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The Smolensk Disaster and the Dynamics of Death-Related Thoughts Accessibility

Tomasz Grzyb[1] & Dariusz Dolinski[1]

[1]University of Social Sciences and Humanities, Faculty in Wroclaw, Poland

Correspondence: Tomasz Grzyb, University of Social Sciences and Humanities, Faculty in Wroclaw, ul. Ostrowskiego 30, 53-238 Wroclaw, Poland. E-mail: tgrzyb@swps.edu.pl

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Abstract

The article describes a study concerning death-related thoughts following the crash of the Polish Tu-154M plane with the Polish president and other members of an official Polish delegation on-board. In the study, the DRT (Death Related Thoughts) scale was used. The results showed that thoughts about death in a sample of Polish students (N=120) increased immediately after the plane crash, and after a few weeks the level measured was even higher. The obtained results also show a relatively strong positive correlation between the results of the DRT scale and the amount of information about the presidential plane crash presented in the massmedia.

Keywords: catastrophe reactions, terror management theory, mass media, mass communication

1. Introduction

1.1 Historical Background

A Tu-154 with 96 people on board took off from Warsaw on April 10, 2010, at 7:27a.m. local time. The destination of the Polish President Lech Kaczynski and his wife, as well as of the other passengers, who included Ryszard Kaczorowski, the last president in-exile of the Polish Republic; the Deputy Marshals of both chambers of the Polish Parliament; staff from the President's Chancellery; commanders of the Polish Armed Forces; Members of Parliament and government ministers, was Smolensk in Russia. From there, they were all to proceed by cars to the nearby village of Katyn, scene of the appalling murder of 1940. The Soviet Union, which in September 1939 invaded Poland together with Nazi Germany, arrested a large group of Polish officers, soldiers and civilians in the early weeks of the war. A year later, more than 21,000 of them were shot in the forests near Katyn, implementing the decision of the Politburo of the All-Union Communist Party (Bolsheviks)s [the VCP (b)]. Since 1944, when mass graves were discovered in the Katyn Forest, the site of the massacre has served as a symbol of the struggle with communism for generations of Poles. Its symbolic nature also derives from the fact that, until the rule of Yeltsin, the Soviet authorities had continually denied their responsibility for the crime, attributing it to the Germans and setting its date to the year 1941. The members of the Polish delegation were flying to pay tribute to the victims on the seventieth anniversary of their death. As the plane approached the landing in thick fog, it flew into trees and crashed. All the passengers and crew members were killed on the spot. The tragedy occurred at 8:41 in the morning. Initial news reports about it started appearing on Polish television, radio, and on the Internet several minutes later.

1.2 Reaction of Society – as TMT Sees It

One may ask how extensively such a disaster – the sudden death of the most important people in the state, traveling to honor murdered countrymen - could provoke Poles to think about death. The terror management theory (Pyszczynski, Greenberg, Solomon, 1997, 1999; Solomon, Greenberg and Pyszczynski, 2000) implies that although all living species on earth are mortal, humans are the only species aware of the inevitability of their own death.

The theory states that awareness of their imminent death is very discouraging, and leads to anxiety. This means that proper social functioning forced humans to develop strategies for coping with this fear. Terror Management Theory (TMT) assumes that the two main protective buffers against the negative consequences of thinking about the inevitability of death are worldviews and self-esteem. Worldviews are understood as sets of attitudes and beliefs as to what the world is and how to proceed in order to live in dignity. Meeting these standards can give a person a sense of immortality: either figuratively (as an individual who lives within a culture that lasts longer than the life of a single man), or literally (as in some religions in the case of the promise of an eternal life after meeting moral standards). Worldviews are associated with self-esteem: the higher one's self-esteem is (for example, derived from consciousness of high standards and respect for moral norms), the better one handles the fear of death and other fears (Solomon, Greenberg, Pyszczynski, 2000).

In the last few years, TMT has become a popular and useful theory in a wide range of sciences. Studies have also shown that TMT may even be useful in analysis of electronic media content, and may explain the policies of media broadcasters. Klimmt (2011) shows that the application of TMT predicts the success of certain types of television shows and perhaps even individual productions (e.g. crime dramas).

1.3 Anxiety Management

People apply different methods for managing anxiety. The simplest of these involves directing our attention to other areas or activities, which allows us to avoid thinking about issues related to death. Even then, however, there are some events which will remind us to a lesser or greater extent that our death is inevitable. The results of many psychological experiments demonstrate that making people aware of the inevitability of their death can be effectively done in many ways, such as by asking them to describe how their bodies will appear three months after death, or by showing them movies containing scenes of people dying. Nearly 200 experimental studies have already been completed on this subject (Burke, Martens, Faucher, 2010). In addition, most analysis on the use of TMT in the area of communication research typically uses forced introduction to evoke mortality salience. Research conducted by Kneer et al. (2011) on the effects of mortality salience for perceptions of TV commercials has also been implemented in this paradigm. Researchers checked such aspects of ads as perceived emotionality, evaluation of ads and products, recall and buying intention. However, as they demonstrated the strong impact of mortality salience on almost all these parameters (with the exception of recall), the studies used experimental (not natural) ways to induce the participants into a state of mortality salience: participants were instructed to write an essay about their feelings regarding their own death.

1.4 Earlier Studies

As demonstrated above, relatively few studies have used real situations in which people begin to think about death. In other words, we lack experiments in which real death-connected events affect the participants; on the other hand, we have a lot of those in which the experimenter tells people to think about death. Of course, the reason for the lack of such studies is the issue of research ethics: it would be unethical to ask people who have suffered personal loss to fill in questionnaires. However, it seems right and ethical in the case of a great national tragedy, affecting almost all citizens. Here the awareness of mortality comes in two ways – firstly, by raising mortality salience with news information (provided through the media), and secondly, from the reactions of other people. This can be a phenomenon of informational social influence (Cialdini, 2008). People seeking behavior patterns in a new and unfamiliar situation will look to other people's behavior. Because others likely also experienced increased mortality salience after the disaster, awareness of mortality will be stronger than in neutral situations, and most probably also stronger than experimentally-induced awareness of mortality(Hypothesis 1).

Research on the consequences of mortality salience conducted in natural conditions, although rarely carried out, is present in the literature. For example, such a study was conducted before and after the terrorist attack in Madrid on March 11, 2004. As Agustin Echebarria-Echabe and Emilia Fernandez-Guede (2006) wrote, their aim was to test the effects of terrorist attacks on racial prejudice and ideological orientation. The research was conducted in a quasi-experimental fashion. The authors evaluated anti-Arabic and anti-Semitic prejudices, authoritarianism and ideological orientations before and after the terrorist attack. Results showed that all of these variables went up following the increase in mortality salience and fear noted after the attacks. Unfortunately, the weakness of the study by Echebarria-Echabe and Fernandez-Guede was the fact that only two measurements were taken - before and after the attacks. We do not know anything about the dynamics of psychological parameters after the real attacks in the year after they were conducted.

1.5 The Role of Mass Media

Although TMT assumes that people will tend to reduce their thinking about death in a variety of ways, the simple strategy of ignoring information concerning human mortality seems to be the most common. One may

suggest that if awareness of mortality after reading about an event such as a traffic accident increases, you can just flip over the newspaper and change the subject with ease. Such a strategy will be difficult, however, when the disaster is of large enough significance and applies to virtually all citizens of the country. Certainly we say such a situation occurred following April 10, 2010 in Poland; after all, 96 people were killed in the plane crash, including the most important person in the country. Reducing one's thoughts of death may be difficult in this case because of the ubiquitous information about the crash.

It is obvious that the media would inform about the events related to the disaster: the funerals of the victims, investigations conducted and emerging evidence. Due to the fact that most people killed in the catastrophe were important public figures, a large part of such information will consist of remarks by politicians. Each new event will result in more and more information about the disaster being provided by the media (and once again reminding everyone of its course and consequences). It is also worth bearing in mind that the dynamics of such information will vary, depending on developments.

It seems that no matter how hard one might try to apply the strategy of ignoring information that causes one to reflect on his/her own mortality, s/he will be "bombarded" by the media with news about the disaster, in which nearly a hundred of his countrymen were killed while traveling to Russia in celebration of the memory of Poles murdered during WWII.

In other words, we can expect that the intensity of thoughts about death should be related to the amount of information about the crash appearing in the media (Hypothesis 2).

1.6 Death-Related Thoughts Scale

The level of people's tendency to think about death is most often measured in psychological studies by the use of a very simple tool. Respondents are asked to do a task involving the creation of words: respondents are given the first letters of a word, then are asked to provide the remaining letters to complete the word (e.g. Bassili & Smith, 1986; Goldenberg et al., 1999, 2002, Chatard et al., 2011). For example, a word starting with the letters *coff-* should be completed with two more letters at the end, and another word starting with *to-* completed using three letters. The *coff-* cluster could thus lead to a word associated with death (*coffin*), or to another, contextually neutral word (*coffee*). Similarly, the second word could be supplemented so that the word *tombs* – as well as *total* - could be created.

Coincidentally, just during the period immediately preceding the presidential plane crash, we were working on a Polish version of such a tool: the Death-Related Thoughts (DRT) scale. On the day of the presidential plane crash we were in possession of quite recent results (dated March 17, 2010) from tests using the new scale conducted among psychology students at the University of Wroclaw. We also had another set of Polish DRT scale results showing that the rate at which clusters were completed to result in words associated with death increased when the participants were asked just before the test to write an essay on what happens to the human body after death. Encouraging participants to write essays on this topic is one of the classic social psychology methods of making people aware of their own mortality (see: Burke, Martens & Faucher, 2010 for review). The disaster in Smolensk deeply affected the vast majority of Poles. From the moment of its occurrence on April 10, it became the central topic of private conversations and the dominant theme in the mass media. Of course, we expected that this would result in considerably increased frequency of thoughts about death. In these conditions, we expected that DRT scale tests would generate scores higher than those recorded in March, just before the tragedy. It was difficult to predict definitively to what extent the outcome of a study conducted in a time of national catastrophe would differ from one in which respondents were asked to write an essay about what happens with the human body after death. We expected that increased frequency of thoughts associated with death under the influence of the tragedy would be relatively short-lived and would return after several weeks to pre-disaster levels. Therefore, we decided to perform a repeated measurement of death-related thought frequency with our tool – once immediately after the crash, and again after a few weeks – both times on the same sample of people. It should be noted that throughout the study one and the same version of the DRT scale has been used.

1.7 Hypotheses and Assumptions

We expected that once a few weeks had passed after the tragedy, people would start focusing on matters other than the presidential plane crash. We also believed that, over time, fewer and fewer media would report on the disaster and its consequences. Therefore, we thought the frequency of death-related thoughts would decrease with time and reach levels much lower than on the day of the tragedy itself. However, what we observed was that not only did the prevalence of such thoughts fail to drop, but actually increased (see: *Results* section, below)! This was contrary to our expectations. In trying to explain these results, we concluded that this effect must have been closely related to the fact that Polish media were still extremely involved in covering the disaster.

Journalists' interest in the event was first associated mainly with speculation on the possible causes of the tragedy and the (long postponed) question of the victims' funeral. In the following weeks, it was primarily concerned with discussions on the political aspects of the investigation into the causes of the disaster as conducted by the Russian side.

Considering that PiS, the country's primary opposition party led by the twin brother of the late President, made the issue of the disaster the central theme of public debate, it could be expected that the presence of this topic in the media for some time after we had carried out the initial test might result in higher death-related thought frequency. Therefore, we decided to continue our research. In order to avoid applying the same scale to the same participants too frequently, we decided to ask other students to fill in the DRT scale. Because we expected that the dynamics of the prevalence of death-related thoughts might have been affected by the focus of the mass media, we also decided to keep track of the contents of the first pages of the leading Polish daily newspapers – '*Gazeta Wyborcza'* and '*Rzeczpospolita'*. We examined how much of front-page space these newspapers devoted to the Smolensk disaster in the period immediately preceding our next test.

We assumed that two of the country's leading newspapers are representative of the majority of Polish media, and therefore the degree to which each day they discuss various aspects of the Smolensk disaster would accurately reflect the subjects addressed by the Polish mass media in general. We felt this assumption would be all the more valid considering that '*Gazeta Wyborcza'* and '*Rzeczpospolita'* represent different ends of the ideological spectrum - liberal and conservative, respectively.

2. Study

On April 10, 2010, extramural students of psychology at the Wroclaw branch of the Warsaw School of Social Science and Humanities were having lectures. Taking this opportunity, we asked them to complete the DRT scale following a lecture at 5:30p.m. (a couple of hours after the tragedy). Since at first we had intended to ask the students to fill out the scale only twice (on April 10, and again a few weeks later), we assumed we would conduct the research with a repeated measurement paradigm. This turned out to be impossible, however, due to the unexpected results we obtained and the consequent need for subsequent multiple measures (see below). This study presents two very interesting qualities: firstly, it examines the reactions of people to a real source of fear and mortality salience; secondly, it treats the psychological consequences of traumatic events as a continuum - not closing the experimental scheme with a single measurement, as does Echebarria-Echabe and Fernandez-Guede (2006), but repeating them in a systematic way. Although our study has some methodological flaws (for instance, we were not able to conduct repeated research on the same group several times over), it also fills in a large gap in our knowledge about the psychological consequences of high-profile catastrophes and their relation to media messages.

The Polish version of the Death-Related Thoughts Scale is a tool consisting of 80 incomplete words to be supplemented with letters. Half of these items lead after completion to words neutral in respect of death- related topics. The other half were letter clusters which, depending on the supplementation, could lead either to a neutral word , or to a word connected with death. For example, the Polish letter cluster *śmie_ _* can lead to the Polish word *śmiech* (laughter) or to *śmierć* (death); likewise, the cluster *dena_* may be supplemented by the letter *t* (*denat* = the deceased) or *r* (*denar* = a denarius). The scale theoretically ranges from 0 to 40 points.

Another six groups of participants (students of social sciences aged between 19 and 41) were asked to complete the DRT scale in a few different periods between April 14, 2010 and April 11, 2012. They were recruited in the same way as in Study 1.

We also examined how much front-page space the leading Polish newspapers – *'Gazeta Wyborcza'* and *'Rzeczpospolita'* - devoted to the Smolensk catastrophe in the days immediately preceding our particular studies. We measured the actual surface covered by news in a particular newspaper related to the catastrophe, which we defined as anything addressing:

1* Formal inquiry into the catastrophe's causes

2* Stories about the presidential plane wreck

3* Testimonies of widows and orphans of people who died in the crash

4* Stories about the monument to commemorate the catastrophe

5* Stories about the conflicts linked with ways of commemorating the victims

6* Obituaries of the tragedy's victims.

All illustrations related to the articles (e.g. photos of the deceased president or of the plane) were included and

counted. After that, the entire surface of the first page was measured and the percentage of Smolensk-related news was calculated. To confirm the proportions of space given over to 'disaster news' in the two main Polish newspapers more accurately, measurements were taken more often than the DRT scale. This was done by measuring the amount of space devoted to 'disaster news' in *'Gazeta Wyborcza'* and *'Rzeczpospolita'* not only on the day DRT measurements were taken, but also on other days in the same periods (May 12 and October 9, 2010).

3. Results

3.1 Death Related Thoughts a Few Hours after the Catastrophe

On April 10, 2010, the day of the catastrophe, 120 students (87 females and 33 males) completed the DRT scale. The average number of death-related words was 8.20 (SD = 3.58). The difference between females (M = 8.22; SD = 3.56) and males (M = 8.15; SD = 3.67) was not significant. The average number of death-related words in the group investigated a few hours after the Smolensk disaster was higher compared with the control group, who completed the scale in a neutral situation a few weeks before the catastrophe (M = 3.97; SD = 1.76) – t = -5.53., p <.0001, Cohen's d = 1.50, effect size: r=.60).

In addition, the difference between the group which filled in the DRT scale on April 10, 2010 and the group that wrote an essay on what happens to the human body after death (M = 6.11; SD =2.12) was statistically significant (t(82)=5.05, p<.001). Cohen's d = 1.098; effect-size *r*=.481.

3.2 Dynamics of Frequency of Thoughts about Death

The DRT scale was completed by seven groups of students. Due to the nature of the variable, different participants in the study presented different levels of DRT, sometimes very high. Accordingly, participants were eliminated from each group whose results were located more than three standard deviations from the mean score. All the descriptive statistics for each measure are gathered in Table 1.

Table 1. Descriptive statistics of the DRT scale

Date of measure	April, 10, 2010	April, 14	May, 8	November, 25	April, 10, 2011	March, 10, 2012	April, 11, 2012	Total
N	120	88	76	161	49	52	108	654
Mean	8.20	9.76	7.33	5.56	7.71	4.25	8.74	7.40
SD	3.58	5.17	3.88	2.63	3.76	2.85	4.10	4.07

Table 2. Descriptive statistics of the DRT scale – gender differences

Date of measure	Female	Mean	SD	Male	Mean	SD
April, 10, 2010	87	8.22	3.57	33	8.15	3.68
April, 14	57	9.81	4.79	31	9.68	5.90
May, 8	52	7.81	3.84	24	6.29	3.85
November, 25	125	5.75	2.60	34	4.74	2.56
April, 10, 2011	36	8.53	3.78	13	5.46	2.76
March, 10, 2012	41	4.02	2.73	10	4.70	3.13
April, 11, 2012	96	8.74	4.19	12	8.75	3.44
Total	494	7.51	3.99	157	7.03	4.32

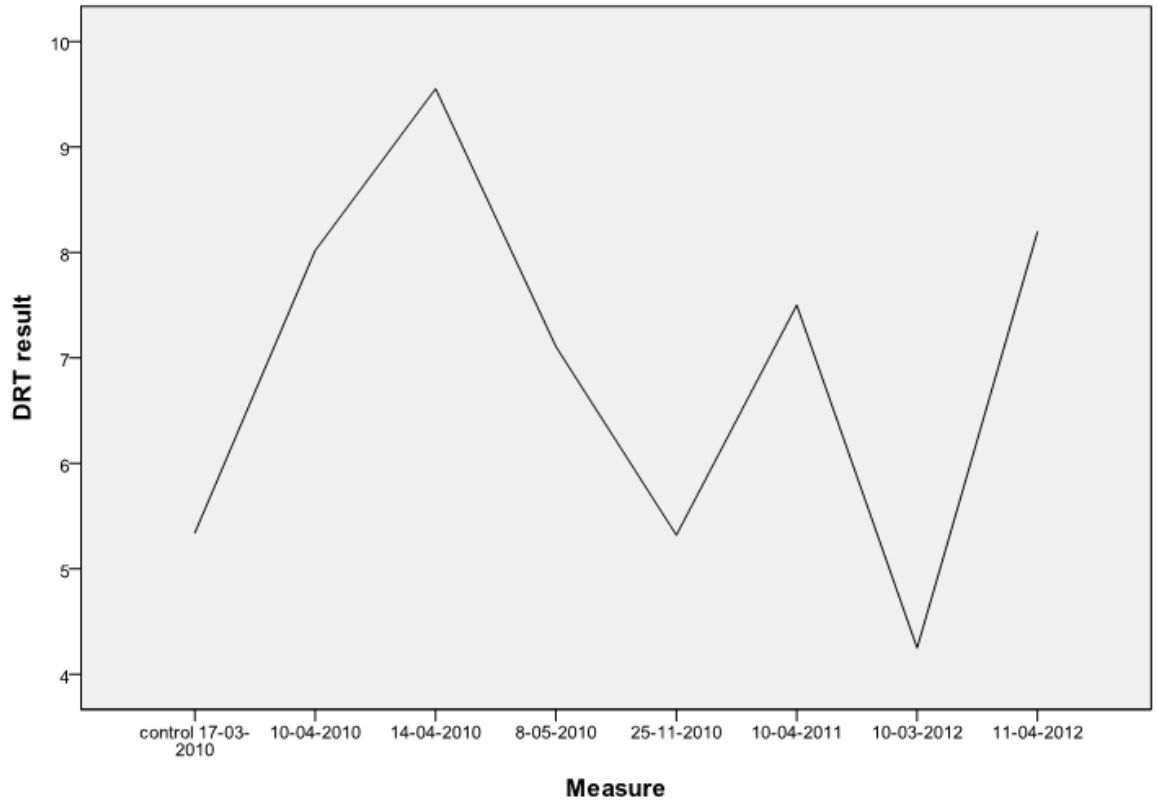

Figure 1. Dynamics of frequency of thoughts about death

As may be seen in Figure 1 the level of death-related thoughts first increased (from April 10 to April 14), then decreased (to November 25). The next peak of death-related thoughts was observed on the first anniversary of the presidential Tu-154M crash (April 10, 2011), and then immediately following the second anniversary (April 11, 2012). Descriptive statistics of the DRT scale are presented in Table 2 for female and male participants separately. We examined the differences between all the groups (with the Tukey post-hoc test), the results of which are shown in Table 3.

Table 3. Level of significance of differences between measures (Tukey test)

Date of measure	17th March 2010 (cont)	10th April, 2010	14th April	8th May	25th November	10th April, 2011	10th March, 2012	11th April, 2012
March, 17, 2010 (cont)	X	.001	.001	.020	.445	.590	.616	.001
April, 10, 2010	X	X	.022	.605	.001	.991	.001	1
April, 14	X	X	X	.001	.001	.013	.001	.092
May, 8	X	X	X	X	.003	.999	.001	.391
November, 25	X	X	X	X	X	.002	.491	.001
April, 10, 2011	X	X	X	X	X	X	.001	.949
March, 10, 2012	X	X	X	X	X	X	X	.001
April, 11, 2012	X	X	X	X	X	X	X	X

Percentages of the first pages of the two main Polish newspapers (*'Gazeta Wyborcza'* and *'Rzeczpospolita'*) covered with news about the Smolensk catastrophe are presented in Table 4.

Table 4. Percentage of the first pages of the two main Polish newspapers covered with news about Smolensk disaster

Date of measure	Percentage of the first page	
	"Gazeta Wyborcza"	"Rzeczpospolita"
April, 14, 2010	67.75	56.16
May, 8, 2010	11.35	1.38
May, 12, 2010	13.20	0.58
October, 9, 2010	7.15	0.79
November, 25, 2010	0	0.79
April, 10, 2011	26.61	54.79
March, 9, 2012	0	0
April, 10, 2012	48.26	14.5

The correlation between *'Gazeta Wyborcza'* and *'Rzeczpospolita'* was quite high (Pearson's r = .749, p =.03) in this respect. Correlations between DRT scale and the percentage of the newspapers' first pages containing news about the disaster are presented in Table 5.

Table 5. Correlation between DRT scale results and the percentage of the newspapers first pages

	Percentage of the first page – "Gazeta Wyborcza"		Percentage of the first page – "Rzeczpospolita"	
	Pearson's r	R^2	Pearson's r	R^2
DRT result	.411**	.169	.315**	.099

N=534, ** = p<.001

4. Discussion

Several hours after receiving the shocking news about the death of the President, First Lady and many other leading Polish dignitaries, the prevalence of thoughts about dying turned out to be not only significantly higher than in the neutral situation, but also higher than in the standard experimental condition of induced thoughts of mortality (namely, after writing an essay associated with death). Thus, we may conclude that this pattern of results fully supports our first hypothesis.

Unexpectedly, four weeks after the catastrophe the frequency of death-related thoughts did not drop, but actually increased. Although subsequently the average results of the DRT began to decrease, they remained significantly higher than before the catastrophe, and for a long time exceeded the results of the group which was exposed experimentally to thinking about death. Although there is no direct and unambiguous evidence, we are inclined to associate this phenomenon with the activity of the media. As shown in Table 3, the Polish media dealt intensively with this issue for long after the tragedy.

Despite the relatively strong positive correlation between the volume of news about the Smolensk catastrophe (measured by the percentage of the first pages of the main Polish newspapers dedicated to it) and the average number of death-related thoughts in the DRT scale, we have noted in several recent waves a decrease of death-related thought frequency indicators, even though the media continue to concentrate on the disaster to a significant extent.

We presume that Polish people are probably satiated with the extensive media coverage. The excess of media interest has made people tired of the Smolensk disaster and made it easier for them to ignore the issue. This decrease of interest by the general public is also evidenced by numerous online forum entries, as well as in statements made by various leading figures in politics, culture and science, quoted by journalists. It should be noted that, despite the consistent and statistically significant decrease in the frequency of death-related thoughts, their levels one year after the tragedy remain higher than those recorded in our study, carried out about a month *before* the disaster. We do believe that all these data are in line with our second hypothesis.

Obviously, as is natural in correlation studies, we cannot indicate the direction of the influence. It is somehow justified to point out that newspapers write about things people want to read about (Singer, 1997). However, in support of the hypothesis that the influence may run in the opposite direction, we examined the search statistics for the word "Smolensk" in Google Search (trends were tracked by the Google Trends application). The pattern was almost entirely unrelated to the volume of news. In other words, Internet users had stopped looking for news about the Smolensk disaster while the media continued publishing new information about it.

Social psychology is full of evidence that mass media can affect people's beliefs, up to the point of them holding beliefs that are completely untrue. It has been shown, for example, that people who watch TV for an average of

more than four hours a day are convinced that crime rates are higher than they in fact are, and they tend to overestimate the percentage of people working as doctors and lawyers when compared to people who watch TV for an average of less than two hours a day (Gerbner, 1987; Gerbner et. al., 1986). Most likely these effects result from the fact that both movies and news programs constantly show a variety of crimes, and characters in popular TV series are very often doctors and lawyers.

Our research has shown that the mass media can also significantly contribute to increased inclination to thinking about death. Interestingly enough, this effect may persist for months following a death-related event that has become the center of the mass media's attention.

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