

Reactions of Psychiatric Patients to an Earthquake in Egypt

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Ninety two psychiatric patients of different diagnoses and 104 normal controls were studied in the aftermath of an earthquake in Egypt (1-15 days after the event), using a semi-structured questionnaire. There was no significant association between diagnostic category and affective and behavioral reactions during the earthquake. There was a significant association between diagnosis and concerns during the earthquake, with schizophrenics less frequently concerned for important others. Few patients expected the earthquake to have an impact on their illness. Religious thoughts were strongly present at this time of severe stress.

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Introduction

On October 12th, 1992, Egypt was shaken by an earthquake measuring 5.7 on the Richter scale and lasting for about one minute. The results of this earthquake were loss of human lives (540 dead and 6500 injured) and damage to private and state-owned property. Unaccustomed to natural disasters, the majority of Egyptians reacted violently to this event.

Research involving traumatic events is charged with methodological problems. As noted by Lopes-Ibor et al (1985), investigation of a disaster is necessarily opportunistic and after-the-event and there is no opportunity for strict or prospective experimental design or reference to well-defined control groups.

Most current studies concerning post-traumatic reactions following either nat-

ural or man-made disasters focus on post-traumatic stress disorder (PTSD), a category developed in DSM-III (APA, 1980). However, some studies have attempted to investigate reactions in the acute phase after the event (Lyons, 1971; Parker, 1977; Patrick and Patrick, 1981; Mc Farlane, 1986; Pynoos et al, 1987; Wilkinson, 1988). In such studies, there have been trials to correlate post-traumatic symptomatology with pre-traumatic variables. A recurrent finding is that subjects with a past history of psychiatric illness are more prone to post-traumatic psychiatric disorder (Mc Farlane, 1986; Shore et al. 1986; Smith et al, 1990).

Few authors have assessed the impact of a disaster on an existing psychiatric illness. Kaffman (1977) in his observations on a Kibbutz civilian population under war stress, stated that many of the 15 - 18 year old adolescents who had been in treatment for personality and / or neurotic problems bloomed during that period. Also, some of the chronic patients discharged from psychiatric hospitals whose pre-war behavi-

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our had been marginal in fulfilling the regular demands of work and participating in other activities, became useful and responsible members of the community, at least temporarily.

A review of the history of psychiatry in general, and treatment in particular, reveals that extreme stress would indeed be expected to affect the course of psychiatric illness. Hatem (1985) stated that an ancient therapeutic theme was the use of strong emotional factors to bring about cure. It was used by Celsus (1st century A.D.) who made use of sudden fright to bring patients to health. Also, in various periods, physical methods of treatment (e.g. the rotary chair, immersion in water) were used violently, along the principle of curing violence (the insane fury) with a similar and even stronger violence.

In the present study, we attempted to compare between psychiatric patients and normal controls as regards their reactions to a natural disaster in the initial post-trauma period. We wished, basically, to examine three hypotheses:

-Psychiatric patients would react (both affectively and behaviourally) less intensely than normals

-The experience would subjectively be expected to have some impact on the patient's existing psychiatric illness.

Subjects and Method

An Arabic questionnaire was designed to assess the reactions of patients and normal controls subsequent to the occurrence of the earthquake*. This questionnaire enquired about how the subject felt during the earthquake, whether he was afraid, who and what he was afraid for,

* The questionnaire was designed by the senior member of the research team (Prof. Y.R.) who was present at a psychiatric hospital when the earthquake occurred. His observations of the reactions of the patients, especially psychotics, gave rise to the hypotheses explored in this study.

what he did, whether he experienced any somatic disturbances such as palpitations, sweating, pains, and how he felt on the day (s) following the earthquake. The psychiatric patient was further asked whether he thought of his illness during the earthquake and whether he thought the earthquake would have any impact on his illness. The questionnaire also included items probing the subject's religious convictions at the time of the disaster. The questionnaire was administered by psychiatrists starting the day following the earthquake and up till 15 days later. Subjects included psychiatric patients from Kasr-El-Aini University Hospital, Department of Psychiatry, and Dar El Mokattam for Mental Health. The control group included personnel of these two hospitals, family members of consulting psychiatric patients as well as individuals admitted to the emergency section of Kasr-El-Aini Hospital as a result of injuries due, directly or indirectly, to the earthquake.

All the subjects' verbatim responses as regards the various items noted below were collected and discussion was held as to how they could be categorized. The final categories as regards each item are those shown below. Members of the research team subsequently rated each subject's response to each item according to these categories.

Affect: - no fear - moderate fear - severe fear.

-Behaviour:- no reaction - behavioral reaction including reactions such as running, leaving building, or more drastic reactions such as jumping from a window or leaving home in underwear.

-Concern for: - none - self - centered - others-material objects such as T.V. sets, building.

-Religious thoughts:- none - God as Punisher - God as Protector - Doomsday had arrived.

-Impact on psychiatric illness:- none - worsened - improved - irrelevant statements.

-Delusions related to the earthquake:
- absent - present.

-Somatic disturbance:-absent- present.

-Effect of time on reaction: - none - improved - worse.

In the questionnaire, the subject was asked about any change that occurred in the hours that followed the earthquake or the following day (s). In rating this item, the time lapse was considered to be any span of time following the earthquake up till the administration of the questionnaire.

This data was examined using Chi-square analysis.

Results

205 subjects were included in this study. Their mean age was 33.6 years (± 12.87). There were 124 males and 72 females. Diagnosis of the psychiatric patients was according to the Egyptian system: DMP-I (Diagnostic Manual for Psychiatric Disorders). Their diagnoses are shown in table 1.

Results of the Chi square analysis for the reported reactions (affective and

Table 1
Diagnostic Composition of Patients, and Controls

	No. of patients	%
Schizophrenia	48	24.49
M.D. illness (dep.)	14	7.14
M.D. illness (manics)	7	3.57
Neurotic Disorders	23	11.74
Controls	104	53.06

behavioural) for each group are shown in table 2. It can be seen that there was no significant association between the groups and either of these two reactions. Subjects who reported incongruous affect during the earthquake were included under the group who reported no fear. 3 schizophrenics and 3 normal controls claimed to have had incongruous affect. Under 'behavioral reaction', both moderate and drastic reactions were grouped. The majority of those who had drastic reactions were of the normal controls (9 subjects) as well as one affective patient and one neurotic patient. None of the schizophrenics reported to have had a drastic behavioral reaction. It is also

Table 2
Frequencies of Affective and Behavioural Reactions of Each Group

Affect	Schizoph.	Affective	Neurotic	Controls	Totals
No fear	12(31.25%)	8(38.1%)	8(34.78%)	26(22.25%)	57(29.08%)
Moder. fear	25 (52.08%)	9(42.86%)	11(47.83)	54(51.92%)	99(50.51%)
Severe fear	8 (16.67%)	4(19.05%)	4(17.39%)	24(23.08%)	40(20.41%)
DF = 6 Chi-sq.=2.67 P=0.849					
Behav.					
No reac.	25(52.08%)	9(42.86%)	9(39.13%)	46(44.23%)	89(45.41%)
Behav. reac.	23(47.92%)	12(57.14%)	14(60.87%)	58(55.77%)	107(54.59%)

DF=3 Chi-sq.=1.34 P=0.719

Table 3
Frequency of Different Concerns for Each Group

Concern for	Schizop.	Affective	Neurotic	Controls	Totals
No concerns	6 (12.5%)	5 (23.81%)	6 (26.09%)	9 (8.65%)	26 (13.27%)
Self-centred	14 (29.17)	5 (23.81%)	0	23 (22.12%)	42 (21.43%)
Others	18 (37.5%)	9 (42.86%)	15 (65.22%)	72 (69.23%)	114 (58.16%)
Material objects	10 (20.83)	2 (9.52%)	2 (8.7%)	0	14 (7.14%)

DF=9 Chi-sq.=39.672 P<0.0001

Table 4
Frequencies of Religious Thoughts for Each Group

Relig. thoughts	Schizop.	Affective	Neurotics	Controls	Totals
None	15 (31.25%)	4 (19.05%)	8 (34.78%)	29 (27.89%)	56 (28.57%)
God as punisher	11 (22.92%)	6 (28.57%)	6 (26.09%)	10 (9.62%)	33 (16.84%)
God as protector	12 (25%)	9 (42.86%)	6 (26.09%)	40 (38.46%)	67 (34.18%)
Doomsday	10 (20.83%)	2 (9.52%)	3 (13.04%)	25 (24.04%)	40 (20.41%)

DF=9 Chi-sq.=13.427 P=0.144

Table 5
Presence or Absence of Somatic Manifestations in Different Groups

Soma. manif.:	Schizop.	Affective	Neurotic	Control	Totals
Absent	30 (62.5%)	8 (38.1%)	8 (34.78%)	28 (26.92%)	74 (37.76%)
Present	18 (37.5%)	13 (61.91%)	15 (65.22%)	76 (73.08%)	122 (62.25%)

DF=3 Chi-sq.=17.79 P=0.0005

Table 6
Effect of Time on the Reactions of the Different Group

Effect of time	Schizop.	Affective	Neurotic	Control	Totals
No change	24 (50%)	9 (42.85%)	14 (60.87%)	18 (17.31%)	65 (33.16%)
Improved	15 (31.25%)	10 (47.62%)	8 (34.78%)	52 (50%)	85 (43.37%)
Worse	9 (18.75%)	2 (9.52%)	1 (4.35%)	34 (32.69%)	46 (23.47%)

DF=6 Chi-sq.=30.613 P<0.0001

Table 7
Expected Effect of the Earthquake on Psychiatric Illness

Expected effect on illness	Schizop.	Affective	Neurotic	Totals
None	39 (81.25%)	16 (76.19%)	22 (95.65%)	181 (92.35%)
Worse	2 (4.17%)	2 (9.52%)	0	4 (2.04%)
Improve	4 (8.33%)	0	1 (4.35%)	5 (2.55%)
Irrelevant	3 (6.25%)	3 (14.29%)	0	6 (3.06%)

noteworthy that 8 affective patients (38.1%) reported no fear during the earthquake.

Table 3 shows the Chi square analysis of the subjects' major concern during the earthquake. Table 4 shows their religious thoughts also during or immediately after the event. Table 5 shows the presence or absence of somatic manifestations as reported by the subjects in each group. Finally, table 6 demonstrates the effect of time (the hours or days that followed the earthquake) on the subjects' reactions.

It can be seen from this table that there was a highly significant association between the different concerns of the subjects at the time of the earthquake, as reported by the subjects, and the various groups. Of the subjects who expressed concern for material objects, only schizophrenics expressed their concern for possessions such as television sets (3 patients). Markedly fewer schizophrenics expressed concern for others such as close family members (18 patients: 37.5% of all the schizophrenics), whereas the majority of both the neurotics and normal controls expressed concern for others.

Table 4 shows that there was no significant association between religious thoughts during the earthquake and the groups. However, it can be seen that many more of the controls thought of God as a protector than as a punisher, whereas for the schizophrenics and neurotics the numbers were almost equal. More affective patients considered God a protector rather than a punisher.

The above Tables show the strong association between the presence or absence of somatic manifestations as experienced by the different groups during the earthquake. The majority of controls, affective patients and neurotics reported that they had experienced somatic mani-

festations during the earthquake. However, in the case of the schizophrenics the percentage was more or less reversed with the majority denying the presence of such manifestations.

This table shows a highly significant association between the variables. 24 schizophrenics (50%) claimed that their reactions underwent no change with time. Controls and affective patients all claimed to have improved. Among those who stated that they felt worse after the event, only a few patients from the schizophrenic (4 patients), affective (one patient) and control groups (5 patients) said that they had felt better and then subsequently worse, due to their fear of other earthquakes or due to their growing realisation of the grim consequences of the earthquake.

When asked whether they thought that the earthquake would have any effect on their psychiatric illness or the course of treatment, patients of the different diagnostic groups gave the responses demonstrated in table 7. Chi square was not calculated as the expected frequencies of some of the cells were below the required value.

Relatively few patients expected that earthquake would influence their illness. Some of the irrelevant responses to this question were "I want to know what psychiatric illness is", "I was admitted to the hospital unjustly; I'm not ill", "I'm the cause of the earthquake", "God did this because of me".

5 schizophrenics expressed delusional beliefs related to the earthquake. 3 were related to the outbreak of a war in Egypt. One believed that what was happening was the result of magic and that he was the target of that magic. Finally, one patient believed that the image of the 'rotten one' inside him was being put together.

Discussion

The results of our study have supported only one of our initial hypotheses, namely that there was a strong association between the subjects' concerns at the time of a major crisis and the different groups we studied. Our expectation that psychiatric patients, especially psychotics would react less intensely, and that they would expect the earthquake to affect their illness was not substantiated.

This study was started within hours of the traumatic event. However, there is still the possibility that the subjects' description of their reactions at the moment of the earthquake, even after such a short interval, was not identical to their actual experiences. Such a possibility is obviously inherent in all retrospective research, especially as regards emotional phenomena. This can be assumed by some of the results. For example there was no significant association between affective reaction and the different subject groups whereas a very high association existed between the somatic manifestations experienced at the time of the earthquake and the groups. Affective reaction would be expected to go hand in hand with the presence or absence of the somatic manifestations. Also, 50% of the schizophrenics claimed that their initial reactions to the earthquake were not modified subsequently. This seems possible for those who stated that they experienced no fear at the time of the earthquake (25%), but fear would be expected to undergo some change following the event.

Our finding that relatively more of the affective group (38.1%) reported no fear can perhaps be explained by the hypothesis that fear is a more primitive type of emotion. Patients with endogenous affective disorder are perhaps less prone to the more primitive emotions.

As regards the impact of the earthquake on the existing psychiatric illness, we can take into consideration Horowitz' conceptualization of trauma as a stress on the individual's information processing system. The traumatic event is new information that the individual must integrate into the preexisting view of the self, others and the world (Brett and Ostroff, 1985). In the case of the psychiatric patient such a process would be expected to cause changes at different levels: psychopathology, symptomatology and perhaps course of the illness and prognosis. Our assessment of such an impact was done through global questioning of the patient as to his subjective expectation. Perhaps, more specific questions as regards these levels would reveal some subjective change. Also, objective measures of change would yield more information as would a further evaluation some time after the event.

Our finding that the subjects' concerns at the moment of the earthquake were strongly associated with the groups was expected. In this respect it was evidently the schizophrenic groups that differed from the others: relatively fewer were concerned for others and some were concerned for material objects, reflecting the schizophrenic difficulty as regards object relations. Our results also show that religious thoughts are strongly present at the time of severe stress. God is seen as a punisher who wishes to punish the evil prevailing in this world, or more often as a protector, evoked to save the person from all harm. A major natural disaster may announce the arrival of doomsday. Such thoughts reflect the common prevailing religious beliefs. In a study of the reactions of young children during the same earthquake, it was found that 22.86% of the sample consisting of children up to 6 years of age also had religious thoughts at the moment of the earthquake (El Rashidi et al, under publication). Such beliefs serve as

a shield against overwhelming stress and lend cohesion to the nation at large. They are expressed in this study by both patients and controls demonstrating that they are deeply ingrained in the individual.

Besides these results, this study reveals the methodological difficulties inherent in research involving post-traumatic reactions. We have already mentioned the possibility of unconscious elaboration of reactions when asked about them subsequently. The tools applied in one situation in a certain culture may not be adapted for use in a different setting. When the disaster involves a country as a whole, the examiner will be affected in addition to the subject, thus perhaps influencing the responses or interpreting them according to his own reactions. In spite of these problems, it is our opinion that the tool used in the present work probed the reactions of the subjects in various areas giving scope to a wider range of responses than a more structured questionnaire. The advantage of designing a tool which stems from a certain culture is obvious.

To conclude, the present study showed that there was a marked association between the various groups studied and their concerns at the time of the earthquake, with the schizophrenic group differing most clearly from the others. There was no association between reaction, either affective or behavioural and the different groups. Only few patients believed that the earthquake would affect their illness.

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Les Réactions des Malades Psychiatriques Contre Le Tremblement de Terre en Egypte

Quatre-vingt douze malades psychiatriques avec de diagnoses différents et 104 contrôles normals ont été étudiés à la suite du tremblement de terre en Egypte (1-12 jours après l'évènement) en utilisant un questionnaire semi-structuré. On a trouvé qu'il n'y a pas d'association considérable entre les différents groupes et leurs réactions de l'affection et du comportement pendant le tremblement de terre. Schizophrènes ont été moins occupés sur les autres personnes d'importance.

Peu de malades ont subjéctivement expécté que le tremblement de terre a un effet sur leur maladie. Des idées religieuses ont été fortement présentées pendant ce moment dur.

إستجابات المرضى النفسيين لزلزال فى مصر

تمت دراسة اثنين وتسعين مريضاً نفسياً بتشخيصات مختلفة، ومائة وأربعة من الأسوياء عقب زلزال أكتوبر ١٩٩٢ فى مصر وذلك فى فترة تتحصر من يوم إلى خمسة عشر يوماً بعد الزلزال، وذلك باستخدام استبيان مصمم خصيصاً للدراسة. وقد وجدنا ارتباطاً ذا قيمة إحصائية بين المجموعات المختلفة ورد فطهم الوجدانى والسلوكى أثناء الزلزال. وكان هناك ارتباط بين المجموعات وانتشالاتهم أثناء الزلزال حيث كان الفصاميون أقل إنتشالاً بالآخرين المهمين بالنسبة لهم. توقع القليل من المرضى أن يؤثر الزلزال على مرضهم النفسى. وقد ظهرت الخواطر العينية بشدة فى هذا الوقت العصيب.