CASE HISTORIES AND SHORTER COMMUNICATIONS

Are prepared fears less severe, but more resistant to treatment?*

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Summary—In order to investigate the relationship between the extent to which clinical fears are prepared and clinically relevant characteristics of these fears (i.e. severity, age of onset and treatment outcome), the records of 63 obsessive and phobic patients were examined. Four independent raters scored the usable records (N = 55) on preparedness. The preparedness scores were combined and related to objective indices of severity (patients' scores on the Fear Survey Schedule, the Zung Depression Scale and the Maudsley Obsessional–Compulsive Inventory, as well as the treatment duration), onset ages and treatment outcomes (pre-treatment minus post-treatment MOCI scores, for a subsample of obsessive patients only). In contrast to earlier studies, it was found that product–moment correlations among preparedness ratings were relatively low and that prepared fears did not make up a majority in the sample. Indices of severity either did not correlate at all or correlated negatively with preparedness ratings. The positive correlation between preparedness and onset ages reached borderline significance. Evidence suggestive of a resistance to treatment of prepared fears was obtained.

INTRODUCTION

According to Seligman (1971), most human phobias are based on a genetic disposition or preparedness to associate fear with threatening objects and situations (e.g. snakes, enclosed places) that were threatening to our prehistorical ancestors. Seligman's proposal is widely seen as an important contribution to the learning theory of anxiety (De Horne, 1980; Eysenck, 1982; Mineka, 1986). This is due in part to the psychophysiological studies of Öhman and co-workers. Using electric shock as an aversive stimulus, they conditioned the electrodermal response of normal Ss to either prepared (slides of snakes and spiders) or neutral (slides of mushrooms and flowers) stimuli in a number of studies. They consistently demonstrated that the electrodermal response, once conditioned, extinguishes more slowly to prepared than to neutral stimuli [see the review by Öhman (1986)].

Because prepared learning is said to be biological and non-cognitive in nature, several authors have suggested that prepared fears are easily acquired and resistant to extinction (Seligman, 1971; Rachman and Seligman, 1976). More specifically, one would expect prepared phobias and obsessions to be more severe and to be characterized by poor treatment outcome and early age of onset.

Although two retrospective studies reported that prepared fears made up a majority of those fears found in a sample of clinical phobias and obsessions, they failed to find significant correlations between preparedness and clinically relevant characteristics (e.g. severity, age of onset and treatment outcome) of simple phobias and obsessive–compulsive disorders (de Silva, Rachman and Seligman, 1977; Zafropoulou and McPherson, 1986). However, in both studies, most of the clinically relevant variables were evaluated by therapists.

Since the concept of preparedness is of potential value to clinicians (Sturgis and Scott, 1984), it was decided to carry out a correlational analysis of the association between the extent to which a clinical fear is rated as prepared and more objectively defined indices of the severity and outcome of these fears. In addition, the relationship between preparedness and age of onset was examined.

METHOD

Patients

The records of 50 obsessive–compulsive patients and 13 patients with simple phobias who had been referred to the Behavior Therapy Unit at Vrijverdal Hospital in Maastricht over a 2-yr period were examined. Sixteen patients were out-patients and 47 were in-patients. Their mean age was 29 yr (range: 16–77 yr). There were 39 females (62%) and 24 males (38%) in the sample. Eight patients (13%) suffered from severe rituals not associated with a feared stimulus and consequently, the cases of these patients were not scored in terms of preparedness. In the records of the remaining 55 patients (87%), specific stimuli that gave rise to intensive anxiety could be identified. Some patients feared several stimuli; in a number of cases, the feared stimulus was identical for several patients. All in all, short descriptions of 55 separate objects and situations associated with anxiety were extracted from the records. Three behaviour therapists and one child psychologist, none of whom were acquainted with the preparedness hypothesis but rather with a basic knowledge of Darvinian theory, rated the content of these 55 times on preparedness, using the 5-point scale (1 indicating 'least prepared' and 5 indicating 'most prepared') introduced by de Silva et al. (1977). The raters had not been involved in the diagnosis of the patients.

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or in the treatment of the patients whose fears were rated. As de Silva et al. (1977) obtained a low agreement between raters when the behaviour of patients was rated on preparedness, raters were asked to rate only the content of the fears on preparedness.

Clinically relevant variables

Since it is part of the normal procedure at the Behavior Therapy Unit Vijverdal that patients fill out the Fear Survey Schedule (FSS; Wolpe and Lang, 1964), the Maudsley Obsessional–Compulsive Inventory (MOCI: Rachman and Hodgson, 1980) and the Zung Self-rating Depression Scale (SDS; Zung, 1965) at the beginning of their treatment, relatively objective indices of the severity of the patients' complaints were available for a large number of cases. In addition, most of the records provided detailed information about the number of previous psychotherapeutic treatments that the patients had undergone in relation to his/her complaints (in the form of a 4-fold classification: 0 = no previous treatment; 1 = one previous treatment; 2 = two previous treatments; 3 = three or more previous treatments), the age of onset of the complaints (in terms of years), and the treatment duration (in terms of weeks).

MOCIs were completed only by patients with a diagnosis of obsessive-compulsive disorder, whereas the SDS and the FSS were completed by both phobic and obsessive patients. The total MOCI score of each obsessive patient was derived by expressing the summed subscale scores of the patient as a percentage of the maximum obsessive score (30). Twenty-two obsessive patients (33%) completed the MOCI a second time at the end of their treatment. The differences between MOCI scores at the beginning and those at the end of the treatment were taken as an index of treatment outcome for this subsample. The patients in this subsample were treated with behavioural techniques, mainly exposure and response prevention.

RESULTS

Relatively low product–moment correlations between the preparedness ratings of the four raters were obtained. Correlations varied from 0.43 to 0.76, but were all significant ($N = 55$, $P < 0.05$, one-tailed). The mean correlation, after Fisher's $r$ to $z$ transformations (McNemar, 1969), was 0.59 ($N = 55$, $P < 0.05$, one-tailed).

The preparedness ratings of the four raters were summed and related to the corresponding records. If a patient's phobia pertained to more than one discrete stimulus, the summed preparedness ratings for the stimuli in question were averaged. The distribution of the usable cases ($N = 55$) along the preparedness continuum is shown in Fig. 1. A Kolmogorov–Smirnov one-sample test (Siegel, 1956) showed that the distribution did not deviate significantly from a normal distribution ($D = 0.13$, $N = 55$, $P < 0.27$, two-tailed). The mean preparedness score was 9.3 ($SD = 3.9$), which is low compared to the mean scores reported by de Silva et al. (1977) and Zafiropoulou and McPherson (1986) (12.6 and 14.4, respectively, when their mean scores are transformed into the present format). Thirty-three (78%) of the 55 cases had a preparedness score that was $\leq 12$. It should be noted that a score of 12 in the present study corresponds to a rating of 3 in the original de Silva et al. scale. According to the instructions a rating of 3 is to be given to "objects or situations that were possibly dangerous to preotechnological man under some uncommon circumstances" (de Silva et al., 1977, p.67; italics added).

Product–moment correlations between summed preparedness ratings and clinical variables are shown in Table 1. Due to missing data in the records, the sample size varies from correlation to correlation. As for the relationship between preparedness and severity, no significant correlations in the expected direction were found. Interestingly enough, the negative association between preparedness and MOCI scores ($r = -0.42$, $N = 40$, $P < 0.05$, two-tailed) was significant, whereas the negative correlation of preparedness with the number of previous treatments reached borderline significance ($r = -0.25$, $N = 55$, $0.05 < P < 0.10$, two-tailed).

As far as the association between preparedness and ages of onset is concerned, a correlation contrary to that which was expected was found: the higher the preparedness score the later the age of onset ($r = 0.29$, $N = 45$, $0.05 < P < 0.10$, two-tailed).

For 17 (27%) of the 22 obsessive patients who completed the MOCI at the beginning (MOCI-1) and at the end (MOCI-2) of the treatment preparedness ratings were available. A negative correlation between preparedness and treatment outcome in terms of MOCI change scores was found ($r = -0.61$, $N = 17$, $P < 0.05$, one-tailed), which is in line with the expectation that prepared fears are resistant to extinction. As preparedness was negatively associated with the severity of the disorder, it could be argued that the negative association between preparedness and treatment outcome reflects a floor effect. In order to investigate this possibility, the 17 cases were divided into two groups on the basis of the median preparedness score for this subsample. The 8 in-patients with a preparedness score $\leq 7$ (median score) formed the unprepared group. The prepared group consisted of the 3 out- and 6 in-patients with a preparedness score $> 7$. A Fisher exact probability test (Siegel, 1956) showed that the groups did not differ significantly in their respective frequencies of in- and out-patients ($P = 0.12$). Table 2 shows mean pre- and post-treatment MOCI percentages of the total obsessional score.

![Fig. 1. Distribution of phobic and obsessive cases ($N = 55$) along the preparedness continuum. The preparedness ratings presented here are the sum of separate ratings of four raters.](image-url)
Table 1. Product-moment correlations between preparedness ratings and patients’ scores on the various measures

<table>
<thead>
<tr>
<th>Measure</th>
<th>Preparedness*</th>
</tr>
</thead>
<tbody>
<tr>
<td>FSS</td>
<td>-0.05 (46)</td>
</tr>
<tr>
<td>MOCl-1</td>
<td>-0.42* (40)</td>
</tr>
<tr>
<td>SDS</td>
<td>-0.08 (49)</td>
</tr>
<tr>
<td>Treatment duration</td>
<td>-0.04 (55)</td>
</tr>
<tr>
<td>Number of previous treatments</td>
<td>-0.25** (55)</td>
</tr>
<tr>
<td>Age of onset</td>
<td>0.29** (45)</td>
</tr>
<tr>
<td>MOCl-1 – MOCl-2</td>
<td>-0.61* (17)</td>
</tr>
</tbody>
</table>

The sample size is given in parentheses. Since a number of correlations were in directions opposite to those predicted, two-tailed P-values are given.

*Sum of the separate ratings of four raters.  
**P < 0.05.  *0.05 < P < 0.10.

Table 2. Mean percentages of the total obsessiosity score on the pre-treatment MOCl-1 and the post-treatment MOCl-2 of the prepared (N = 9) and unprepared (N = 8) groups of obsessional patients

<table>
<thead>
<tr>
<th></th>
<th>MOCl-1</th>
<th>MOCl-2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unprepared group (N = 8)</td>
<td>69.3 (14.9)</td>
<td>19.3 (17.9)</td>
</tr>
<tr>
<td>Prepared group (N = 9)</td>
<td>53.8 (13.1)</td>
<td>37.0 (13.6)</td>
</tr>
</tbody>
</table>

Standard deviations are given in parentheses.

for the period and unprepared group. As can readily be seen, a cross-over rather than a floor effect occurred after treatment.

A 2 (prepared vs unprepared group) x 2 (pre- vs post-treatment MOCl percentages) with a repeated measure as the last factor, did not reveal a main group effect. The main effect of treatment, however, was significant [F(1,15) = 59.2, P < 0.05], as was the interaction effect of group x treatment [F(1,15) = 14.6, P < 0.05] caused by the greater change on the MOCl of the unprepared group after treatment. The significant interaction of group x treatment did not disappear when treatment duration or number of previous treatments was used as covariates.

Finally, it should be noted that the correlations among the clinical variables, were, on the whole, in the expected direction and that a number of them reached significance. For example, the pre-treatment MOCl percentage scores correlated positively with the number of previous treatments (r = 0.37, N = 46, P < 0.05, one-tailed), FSS scores (r = 0.34, N = 41, P < 0.05, one-tailed) and SDS scores (r = 0.32, N = 45, P < 0.05, one-tailed) and correlated negatively with ages on onset (r = -0.24, N = 43, 0.05 < P < 0.10, one-tailed). As a result, there was no reason to question the coherence of the data used in this study.

DISCUSSION

Compared to the results reported by de Silva et al. (1977) and Zafropoulou and McPherson (1986), relatively low correlations between the preparedness ratings of independent raters were obtained. The low correlations were probably caused by the fact that the raters had to base their judgements on rather short descriptions of the clinical cases. In contrast to the earlier studies, we were unable to show that the majority of phobias and obsessions in our sample could be rated as prepared. It may well be that this finding is caused by the fact that our raters, in contrast to the raters in the de Silva et al. study (1977), were unfamiliar with the preparedness hypothesis.

No evidence was found in support of the predicted, positive relationship between preparedness and severity. In fact, analysis revealed a negative correlation between preparedness and pre-treatment MOCl percentage scores that reached significance. Furthermore, there was a tendency for preparedness to be negatively associated with the number of previous psychotherapeutic treatments. Even though the idea of a positive relationship between preparedness and severity at first seems to be plausible on a theoretical level, close inspection of the preparedness concept as formulated by Seligman (1971) reveals that this idea is in no way logically implied by the concept. In a paper entitled “Unprepared phobia: be prepared”, Rachman and Seligman (1976) suggested that “those few people whose unprepared phobias last long enough and are severe enough to be seen in the clinic may be severely disturbed people or may have abnormal personalities” (p. 338). It must be recognized, therefore, that our failure to detect a positive association between preparedness and severity cannot be taken as an invalidation of the preparedness concept itself.

A prediction that flows directly from the preparedness concept is that prepared fears should be more easily acquired. Thus, we anticipated a negative correlation between ages of onset and preparedness. Our results did not substantiate this prediction. In this respect, they are consistent with the results reported by de Silva et al. (1977) and Zafropoulou and McPherson (1986). As the positive correlation between preparedness and ages of onset was small and reached only borderline significance, we are reluctant to invoke alternative theoretical explanations.

As far as the relationship between preparedness and treatment outcome is concerned, a negative correlation between preparedness ratings and MOCl change scores was observed. A subsequent analysis of variance further clarified this finding. Obsessional patients whose fears were rated as relatively high on preparedness ended up after treatment with higher total MOCl scores as compared to patients whose fears were rated as relatively unprepared. This difference did not disappear when the effects of the number of previous treatments and the treatment duration were cancelled out in covariate analyses.

Furthermore, the prepared and unprepared groups did not significantly differ in the frequency of in- and out-patients. We have, therefore, reason to believe that the higher post-treatment MOCl percentage scores of the prepared patients were caused by variables such as medication, or the type of psychotherapeutic intervention. Therefore, to the extent that one is willing to accept pre- to post-treatment change on MOCl as a valid index of treatment outcome (Rachman and Hodgson, 1980), our data suggest that prepared fears are resistant to extinction and, consequently, are associated with relatively poor treatment outcome. The failure of earlier studies to detect a statistically significant association between preparedness and poor treatment outcome may be due to the way in which outcome measures were used in these studies were obtained. Both de Silva et al. (1977) and Zafropoulou and McPherson (1986) relied on the post-hoc judgements of therapists for their outcome measures.

The negative association of preparedness with treatment outcome is, of course, compatible with the psychophysiological research on preparedness. In his review of this research, McNally (1987) summarized the experimental results as follows: “In any event, the enhanced resistance to extinction to fear-relevant stimuli is the most important experimental phenomenon consistent with preparedness theory” (p. 290). In the same article, McNally argued that “this laboratory phenomenon is the strongest support for a theory that holds that fears of evolutionary significance are extremely resistant to extinction when the clinical data suggest that they are not” (p. 298). The studies cited in support of this conclusion, however, were not designed to test the hypothesized association between preparedness and poor treatment outcome. Bearing in mind the
positive evidence found in this study, McNally’s conclusion might be premature. Admittedly, the small sample size, the relatively low agreement between the preparedness ratings of the independent raters, and the absence of exact information regarding the therapeutic interventions all weaken the weight that can be attached to this positive evidence. To settle this issue, further studies investigating the relationship between preparedness and treatment outcome are clearly called for. Future research should preferably be based on a large sample and on detailed information concerning the therapeutic treatment.

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REFERENCES


