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INCLUDING TERROR IN TERRORISM RISK ASSESSMENTS

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There is a disconnect in how we consider the risk of terrorism. It is well known that terrorism is a weapon of the weak, seeking to inflict fear where they cannot inflict damage. Most risk assessments find terrorism to be a small risk with only 10 to 30 people dying per year on average. (Sageman 2016; Mueller and Stewart 2012; Meierrieks and Gries 2013) But this is hard to reconcile with public and political attention to the issue. Since Sept. 11th, 2001, terrorism has been seen as one of the nation's greatest concerns in the public and experts as well. (Pew Research Center 2016; 2016; Torres 2018) This has been reflected in government policy, with a massive restructuring of government and dozens of laws spending billions of dollars on homeland security activities.

To some extent, this represents an overestimation of the risk by the public. There is a well-established literature that describes how people overestimate the kinds of rare, unknown, and dreaded risks that terrorism represents. (Kahneman 2011; P. Slovic 1987; Paul Slovic et al. 2004; Fischhoff, Slovic, and Lichtenstein 1982) But this also represents an underestimation by experts. Expert risk analysts are more likely to focus on quantifiable consequences, counting lives lost and economic damage. (Committee to Review the DHS's Approach to Risk Analysis and National Research Council of the National Academies 2010; Fischhoff, Slovic, and Lichtenstein 1982; Lazo, Kinnell, and Fisher 2000) If there are aspects of consequence that are harder to quantify then risk analysts may have a blind spot in their analysis.

One important non-quantitative measure of terrorism consequence that is overlooked is psychological damage. The defining aspect of terrorism is the terror. It is a weapon of the weak; when an adversary is not strong enough to obtain their objectives by force then they may use violence to obtain their objectives by fear. This means also that terrorism is performative violence. The real aim of the attack is not to kill the victims but to use the death of the victims to reach a wider population. When terrorism risk assessments do not take psychological damage to the public into account then they are missing the essence of terrorism. (Committee to Review the DHS's Approach to Risk Analysis and National Research Council of the National Academies 2010; Butler, Panzer, and Goldfrank 2003)

This paper describes research estimating a more complete range of consequences of terrorism including psychological consequences and including the general public.

Method

This paper follows the approach of Arce. (Arce 2019) As it is hard to estimate a single estimate of the risk of terrorism, Arce used a set of plausible scenarios to describe the risk. Such scenario discovery is useful when there is deep uncertainty of the type experienced in homeland security risks because it covers a range of possibilities rather than just trying to come up with a single best estimate. Arce estimated the consequences of terrorism to add psychological harms as well as physical harms for a selection of 6 cases. In this research, I add a seventh case of Sept. 11th to represent a kind of high consequence outlier event that has outsize influence on terrorism risk.

For each of these cases, I estimate the harm in terms of Disability Adjusted Life-years Lost (DALYs). This is a standard approach to describe partial harms where the portion of a normal life that is foregone is estimated. I consider five different harms: deaths, physical injuries, severe psychological harm, moderate psychological harm, and mild psychological harm.

These harms are estimated for five different subpopulations. In each case, the harms are felt most strongly by those who were physically present and targeted in the attacks. Next, there are rescue

workers who are present but not targeted. Finally, there are two categories of non-present individuals including friends and family and the general public.

Table 1- Categories of Harm for Terrorist Attacks including Psychological Harms

Deaths		N/A	N/A	N/A	N/A
Physical		N/A	N/A	N/A	N/A
Mental Severe					
Mental Moderate					
Mental Mild					
	Present victims	Present non-victims	Semi-present, Rescue Workers	Not present, friends and family	Not present, mediated

Data for these estimates are drawn from the psychological literature including Arce, DiGrande, Neria et. al and others. (Arce 2019; DiGrande et al. 2011; Yuval Neria, DiGrande, and Adams 2011; Y. Neria, Galea, and Norris 2009)

Results

Expanding consideration of harm to include psychological harms and to include the general public will necessarily increase the estimates but the extent of the increase is surprising. Estimates of harm using this expanded definition were between 6 and 90 times greater than the estimates for deaths alone. Another way to put this is that deaths represented between 1 and 18 percent of the expanded harm.

Table 2- Harm Multipliers for Including Mental Health and Public Aspects of Risk

	Confined Space	Open Space	Suicide	Vehicle	Collapse	Fire	9 11
<i>MH to Deaths</i>	22.31538	85.04175	5.196197	17.23425	4.443679	24.31313	27.53392
<i>MH to Phys</i>	8.708439	32.39686	3.797221	11.88569	3.623971	9.373735	19.43571
<i>All to Deaths</i>	24.87788	87.66675	6.564618	18.68425	5.669869	26.90688	28.95058
<i>All to Phys</i>	9.708439	33.39686	4.797221	12.88569	4.623971	10.37373	20.43571

The types of psychological harms that contributed the most varied from scenario to scenario. For Sept. 11th, severe mental health consequences to were the largest contribution to harm, representing 53% of total harm. Mild psychological harms only represented 7% of the harm associated with Sept. 11th. These percentages did not hold for lesser events, however; at the other extreme, mild psychological harms were a greater contributor to harms (43% to 22%) for open space bombings as well as other less severe events.

The extent to which the harm was felt by the subpopulations varied. In all cases, the harm was most felt by the general public. While the harm to any individual member of the public was less than the harm to an individual member of any of the other populations, there were so many members of the public that the harms added up. The actual victims of the attack experienced between 4% and 23% of the harm while members of the general public experienced between 61% and 92% of the harm. This is consistent

with the idea that terrorism is performative violence with violence used not as an end in itself but as a means to terrorize the wider population.

Table 3- Extent to Which Subpopulations Experienced Consequences

	Confined Space	Open Space	Suicide	Vehicle	Collapse	Fire	9 11
<i>Present Victim</i>	13%	4%	23%	9%	23%	12%	5%
<i>Present Non-victim</i>	2%	2%	3%	1%	2%	4%	0%
<i>Responders</i>	2%	2%	3%	4%	3%	3%	1%
<i>Friends and Family</i>	7%	5%	9%	4%	7%	10%	2%
<i>General Public</i>	77%	88%	62%	82%	65%	71%	92%

Discussion

In all, this research finds that physical deaths are just the tip of the iceberg when it comes to the consequences of terrorism. Psychological consequences are much bigger than physical consequences and harms to the public, while smaller per person, do add up. This is consistent with what is known about terrorism—that it uses violence to inflict fear on a larger audience.

First, any terrorism risk assessment should necessarily include psychological consequences. Omitting psychological harms to the public means that the vast majority of the harm of terrorism will be overlooked. While there are some approaches that do include public psychological harms (including the THIRA process and the risk assessment underlying the Quadrennial Homeland Security Review) they do not do so in a comprehensive way.

Additionally, this change in perspective from physical to psychological should be reflected in policy as well. The typical approach to fight terrorism involves stopping an attack from succeeding; this approach focuses on the physical consequences of the attack rather than the larger psychological consequences. If the psychological consequences necessarily spring from the physical consequences, then this makes sense. But if the psychological consequences come more from other traumatic stressors, then approaches focusing on the psychological harms may be preferable to approaches focusing on the physical harms.

There are a range of risk reduction activities that focus on reducing the fear of harm rather than reducing the harm itself. These include:

- reducing mediated transmission of traumatic aspects of the events from the general public
- restoring a sense of normalcy after an event (as is done in Israel)
- framing the event to represent strength rather than loss, and
- projecting a sense of safety and security even when there is none (i.e. security theater).

There are activities that can be done in every stage of the homeland security cycle to address psychological harms. At the same time, other measures taken to reduce physical harms may also have the effect of amplifying psychological harms. Policies that attempt to reduce terror should be prioritized over those policies that just attempt to reduce terrorism.