



Terrorism and Child Mortality

How the rise in attacks is threatening the health of children in Africa



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How does terrorism affect child mortality? Based on data for 52 African countries for the 2000–2017 period, Daniel Meierrieks and Max Schaub conclude that more terrorism leads to higher levels of child mortality. Rather than affecting child mortality directly through death and destruction, terrorism has an indirect effect by changing the behavior of parents and other caregivers.

Since the early 2010s, terrorism has become an ever-growing threat in many African countries. Whereas the continent saw around 300 terrorist attacks per year between 2001 and 2011 according to data from the Global Terrorism Database ([GTD](#)), the annual average exceeded 2,000 from 2012 onwards. The attacks can be attributed to militant separatist movements, including the Oromo Liberation Front in Ethiopia or the Front for the Liberation of the Enclave of Cabinda in Angola, and to increased Islamist militancy by groups such as Al-Qaeda in the Islamic Maghreb or Boko Haram, which are active in various North and West African countries (e.g. Algeria, Mali, Nigeria, Niger and Chad).

As [research](#) has shown, terrorism has a negative impact on multiple socio-economic variables. For example, terrorist attacks lead to less foreign direct investment, increased emigration, capital flight and slow economic growth. Countries with limited resources and weak institutions are particularly vulnerable to the socio-economic consequences of

terrorism – a description that fits most countries in Africa. Our study adds another dimension to this research agenda: the impact of terrorism on health, especially on the health of children under five – and thus on child mortality.

In theoretical terms, two perspectives may be distinguished. On the one hand, it is possible that terrorism has a direct negative effect on child mortality. Children may be injured or killed by attacks or their parents or doctors may fall victim to terrorism. Terrorism may also damage or destroy health infrastructure such as hospitals and pharmacies, which have negative knock-on effects on child health. However, according to empirical [studies](#), these direct effects of terrorist activities tend to be rather limited, especially when compared to those of other forms of political violence like large-scale war.

That is why we are primarily interested in the indirect effects of terrorism on child mortality. These indirect effects emerge from the behavioral response of a variety of actors, including parents (especially mothers), doctors, aid workers, government employees, and other groups of people who are important for child health. We expect that terrorism fuels people's fear of future violence and that this fear triggers behavioral changes that negatively impact children's health. Indeed, the production of fear and intimidation for political leverage is a major goal of terrorist organizations. Various behavioral responses are conceivable that might have a negative impact on children's health. For example, parents may forego seeing a pediatrician out of fear of terrorism and thus miss out on important preventive measures (e.g. vaccinations). Doctors, medical staff, and international aid workers might stay away from or leave areas affected by terrorism. Government employees might increasingly use already scarce public resources to fight terrorism and spend less on public health.

To empirically investigate the terrorism-child mortality nexus, our study draws on data for 52 African countries for the 2000-2017 period. The prevalence of terrorism is determined using data from the Global Terrorism Database. Data on child mortality, measured as the probability for a given child to die before reaching the age of five, is taken from a 2019 study published in *Nature* by a team led by researcher [Roy Burstein](#). Both the terrorism and the infant mortality data are geocoded, meaning they can be tracked to a specific location (longitude and latitude). Geocoding allows us to assign terrorism and infant mortality data to a specific local area (grid cells of about 55 x 55km size), meaning that we can investigate the relationship between terrorism and infant mortality at a subnational level and with great precision.

The figure below illustrates the geographical distribution of both phenomena in Africa. It highlights the major differences in child mortality across different parts of Africa and within individual African states. The map also shows the hotspots of terrorist activity, including parts of Algeria, Nigeria, Somalia, Egypt and Uganda. Already upon visual inspection of the map it becomes clear that areas heavily affected by terrorism also seem to have a high child mortality rate.

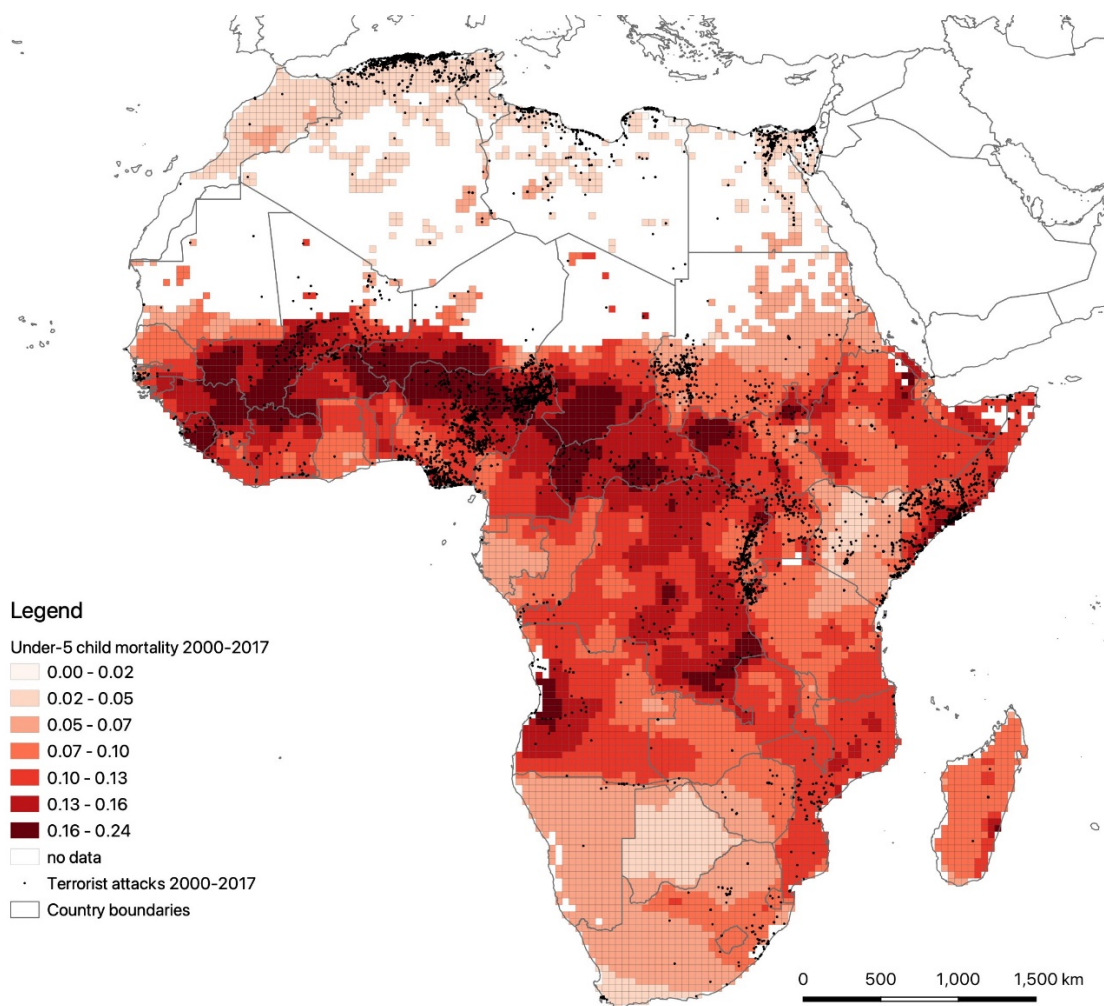


Figure: Terrorism and Child Mortality in Africa (percent of children who do not live to age 5), 2000-2017, Sources: GTD and Burstein et al. (2019)

This impression is confirmed by our empirical analysis. Our main finding is a strong positive association between terrorism and child mortality, a finding that is robust to further analysis. For example, we can show that taking into account the impact of major violent conflicts (e.g. civil wars) only has a minor effect on the above-mentioned association. By using more sophisticated statistical methods, we can also provide evidence supporting a causal interpretation of the association between terrorism and child mortality. In other words, increased terrorist activity indeed causes higher infant mortality rates.

In a next step, we estimate the size of this effect to determine how many children under the age of five lose their lives due to increasing terrorism. For this purpose, we compute the number of additional deaths of children under the age of 5 resulting from a hypothetical increase in terrorist activity in Africa. For example, according to our models, a 50-percent increase in terrorism (which actually occurred between 2011 and 2012 and between 2013 and 2014) would lead to an increase (in the same year) in child deaths by 16,000 to 24,000 individuals – in Africa alone. This is roughly comparable to the level of child mortality from measles or tetanus on the continent each year.

In a final step, we investigate what drives the observed association. Can the increase in child mortality be attributed to the direct or indirect effects of terrorism? According to GTD data, a total of around 80,000 persons (approximately 4,500 persons per year) were killed by terrorism between 2000 and 2017. With an annual average of 36 million births in Africa, an increase in child mortality driven by these direct victims of terrorist attacks seems implausible, especially since many terrorist attacks are directed against security forces (police and military). Moreover, the GTD data also shows that it is extremely rare for healthcare infrastructure to become the target of terrorist attacks.

These figures show that the association between terrorism and child mortality is more likely to be an indirect one. That is why we also probed for a correlation of terrorism with various proximate causes of child mortality, including the incidence of malaria and diarrhea, levels of malnutrition, and vaccination rates. Our results show that higher levels of terrorist activity are associated with an increase in malaria and diarrhea, higher malnutrition and lower vaccination rates. We take these correlations as an indication that groups of people critical for child health do indeed change their behavior when there is a terrorist threat. For example, the negative association between terrorism and vaccination rates may result from parents foregoing visits to the pediatrician or to the vaccination center for fear of terrorism. Lower vaccination rates (as well as an increase in malaria and diarrhea cases and malnutrition) then lead to higher child mortality.

In summary, our study shows that the recent spikes in terrorism in Africa have also had an impact on child mortality. More terrorism means higher levels of child mortality. Our findings suggest that terrorism does not affect child mortality directly (i.e. through death and destruction) but indirectly (i.e. by changing the behavior of groups of people who are relevant to children's health). Our results show that successfully fighting terrorism in Africa would also benefit children's health. In parallel, policymakers could also try to mitigate behavioral responses to terrorism through information and education campaigns.

Literature

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Image caption: A busy playground at Peace Garden in Mogadishu, the capital of Somalia, Feb. 23, 2024.

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