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The effect of two recent events on the symptoms of posttraumatic stress disorder in the older population of the Netherlands

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Het effect van twee recente gebeurtenissen op symptomen van de posttraumatische stressstoornis in de oudere bevolking

Tijdschrift voor Psychiatrie 2004;46:85-91.

Abstract

Objective To map out the differences in reporting PTSD after the September-11 attacks and the assassination of Pim Fortuyn and report sensitivity of screening instruments for posttraumatic stress disorder for coincidental horrifying public events.

Method Statistical analyses of the changes in the Self-Rating Inventory for Posttraumatic Stress Disorder (SRIP), measured when the horrifying events took place, in a longitudinal study of older adults in the Netherlands. Also discussion of the results in the light of the international literature dedicated to September-11.

Results Respondents who were interviewed after de WTC-disaster had significantly elevated scores compared to the scores of the same respondents three years before; an effect that faded in time. The scores in the week after the assassination of Pim Fortuyn were significantly elevated compared to the weeks before and after that week.

Conclusion Two horrifying incidents had marked effects on the scores of a PTSD screenings-instrument in older persons in the Netherlands.

Key words: posttraumatic stress disorder, event, elderly

Introduction

Within a period of one year, two shocking events occurred: the attack on the World Trade Center building and the Pentagon in the United States on September-11, 2001, and the assassination of Pim Fortuyn, a noted political figure here in the Netherlands, on May 6, 2002. By coincidence it happened that just after September-11, a new round of data gathering had begun for a large scale research project on the elderly Dutch population: the LASA-study (Longitudinal Aging Study Amsterdam)¹. Subsequently, the murder of Pim Fortuyn occurred also during the duration of the measuring period. Due to the longitudinal nature of the LASA in which the same group of people are studied every three years, new measurements can be directly compared to results for the same person from previous measurements. In addition, in the course of a measuring period, scores before and after a specific date can be compared to each other. This experimental design offered the opportunity to make a further study of the effect of public shocking circumstances on the report of symptoms of posttraumatic stress disorder (PTSD) in the elderly.

By coincidence, a study of the Italian population (mostly not elderly) was also made during this time; in this case, of the subjective experience of well-being as measured with the SF-12 (Short form³). The findings showed significantly lower well-being than had been seen in an earlier study of the subjective experience of well-being. In a long term study of ambulant elderly with heart and lung disorders in the United States, Wolinsky et al.⁴ demonstrated that the attacks on September-11 had a negative influence on the subjects' reports on a feeling of having control, but no influence on the reports of stress. Others who have undertaken specific research to estimate the effects of September-11 in the general population have found definite effects on the reporting of PTSD symptoms⁵.

The question raised by this study was: have the shocking events of September-11 and the murder of Pim Fortuyn influenced the reporting of symptoms of PTSD in the elderly population in the Netherlands? In this article, we describe briefly the LASA study, our specific measurements, and report our findings in the context of the relevant published literature.

Methods

Sample

Beginning in 1992 in the Netherlands, comprehensive research has been conducted every three years on a randomly chosen group of elderly in the Longitudinal Aging Study Amsterdam (LASA). In this study, elderly subjects are questioned in their

homes about their physical, social, emotional and cognitive functioning. The project has been approved by the Medical Ethical Testing Committee (METC) of the Vrije Universiteit and VU University Medical Center and respondents gave their permission in the form of informed consent. In 1992, from a random sampling of the population of 6107 respondents, 3805 persons were recruited for the NESTOR-LSN (Netherlands Programme for Stimulating Research of the Elderly – Life Style and Social Networks) research project (response percentage 62.3%). The subjects to participate in the LASA-study were obtained from this group approximately eleven months later to be contacted four times, in 1992, 1995, 1998 and 2001. The number of respondents were, respectively, 3107 (81.7%), 2545 (66.9%) and 2076 (54.6%). From this third group, 1721 respondents could be administered a screening test for PTSD. This group consisted of 46% men, the age range was 61 – 89 years, and the average age of men was 74.1, of women, 73.5. Nearly a third of them lived in Amsterdam, 57% were still married and 48% had a low income. Seventy four percent had more than one chronic illness, and less than one percent had a MMSE (Mini Mental State Examination) score under 24. The percentage of participants with many functional limitations was 54%.

In the fourth measurement period that began in 2001, it was still possible to collect sufficient data for the PTSD screening test from 1335 respondents. Of the original 3805 respondents in 1992, eventually 1691 were left in the fourth measurement. (30.9% mortality, 16.2% refusals 6.5% ineligible and 2.0% not contacted). Others were excluded because only a telephone interview had been conducted and the PTSD screen had not been administered. In this 2001 measuring period, the data collection required 11 months; approximately 30 participants were interviewed per week.

Instruments of measurement

The presence of PTSD symptoms in the participants was determined using the SRIP, Self-Rating Inventory for PTSD ('Zelfinventarisatielijst'⁶). This list measures the presence of DSM-IV symptoms over the last four weeks in 22 questions with a 4-point scale. The symptoms can be divided into three groups: symptoms of intrusion, avoidance or hyper-arousal. Examples of questions from the group of intrusion symptoms are: "I had the feeling that events from the past were happening again" and "I had horrible dreams". Examples from the avoidance symptoms group are: "I tried to avoid thoughts about the past" and "I had trouble expressing my feelings". Examples from the hyper-arousal symptom group are: "I was nervous" and "I had trouble sleeping through the night". Earlier research has shown the SRIP to be a reliable screening instrument⁷.

Statistical analyses

The measuring period of 2001 began in week 39, nearly two weeks after the attack of September-11 that had taken place in week 37. The data for this study was grouped on the basis of the week in which it was gathered. Accordingly, the average SRIP score for a week can be calculated. For week 39, there were too few observations collected to make a reliable average score. However, beginning week 40, the average week SRIP score from 2001 could be compared to the average score for the same persons three years earlier. The difference in these scores were calculated to demonstrate a series of average increase values in the weeks after the September-11 disaster. In order to determine if this increase in SRIP scores gradually decreased with time, the results were evaluated with analysis of variance with linear contrast. In addition, the average value for week 40 of 2001 was compared to a combined average for the entire series of measures and variance was expressed in standard deviation. To investigate the effect of the murder of Pim Fortuyn on the SRIP scores, the average week score after the murder was compared using the t test with the average week scores before and after the murder.

Results

The effect of the attack on September-11 was examined by comparing the SRIP scores after the attack with scores from three years earlier. The effect of the attack was the most clear in week 40: in respondents from week 40, the average SRIP-score was 2.92 points higher than the average value from three years earlier ($t(47) = 3.64$, $p < 0.001$). Analysis of variance with linear contrast demonstrated that the elevation in the mean week values decreased with time ($t(639) = 5.27$, $p < 0.001$). The average SRIP scores for the first six weeks for which data was available are shown in Figure 1. When the average SRIP score for week 40 was compared to the average score for the entire measuring period, an approximately 1.5 increase in score was seen. This is an increase of 0.2 standard deviation, a moderate to middle effect. The increase in intrusion symptoms, with 0.3 standard deviation, was slightly higher than the increase in avoidance (0.2 SD) and hyper-arousal (0.1 SD) symptoms. Pim Fortuyn was murdered on Monday evening, May 6, 2002, the last day of week 18 (the scores were grouped in weeks beginning on Tuesday and ending on Monday). The average SRIP scores for weeks before and after the murder are shown in Figure 2.

Figure 1. Mean score on the SRIP in de weeks after September-11, 2001

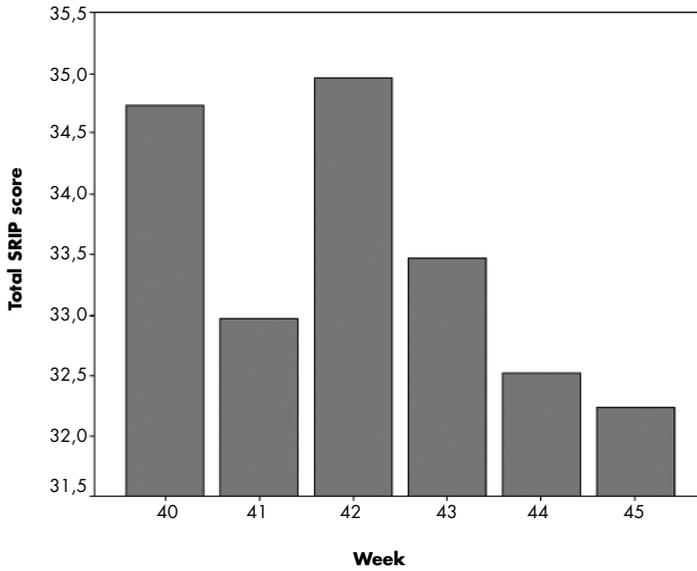
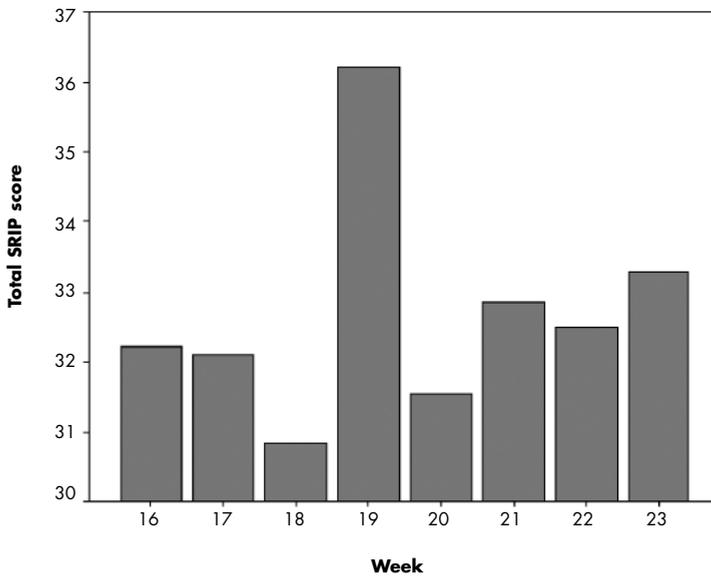


Figure 2. Mean score on the SRIP in de weeks around the murder on Pim Fortuyn (end of week 18, 2002)



The average SRIP score (m) for the entire period (of eleven months) was 32.8 ($n = 1233$). Immediately after the murder, in week 19, the average score was 36.2, a significantly higher value than for the following week 20 ($t(61) = 2.74$; $p = 0.008$). Although the trend could be seen that the average value was lower also in the week before the murder ($t(33) = 1.73$; $p = 0.09$), the difference did not reach significance, possibly due to the low number of interviews that were obtained for that week ($n = 12$). The combined values of two weeks before (week 16 and 17) were significantly lower than week 19 ($t(60) = 2.27$; $p = 0.03$). The difference in average scores of week 19 compared to the values from the same persons three years previously, was also significant.

When the increase in the SRIP score in week 19 is expressed as a standard deviation, then the score was increased by 0.48 standard deviation when compared to the average score for all the interviews in the measuring period. When the individual symptom categories are studied, the score for week 19 increased the most in the avoidance symptoms group (0.51 SD) and the hyper-arousal symptoms group (0.45 SD). The increase was the smallest (0.21 SD) in the intrusion symptoms group. Comparing the effects on the SRIP scores of the attack in the USA to the effects of the murder of Fortuyn, it can be seen that the immediate effect of the murder was larger, but it did not last as long as the effects of the attack.

Discussion

This study investigated two chance occurrences within the context of an already existing long-term study of the older population in the Netherlands. Accordingly, both the number of subjects that could be included in the study and the generalizability of the findings were limited. Due to the selective loss over time of the weakest subjects in the long-term study – unavoidable in studies of the elderly – the population for this study consisted of relatively healthy elderly for whom detailed information regarding life style and health had been collected (three years earlier). This turned out to be a unique opportunity to demonstrate that public events can produce a clear effect on the reporting of PTSD symptoms. It also offered the chance to address the international literature concerning a single event: both as the other circumstantial findings in long term research as well as the specific research that was originally planned.

In a recent review article about the consequences of disasters, Havenaar and Bromet⁸ discussed the epidemiological literature that has demonstrated effects on

victims of disasters. In those disaster situations, severe pathology and a high prevalence of PTSD, for which all the criteria for diagnosis were present, often occurred. In contrast, our study investigated subjects who were not directly affected and who reported short term changes in their PTSD symptoms. It was clear that after September-11, the elderly population that was studied suddenly reported higher scores on the PTSD questionnaires. The magnitude of increase expressed as standard deviation was 0.21 SD, a small to moderate difference.

Similar psychological effects have been demonstrated with the American population after September-11. In contrast to our study, the American study was performed specifically to study effects of this attack on a younger population⁵. Results were obtained by taking a poll of 768 randomly selected subjects. The poll consisted of five questions based on the DSM-IV-criteria for PTSD. Forty-four percent of the respondents demonstrated one or more substantial symptoms of stress. Ninety percent had answered at least one question with the phrase, “to some degree present”. For comparing these results to our study, an increase of 1 point on the SRIP score corresponds to an increase in the subject’s positive response from one category to the next higher one: for example, from ‘not at all’ to ‘slightly.’ On average, immediately after the attack, our LASA respondents scored 1.5 points higher on the SRIP than the average score for the entire measuring period, and 3 points higher than the SRIP score of three years earlier.

Using an internet study, Silver et al.⁹ investigated a random sample of the American population within 23 days after the attack and again at 2 and 6 months afterwards. The random sample constituted a relatively accurate representation of the overall American population. This study demonstrated that 12.4% of subjects met the symptom requirements for acute stress disorder in the first measurement, and that after two months, 17% of the population outside of New York City reported all the symptoms required to diagnose PTSD. In other words, the subjects reported at least 1 symptom of intrusion, at least 3 symptoms of avoidance and at least 2 symptoms of hyper-arousal, but were not questioned regarding the duration and the severity of limitations to functioning. When the results were reported on the basis of individual symptoms, nearly 60% demonstrated hyper-arousal/fear, approximately 40% showed symptoms of intrusion and nearly 30% symptoms of avoidance. An interesting further finding was that there was no correlation between the degree of exposure or loss and the severity of the symptoms. Apparently, an identification with the victims was sufficient to produce strong psychological reactions. The literature on trauma¹⁰ provides some support for this finding. Also, the fact that a clear effect of the attack can be shown in the Netherlands, so far removed from the event, is in line with this finding. Research in Italy also demonstrated a world-wide effect of the attack³.

Because publications on the effect of the September-11 attack have come from so many different countries, the events can be viewed from an international perspective. Apparently, Western populations do not differ very much in their reaction patterns to shocking events. Although Wolinsky et al.⁴ did not find an influence of the events of September-11 on questions about stress in an elderly population, this may be attributed to the fact that the subjects were not a random sample from the population and that stress generated by the attack could not be seen over the stress of having cardiac or pulmonary disease. It is also possible that the combined form of the questions in their study -- namely asking both about having stress and the effect on their health effectively hid the effect on stress alone. In contrast, in this study the loss of (external) control was definitely measurable and turned out to be negatively associated with having a job, a good income and more religiosity which were, in their scope, justified belongings of the most healthy population. Because the most healthy part of the older population was examined in our study, it could mean that the effects we measured are more similar to the effects in the population at large.

The shock response to the murder of Pim Fortuyn can be described as short but significant. When expressed in standard deviation, it can be seen as a strong response, that indeed registered higher than the response to the September-11 attack. However, it is important to note that due to the timing of the measurements the response to September-11 could only be registered after two weeks, while the response to the murder could be seen immediately. It is possible that, after the events in the United States, a peak value in increased scores was missed.

Our study has also shed new light on the usefulness of inventories that measure personal functioning, such as the SRIP, in population studies after important socio-political events. Such events would include the murder of a prominent figure, the initiation of war or acts of large scale violence. Researchers performing long term studies should be aware that socio-political events may have effects on the parameters they are measuring, and should take this into account when interpreting their results.

The conclusion is that extreme public events have had a clear influence on the reporting of PTSD symptoms in older persons here in the Netherlands. The effect of the murder of Pim Fortuyn was short but strong while the September-11 attack in the United States had a longer acting effect.

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