# 小論文

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**注 意 事 項**

1. 試験開始の合図があるまで，この問題冊子を開いてはいけません。

2. 問題冊子は1冊（8頁），解答用紙は4枚，下書用紙は2枚です。落丁，乱丁，

   印刷不鮮明の箇所等がある場合には申し出てください。

3. 氏名と受験番号は解答用紙の所定の欄に記入してください。

4. 解答は指定の解答欄に記入してください。

   (1)文字はわかりやすく，横書きで，はっきり記入してください。

   (2)解答の字数に制限がある場合には，それを守ってください。

   (3)ローマ字，数字を使用するときは，マス目にとらわれなくてもかまいませ

      ん。

5. 解答用紙は持ち帰ってはいけません。

6. 問題冊子と下書用紙は持ち帰ってください。

以下の文章は、2001年9月11日に発生した「アメリカ同時多発テロ事件」の後に観察された、心理的要因（psychological origin）による間接的被害（indirect damage）について解説した文章の一部である。

これを読んで、問1〜問4に日本語で解答しなさい。*のついた語には末尾に注釈があります。

**Out of the Frying Pan into the Fire: Behavioral Reactions to Terrorist Attacks**

**1. INTRODUCTION**

The 9/11 Commission's report unfolded the chronology* of the terrorist attacks on September 11, 2001, which cost the lives of some 3,000 people and billions of dollars in property damage. It focused on how al-Qaeda terrorism evolved, the possible failures of intelligence agencies to detect and avoid the attack, and potential diplomatic, legal, and technological measures to prevent future attacks. The report concerned the origins and prevention of what I refer to as direct damage, that is, the immediate consequences of terrorist action. In this article, I deal with a second source of harm caused by terrorist action, which I refer to as indirect damage. Indirect damage is not under the control of terrorists; it is mediated through the minds of citizens. In the case of September 11, known indirect damages include the financial damages in the aviation industry fueled by many people's anxiety about flying, the job loss in the tourism industry, as well as peculiar consequences such as the increase in criminal suspects being involuntarily examined for psychiatric hospitalization. Note that these misfortunes are not a necessary consequence of terrorist action; they are of psychological origin, and could in principle be prevented, once individuals and institutions realize that terrorists target minds as well as bodies.

## 2. DREAD RISKS

Low-probability, high-damage events in which many people are killed at one point in time are called dread risks. As opposed to situations in which a similar number of people or more are killed over a longer period of time, people tend to react to dread risks with avoidance behavior. The crash of the four planes in the terrorist attack on September 11 exemplifies* such a catastrophic event. In contrast, the estimated 44,000 to 98,000 people who die every year in U.S. hospitals because of documented and preventable medical errors do not constitute a dread risk. Even after learning about the dangers, few people would avoid hospitals. One potential evolutionary account of this specialized avoidance behavior is in terms of preparedness*, that is, human minds are prepared to learn the association between dread risk and avoidance behavior in one trial. The suggested reason is that for our evolutionary ancestors, living in small bands of hunter-gatherers, the loss of many members at one point of time could have brought the group beyond a critical threshold* that threatened their survival. A further account is the lack of proper information about risks among the general public of many Western societies. For instance, few people are aware that the probability of losing one's life is about the same for driving 12 miles by car as for a nonstop flight, say, from Boston to Los Angeles. That is, if one arrives safely by car at the airport, the most dangerous part of the trip may be over. A third account is in terms of control: people fear terrorist attacks because they have no control, whereas people believe to be in control while driving. While there is some truth in each of these accounts, none by itself seems to be sufficient (for instance, although the driver has some control, the person sitting next to the driver has little control, yet he or she typically also feels little fear). My point here is not to provide an explanation for the tendency to avoid dread risks, but rather to draw attention to avoidance behavior as a potential cause for the indirect damages of terrorism, mediated through our minds.

## 3. AVOIDANCE BEHAVIOR AFTER SEPTEMBER 11

In this article, I investigate a possible mediated death toll* of the attack on September 11. Here, I provide a comprehensive analysis of the 18 months after the attack. My hypothesis is as follows: if (i) Americans reduced their air travel after the attack, and (ii) a proportion of those who did not fly instead drove to their destination, then (iii) a number of Americans died on the road in the attempt to avoid the fate of the passengers who were killed in the four fatal flights. I call this the dread hypothesis for short. Is there evidence for such a mediated toll of lives?

The first part of the dread hypothesis — the reduction in air travel following the attacks — is well documented. Millions of Americans reduced their air travel, which left airlines and travel agencies flying into the red. For instance, the national revenue passenger miles decreased by 20%, 17%, and 12%, in October, November, and December 2001, respectively, compared with the same months in 2000. Data for the second part of the dread hypothesis, in contrast, are difficult to obtain because there is no record of how many people decided not to fly and took their car instead. Indirect evidence can be obtained from the Office of Highway Policy Information, which reports the number of vehicle miles driven before and after the attack. To establish whether there was an increase in driving, three conditions must be met. First, there must be a sudden increase in the individual monthly miles traveled in the months following the attack compared to the monthly miles of the previous year. Second, this increase must not be observed in the months before the attack, and finally, the increase must fade away at some point, when the pictures of the attack fade out of people's minds.

In the eight months before the attack (January to August 2001), the individual monthly vehicle miles traveled in 2001 (all systems) were on average 0.9% higher than in 2000 — which is normal given that miles traveled increase from year to year in the United States. Immediately after the attack and in the 12 months following, the miles traveled increased substantially. In the three

months after the attack (October to December 2001), the increase tripled to 2.8%. In the first three months of 2002, the increase was 3.1%, and then 2.9% in the subsequent six months (April to September 2002), compared to the previous year. Thereafter, in the next six months (October 2002 to March 2003), this figure declined to 0.5%; that is, the increase in road traffic after September 11 diminished after one year.

The hypothesis that more people chose to drive rather than fly after the attack has another testable implication*. The increase in miles driven should be most pronounced on the rural interstate highways, where much of long-distance driving occurs, rather than in urban areas. Specifically, before the attack, the increase on the rural interstate highways should be similar to the 0.9% increase on all road systems, but thereafter rise above it. Consistent with this hypothesis, the increase in the eight months before the attack was similar to that for all traffic systems, 1%. In the three months following the attack, the vehicle miles increased by 5.2%. In the first three months of 2002, the increase (compared to the previous year) was 3.7%, and in the following six months, 2.2%. One year after the attack, the increase of miles driven on rural interstate highways stopped and even reversed to a slight decrease of an average of −0.2% in the six months following (October 2002 to March 2003). Thus, vehicle miles increased after September 11, most strongly on rural interstate highways, for a period of about 12 months.

Did this change in travel behavior go hand in hand with a surplus* in fatal road accidents? To test the third part of the dread hypothesis, I compare the fatal road accidents after September 11 with two baselines: first, with the average number of fatal road accidents in the five years preceding* the attack (1996–2000, the zero line in Fig. 1), and second, with the number of fatal crashes in 2001 before the attack. The first baseline is meaningful because the number of fatal traffic accidents had been very stable over those five years. The total monthly number of fatal traffic accidents varied between about 2,500 in February

and 3,500 in August, while the maximum deviation from these figures during the five years was, averaged across all months, only about 115 accidents, which amounts to 3–4% of the monthly average. The second baseline, January through August 2001, shows that in the months before the attack, the number of fatal accidents consistently followed the pattern of the preceding five years. On average, there were only nine (!) additional fatalities* per month (out of some 2,500 to 3,500 each month), and the number of fatal accidents always remained within the minimum and maximum values of the five previous years.

This regularity broke down in the months following September 2001. For a period of 12 months, October 2001 to September 2002, the number of fatal accidents exceeded the five-year baseline every month, as well as the baseline adjusted by the average increase of nine fatal crashes in pre-September 2001. In the majority of months, the surplus exceeds the maximum value of the preceding five years, as shown by the bars in Fig. 1. This is exactly the same period in which the passenger miles showed a marked increase. The surplus death toll was highest in January and March of 2002. After one year, fatal crashes returned to the baseline before the attack, at the same point in time when the road traffic returned to normal (see above). This consistent pattern after the attacks provides support to the hypothesis that the terrorist attacks caused a mediated secondary death toll.

How many fatalities resulted from people's decrease in flying and increase in driving? To estimate this number, I will use the five-year baseline as the comparison standard, corrected by the average increase of nine fatalities per month. For the 12 months following the attack, one obtains a surplus of 317 fatal crashes for October through December 2001, and of an additional 1,188 for January through September 2002, which totals 1,505 fatal crashes. Given that the ratio between fatalities and fatal traffic accidents in 2001 and 2002 was consistently 1.06, the total estimated number of Americans who lost their lives on the road by trying to avoid the risk of flying is 1,595. I want to emphasize that

this number is an estimate, since a nonexperimental study cannot control for all alternative explanations. This estimate is six times higher than the total number of passengers (256) who died in the four fatal flights.
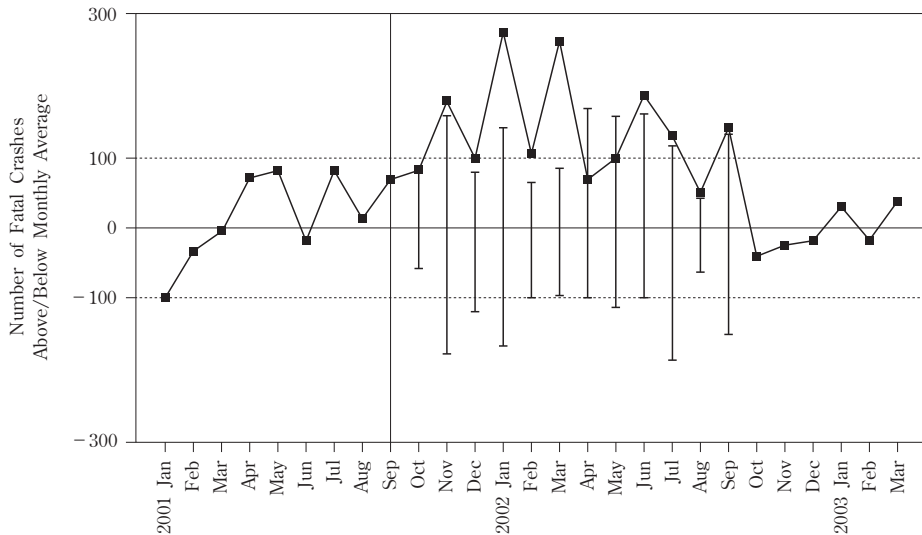


**Fig. 1.** The number of fatal traffic accidents in the United States increased after the terrorist attacks on September 11, 2001, for a period of 12 months. Numbers are expressed as deviations from the five-year baseline 1996–2000 (the zero line). The error bars (shown for the 12 months following the terrorist attacks) specify the maximum and the minimum numbers for each month of the baseline. Before September 11, the average of the monthly numbers of fatal traffic accidents for 2001 was close to the zero line, and the monthly values were always within the maximum and minimum of the previous five years. Yet in the 12 months following the terrorist attacks (October 2001 to September 2002), the number of fatal traffic accidents every month was higher than the zero line, and in most cases exceeded the maximum of the previous years. Data are taken from the U.S. Department of Transportation, Federal Highway Administration.

Gigerenzer G. Risk Analysis 2006; 26:347-351 より改変

注釈

  chronology  出来事を時系列にまとめた文書

  exemplify  典型的な例となる

  preparedness（これから起こることなどに対する）覚悟・準備

  threshold  閾値、境界値

  death  toll  犠牲者数

  implication  推測（予期・予想）されること（結果）

  surplus  余剰、増加

  preceding  〜に先行する

  fatality  死亡者（数）

問 1 　筆者は「恐ろしいリスク(dread risk)」という言葉を定義し、これを避けよう
　　　とする人々の行動を説明する説を 3 つあげている。それらについてそれぞれ
　　　50 字以内で説明しなさい。

問 2 　テロ事件後に、人びとは飛行機を避け、車を利用するようになった。また、交
　　　通事故死が増加した。それらの現象はなぜ生じたのか。本文に提示されていな
　　　い、あなたの考えを 3 つ以上提示し、300 字以内で説明しなさい。あなたの考え
　　　であるので、真実である証拠がなくてもよいし、事実と異なってもよい。

問 3 　このテロ事件の 2 年半後、マドリッド(スペイン)のラッシュアワー中に 4 つの
　　　通勤電車が爆破され、約 200 人が死亡し、1,400 人以上が負傷するテロ事件が起
　　　こった。しかし、その後のスペインにおける列車や飛行機による移動や高速道路
　　　の交通量の変化はわずかであったと報告されている。アメリカで認められた現象
　　　と異なったのはなぜか。あなたの考えを 2 つ以上提示し、300 字以内で説明しな
　　　さい。あなたの考えであるので、真実である証拠がなくてもよいし、事実と異
　　　なってもよい。

問 4 　テロ行為による「間接的被害(indirect damage)」を減らすために、どのような
　　　対策を講じることができるか。その方法を提案し、200 字以内で説明しなさい。

（以下　余白）