

# Changes in the effectiveness of tobacco warning labels after implementation of the European Tobacco Products Directive – findings from the EUREST-PLUS ITC Europe surveys

Sarah Kahnert<sup>1,2</sup>, Pete Driezen, Tibor Demjén, Esteve Fernández, Paraskevi A. Katsaounou, Antígona C. Trofor, Krzysztof Przewoźniak, Geoffrey T. Fong, Constantine I. Vardavas, Ute Mons<sup>1</sup>, on behalf of the EUREST-PLUS and ITC Project

## Background

Tobacco product packaging is a key part of marketing efforts to make tobacco use appealing. In contrast, large, prominent health warnings are known to be effective in informing about the risks of smoking and motivating smokers to quit. In the European Union, since May 2016, the Tobacco Products Directive 2014/40/EU (TPD2), requires tobacco product packages to carry combined textual and pictorial warning labels (WL).

## Methods

Data from a longitudinal sample of 6,011 adult smokers from Germany, Greece, Hungary, Poland, Romania, and Spain (ITC 6E Survey, EUREST-PLUS Project), were used. Self-reported perceived effectiveness of the WL was examined by means of smokers' ratings on warning salience, thoughts of harm and quitting, and forgoing of cigarettes. To examine changes in effectiveness of WL over time, Generalized Estimating Equations (GEE) models were computed.

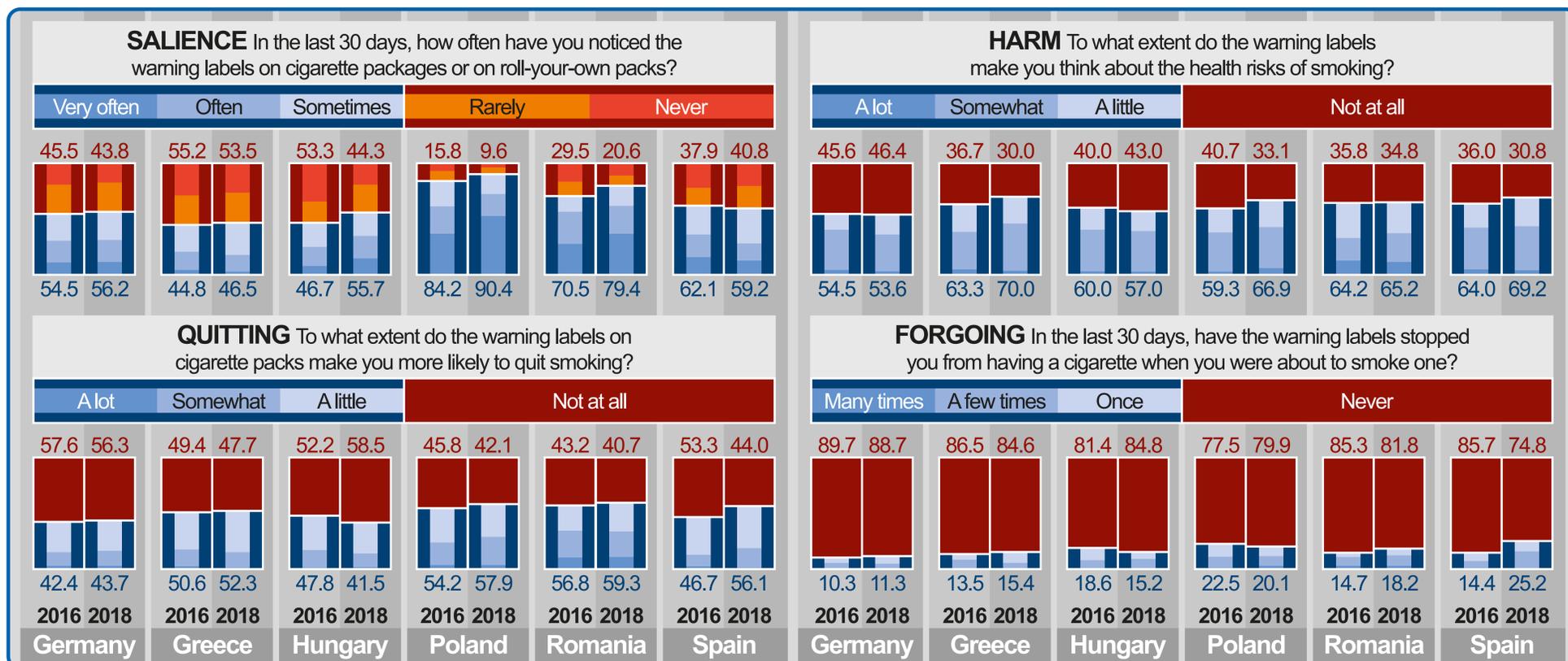


Figure 1: Prevalence of having noticed warning labels (salience), thinking about the health risks of smoking (harm), wanting to quit (quitting), and being stopped from having a cigarette (forgoing) due to warning labels by survey wave (2016/2018) and by country; cross-sectional data

Wave 2 vs. Wave 1	SALIENCE		HARM		QUITTING		FORGOING	
	N Events	aOR (95% CI)						
<b>Pooled sample</b>	10884	<b>1.18</b> (1.03 to 1.35)	10814	<b>1.11</b> (0.99 to 1.25)	10762	<b>1.02</b> (0.90 to 1.16)	10813	<b>1.11</b> (0.93 to 1.32)
<b>Germany</b>	1711	<b>1.10</b> (0.79 to 1.53)	1713	<b>1.01</b> (0.81 to 1.26)	1711	<b>1.10</b> (0.90 to 1.34)	1713	<b>1.05</b> (0.74 to 1.49)
<b>Greece</b>	1892	<b>1.07</b> (0.72 to 1.58)	1893	<b>1.33</b> (0.93 to 1.91)	1893	<b>1.06</b> (0.74 to 1.53)	1892	<b>1.20</b> (0.80 to 1.80)
<b>Hungary</b>	1893	<b>1.43</b> (1.05 to 1.96)	1875	<b>0.86</b> (0.64 to 1.15)	1872	<b>0.74</b> (0.52 to 1.06)	1879	<b>0.78</b> (0.47 to 1.31)
<b>Poland</b>	1745	<b>1.58</b> (1.06 to 2.36)	1720	<b>1.34</b> (0.96 to 1.88)	1716	<b>1.11</b> (0.82 to 1.50)	1710	<b>0.81</b> (0.53 to 1.24)
<b>Romania</b>	1819	<b>1.50</b> (1.12 to 2.03)	1799	<b>1.04</b> (0.84 to 1.28)	1791	<b>1.03</b> (0.80 to 1.32)	1813	<b>1.30</b> (0.86 to 1.97)
<b>Spain</b>	1824	<b>0.82</b> (0.62 to 1.08)	1814	<b>1.17</b> (0.90 to 1.54)	1779	<b>1.14</b> (0.79 to 1.64)	1806	<b>1.72</b> (1.14 to 2.60)

Figure 2: Results of GEE models estimating the change between survey waves (2016/2018) for having noticed warning labels (salience), thinking about health risks (harm), wanting to quit (quitting), and being stopped from having a cigarette (forgoing) due to warning labels in the pooled sample and by country; longitudinal adjusted Odds Ratios (aOR) are presented

## Results

The effectiveness of the EU-standardized WL varied by country and tended to reflect the extent of their change of appearance. In the pooled sample, the warning labels' effectiveness increased significantly over time in terms of salience (adjusted OR = 1.18; 95%-CI: 1.03 to 1.35), while cognitive and behavioural reactions did not show clear increases. Generally, among women, more highly educated smokers and less addicted smokers, the effectiveness of warning labels tended to be higher.

## Conclusions

We found an increase in salience, but no clear increases for cognitive and behavioural reactions to the new warning labels as required by the TPD2. While it is likely that our study underestimated the impact

of the new pictorial warning labels, it provides evidence that health messages on tobacco packaging are more salient when supported by large pictures.

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