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The Fear Questionnaire

Some Data on Validity, Reliability and Layout

FLORENCE J. VAN ZUUREN

In order to assess some psychometric properties of Marks & Mathews' (1979) short Fear Questionnaire, a Dutch translation of this form was administered to 143 phobic out-patients: 100 women and 43 men. There was a special interest in assessing validity by comparing the scores of agoraphobics, social phobics and simple phobics. The findings were that all scales have sufficient internal consistency, although the Total Phobia scale does not seem to add meaningful information to its subscales. Most scales are significantly related to neuroticism, and the Social Phobia subscale is strongly related to social anxiety. The Agoraphobia and Social Phobia subscales discriminate between categories of phobics in the expected way. For the Blood/Injury subscale the relevant comparisons could not be made. The data presented in this study can be used to develop FQ norms for phobic patients.

Some years ago, Marks & Mathews (1979) introduced a one-page standard self-rating form, the Fear Questionnaire (FQ), for measuring outcome in phobics. Apart from some write-in items (e.g. the Main Phobia scale, to be used in assessing simple phobia in particular), it consists of two general scales: Total Phobia (15 items) and Anxiety/Depression (5 items). The Total Phobia scale is made up of three subscales: Agoraphobia, Blood/Injury, and Social Phobia.

Some research has been done on the reliability of the scales (Marks & Mathews, 1979; Michelson & Mavissakalian, 1983). In general, temporal stability seems to be good for total scales, but lower for subscales, with the exception of the Agoraphobia scale. On the basis of extensive research, Arrindell *et al* (1984) concluded that FQ dimensions are sufficiently reliable for purposes of research. Recently, Mizes & Crawford (1986) presented normative data for both sexes in a normal population, and Mavissakalian (1986) reported on the validity of the FQ on the basis of an outcome study with agoraphobic patients.

Few studies, however, have used a substantial number of phobic patients as subjects. And as yet only one systematic evaluation of the scoring of relevant *subtypes* of phobics on the various FQ dimensions has been made (Cottraux *et al*, 1987). (Using a French translation, this showed positive results.) Furthermore, validity data based on correlations with analogue measures are lacking.

The present study tries to fill these gaps. One question to be answered is whether FQ scales discriminate sufficiently between relevant categories of phobic patients. Another question is whether these scales are significantly related to neuroticism, and whether the Social Phobia subscale in particular correlates highly with social anxiety. Furthermore, the reliability (internal consistency) of the scales is investigated and the layout of the questionnaire is scrutinised. All these questions are studied for phobic men and women separately because of the remarkable differences in phobias between the sexes (e.g. Marks, 1970; van Zuuren, 1987).

Method

In all, 143 phobic out-patients, 100 women and 43 men, participated in the study. They all had applied for psychotherapy at an institution for ambulant mental health care because of phobic complaints. The mean age of the women was 35.5 years (s.d. 11.7, range 18–65) and of the men 36.5 years (s.d. 12.2, range 21–67).

On the basis of an one-hour interview, these patients were categorised according to DSM-III criteria (American Psychiatric Association, 1980) as having agoraphobia, social phobia or simple phobia. In order to have a better match with FQ dimensions, the category of death/illness phobia was added: the recurrent fear of (thoughts of) death or specific illnesses in the absence of typically agoraphobic avoidance behaviour (Marks, 1970). About one third of the phobics fell within more than one category, and were categorised as multiple phobic. Table I shows the distribution of subjects.

Before their treatment started, all phobic patients were administered a Dutch translation of the FQ and well-known and accepted questionnaires measuring neuroticism (Wilde, 1963) and social anxiety (Willems *et al*, 1973).

Cronbach's α was computed to assess the internal consistency of the FQ scales (Crocker & Algina, 1986) and

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TABLE I
Distribution of subjects

	Agoraphobics	*Social phobics*	*Simple phobics*	*Death/illness phobics*	*Multiple phobics*	*Total*
Men	9	11	8	4	11	43
Women	26	14	17	5	38	100

Pearson's correlation coefficient was used as an indicator of the relation between scales. These measures, together with descriptive statistics like the mean and the standard deviation, were chosen in order to make the results of this study comparable with those of the studies mentioned in the introduction. Comparisons *within* this study, however (i.e. between categories of phobic patients on the various FQ scales), were made at an ordinal level in order to reduce the influence of a possible extreme-scoring subject (Mann-Whitney *U*-test). Here, the initial $\alpha = 0.05$ was adapted for multiple comparisons, which implies $\alpha = 0.016$ for the largest between-group contrast, followed by $\alpha = 0.033$ for the two remaining comparisons (Ryan, 1960). Mann-Whitney *U*-tests were not carried out with death/illness phobics because of their small numbers.

Results

Internal consistency

One aspect of reliability is the extent to which all items measure the same thing. All coefficients of internal consistency, for phobic men and for phobic women, were found to be moderate, varying from 0.68 (phobic women; Blood/Injury subscale) to 0.86 (phobic men, Agoraphobia subscale). For the Anxiety/Depression scale, α was 0.87 for women and 0.80 for men. These results strongly resemble those reported by Arrindell *et al* (1984).

The Total Phobia scale, although consisting of many more items than the other scales, has no more internal consistency than its component parts, which implies that this scale should not be regarded as a measure on its own. The same conclusion may be reached from the mean item intercorrelations of the scales – corrected according to the directives of Snedecor & Cochran (1967): those of the Total Phobia scale are the lowest of all the FQ scales (men 0.11; women 0.22).

Correlations of FQ scales

One way to evaluate the validity of a questionnaire is to investigate the intercorrelations of its scales and their correlations with analogue measures. Because the three FQ subscales – Agoraphobia, Blood/Injury and Social Phobia – are meant to represent different types of phobia, intercorrelations between these scales should be very low. Table II shows that for phobic women the three scales intercorrelate moderately. For phobic men, the intercorrelations are indeed low, especially where the Social Phobia subscale is concerned. For both men and women, the correlation between Agoraphobia and Blood/Injury is the highest. Further, the three subscales correlate rather highly with Total Phobia, which is to be expected on the grounds of spuriousness. Finally, there are significant and moderate correlations with Anxiety/Depression.

As to analogue measures, all scales correlate significantly with neuroticism, except, rather surprisingly, the Agoraphobia subscale for phobic men and the Blood/Injury subscale for phobic women (Table II). Correlations with social anxiety show a differential pattern in the way expected: for the Social Phobia subscale they are strong; for the other scales they are lower (some insignificant). To sharpen this result, *differences* between correlations of FQ scales with social anxiety were tested, and found to be

TABLE II
Pearson intercorrelation coefficients between FQ scales, and correlations with neuroticism and social anxiety for phobic women and men

	Phobic women (n = 100)					*Phobic men (n = 43)*				
	Ag	*BI*	*Soc*	*TP*	*AD*	*Ag*	*BI*	*Soc*	*TP*	*AD*
Agoraphobia (Ag)	—	0.48*	0.39*	0.87*	0.40*	—	0.31*	0.15	0.78*	0.38*
Blood/Injury (BI)		—	0.34*	0.75*	0.33*		—	0.05	0.63*	0.37*
Social Phobia (Soc)			—	0.69*	0.44*			—	0.59*	0.48*
Total Phobia (TP)				—	0.50*				—	0.61*
Anxiety/Depression (AD)					—					—
Neuroticism	0.29*	0.17	0.47*	0.38*	0.64*	−0.06	0.36*	0.40*	0.31*	0.51*
Social anxiety	0.26*	0.07	0.75*	0.42*	0.38*	−0.26	0.01	0.73*	0.21	0.51*

*$P < 0.02$

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TABLE III

Means and standard deviations of FQ scores for categories of phobic women and men, and P values pertaining to differences between categories

FQ scale[1]			*Total phobics*	*Agora-phobics*	*Social phobics*	*Simple phobics*	*Death/ illness phobics*[2]	P *Ag/ Social*	P *Ag/ Simple*	P *Social/ Simple*
Ag	Women	Mean	20.5	30.9	12.3	5.8	9.0	<0.01*	<0.01*	0.16
		s.d.	13.0	5.7	12.4	6.5	5.7			
	Men	Mean	15.6	29.2	9.9	8.0	3.5	<0.01*	<0.01*	0.64
		s.d.	11.5	5.4	9.6	7.3	4.7			
BI	Women	Mean	13.3	14.8	8.6	10.2	14.6	0.09	0.21	0.40
		s.d.	9.9	11.1	5.9	7.3	7.9			
	Men	Mean	11.9	16.1	7.8	10.5	16.3	0.05	0.13	0.51
		s.d.	9.2	8.9	7.4	9.7	12.2			
Soc	Women	Mean	17.4	15.8	23.4	11.8	14.6	0.02*	0.10	<0.01*
		s.d.	9.0	8.4	8.4	5.3	5.0			
	Men	Mean	16.6	14.7	24.4	5.9	21.5	0.02*	0.03*	<0.01*
		s.d.	9.5	8.9	8.0	4.9	8.7			
TP	Women	Mean	51.2	61.5	44.3	27.8	38.2	0.02*	<0.01*	0.02*
		s.d.	24.2	17.2	21.9	15.7	11.2			
	Men	Mean	44.1	60.0	42.1	24.4	41.3	0.03*	<0.01*	0.06
		s.d.	19.3	17.5	18.3	11.9	12.6			
AD	Women	Mean	24.3	25.4	27.5	19.3	24.4	0.59	0.07	0.03
		s.d.	10.2	10.6	8.4	9.8	2.9			
	Men	Mean	24.4	26.0	26.8	17.1	26.0	0.88	0.07	0.04
		s.d.	9.0	8.0	8.8	11.3	4.9			

1. Ag = Agoraphobia scale, BI = Blood/Injury scale, Soc = Social Phobia scale, TP = Total Phobia scale, AD = Anxiety/Depression scale.
2. NB: small numbers (5 women, 4 men).
*Significant at the initial $\alpha = 0.05$ level, corrected for multiple comparisons by Ryan's formula $\alpha' = 2\alpha/n(k-1)$.

significant (Hotelling t values for women: Soc–Ag, $t = 6.62$; Soc–BI, $t = 9.02$; for men: Soc–Ag, $t = 3.42$; Soc–BI, $t = 4.84$; in all cases $P < 0.05$, Edwards, 1960).

Thus the data provide some evidence for a moderate construct validity of the FQ scales; the Social Phobia subscale in particular stands out in its low and insignificant correlations with other subscales (in men only), its relation with neuroticism and its strong relation with social anxiety.

Discrimination between categories of phobics

Another aspect of the validity of the three FQ subscales concerns the question of whether these discriminate significantly between *relevant* categories of phobic patients. Table III shows means and standard deviations for phobic categories on all scales, and p values (two-sided) pertaining to category differences.

From these data it may be concluded that the Agoraphobia and Social Phobia subscales discriminate between categories of phobics in the way to be expected, in men as well as in women (for each relevant comparison, $P < \alpha$). For the Blood/Injury subscale, all that can be said on the basis of the data presented here is that agoraphobics score relatively high on it, perhaps as high as death/illness phobics. On the Total Phobia and Anxiety/Depression scales, simple phobics score relatively low.

The means and standard deviations presented in Table III can be compared with the data presented by Marks & Mathews (1979) and Mavissakalian (1986). Compared with the statistics provided by Mizes & Crawford (1986) for *normal* adults, phobic patients turn out to score much higher on all scales. When only relevant categories are considered (e.g. agoraphobic men or women on the Agoraphobia subscale), these differences range from 1.1 standard deviations on the Blood/Injury subscale for male death/illness phobics to 4.8 standard deviations on the Agoraphobia subscale for agoraphobic men.

Some improvements in layout

The Dutch translation of the FQ strongly resembles the original in layout. During the filling in and scoring, a few problems, mentioned in part by Mizes & Crawford (1986), became apparent. One problem touches on missing data on the Main Phobia scale (25% of the cases) and on the additional write-in items 'other phobias' (40%) and 'other feelings' (55%). Non-responding may be a proper indication of the absence of what is being asked for if it concerns both the verbal and the numerical answer. Sometimes, however, only the numerical answer is missing, which may be due to the marginal position of the answer box on the sheet. Therefore, this position should be changed. The Main Phobia item poses a further problem. Here, the subject is literally asked to give a number to his or her *avoidance* of the main *phobia*. This item should be reformulated, e.g. 'main situation or object that makes you fearful'.

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As to the nine-point (0–8) scales used, verbal labels are provided for the even scale numbers only. Consequently, the overall ratio even/odd numbers in the responses turns out to be 6:1, instead of 5:4. An attempt could be made to provide the odd scale numbers with labels too.

Discussion

This study provides new information concerning psychometric properties of the FQ. The internal consistency of its scales is sufficiently high, but the Total Phobia scale cannot be regarded as a measure on its own. Intercorrelations between FQ subscales and correlations with two analogue measures speak well for the validity of the Social Phobia subscale in particular, and both the Agoraphobia and Social Phobia subscales discriminate well between relevant categories of phobics. It is suggested that odd scale numbers are provided with labels, and that some of the answer boxes are moved to different positions on the sheet.

The data provided in this study can be of further use. The means and standard deviations on the various scales can be used in developing norms for clinical phobics and phobic subtypes. This can also be done by investigating *individual* FQ scores in relation to clinical diagnosis. On the basis of a preliminary investigation of hits and misses, using Cohen's kappa (a measure of agreement for nominal scales; Cohen, 1960), we suggest a cut-off Ag score of 19 for the diagnosis of agoraphobia and a cut-off Soc score of 18 for the diagnosis of social phobia. However, this guideline may result in many double diagnoses. This may in fact reflect reality (van Zuuren, 1982), but if multiple diagnoses are to be avoided, cut-off scores should be higher or the *relation* between scores should be taken into account.

Another purpose for which the data of this study may be used is the systematic investigation of sex differences between types of phobias. Although this aspect has not been a centre of interest in the present study, and therefore the significance of sex differences has not been tested, it is clear that several differences have shown up, e.g. the fact that in women social phobia seems more related to other fears than in men (Table II).

Nevertheless, much more work on the FQ has to be done. To learn more about the construct validity of the scales, their relations with other analogue measures (behavioural ones in particular) and with non-analogue measures should be studied. Also, normative data for several other subject categories are needed, particularly for other neurotic groups and for subclinical phobias. These data can be used on an individual level as well, for the study of hit rates in discriminating between categories.

Furthermore, as mentioned by Cottraux *et al* (1987), a substantial number of death/illness phobics are needed for FQ research. In our study, these phobics constituted only 6% of the sample, pure 'injury phobics' being even more rare. And even then, the match between death/illness phobia and the Blood/Injury dimension is disputable. Some fear survey schedules show two factors here: 'death and illness' and 'fears of medical interventions' (Granell de Aldaz, 1982). Thus the relevance of the Blood/Injury dimension for both types of patients should be studied.

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Florence J. van Zuuren, PhD, *Department of Clinical Psychology, University of Amsterdam, Weesperplein 8, 1018 XA Amsterdam, The Netherlands*

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