

## Studded winter tires cost more lives than they save, contribute to global conflict

October 2 2018



The studded winter tyres damage the ground and throw up particles into the atmostphere, thus costing more lives than they actually save, according to researchers. Credit: Ilya Plekhanov

Researchers from Chalmers University of Technology, Sweden, have now shown that studded winter tires cost more lives than they save. The new study takes a holistic view of the tires' impact on wider public health. At the same time, they show that using snow tires contributes to



the bloody conflict in the Democratic Republic of Congo, and fatal accidents in their production phase.

This is the time of year in Sweden when many people start to change their normal car tires to winter ones. According to Trafikverket, the Swedish Transport Administration, around 60 percent of Swedish drivers choose studded winter tires, and there has long been a debate about the emissions caused by the studs damaging the ground and throwing up particles into the atmosphere.

Three Chalmers researchers have now investigated this question. Anna Furberg, Sverker Molander and Rickard Arvisson at the Division of Environmental Systems Analysis used a systemic perspective to analyse the <u>public health</u> impact of studded winter tires over their whole <u>life</u> cycle from manufacture to disposal.

To weigh up the advantages and disadvantages, the researchers looked at how many lives are saved through their use, compared to the level of emissions they generate through wear of the roads and in their production. Additionally, they investigated accident statistics from the small-scale mining industry in the DRC, where cobalt, an important element for the studs, is most abundant. Cobalt is a highly sought conflict metal that contributes to warfare in the region, something the researchers also accounted for.

The researchers estimate that from a broader life cycle perspective of studded tires' life-spans, Swedish use of studded tires saves between 60 and 770 life-years, compared with 570 to 2200 life-years which are lost.

"Taking everything together, the picture is very clear—studded winter tires actually cost more lives than they save," says Sverker Molander, a professor at the Department of Technology Management and Economics at Chalmers.



The biggest negative impact is generated during usage, from the emissions caused by road damage. Taking only this variable into account, the negative health impacts already clearly outweigh the advantages. Measuring the other factors makes the picture more dire, the researchers explain.

"The small-scale mining, where many accidents and fatalities occur, is the next biggest part of the tires' overall <u>negative health impact</u>. Deaths linked to the conflict in the DRC are the smallest part, but that being said, there are many aspects of that that have not been included in the study—the conflict, of course, influences the whole of society. I doubt many people realise that using these tires is contributing to the situation in the DRC," says Anna Furberg.

The advantages of the studded winter tires are mainly enjoyed in Scandinavia, while nearly a third of the negative health impacts are felt elsewhere. "This is a clear illustration of what globalised production can result in. People profiting at others' expense. It is not those who benefit from the product who are having to pay for the negative effects," says Sverker Molander.

So how should consumers react to this research? Anna Furberg and Sverker Molander suggest that good winter tires without studs can be an alternative, in combination with careful driving and consideration of alternative means of travel. "Of course, how you drive is important, and snow-ploughing and sweeping needs to be done properly. Most cars today also have electronic anti-skid systems fitted, which make them safer to drive at higher speeds. But our study shows that there is more research needed concerning alternatives to studded winter tires that don't cause these health issues," says Anna Furberg.

The article <u>"Live and let die? Life cycle human health impacts from the</u> <u>use of tire studs</u>" was recently published in the scientific journal



## International Journal of Environmental Research and Public Health.

To measure and quantify studded <u>winter</u> tires' public health impact throughout their whole life cycle, the study made use of life-cycle analysis (LCA) and disability-adjusted life years (DALY), a health metric developed by the World Health Organisation (WHO). The researchers investigated:

- Lives saved: accident statistics and studies on differences in accidents between cars with and without studded tires.
- Emissions from use of studded tires, as they damage the road and throw up particles from the asphalt. Looking at articles that had studied roads where such tires were in use.
- Emissions during production, from extraction to manufacturing. Looking at previous studies of different types of emissions.
- Accidents and deaths during production, such as during cobalt mining. Looking at studies of accidents and fatalities in various industrial activities and in small-scale mining.
- Number of deaths related to the conflict in the DRC.

The biggest contribution to studded tires' negative health <u>impact</u> comes from emissions from road wear (67 to 77 percent), followed by accidents and fatalities in cobalt mining (8 to 18 percent). Between 23 and 33 percent of the negative effects are felt outside of Scandinavia.

**More information:** Anna Furberg et al, Live and Let Die? Life Cycle Human Health Impacts from the Use of Tire Studs, *International Journal of Environmental Research and Public Health* (2018). DOI: <u>10.3390/ijerph15081774</u>

Provided by Chalmers University of Technology



Citation: Studded winter tires cost more lives than they save, contribute to global conflict (2018, October 2) retrieved 28 April 2024 from <u>https://phys.org/news/2018-10-studded-winter-contribute-global-conflict.html</u>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.