	7.0 (4.2)	(4.9–9.1)	1	6	17
Rapes or sexual assaults	92	4	5.1 (3.4)	(3.4–6.8)	0	5	14
Attacks	66	3	3.7 (2.6)	(2.4–5.0)	0	3.5	9
Abductions (kidnapping)	11	1	1.2 (0.4)	(0.9–1.6)	1	1	2
Total	2126	100					

across the 17-year observation time span, the incidence rate at which tourists have suffered different types of fatalities or casualties is generally very small. In 2016, the incidence rate for all fatalities and casualties, for example, was 0.1595 per million visitors or 15.9 fatalities (or casualties) for every 100 million visitors (the highest rate recently recorded since 2005). The incidence rate of tourists dying or getting killed is 0.1158 per million visitors in 2016, a remarkably small figure (1999) and to some appreciable degree with the narrow injury-focused investigation of Guse, Cortés, Hargarten, and Hennes (2007). But the findings also differ compared to several other previous research. For

[3] Physical violence by firearm (C.3.2.1) is a Level-3 subset of a much broader cause-of-death category, i.e., interpersonal violence in the GBD code (C.3.2).

Table 3
Incidence rate per year per million visitors, for different types of unfortunate events befalling tourists.

Year	All fatalities and casualties	Killings or deaths	Injuries	Rapes or sexual assaults	Robberies	Attacks	Abductions
2000	0.1063	0.0664	0.0177	0.0074	0.0044	0.0089	0.0015
2001	0.1151	0.0797	0.0133	0.0044	0.0089	0.0059	0.003
2002	0.1132	0.0788	0.0129	0.0057	0.0086	0.0057	0.0014
2003	0.1148	0.0857	0.016	0.0029	0.0058	0.0044	0.0007
2004	0.1328	0.0986	0.021	0.0053	0.0066	0.0013	0.0007
2005	0.177	0.1213	0.0359	0.0074	0.0099	0.0012	0.0012
2006	0.1379	0.0783	0.0257	0.014	0.0093	0.007	0.0023
2007	0.1328	0.0914	0.0261	0.0054	0.0044	0.0033	0.0011
2008	0.1498	0.0984	0.0364	0.0053	0.0053	0.0011	0.0011
2009	0.1195	0.0972	0.0112	0.0006	0.0022	0.0089	0.0006
2010	0.1487	0.0932	0.0262	0.0063	0.0115	0.0094	0.001
2011	0.1416	0.1075	0.0131	0.004	0.01	0.006	0.001
2012	0.0965	0.0736	0.0115	0.001	0.0057	0.0048	0.0005
2013	0.0884	0.0711	0.0109	0.0036	0.0009	0.0018	0.0005
2014	0.1113	0.0774	0.0122	0.0052	0.0148	0.0017	0.0004
2015	0.1233	0.0892	0.0217	0.0042	0.0075	0.0008	0.0004
2016	0.1595	0.1158	0.0267	0.0049	0.0121	0.0004	0.0004

example, among recorded overseas visitor deaths to Australia between 2001 and 2003, only 14% of were accounted for by transportation accidents (Leggat & Wilks, 2009), with majority of visitor deaths caused by heart diseases (26%).

Groenheide et al. (2010) also found, using a survey of physicians, that cardiovascular events tend to be the most frequent cause of death for Dutch travelers (55.7%) followed by fatal (traffic) accidents (14%). In the more recent study on the mortality of foreign citizens in Croatia between 2001 and 2010 (Bečić et al., 2013), traffic-related causes accounted for 18.6% of all deaths, with most deaths recorded caused by natural causes, 38.9% of which was accounted for specifically by heart disease emanating mostly from older-age groups.

Table 6 reports the mortality rate per year of all observed causes of tourist deaths between 2000 and 2016, for all victims, and disaggregated by gender. The mortality rate trend for each cause over the same period is depicted in Fig. 3 alongside bar charts showing the frequency of each type of cause per year. Overall, the mortality rate for all different causes is small, though not negligible. Although road injuries (C.1.1) was found to be the most frequent cause of tourist deaths, the mortality rate in 2016 was 0.03 per million visitors (or 3 per 100 million visitors). Experiencing death while traveling appears therefore to be a rare event, even if, from the standpoint of newspaper reporting, they often capture huge attention from a global, media-reading public.

In terms of mortality rate trends (see Table 7 and multiple chart panels in Fig. 3), analysis by Joinpoint regression of the annual percentage change (APC) in mortality rates for various causes of tourist deaths reveals several notable and significant trend periods. The mortality rate for cardiovascular causes (B.2), for example, rose significantly between 2000 and 2016 (APC = 8.5; 95% CI 2.6-14.8, $t = 3.1$, $p < .05$), in particular for male tourists (APC = 6.9; 95% CI 1.6-12.5, $t = 2.8$, $p < .05$).

Despite an entrenched and general belief that terrorism, as well as regional and international conflicts, are detrimental to tourism (Araña & León, 2008), it is not necessarily a certainty (Hitchcock & Darma Putra, 2005). Korstanje and Clayton (2012) proffer evidence that tourists respond to terrorism differently from conflicts. Indeed, this study's findings reveal that tourist mortality rate arising from conflict and terrorism (C.4.3) significantly declined for male tourists over the 17-year observation period (APC = −5.9; 95% CI -11.3 to −0.1, $t = -2.2$, $p < .05$), and data patterns point toward the same trend for female tourists, as well as for all tourists in general, albeit statistically inconclusive for the latter two.

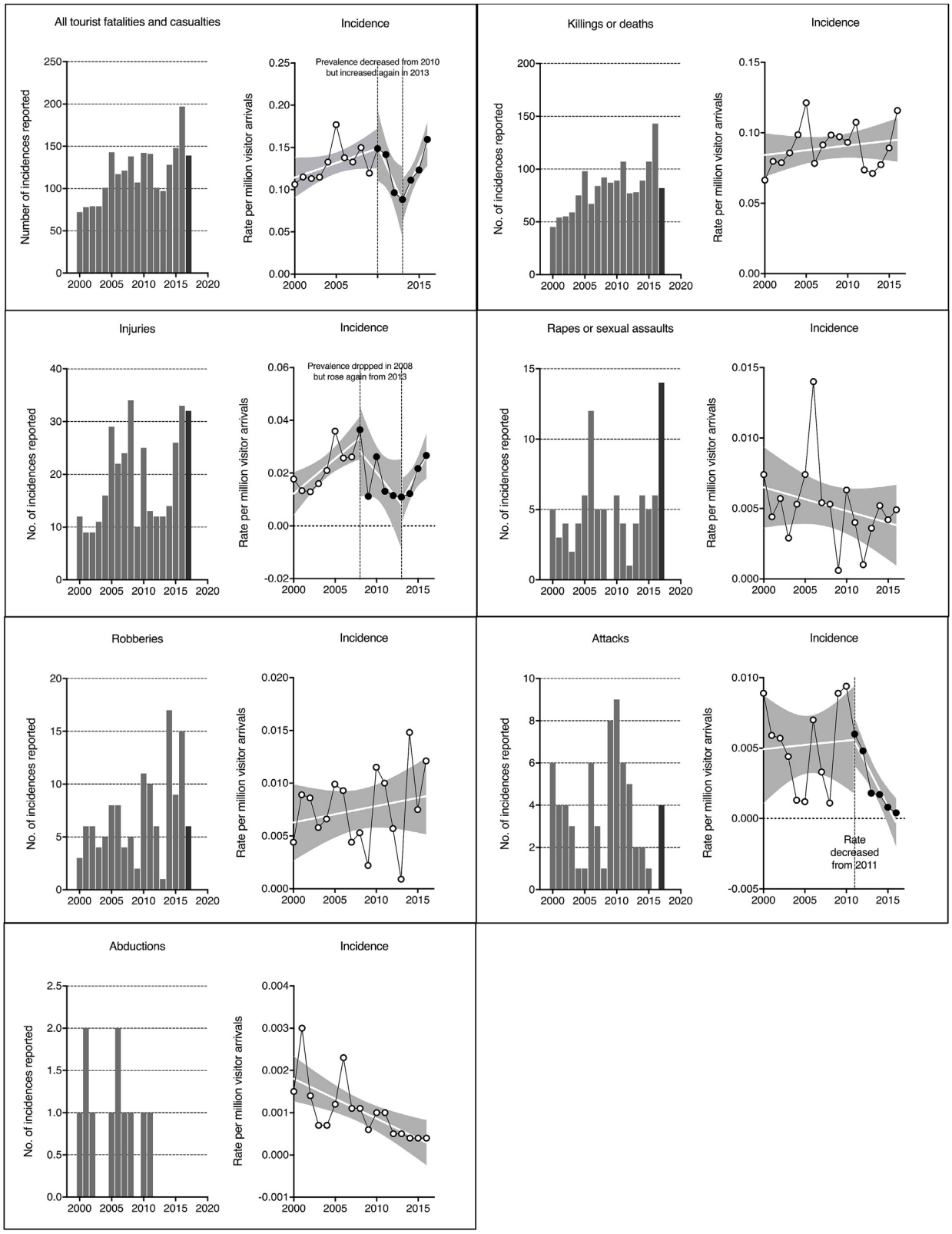
After increasing significantly in the period 2000–2010, tourist deaths from drug (B.7.3), alcohol (B.7.2) use or disorder, or poisoning (C.2.4) reversed dramatically and began to trend downwards from 2010 to 2016 (APC = −25.6; 95%CI -44.3 to −0.7, $t = -2.2$, $p < .05$). The risk of tourists dying from physical violence by other means (C.3.2.4), such as by assault, appears to be declining but with greater certainty for female tourists (APC = −5.2; 95% CI -9.1 to −1.2; $t = 2.8$, $p < .05$). An alarming and rising trend of deaths caused by physical violence by sharp object (C.3.2.2) over the entire observation appears to be significant (APC = 12.4; 95% CI 2.9–22.8; $t = 2.8$, $p < .05$). The trend pattern for other causes of death, in particular for other transport injuries, for example, by boat (C.1.2), appears to be erratic, with the mortality rate trending up for some periods but declining in others.

A noteworthy finding is that tourist death from road injuries (C.1.1), which was found to be the leading cause of tourist deaths, has not shown any significant rising or declining trend over the 17-year observation period. However, for this and many other causes of tourist deaths, where no consistent trend of decrease in the mortality rate can be observed, such findings also imply the absence of systematic and effective policies or interventions to diminish long-term risks for tourists. An erratic trend pattern suggests that wide swings in mortality rates can be sometimes observed and thus there can be periods where fatalities can be extremely and unpredictably high.

The same can be said for tourist deaths by cardiovascular causes (B.2) and physical violence by other means (e.g., by physical assault) (C.3.2.4), the data for both of which shows significant and consistent long-term increases in tourist mortality rates. Given the observed trend pattern for these causes, urgent intervention and decisive policies are needed to prevent mortality rates from further rising.

2.4.3. Geography of tourist deaths

The data set generated by the study recorded tourists dying in a total of 124 countries across 19 regional country groupings between 2000 and 2017 (H1). Tourist deaths that were most frequently reported in news reports occurred in Australia (n = 385, 17.9%), New Zealand (n = 229, 10.7%), India (n = 213, 9.9%), the US (n = 204, 9.5%), UK (n = 102, 4.7%), Thailand (n = 95, 4.4%), Spain (n = 70, 3.3%), Canada (n = 55, 2.6%), Turkey (n = 42, 1.9%), and Egypt (n = 42, 1.9%). The rarity of tourist deaths in general as well as on a per-cause of death basis precluded further statistical analyses to determine whether relative risks of tourists dying due to particular causes is geographically systematic, that is, whether they are higher (or lower) in some countries more than others. Such analyses rely on chi-square tests that require not only expected outcomes to compare observed data with but also sufficient minimum count data across several pre-defined categories of cross-tabulated cells, as desirable for example in this case, by countries and cause of death. Unfortunately, as reported earlier, only few studies in recent literature report data on which expected frequencies can be based and, where these are available, the estimates are dated, narrow in scope, or incomparable. To explore the impact of geography on the



Note: Shaded areas in incidence charts are 95% confidence intervals. Darker shaded bars in frequency chart indicates half year count data for 2017, if available.

Fig. 2. Frequency of news-reported incidents involving tourists (2000-17 1H) and incidence rate (per million visitors) depicting directional trend over time (2000–2016).

Note: Shaded areas in incidence charts are 95% confidence intervals. Darker shaded bars in frequency chart indicates half year count data for 2017, if available.

Table 4
Annual percentage change (APC) in incidence rates (per million) of various incidents involving tourists, by significant trend periods identified by Joinpoint regression, 2000–2016.

Incidence rate (per million) of …	Trend periods	APC
All fatalities and injuries	2000–2010	2.8
	2010–2013	−16.7
	2013–2016	21.2*
Killings or deaths	2000–2016	0.7
Injuries	2000–2008	10.7
	2008–2013	−21.9
	2013–2016	42.3
Rape or sexual assaults	2000–2016	−3.5
Robberies	2000–2016	3.3
Attacks	2000–2011	2.1
	2011–2016	−41.0
Abductions	2000–2016	−9.7*

Note: * *Indicates APC is significantly different from zero at the alpha = 0.05 level.*

likelihood of tourists dying due to certain causes, therefore, the study resorts to using raw count data for each tourist cause of death occurring in various regional country grouping, which are visualized as a heat map in Fig. 4 for straightforward interpretation. Fig. 4 is supplemented by Fig. 5 which shows multiple choropleth maps depicting the geographic distribution of count data for each cause of death across various countries.

The concentrated and higher density pattern of some of the shaded cells in Fig. 4 suggests that road injuries (C.1.1) is the most geographically distributed cause of death for tourists, occurring in almost all except in six regional country groupings. It is clearly most prevalent as a cause of tourist death in Oceania but also in North America, East Asia, and West Asia. Other noteworthy patterns in Fig. 4 suggest that tourists dying from falls (C.2.1) is most prevalent in North America, while death from conflict and terrorism (C.4.3) is most prevalent in Northern Africa. Southeast Asia is noteworthy for being geographically the most prevalent place for tourists to get killed from exposure to forces of nature (C.4.1). Some regions are distinct for being the most prevalent location for only few, sometimes for only one, type of cause. For example, Western Africa appears to suffer its tourists mostly from conflict and terrorism (C.4.3) and little else in terms of other causes of death. The Caribbean tends to be the region where tourist deaths from drugs (B.7.3) and alcohol (B.7.2) disorders or misuse, or poisoning (C.2.4), occurs. Central America suffers from not only conflict and terrorism (C.4.3) but also from physical violence by firearms (C.3.2.1). Reports of tourist deaths from Eastern Europe emanate mostly from exposure to forces of nature (C.4.1), while tourists dying in Western Europe is primarily (and likely only) due to road injuries (C.1.1).

In sum, the findings reveal that the most frequently occurring tragic event befalling tourists within a 17-year observation period of news reported in English published outlets is death, mostly from accidental causes, and in particular, but not only, from road injuries. Also observed were non-accidental but also prevalent causes of tourist deaths such as from physical violence by firearm or from interpersonal violence. However concerning, the overall mortality rates for different causes of tourist deaths over the long-term is miniscule and rare. But a few significant trends in the mortality rate of some causes of death are worth delving into further, such as the rising trend of tourist deaths from cardiovascular causes.

Of more import than the study's directly observable findings is the implications these findings have for generating new hypotheses for further research. Some empirical connections are rather quite evident even if they need further reliable confirmation. The rise, for example, of tourist deaths from cardiovascular causes is likely due in large part to the concomitant growth of senior citizens undertaking more travel over time (Chen & Shoemaker, 2014). But other causes of tourist deaths are likely to be more complex to analyze. The sizable number of tourists dying from road injuries, for example, could be a function not only of age (e.g., more senior citizens driving), but also of shortcomings in global enforcement of traffic safety policies or stricter implementation of safety standards for tour bus operators; it could also be attributable to the rise of more independent travelers undertaking, among others, self-drive tourism (Mahadevan, 2014).

3. Discussion

Previous studies on the mortality and morbidity of tourists offered only intermittent and partial glimpses into the nature of tourist deaths, with most contributions emanating mainly from the travel medicine

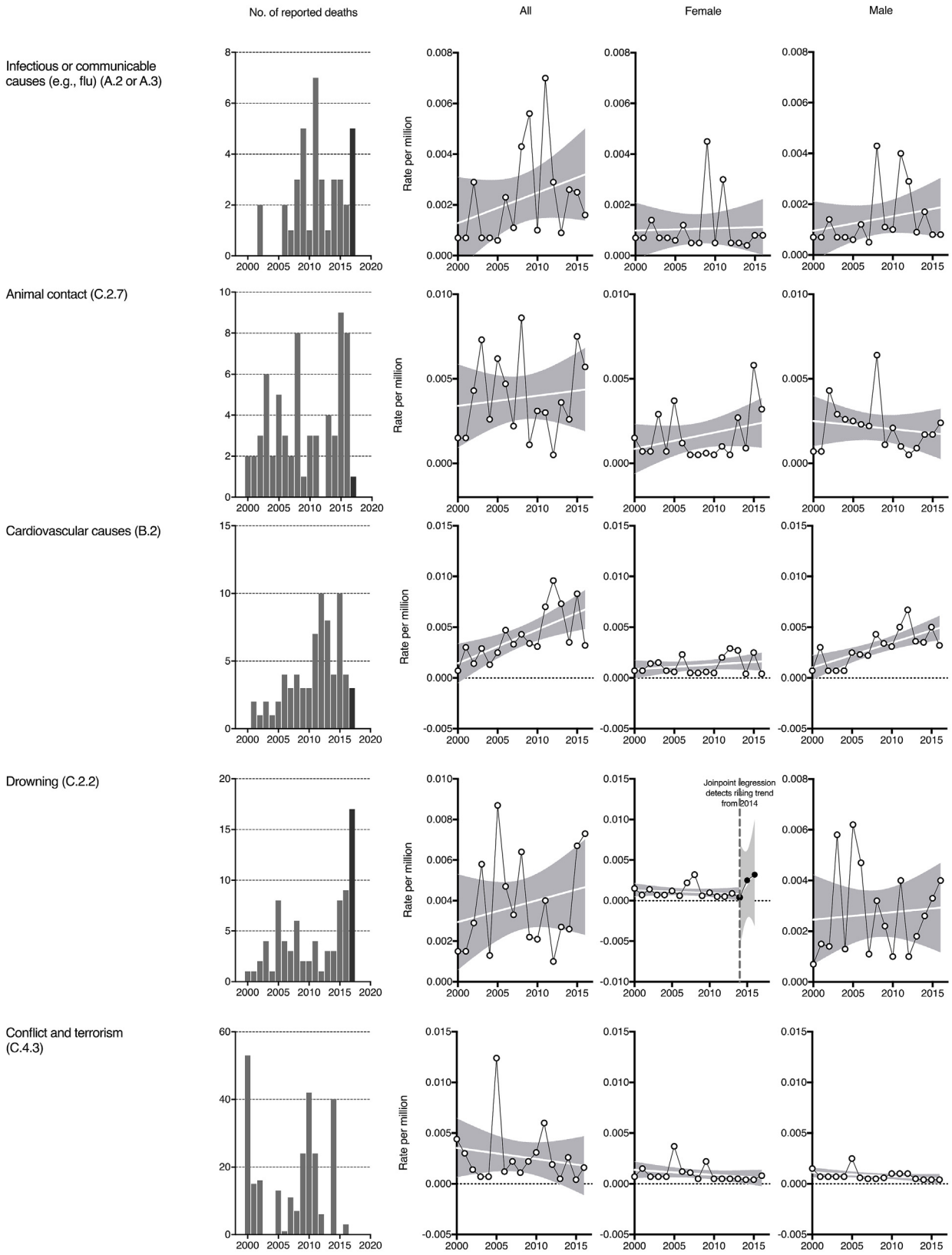
Table 5
Leading causes of tourist deaths reported in published English news outlets, 2000–2017 (H1).

Causes (Global Burden of Disease codes)	No. of reported deaths	%	Mean deaths p.a. (s.d.)	95% CI	Min	Med	Max
Road injuries (C.1.1)	926	34.9	51.4 (28.9)	(37.1–65.8)	17	45	104
Falls (C.2.1)	278	10.5	15.4 (17.6)	(6.7–24.2)	4	10.5	79
Conflict and terrorism (C.4.3)	255	9.6	14.2 (16.4)	(6.0–22.3)	0	9	53
Physical violence by firearm (C.3.2.1)	159	6.0	8.8 (12.5)	(2.6–15.0)	2	5.5	56
Other unintentional injuries (C.2.10)	157	5.9	8.7 (4.3)	(6.6–10.9)	3	8	23
Interpersonal violence, non-specific cause (C.3.2)	149	5.6	8.3 (14.6)	(1.0–15.5)	0	4	61
Other causes (non-specific, unknown, or multiple causes)	136	5.1	7.6 (5.0)	(5.1–10.1)	0	6.5	20
Exposure to forces of nature (C.4.1)	122	4.6	6.8 (17.4)	(-1.9-15.4)	0	2.5	76
Drowning (C.2.2)	79	3.0	4.4 (4.0)	(2.4–6.4)	1	3	17
Cardiovascular causes (B.2)	71	2.7	3.9 (2.9)	(2.5–5.4)	0	3	10
Animal contact (C.2.7)	65	2.5	3.6 (2.6)	(2.3–4.9)	0	3	9
Physical violence by sharp object (C.3.2.2)	63	2.4	3.5 (4.5)	(1.3–5.7)	0	2	18
Infectious or communicable causes, e.g., flu (A.2 or A.3)	38	1.4	2.1 (2.0)	(1.1–3.1)	0	2	7
Other transport injuries (boat) (C.1.2)	35	1.3	1.9 (3.6)	(0.2–3.7)	0	1	15
Fire (heat & hot substances) (C.2.3)	34	1.3	1.9 (3.8)	(0.0–3.8)	0	0	15
Drug (B.7.3) or alcohol use, disorder (B.7.2) or poisoning (C.2.4)	33	1.2	1.8 (3.3)	(0.2–3.5)	0	1	14
Environmental heat and cold exposure (incl. altitude) (C.2.9)	22	0.8	1.2 (0.9)	(0.8–1.7)	0	1	3
Struck by falling object (Other unintentional injuries C.2.10)	12	0.5	0.7 (1.1)	(0.1–1.2)	0	0	3
Physical violence by other means (C.3.2.4)	11	0.4	0.6 (0.7)	(0.3–1.0)	0	0.5	2
Self-harm (C.3.1)	4	0.2	0.2 (0.5)	(-0.1-0.5)	0	0	2
Exposure to mechanical forces (C.2.5)	1	0.0	0.1 (0.2)	(-0.1-0.2)	0	0	1
Total	2650	100					

Table 6
Mortality rate (per million visitors) per year, by cause of tourist deaths, and by gender.

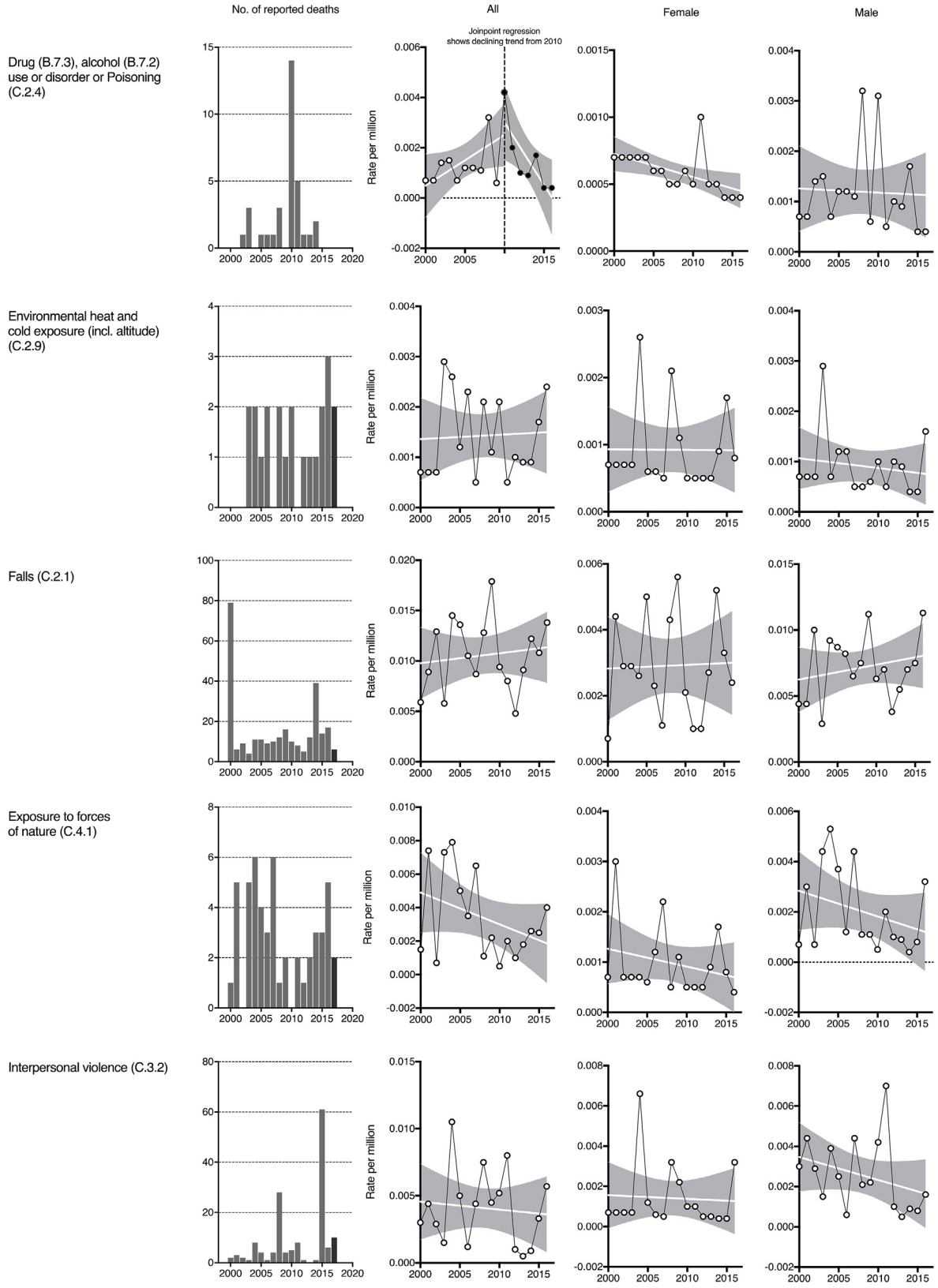
Year	Infectious or communicable causes (e.g., flu) (A.2 or A.3)			Animal contact (C.2.7)			Cardiovascular causes (B.2)			Conflict and terrorism (C.4.3)			Drowning (C.2.2)			Drug (B.7.3), alcohol (B.7.2) use or disorder or Poisoning (C.2.4)			Environmental heat and cold exposure (incl. altitude) (C.2.9)			Falls (C.2.1)		
	A	F	M	A	F	M	A	F	M	A	F	M	A	F	M	A	F	M	A	F	M	A	F	M
2000	0.0007	0.0007	0.0007	0.0015	0.0015	0.0007	0.0007	0.0007	0.0007	0.0044	0.0007	0.0015	0.0015	0.0015	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0059	0.0007	0.0044
2001	0.0007	0.0007	0.0007	0.0015	0.0007	0.0007	0.003	0.0007	0.003	0.003	0.0015	0.0007	0.0015	0.0007	0.0015	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0089	0.0044	0.0044
2002	0.0029	0.0014	0.0014	0.0043	0.0007	0.0043	0.0014	0.0014	0.0007	0.0014	0.0007	0.0007	0.0029	0.0014	0.0014	0.0014	0.0007	0.0014	0.0007	0.0007	0.0007	0.0129	0.0029	0.01
2003	0.0007	0.0007	0.0007	0.0073	0.0029	0.0029	0.0029	0.0015	0.0007	0.0007	0.0007	0.0007	0.0058	0.0007	0.0058	0.0015	0.0007	0.0015	0.0029	0.0007	0.0029	0.0058	0.0029	0.0029
2004	0.0007	0.0007	0.0007	0.0026	0.0007	0.0026	0.0013	0.0007	0.0007	0.0007	0.0007	0.0007	0.0013	0.0007	0.0013	0.0007	0.0007	0.0007	0.0026	0.0026	0.0007	0.0145	0.0026	0.0092
2005	0.0006	0.0006	0.0006	0.0062	0.0037	0.0025	0.0025	0.0006	0.0025	0.0124	0.0037	0.0025	0.0087	0.0012	0.0062	0.0012	0.0006	0.0012	0.0012	0.0006	0.0012	0.0136	0.005	0.0087
2006	0.0023	0.0012	0.0012	0.0047	0.0012	0.0023	0.0047	0.0023	0.0023	0.0012	0.0012	0.0006	0.0047	0.0006	0.0047	0.0012	0.0006	0.0012	0.0023	0.0006	0.0012	0.0105	0.0023	0.0082
2007	0.0011	0.0005	0.0005	0.0022	0.0005	0.0022	0.0033	0.0005	0.0022	0.0022	0.0011	0.0005	0.0033	0.0022	0.0011	0.0011	0.0005	0.0011	0.0005	0.0005	0.0005	0.0087	0.0011	0.0065
2008	0.0043	0.0005	0.0043	0.0086	0.0005	0.0064	0.0043	0.0005	0.0043	0.0011	0.0005	0.0005	0.0064	0.0032	0.0032	0.0032	0.0005	0.0032	0.0021	0.0021	0.0005	0.0128	0.0043	0.0075
2009	0.0056	0.0045	0.0011	0.0011	0.0006	0.0011	0.0034	0.0006	0.0034	0.0022	0.0022	0.0006	0.0022	0.0006	0.0022	0.0006	0.0006	0.0006	0.0011	0.0011	0.0006	0.0179	0.0056	0.0112
2010	0.001	0.0005	0.001	0.0031	0.0005	0.0021	0.0031	0.0005	0.0031	0.0031	0.0005	0.001	0.0021	0.001	0.001	0.0042	0.0005	0.0031	0.0021	0.0005	0.001	0.0094	0.0021	0.0063
2011	0.007	0.003	0.004	0.003	0.001	0.001	0.007	0.002	0.005	0.006	0.0005	0.001	0.004	0.0005	0.004	0.002	0.001	0.0005	0.0005	0.0005	0.0005	0.008	0.001	0.007
2012	0.0029	0.0005	0.0029	0.0005	0.0005	0.0005	0.0096	0.0029	0.0067	0.0019	0.0005	0.001	0.001	0.0005	0.001	0.001	0.0005	0.001	0.001	0.0005	0.001	0.0048	0.001	0.0038
2013	0.0009	0.0005	0.0009	0.0036	0.0027	0.0009	0.0073	0.0027	0.0036	0.0005	0.0005	0.0005	0.0027	0.0009	0.0018	0.0009	0.0005	0.0009	0.0009	0.0005	0.0009	0.0091	0.0027	0.0055
2014	0.0026	0.0004	0.0017	0.0026	0.0009	0.0017	0.0035	0.0004	0.0035	0.0026	0.0004	0.0004	0.0026	0.0004	0.0026	0.0017	0.0004	0.0017	0.0009	0.0009	0.0004	0.0122	0.0052	0.007
2015	0.0025	0.0008	0.0008	0.0075	0.0058	0.0017	0.0083	0.0025	0.005	0.0004	0.0004	0.0004	0.0067	0.0025	0.0033	0.0004	0.0004	0.0004	0.0017	0.0017	0.0004	0.0108	0.0033	0.0075
2016	0.0016	0.0008	0.0008	0.0057	0.0032	0.0024	0.0032	0.0004	0.0032	0.0016	0.0008	0.0004	0.0073	0.0032	0.004	0.0004	0.0004	0.0004	0.0024	0.0008	0.0016	0.0138	0.0024	0.0113

Year	Exposure to forces of nature (C.4.1)			Interpersonal violence (GBD Level 3)			Other transport injuries (boat) (C.1.2)			Other unintentional injuries (C.2.10)			Physical violence by firearm (C.3.2.1)			Physical violence by other means (C.3.2.4)			Physical violence by sharp object (C.3.2.2)			Road injuries (C.1.1)		
	A	F	M	A	F	M	A	F	M	A	F	M	A	F	M	A	F	M	A	F	M	A	F	M
2000	0.0015	0.0007	0.0007	0.003	0.0007	0.003	0.0044	0.0015	0.003	0.0089	0.0015	0.0059	0.0044	0.0015	0.0015	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0251	0.0074	0.0148
2001	0.0074	0.003	0.003	0.0044	0.0007	0.0044	0.0044	0.0007	0.0044	0.0044	0.003	0.0015	0.0059	0.0015	0.0044	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0354	0.0103	0.0133
2002	0.0007	0.0007	0.0007	0.0029	0.0007	0.0029	0.0007	0.0007	0.0007	0.0115	0.0057	0.0057	0.0043	0.0007	0.0029	0.0014	0.0014	0.0007	0.0014	0.0007	0.0014	0.0186	0.0057	0.0057
2003	0.0073	0.0007	0.0044	0.0015	0.0007	0.0015	0.0007	0.0007	0.0007	0.0116	0.0087	0.0029	0.0029	0.0007	0.0007	0.0015	0.0015	0.0007	0.0015	0.0007	0.0015	0.0291	0.0116	0.0102
2004	0.0079	0.0007	0.0053	0.0105	0.0066	0.0039	0.0007	0.0007	0.0007	0.0066	0.0007	0.0066	0.0066	0.0007	0.0039	0.0007	0.0007	0.0007	0.0066	0.0026	0.0026	0.0224	0.0026	0.0158
2005	0.005	0.0006	0.0037	0.005	0.0012	0.0025	0.0006	0.0006	0.0006	0.0111	0.005	0.005	0.0012	0.0006	0.0006	0.0006	0.0006	0.0006	0.0012	0.0012	0.0006	0.0359	0.0099	0.0223
2006	0.0035	0.0012	0.0012	0.0012	0.0006	0.0006	0.0006	0.0006	0.0006	0.0093	0.0035	0.0058	0.0023	0.0006	0.0012	0.0006	0.0006	0.0006	0.0012	0.0006	0.0012	0.021	0.0058	0.0093
2007	0.0065	0.0022	0.0044	0.0044	0.0005	0.0044	0.0011	0.0011	0.0005	0.0044	0.0011	0.0022	0.0022	0.0005	0.0022	0.0011	0.0005	0.0011	0.0054	0.0011	0.0044	0.0359	0.0141	0.0163
2008	0.0011	0.0005	0.0011	0.0075	0.0032	0.0021	0.0005	0.0005	0.0005	0.0128	0.0043	0.0064	0.0053	0.0032	0.0021	0.0011	0.0011	0.0005	0.0005	0.0005	0.0005	0.0203	0.0096	0.0086
2009	0.0022	0.0011	0.0011	0.0045	0.0022	0.0022	0.0006	0.0006	0.0006	0.0145	0.0022	0.0089	0.0045	0.0011	0.0022	0.0022	0.0006	0.0022	0.0022	0.0006	0.0022	0.0257	0.0078	0.0078
2010	0.0005	0.0005	0.0005	0.0052	0.001	0.0042	0.0021	0.0005	0.001	0.0084	0.0042	0.0031	0.0063	0.0005	0.0021	0.0021	0.001	0.0005	0.0021	0.0021	0.0005	0.0304	0.0105	0.0105
2011	0.002	0.0005	0.002	0.008	0.001	0.007	0.005	0.0005	0.002	0.01	0.006	0.003	0.007	0.0005	0.005	0.002	0.001	0.001	0.003	0.001	0.001	0.0261	0.007	0.006
2012	0.001	0.0005	0.001	0.001	0.0005	0.001	0.0029	0.0005	0.0029	0.0076	0.0038	0.0038	0.0029	0.0005	0.0019	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0229	0.0086	0.0096
2013	0.0018	0.0009	0.0009	0.0005	0.0005	0.0005	0.0018	0.0005	0.0018	0.0046	0.0018	0.0027	0.0046	0.0005	0.0027	0.0009	0.0005	0.0009	0.0064	0.0036	0.0018	0.021	0.0073	0.0119
2014	0.0026	0.0017	0.0004	0.0009	0.0004	0.0009	0.0009	0.0009	0.0004	0.0052	0.0009	0.0035	0.0052	0.0026	0.0017	0.0009	0.0004	0.0004	0.0009	0.0004	0.0004	0.0235	0.0043	0.0087
2015	0.0025	0.0008	0.0008	0.0033	0.0004	0.0008	0.0008	0.0008	0.0004	0.0075	0.0042	0.0033	0.0042	0.0017	0.0017	0.0004	0.0004	0.0004	0.0017	0.0004	0.0017	0.0242	0.0092	0.0133
2016	0.004	0.0004	0.0032	0.0057	0.0032	0.0016	0.0024	0.0008	0.0004	0.0097	0.0049	0.004	0.0032	0.0004	0.0024	0.0004	0.0004	0.0004	0.0146	0.0024	0.0121	0.03	0.0162	0.0089



Note: Shaded areas in incidence charts are 95% confidence intervals. Darker shaded bars in frequency chart indicate half year (not full year) coverage of count data for 2017, if available.

Fig. 3. Reported tourist deaths (2000–2017 1H), by various causes, and mortality rate over time (2000–2016).
Note: Shaded areas in incidence charts are 95% confidence intervals. Darker shaded bars in frequency chart indicate half year (not full year) coverage of count data for 2017, if available.



Note: Shaded areas in incidence charts are 95% confidence intervals. Darker shaded bars in frequency chart indicate half year (not full year) coverage of count data for 2017, if available.

Fig. 3. (*continued*)

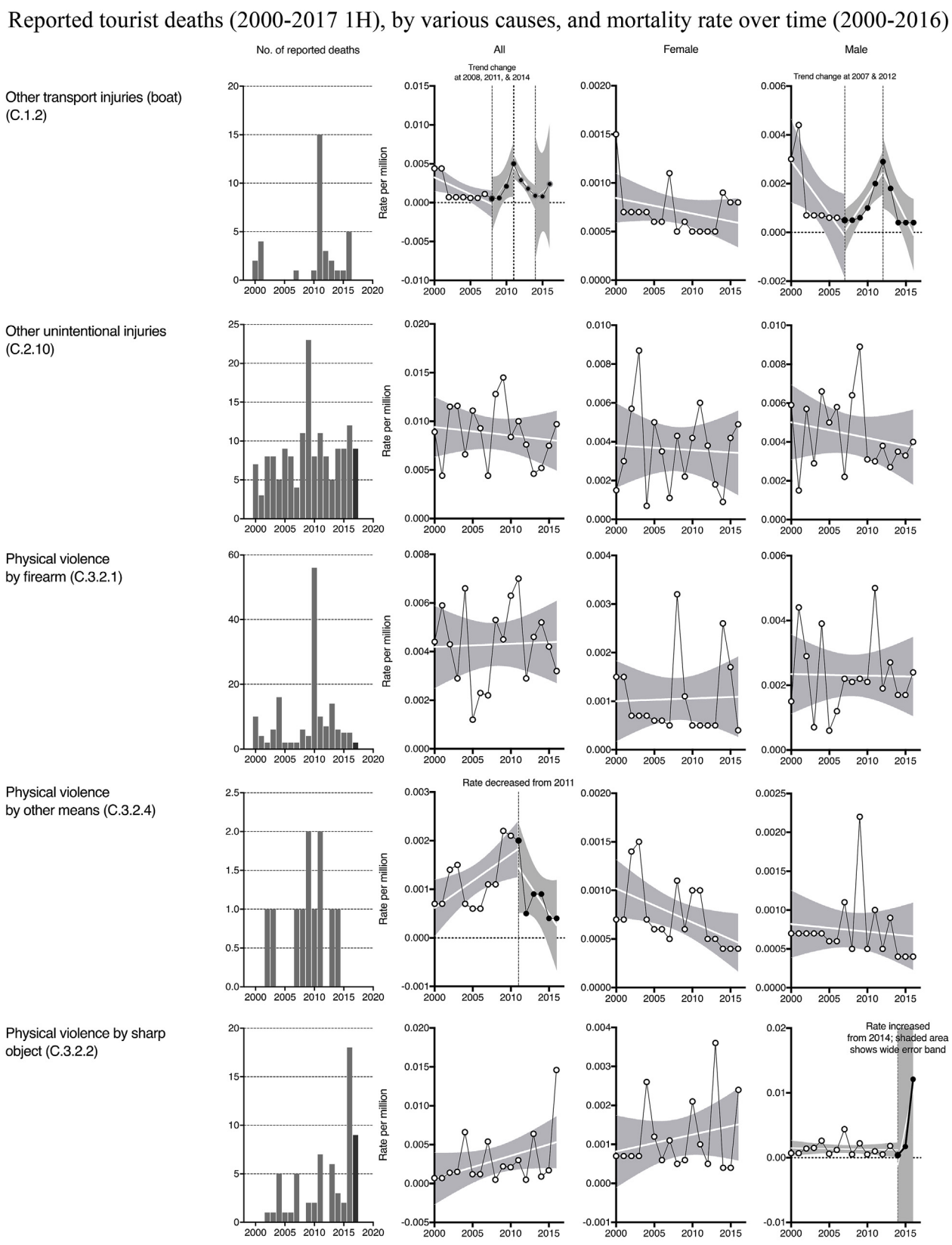
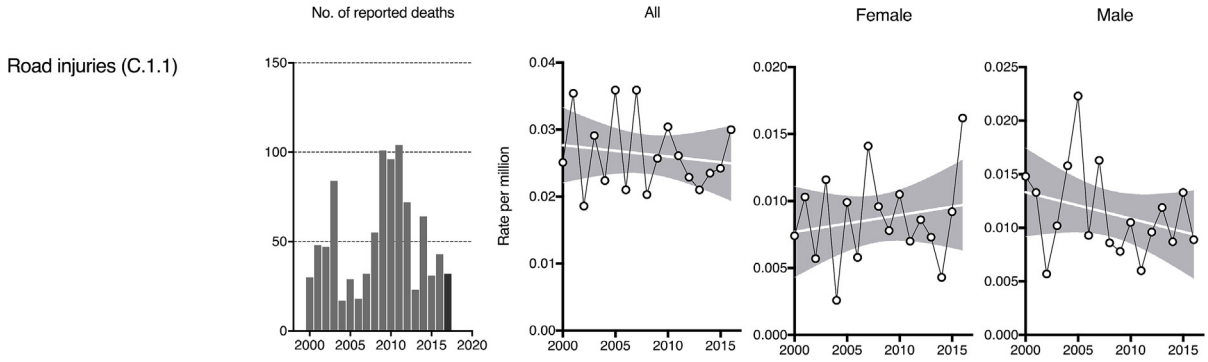


Fig. 3. (*continued*)



Note: Shaded areas in incidence charts are 95% confidence intervals. Darker shaded bars in frequency chart indicate half year (not full year) coverage of count data for 2017, if available.

Fig. 3. (*continued*)

literature (Bečić et al., 2013; Leggat & Wilks, 2009; McInnes, Williamson, & Morrison, 2002; Tonellato et al., 2009). The advent of modern technology now enables us to mine latent or dormant knowledge contained in alternative data sources such as news reports, stretching over a longer observation span than previously allowed by available resources, and to apply consistent systematic protocols in data extraction. Such developments, coupled with the digitization and accumulation of a substantial archive of news reports, has opened up alternative methods to aggregate and consolidate information about obscure phenomena such as fatalities and casualties befalling tourists and to compare data with heretofore disparate sources of information.

Although driven by modern technology, novel data collection methods do not necessarily guarantee better reliability and validity of resulting studies; any method, however new, is still subject to some forms and degree of bias and weaknesses. As a source of data for undertaking event analysis, news reports for example are subject to selection bias (Barranco & Wisler, 1999). Reported incidents of deaths and injuries involving international tourists may be reported more frequently by journalists and news editors than those involving domestic visitors.

Another shortcoming of using news reports as a source of mortality data is that different factors can over- or under-represent actual data through media self-censorship. Different countries, cities, and journalistic values influence consideration of what is newsworthy and thus

Table 7
Annual percentage change (APC) in mortality rates (per million) of various causes of tourist deaths, by significant trend periods identified by Joinpoint regression and by gender, 2000–2016.

	All		Female		Male	
	Trend period	APC	Trend period	APC	Trend period	APC
Animal contact (C.2.7)	2000–2016	1.4	2000–2016	6.9	2000–2016	−3.6
Infectious or communicable causes (e.g., flu) (A.2 or A.3)	2000–2016	3.1	2000–2016	1.1	2000–2016	3.3
Cardiovascular causes (B.2)	2000–2016	8.5*	2000–2016	5.7	2000–2016	6.9*
Conflict and terrorism (C.4.3)	2000–2016	−6.1	2000–2016	−7.0	2000–2016	−5.9*
Drowning (C.2.2)	2000–2016	2.3	2000–2014	−1.9	2000–2016	−0.9
			2014–2016	73.2		
Drug (B.7.3), alcohol (B.7.2) use or disorder or Poisoning (C.2.4)	2000–2010	16.2*	2000–2016	−3.0*	2000–2016	−0.3
	2010–2016	−25.6*				
Environmental heat and cold exposure (incl. altitude) (C.2.9)	2000–2016	−0.3	2000–2016	−1.1	2000–2016	−2.0
Exposure to forces of nature (C.4.1)	2000–2016	−6.3*	2000–2016	−3.8	2000–2016	−4.9
Falls (C.2.1)	2000–2016	0.6	2000–2016	0.0	2000–2016	1.2
Interpersonal violence (GBD Level 3)	2000–2016	−1.0	2000–2016	−2.5	2000–2016	−2.7
Other transport injuries (boat) (C.1.2)	2000–2008	−25.8*	2000–2016	−1.8	2000–2007	−29.7*
	2008–2011	133.8			2007–2012	53.4
	2011–2014	−44.6			2012–2016	−43.9*
	2014–2016	61.3				
Other unintentional injuries (C.2.10)	2000–2016	−1.4	2000–2016	−1.4	2000–2016	−2.9
Physical violence by firearm (C.3.2.1)	2000–2016	−0.2	2000–2016	2.1	2000–2016	−1.3
Physical violence by other means (C.3.2.4)	2000–2011	8.1	2000–2016	−5.2*	2000–2016	−1.4
	2011–2016	−28.2				
Physical violence by sharp object (C.3.2.2)	2000–2016	12.4*	2000–2016	5.5	2000–2014	−4.2
					2014–2016	205.4
Road injuries (C.1.1)	2000–2016	−0.8	2000–2016	1.7	2000–2016	−2.5

* Indicates APC is significantly different from zero at the alpha = 0.05 level.

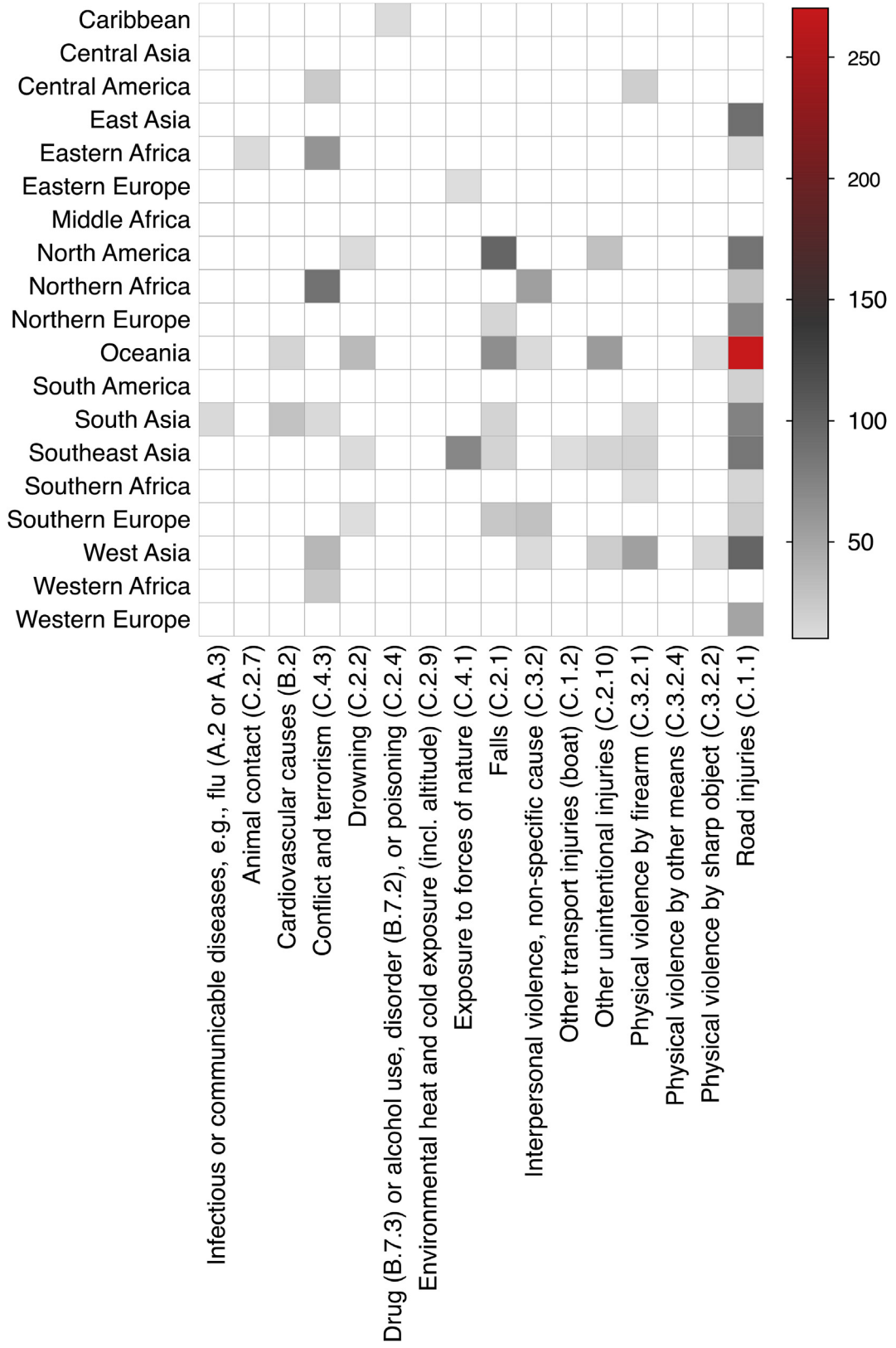


Fig. 4. Geography of tourist deaths—Heat map showing count of tourist deaths, with each cell defined by cause-of-death and regional country grouping, 2000–2017 (1H).

differ considerably in accounting for the occurrences of visitor deaths and injuries. Political or commercial factors may also inhibit the actual or timely reporting of tourist fatalities and their causes. Cultural issues and values may also contribute to media self-censorship, especially in regions wherein reporting of suicides, sexual assaults, honor killings, or domestic violence is often suppressed. Finally, civil laws and cultural practices may inhibit the journalistic reporting of deaths out of respect for family or next-of-kin. The findings of this study must therefore be

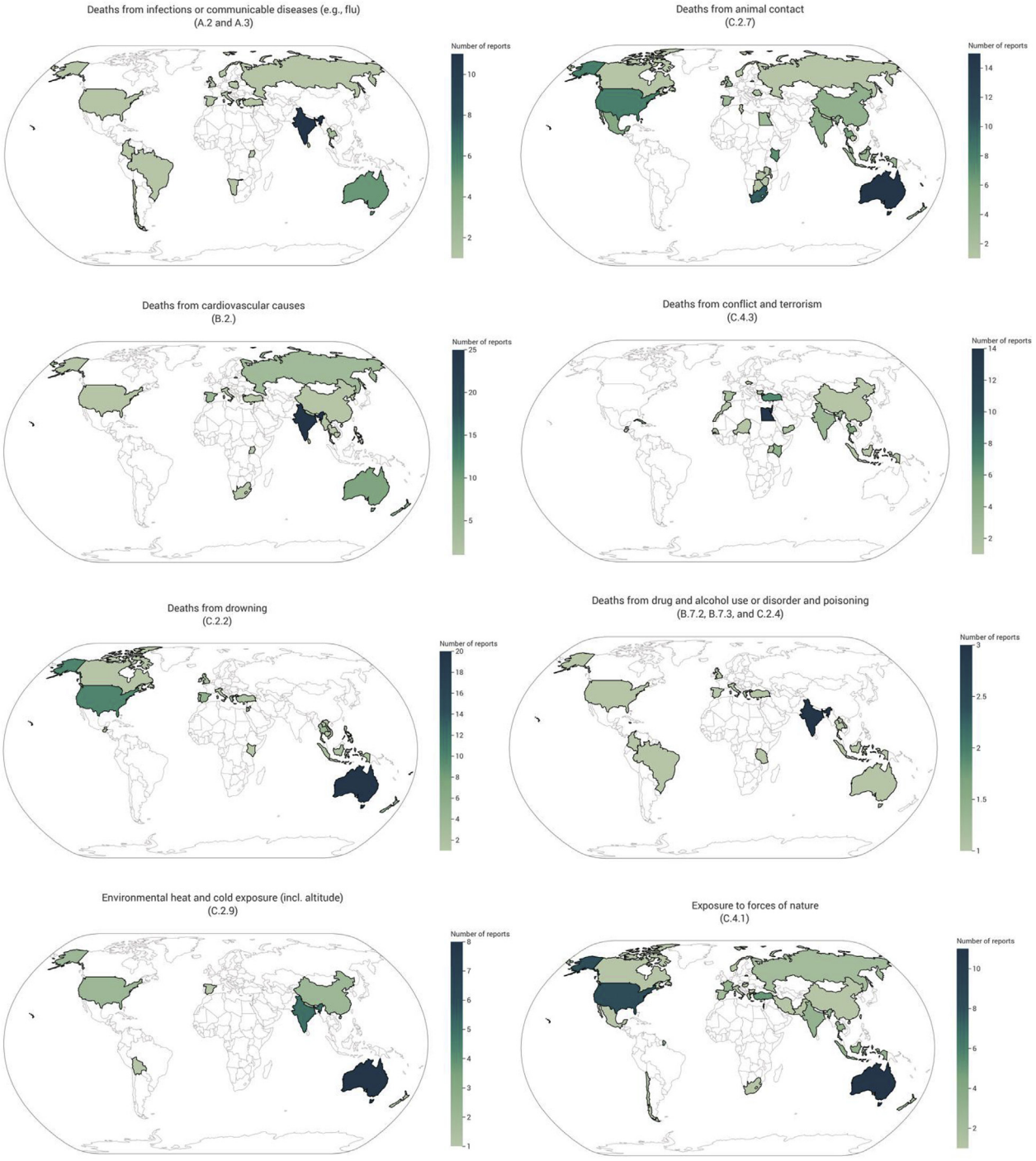


Fig. 5. Geography of tourist deaths—Choropleth maps showing intensity of tourist deaths (based on count data), by cause of death, 2000–2017 (1H).

considered in the context of how different cultures and countries treat the media reporting of deaths, including those of visitors.

Though it sought to overcome the weaknesses inherent in earlier studies dealing with traveler mortality, the novel method undertaken by this study is by no means immune from the shortcomings enumerated above. In mitigation, the study did draw from two extensive meta-databases that compiled news reports from multiple news sources from a sizable number of countries, which would lessen the impact of selection bias and self-censorship if present.

Future studies along these lines should not only tackle the constraints imposed by selection bias and self-censorship. Replication studies with a local or regional scope should be undertaken to compare results over time and achieve convergence across different estimates of tourist fatalities and injuries. Employing divergent and multiple methods of observations such as population surveys can be employed in order to validate the metadata extracted from news archives. These methods, however, are temporally and financially prohibitive because it requires large scale surveys to be conducted encompassing several regions. However imperfect, data from news events counts among the only readily available, accessible, and timely source thus far readily available for investigating the phenomenon of tourist deaths on a global scale and spanning a long period of observation.

It is important to note that casualty data from mass fatality events (such as large scale earthquakes, tsunamis, disease outbreaks (e.g.,

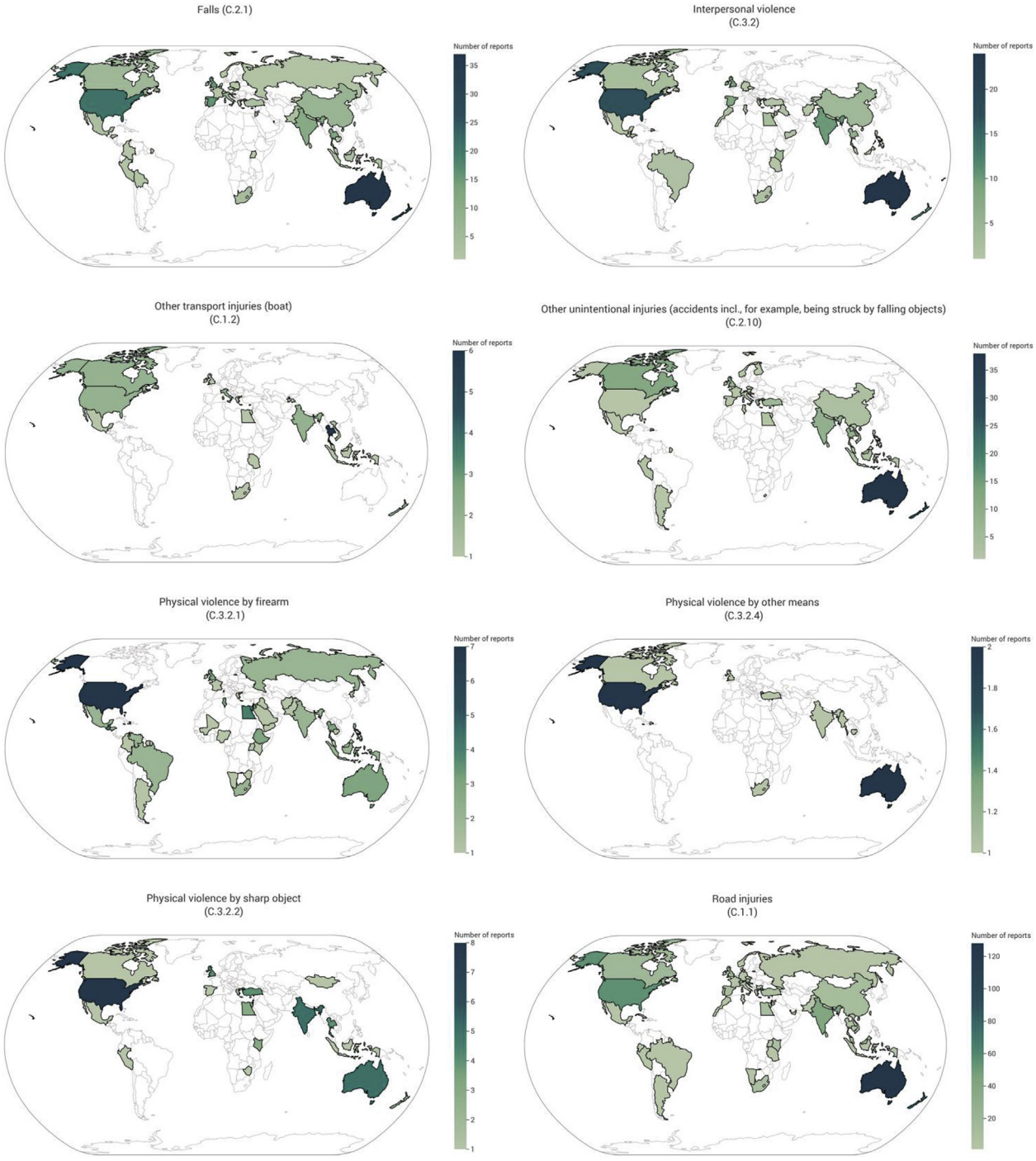


Fig. 5. (*continued*)

SARS), and plane crashes) in news reports are often obscured because more media attention is often given to and focused on the tragic nature of the event itself and few, if any, factual details ever arise or becomes knowable with certainty. The largescale and widespread deaths caused by events such as the 26 December 2004 Indian Ocean tsunami, the 2011 earthquake in Japan, or the 2003 SARS outbreak, though widely reported, lacked specific data on the number of visitors affected since the events also (and perhaps more significantly) impacted local residents. Such mass fatal events result in large numbers of missing victims, or, among those known to have died, the specific cause of deaths (i.e., the various sequelae arising from the event) is unknowable. In such cases, therefore, news reports do not constitute a good source of data for accounting tourist fatalities. Fortunately, such events do not occur often or regularly enough to alter long-term directional trends, even if occasionally they would register in observation series as peaks or troughs. In future and given better means to identify and account for mass fatalities, large scale casualty events may yield data and strengthen current estimates.

Future research can serve to refine this line of study. For example, the preeminence of cardiovascular causes of tourist deaths in the medical literature contrasts with road injuries and falls being the most prevalent cause of tourist mortality as found in this study. The discrepant estimates can be an artifact of two factors: the source of data—newspapers tend to focus more on sensationalistic news—such as road accidents or falls (i.e., selection bias), but it can also be because heart diseases and cardiovascular causes of deaths are likely to occur

among senior travelers and tend to be reported by health authorities rather than by journalists. Thus, age-adjusted prevalence and mortality rates should be incorporated in future refinement studies. But alas, no current data on age-segmented traveler mortality exists as yet.

Until the UNWTO and the many international tourism agencies and statutory authorities working with it coordinate and establish a global system for unifying and aligning common standards for reporting, incidences of traveler mortality and casualty will largely remain a veiled knowledge area. To advance theory building in tourism and to paint a more complete picture of traveler behavior and of the tourism system which enables it, baseline data recordings and estimations of the many unfortunate events befalling tourists is necessary. The work reported herein is but one effort that seek to shed more light in this regard. Far more consequential than the method explored by this study, however, is its finding that our current knowledge of the circumstances causing the deaths of travelers or their injuries is seriously fragmented.

With cautious optimism, this study opens promising avenues for more effective practice of tourism planning, management, and intervention as well as in advancing theories regarding the continued progress of tourism behavior and activity on a global scale. In one practical, albeit morbid, sense, knowing how tourists die gives us a glimpse of (or indicators as to) how far tourism is being pushed to the very limits of capacity to manage it. Do more tourist deaths from animal contact suggest that tourism is invading heretofore unexplored natural areas? Are more frequent attacks and victimization of tourists, for example, contingent more on the increasing intensity of tourism or on the endemic nature of interpersonal violence of certain places and cultural contexts? Tracking tourist deaths due to falls, for example, suggests several viable hypotheses. It could suggest the foolhardiness of tourists in going to extremes in taking 'selfies' which, in many instances lead to fatal falls. Death by falling is indicative of how risky and fatally adventurous tourists sometimes go unpreparedly into unexplored or inhospitable geography or environments.

In conclusion, many previous studies and the one reported in this paper suggest that, while it is not zero, the probability of tourists dying while traveling is rare. But there are, however, considerable variations in the causes, the geography, and the characteristics of the victims, all of which have also been shown by this study to vary over time. The rarity of tourist mortality and morbidity does not, however, preclude the necessity for better management and planning to avoid, minimize, and prevent all types of risks. On the other hand, as Page (2009) asserted, one cannot completely manage risk out of tourism. The nature and epidemiology of deaths and injuries befalling travelers require more observations and further study to help keep it in check especially in the era of mass travel we are now in. The rather broad scope, expansive time-period coverage, and variety of causes of travelers' mortality and morbidity identified by this study, as well as the long-term trends observed for each type, should help channel resources more efficiently for this purpose.

Author note

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Leonardo (Don) A.N. Dioko, Phd., is Professor at the Institute for Tourism Studies, Macau (IFT), where he teaches courses in tourism and hospitality marketing and management. Concurrently, he is Director of IFT's Tourism Research Center (ITRC), which conducts policy research on Macau's tourism development, many of which are commissioned by the Macau S.A.R. Government, and center on destination or tourism carrying capacity. Don's research interest includes, inter alia, destination branding, the shaping of tourism policy, and knowledge disparities between tourism theory building and applications.

Rich Harrill, Phd., is an accomplished center director with a strong record of success and an international reputation as an expert in tourism, economic development, and international development with the University of South Carolina (2005-Present) and Georgia Tech's Enterprise Innovation Institute (2001–2005). He is a Research Professor and was Acting School Director of the University of South Carolina's School of Hotel, Restaurant, and Tourism Management (2012–2016). Dr. Harrill is one of the few academics to publish in both leading tourism and urban planning journals and have university teaching experience in tourism and urban planning.