

Impact of Event Scale: A Measure of Subjective Stress

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Clinical, field, and experimental studies of response to potentially stressful life events give concordant findings: there is a general human tendency to undergo episodes of intrusive thinking and periods of avoidance. A scale of current subjective distress, related to a specific event, was based on a list of items composed of commonly reported experiences of intrusion and avoidance. Responses of 66 persons admitted to an outpatient clinic for the treatment of stress response syndromes indicated that the scale had a useful degree of significance and homogeneity. Empirical clusters supported the concept of subscores for intrusions and avoidance responses.

INTRODUCTION

Research on human response to stress requires evaluation of both serious life events and their subjective impact. Evaluation of life events is now possible through questionnaires that list situational changes and yield quantitative estimates of the cumulative impact of such episodes on individuals or on groups (1-4). What is needed is an instrument that measures the current degree of subjective impact experienced as a result of a specific event. With such an instrument, investigators can observe individuals over periods of time following the occurrence of an event, compare subgroups for degree of subjective distress after a particular life event, or contrast life events in terms of their relative impact on different populations.

Moos (5) reviewed methods in this area and found no suitable measurement for this purpose. Since then, however, an instrument called the Texas Inventory of Grief (6) has been reported. While it does explore the kind of conscious experiences that a person can describe, its use is limited to a particular event; the study of bereavement. We have developed a more broadly applicable measure, the Impact of Event Scale, used to assess current subjective distress for any life event. The wording is not anchored to a specific occurrence, but to the particular qualities of conscious experience that encompass all such events.

DEVELOPMENT OF THE INSTRUMENT

In studies of psychological responses to stressful life events, common qualities of conscious experience were found among patients with different personality styles. Two major response sets, intrusion and avoidance, were abstracted from in-depth evaluation and psychotherapy interviews. These response sets, and the manner in

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which they were experienced, were also prominent in other reports of psychological reactions to stress (7-10). Intrusion was characterized by unbidden thoughts and images, troubled dreams, strong pangs or waves of feelings, and repetitive behavior. Avoidance responses included ideational constriction, denial of the meanings and consequences of the event, blunted sensation, behavioral inhibition or counterphobic activity, and awareness of emotional numbness.

Items for this self-report instrument were derived from statements most frequently used to describe episodes of distress by persons who had experienced recent life changes (11, 12). The list that evolved in this way contained experiences of a particular quality, such as intrusiveness, worded so that they might apply to any event. To anchor the qualities of experience to a particular context, the life event specific to each person was entered at the top of the form and served as a referent for each of the statements on the list.

Guided by clinical experience, the various items were divided into two subgroups, intrusion and avoidance. The goal was a scale that would provide subscores for these response sets, as well as a total subjective stress score. Since persons cannot report the unconscious aspects of the denial process, but only the "felt" consequences, such as numbness, the term "avoidance," rather than "denial" is used to describe this subscale.

Over a period of several years various forms of this item list were given to psychotherapy patients with stress response syndromes, and to nonpatient volunteers exposed to serious life events. The wording and the format were revised during these trial runs, and it was determined through this process that the best time

unit for clinically valid reports of a person's current response level was "the past week." Subjects reported forgetfulness and less conviction about intervals longer than a week, and a constriction in reporting significant episodes felt to be markers of their current level of stress for a period of less than a few days. Through examination of the data it also became evident that although we had asked for separate ratings of how often during the past week a particular experience had occurred, and what the peak intensity of that episode had been, the scores for frequency and intensity of episodes were relatively similar. In other words, the experience of a single, very intense intrusive image was similar in its effect to multiple experiences of less intense and only mildly intrusive images. Therefore, although subjects were asked to respond to both variables in a study of the refined Impact of Event Scale, only the higher score of either frequency or intensity was used as the indicator of the magnitude of the item.

The goals of the present study were 1) to determine the frequency of item endorsement by a new group of subjects clinically diagnosed as suffering from stress response syndromes after serious life events, 2) to test the internal reliability of the instrument by examining the frequency of response to each item and the intercorrelation of response items, and 3) to determine whether the logical subsets of intrusion and avoidance items had empirical cohesion.

METHODS

Scale

In its form after pilot studies, the scale consisted of twenty items. Nine items described episodes of intrusion, eleven described episodes of avoidance.

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The specific life event and the date of its occurrence were recorded at the top of the page. The subject was directed to indicate whether or not each item had been experienced within the past seven days. If he recalled such an experience, he rated it for both frequency (indicated as rarely, sometimes, and often) and intensity (indicated as mild, moderate, or severe). If he did not recall having such an experience within the past seven days, he marked a separate column included for this purpose.

Subject Sample

The Impact of Event Scale was given to 66 adults who sought psychotherapy at the University of California outpatient department as a result of reactions to a serious life event. These patients were referred to a clinic for specialized treatment of stress response syndromes. This clinic accepted patients with neurotic levels of psychopathology; those persons referred elsewhere had overt psychoses, drug dependence, alcoholism, or were unwilling to give written consent to research review of their records.

The inciting serious life event that preceded the development of a stress response syndrome varied in this group. About half the patients ($n = 34$) had experienced bereavement, the remainder had personal injuries resulting from accidents, violence, illness, or surgery. When scales completed by bereaved subjects were compared with those of subjects who had incurred personal injury, endorsements of items were found to be relatively similar despite disparate events.

The subjects were 16 men and 50 women between 20 and 75 years of age, with a mean age of 34. They were from a literate, lower-middle to middle class population, with the diverse ethnic origins that characterize San Francisco. The sex bias reflects the ratio of men to women applicants to our special clinic and resembles the ratio at this time of men to women applicants to our university psychiatric outpatient clinic.

Design

Each subject completed the Impact of Event Scale after the initial interview with a clinician. The recent serious life event reported as most significantly stressful was indicated as the referent for all scale items. The time from the occurrence of the event to this first visit averaged 25 weeks, with a range from 1 to 136 weeks.

Data Analysis

The frequency of endorsement of a given experience as having occurred within the preceding week was calculated. Mean scores were also computed; these were based on an assigned weight for each item of zero for negative endorsement and one, three, or five for the three degrees of positive endorsement for intensity and frequency. The higher score of either intensity or frequency ratings was used to calculate the means in the tables presented here. In addition, the data were analyzed separately for the intensity and frequency ratings. The two categories correlated well with each other and independently yielded essentially the same results.

RESULTS

All items were endorsed frequently. Those most often endorsed, "Things I saw or heard suddenly reminded me of it," and "I got waves or pangs of intense or deep feelings about it," were acknowledged by 85% of the subject sample (see Table 1). Even the item with the lowest endorsement, "It seemed to me that I was reacting less than would be expected," was acknowledged by 38% of the 66 subjects. All six of the most frequently reported items had a mean weighted score of three or more, indicating that as a group these subjects experienced such episodes at a high level of frequency or intensity. This occurred even though the particular stressful event had usually been experienced several months earlier (mean of 5½ months) while the time frame for endorsement of any scale item was limited to the past seven days.

Sex Differences

The mean scores for each item were calculated separately for men and women, as well as for the total group. The sexes differed significantly in their degree of frequency or intensity on 3 of 20 items; in

TABLE 1. Impact of Event Scale: Frequency and Mean of Positive Report and Cluster Analysis of Items (n = 66)

Item	% Endorsement	Mean (SD)	Item to Subscale <i>r</i>	Logical Cluster ^a
Cluster 1:				
I had waves of strong feelings about it.	88	3.8 (1.9)	0.57 ^b	I
Things I saw or heard suddenly reminded me of it.	85	3.7 (1.9)	0.57 ^b	I
I thought about it when I didn't mean to.	76	3.3 (2.2)	0.45 ^b	I
Images related to it popped into my mind.	76	3.2 (2.2)	0.39 ^b	I
Any reminder brought back emotions related to it.	76	3.0 (2.1)	0.62 ^b	I
I have difficulty falling asleep because of images or thoughts related to the event.	64	2.6 (2.4)	0.35 ^b	I
I had bad dreams related to the event.	44	1.7 (2.2)	0.41 ^b	I
Cluster 2:				
I knew that a lot of unresolved feelings were still there, but I kept them under wraps.	71	3.0 (2.2)	0.46 ^b	A
I avoided letting myself get emotional when I thought about it or was reminded of it.	70	2.8 (2.1)	0.62 ^b	A
I wished to banish it from my store of memories.	65	2.8 (2.3)	0.49 ^b	A
I made an effort to avoid talking about it.	61	2.2 (2.0)	0.59 ^b	A
My emotions related to it were kind of numb.	59	2.1 (2.1)	0.42 ^b	A
I felt unrealistic about it, as if it hadn't happened or as if it wasn't real.	58	2.2 (2.3)	0.48 ^b	A
I stayed away from things or situations that might remind me of it.	53	2.2 (2.3)	0.57 ^b	A
I didn't let myself have thoughts related to it.	50	1.8 (2.2)	0.65 ^b	A
Cluster 3:				
I kept wondering why it had to happen to me or to persons near me and not someone else.	59	2.6 (2.3)	0.18	I
I used alcohol, drugs, or a lot of activity to help me forget.	54	2.0 (2.2)	0.29	A
It seemed to me that I was reacting less than would be expected.	38	1.3 (2.0)	0.20	A
Cluster 4:				
I found myself almost waiting for something like that to happen again.	44	1.6 (2.1)	0.29	I
I found myself making plans and decisions which were inappropriate in light of the event.	41	1.5 (2.0)	0.08	A

^a I: intrusion item; A: avoidance item.

^b = $p < 0.01$.

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each instance, women indicated a higher level of endorsement than men. These items were all in the avoidance category: "I knew that a lot of unresolved feelings were still there, but I kept them under wraps," "I avoided letting myself get emotional when I thought about it or was reminded of it," and "It seemed to me that I was reacting less than would be expected." The total subjective stress scores, derived by adding the positive scores of each item were not significantly affected by sex.

Cluster Analysis for Subscales

Clusters were determined by a correlational measure of association and an average linkage algorithm (13). As shown in Table 1, the primary and secondary clusters included 15 of the 20 items, with 2 smaller residual clusters containing 5 items. The primary cluster contained items from the clinically derived intrusion subset, while the second cluster was composed of clinically derived avoidance items. This finding, added to the logic with which items were initially selected, supports the use of intrusion and avoidance subscales.

Revision of Scale and Internal Reliability

On the basis of these empirical findings we concluded that the Impact of Event Scale was a useful instrument, but that additional revisions were indicated. First, the number of items was reduced by selecting only those that empirically clustered and had significant item-to-subscale correlations beyond the 0.01 level of significance. Next, comparison of scores derived by frequency and by intensity indicated a degree of similarity that made dual

response for each item unnecessary. As a result, only the frequency variable was retained, since subjects seemed able to score it more accurately than the intensity variable. Finally, wording of a few items was slightly modified to further reduce ambiguity. This revised scale is presented in Table 2.

We are presenting this scale for the first time, in order that it may be used by other investigators, and have, therefore, recalculated the data on our sample of 66 persons with stress response syndromes, according to the condensed, revised version. The mean total stress score for 66 subjects, computed by adding the mean scores for frequency for the 15 items, was 39.5 (SD = 17.2, range 0-69). The mean intrusion subscale score (items 1, 4, 5, 6, 10, 11, 14) was 21.4 (SD = 9.6, range 0-35), and the mean avoidance subscale score (items 2, 3, 7, 8, 9, 12, 13, 15) was 18.2 (SD = 10.8, range 0-38).

After reduction of the scale to the 15 most powerful items, the split half reliability of the total scale was high ($r = 0.86$). Internal consistency of the subscales, as calculated using Cronbach's Alpha, was also high (intrusion = 0.78, avoidance = 0.82). A correlation of 0.42 ($p > 0.0002$) between the intrusion and avoidance subscale scores indicates that the two subsets are associated, but do not measure identical dimensions.

Test-Retest Reliability

The 15 item scale was given to a new sample, a beginning class of 25 physical therapy students; 20 women and 5 men who had graduated from college and had a median age in the late twenties. They had recently begun dissection of a cadaver and hence contact with death and sights that were usually taboo. The class as a

TABLE 2. Revised Impact of Event Scale

On _____ you experienced _____	FREQUENCY				
(date)	(life event)	Not at All	Rarely	Sometimes	Often
Below is a list of comments made by people after stressful life events. Please check each item, indicating how frequently these comments were true for you <i>DURING THE PAST SEVEN DAYS</i> . If they did not occur during that time, please mark the "not at all" column.					
1. I thought about it when I didn't mean to. 2. I avoided letting myself get upset when I thought about it or was reminded of it. 3. I tried to remove it from memory. 4. I had trouble falling asleep or staying asleep, because of pictures or thoughts about it that came into my mind. 5. I had waves of strong feelings about it. 6. I had dreams about it. 7. I stayed away from reminders of it. 8. I felt as if it hadn't happened or it wasn't real. 9. I tried not to talk about it. 10. Pictures about it popped into my mind. 11. Other things kept making me think about it. 12. I was aware that I still had a lot of feelings about it, but I didn't deal with them. 13. I tried not to think about it. 14. Any reminder brought back feelings about it. 15. My feelings about it were kind of numb.					

Intrusion subset = 1, 4, 5, 6, 10, 11, 14; avoidance subset = 2, 3, 7, 8, 9, 12, 13, 15.

whole gave unanimous consent, and then completed the scale twice with an interval of one week between each rating. They did not know there would be a second rating until it was administered, but again all agreed to complete the scale. They had seen and dissected a cadaver for the first time four weeks before initial administration of the Impact of Event Scale. When they were given the scale for the second time, a week later, they were asked to allow their answers to encompass the two preceding weeks, which would cover the time period included by the first scale, and allow for maximum overlap of previously reported experiences. Inspection of the data indicated frequent endorsement of positive responses. Results indicated a

test-retest reliability of 0.87 for the total stress scores, 0.89 for the intrusion subscale, and 0.79 for the avoidance subscale.

Sensitivity

This subjective distress scale is a self-report instrument that can be used for repeated measurement over time. In order to determine the suitability of this scale as a sensitive indicator of such change, a subsample of the 66 patients with stress response syndromes was examined. This subsample of 32 patients completed the scale immediately before and after a brief therapy aimed at relief of their stress response syndromes. The mean time between the first and second administration

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was 11 weeks (range 4 to 31 weeks). Clinical assessments and subjective reports indicated that about 80% of these patients achieved beneficial levels of improvement. For most subjects, a sensitive scale would show somewhat lower scores four months after the termination of therapy, due to a combination of additional time since the specific event and the effects of therapy. As shown in Table 3, the significant change in scores on the Impact of Event Scale conformed to this prediction and the marked decline in item, subscale, and overall scores, supports its validity as a sensitive reflection of change.

A second index of sensitivity would be the degree to which scores on the scale might discriminate persons from different populations who had experienced different kinds of life events. A new group of 110 medical students (75 men and 35 women), in the early months of their freshman year, were given the Impact of Event Scale to relate to the experience of their first confrontation with cadaver dissection. Their scores were contrasted with the patient group, who we believed had experienced much more distressing life events, and who were in all probability persons more predisposed to symptom

TABLE 3. Change of Scores Over Time in 32 Persons Evaluated for Stress Response Syndromes before and after Brief Therapy

Item	Frequency Present (%)		Means (SD)		t ^a
	Time 1	Time 2	Time 1	Time 2	
Intrusion Items					
I had waves of strong feelings about it.	88	75	4.1 (1.9)	2.6 (2.1)	3.6
Other things kept making me think about it.	72	66	3.8 (2.0)	2.8 (1.9)	3.2
I thought about it when I didn't mean to.	78	66	3.7 (2.2)	2.3 (2.1)	2.8
Pictures about it popped into my mind.	81	62	3.5 (2.1)	2.2 (2.1)	3.1
Any reminder brought back feelings about it.	81	62	3.4 (2.1)	2.0 (2.1)	3.3
I had trouble falling asleep or staying asleep, because of pictures or thoughts about it that came into my mind.	69	28	2.8 (2.3)	1.0 (1.8)	5.1
I had dreams about it.	47	34	1.8 (2.3)	1.0 (1.7)	2.4
Intrusion Subscale			23.1 (9.4)	13.9 (10.9)	5.5
Avoidance Items					
I was aware that I still had a lot of feelings about it, but I didn't deal with them.	78	62	3.6 (2.1)	1.8 (1.9)	3.7
I avoided letting myself get upset when I thought about it or was reminded of it.	78	66	3.2 (1.9)	2.0 (2.0)	2.5
I tried to remove it from memory.	69	38	2.9 (2.4)	1.3 (1.9)	3.7
I tried not to talk about it.	75	38	2.7 (2.0)	1.1 (1.9)	4.5
My feelings about it were kind of numb.	62	47	2.1 (2.1)	1.2 (1.8)	2.0
I felt as if it hadn't happened or it wasn't real.	59	38	2.2 (2.3)	1.2 (1.9)	1.9
I stayed away from reminders of it.	53	28	2.2 (2.3)	1.0 (1.7)	3.3
I tried not to think about it.	50	34	1.8 (2.1)	0.8 (1.5)	2.4
Avoidance Subscale			20.6 (11.0)	10.5 (10.3)	4.8
Total Scale			43.7 (17.2)	24.3 (17.8)	5.8

^a All ts were significant at $p < 0.05$, one-tailed tests.

TABLE 4. Sensitivity to Population/Event Differences: Scores from 66 Stress Clinic Patients versus 110 Medical Students Reacting to Cadaver Dissection

Item	Frequency Present (%)				Stress Clinic Patients				Medical Students			
	Stress Clinic Patients		Medical Students		Stress Clinic Patients		Medical Students		Stress Clinic Patients		Medical Students	
	Male (n=16)	Female (n=50)	Male (n=75)	Female (n=35)	Male	Female	Male	Female	Mean (SD)	(SD)	Mean (SD)	(SD)
Intrusion Items												
I had waves of strong feelings about it.	88	88	13	26	3.8	3.8	3.8	3.8	(1.9)	0.3	0.8	(1.7)
Other things kept making me think about it.	75	88	31	54	3.5	3.5	3.8	3.8	(1.8)	0.6	1.2	(1.4)
I thought about it when I didn't mean to.	69	78	28	51	2.9	2.9	3.4	3.4	(2.2)	0.5	1.3	(1.6)
Pictures about it popped into my mind.	75	76	39	77	3.5	3.5	3.2	3.2	(2.2)	0.9	1.9	(1.6)
Any reminder brought back feelings about it.	69	78	11	17	3.1	3.1	2.9	2.9	(2.0)	0.2	0.3	(0.9)
I had trouble falling asleep or staying asleep, because of pictures or thoughts about it that came into my mind.	62	64	1	3	2.4	2.4	2.7	2.7	(2.4)	0.0	0.0	(0.2)
I had dreams about it.	56	40	3	17	2.1	2.1	1.6	1.6	(2.2)	0.0	0.4	(1.3)
Intrusion Subscale					21.2	21.2	21.4	21.4	(8.6)	2.5	6.1	(5.3)
Avoidance Items												
I was aware that I still had a lot of feelings about it, but I didn't deal with them.	44	80	32	34	1.4	1.4	1.9	1.9	(2.1)	0.5	0.8	(1.5)
I avoided letting myself get upset when I thought about it or was reminded of it.	44	78	27	46	1.4	1.4	1.9	1.9	(2.0)	0.6	1.1	(1.6)
I tried to remove it from memory.	44	72	5	17	2.2	2.2	3.0	3.0	(2.3)	0.1	0.4	(1.3)
I tried not to talk about it.	56	62	13	14	1.8	1.8	2.3	2.3	(2.1)	0.4	0.3	(0.7)
My feelings about it were kind of numb.	62	58	44	31	2.5	2.5	2.3	1.9	(2.1)	1.0	0.8	(1.6)
I felt as if it hadn't happened or it wasn't real.	44	62	48	54	1.3	1.3	1.8	2.5	(2.3)	1.1	1.9	(2.1)
I stayed away from reminders of it.	50	54	—	—	1.6	1.6	2.3	2.3	(2.3)	—	—	—
I tried not to think about it.	56	43	13	14	1.8	1.8	2.1	1.8	(2.2)	0.2	0.6	(1.1)
Avoidance Subscale					14.1	14.1	20.6	20.6	(11.3)	4.4	6.6	(7.0)
Total Scale					35.3	35.3	42.1	42.1	(16.7)	6.9	12.7	(10.8)

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development. The patient reports referred to their responses during the previous week as related to an individually specific life event that had occurred on an average of 25 weeks earlier. The student reports referred to their reactions during the previous week to a specific event (cadaver dissection) that began approximately four weeks earlier.

On the intrusion subscale, the mean for the patient sample was 21.0 for both men and women, while the mean for the student sample was 2.5 for men and 6.1 for women, a difference showing patient scores that were three to ten times as high as those of students. Patient means on the avoidance subscale were 35.3 for men and 42.1 for women, while student means were 6.9 for men and 12.7 for women. Again the differences were sizable, as well as statistically significant.

The detailed data on each item are of interest and are summarized in Table 4; both percents and means for items, subscales, and total subjective distress scores are given. The major difference in effects noted was between the groups, as mentioned ($F = 212.1$, $p < 0.0001$ for intrusion; $F = 73.0$, $p < 0.001$ for avoidance; $F = 170.8$, $p < 0.0001$ for the total stress score). The sex differences were also significant, with much lower size of effect and are largely accounted for by women students reporting most intrusion items and all but a few avoidance items more frequently. (The main exception, as noted in Table 4, was the higher men's score on "My feelings about it were kind of numb.") These statistical tests are shown in Table 5.

DISCUSSION

Items on the Impact of Event Scale were frequently endorsed by a population seek-

TABLE 5. Two Way Analysis of Variance on Subscale and Total Scores Comparing 66 Patients and 110 Medical Students by Group and Sex

Source	df	MS	F	<p
<i>Intrusion Subscale Mean</i>				
Group	1	9374.5	212.1	0.0001
Sex	1	211.1	4.8	0.03
Group X Sex	1	86.0	1.9	NS ^a
Residual	172	44.2		
Total	175	119.2		
<i>Avoidance Subscale Mean</i>				
Group	1	5158.7	73.0	0.0001
Sex	1	485.5	6.9	0.01
Group X Sex	1	145.5	2.1	NS
Residual	172	70.6		
Total	175	119.0		
<i>Total Distress Mean</i>				
Group	1	28441.6	170.9	0.0001
Sex	1	1336.9	8.0	0.005
Group X Sex	1	7.8	0.0	NS
Residual	172	166.5		
Total	175	408.2		

^aNS: not significant.

ing help for post-traumatic stress disorder. This finding affirms the accomplishment of our original intent, to construct an instrument suitable for obtaining reports of characteristic experiences from persons with such syndromes. A further goal was the development of a scale that would yield subscores for intrusive and avoidance experiences. These subscales, based upon clinical observation and inference, were found to have empirical validity by the emergence of coherent clusters. The reliability of the scale was supported by adequate test-retest results; its sensitivity was supported by indications of change in a population where clinical impressions by experienced observers suggested such change and by relevant differences in the response to discrete life events of varied magnitude. Naturally,

additional studies would be helpful, especially as they might yield data from still more diverse populations, events, and time periods.

The avoidance subscale consists of reported episodes of conscious awareness. It cannot be expected to include self-reports of manifestations of successful inhibitions. Persons who have accomplished massive denial or repression may not have episodes of conscious experience, such as numbing or ideational constriction. Investigators who would regard this subscale as an indicator of denial processes would be bound to include some false negatives in their results.

Finally, we would like to note that persons of various educational, economic, and cultural backgrounds have been able to use the scale. They understand it, are comfortable with it, and do not feel that it

probes excessively. Clinicians have found the Impact of Event Scale useful in following the trajectory of a person responding to a specific traumatic life event over a long period of time, since it can easily be used repetitively and anchored to the same psychological trauma over the entire time span.

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