

AGE, EDUCATION AND ILLNESS BEHAVIOUR OF PATIENTS UNDERGOING HAEMODIALYSIS

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SYNOPSIS

A principal component analysis has identified 11 factors of psychological reaction in a group of Chinese patients undergoing haemodialysis for chronic renal failure. Four factors pertaining to the cognitive and behavioural aspect of reaction to illness were found to be significantly related to age or educational level. Factors concerned with the affective aspect were found to have no significant relationship with age or education. The overall findings suggest that older patients tend to be more preoccupied with thoughts of being defeated and feel inferior because of their illness. Patients of higher education ('O' Level or above) are more likely to adopt an active and intellectual approach to cope with their illness. There is also a greater tendency for them to accept responsibility for their illness and to be more able to discuss their health problems freely and openly. The implication of these findings for therapeutic outcome is discussed.

INTRODUCTION

The way in which patients perceive, evaluate, and react to their illness has attracted much attention in the last 25 years. The clinical pertinence rests with the speculation that apart from the self-evident somatic factors of illness, how patients react to their illness also contributes to the process of recovery and rehabilitation. Clinical experience seems to suggest that patients who appraise their illness as a challenge to be overcome and actively cooperate with treatment programme may be expected to maximize the chance of recovery. On the other hand, patients who perceive themselves as defenceless against their illness may adopt a passive attitude and offer little resistance to the course of the illness.

Several recent studies have surveyed the literature on illness behaviour and its determinant (1, 2, 3). Generally, it is held that psychological reaction to illness is a multidimensional concept. That is, it comprises a complex set of variables which include cognitive, affective, and behavioural responses. These responses are thought to be determined by at least three groups of factors: (a) personal characteristics of the patient, (b) nature and severity of the illness and (c) social environment of the patient.

Following the theoretical framework of Pritchard (4), this study aims at examining if age and education are related to factor analytically derived dimensions of illness behaviour identified in a group of Chinese patients undergoing haemodialysis for chronic renal failure.

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PATIENTS AND METHOD

The subjects in this study were 19 Chinese patients (14 male and 5 female) undergoing haemodialysis at the renal unit of Singapore General Hospital. These patients (aged 25 to 52, mean age = 37.42, SD = 7.27) were at least of secondary school education, who had no difficulty in answering the questionnaire. Table 1 shows the distribution of age and education level of the sample.

TABLE 1
AGE AND EDUCATION OF PATIENT SAMPLE

Age	Below 'O' level	'O' level or above
25 — 36	4	5
37 — 52	6	4

The questionnaire, which is an adaptation of Pritchard's revised version of "Response to Illness" questionnaire, consists of 43 items. These items cover seven areas, namely: perception of illness, explanation of illness, result of illness, relationship with others, cognitive response, affective response, and behavioural response. Against each item, which is in a statement format, patient can indicate his degree of agreement on a 4-point rating scale (agree extremely, 3; moderately 2; mildly, 1; not at all, 0).

To identify the basic dimensions (or factors) of illness behaviour, data on these 43 items were subjected to a principal component (defined factor) analysis using the SPSS (6). Factors with eigenvalues greater than 1.0 were retained for orthogonal (varimax) rotation. Factor scores derived through complete estimation method were then correlated with patients' age and education level.

RESULTS

Identification of Basic Factors of Illness Behaviour

Results of the principal component analysis reveal 11 factors which account for 88.7% of the total variance. The following is a description of the factors in terms of their pattern of factor loadings and their proposed descriptive labels. (Please refer to Appendix for loadings of test items on the 11 rotated factors).

Factor 1 Depression and anxiety

This factor which accounts for most of the total variance (about 24%) is concerned with the negative affect of depression and anxiety associated with feelings of not getting enough help from others. The item loadings on this factor suggest that there is also a preoccupation with illness though attempt is made to put it out of the mind. The perception of illness as 'a sign of weakness' and 'enemy' also contributes to feelings of misery, resentment, and anger. Though this factor has a negative loading of seeing illness as a 'chance event', the overall pattern of the item loadings suggests that it is more appropriate to consider it a unipolar factor.

Factor 2 Outward hostility vs. resented withdrawal

The items loading highly on this factor clearly suggest a dimension of outwardly directed hostility with underlying feelings of shame. Consistent with this interpretation are the positive loadings of items concerned with 'illness as unjust and unfair events', illness as 'enemy' and 'challenge', and a belief of

fighting it. The two negative loadings of 'resented dependence' and 'defeated and give in' may suggest an opposite pole of resented withdrawal as against outward hostility in coping with the illness.

Factor 3 Defeat preoccupation vs. challenge appraisal

The pattern of high loading items — 'think a great deal', 'worried', 'defenceless', 'defeated and give in', and 'nothing can be done' presents a picture of preoccupation with hopeless defeat in the face of the illness. In contrast to Factor 2, 'illness as a challenge' to be overcome has negative loading on this factor. It is therefore possible to consider this factor as bipolar with challenge appraisal as the opposite pole to defeat preoccupation.

Factor 4 Fear and anger

This factor is obviously concerned with the emotion of fear and anger, which may be a result of 'not being informed enough'. It is perceived as a miserable situation with feelings of being a burden on others. The positive loading of 'concealment' and a desire 'to escape from it' is understandable.

Factor 5 Inconsistent perception of severity

The feature of this factor is the positive loading of two apparently contradictory items, ie. illness is perceived as 'less serious' and 'worse' than others think. The positive loading of other items concerning 'non-involvement' and 'sense of loss' suggests that the attitude underlying the perception of illness severity is more negative in nature.

Factor 6 Active information seeking vs. passive sympathy appreciation

This factor, with positive loadings of 'information seeking', 'thinking of how to deal', and 'to fight it' suggests a dimension concerned with an intellectual, problem solving, and active approach to the illness. This factor may be viewed as bipolar with passive sympathy appreciation as the opposite pole.

Factor 7 Unjust punishment and concealment vs. self-responsibility and openness

This factor clearly describes an attitude of the patients towards the illness which involves seeing it as an undeserved punishment, together with the feelings of unfairness and a desire to conceal the illness. The two negative loadings of 'seeing illness as due to own fault' and 'like to talk about it' suggest that this is a bipolar factor with self-responsibility and openness as opposed to unjust punishment and concealment.

Factor 8 Help appreciation

This factor is concerned with the appreciation of help when one believes that he is defeated and has to give in to his illness. The positive loadings of 'sense of failure' and 'fear' are consistent with the meaning of this factor.

Factor 9 Dependence vs. autonomy

In this factor, illness is perceived as an enemy against which the patient is defenceless and unable to resist. Though in some ways he may 'have gained' from 'depending on others', it has also resulted in feel-

ings of 'being a burden' on them. The negative loading of 'to fight it' suggest that it is possible to consider this factor as bipolar with dependence vs. autonomy as the two opposite poles.

Factor 10 Self-involvement vs. passive resentment

This factor which is also bipolar in nature describes an attitude of self-involvement in overcoming the illness but with a denial of responsibility for its cause. The negative loadings of 'resentful about it' and 'sympathy appreciation' suggest that the resentment is towards illness itself and may not be directed to people.

Factor 11 Inferior feelings

This factor is concerned mainly with the inferior feelings in reaction to the illness. The positive loadings of both 'gain' and 'lost' (never to be the same again) suggest some uncertainty about the result of the illness. In contrast to Factor 1, the perception of illness as merely a 'chance event' may be employed as a defence against the inferior feelings.

Age, Education and Illness Behaviour

Preliminary examination of the data indicates that the two demographic variables — age and education, are negatively related ($r = -.20$), though the correlation has not reached the statistical significance level. In order to control possible confounding effect of one of them when correlating the other with illness behaviour, method of first order partial correlations was used. Hence in Table 2, coefficients under the column 'Age' are correlations between age and illness behaviour factor scores when the influence of education has been statistically eliminated. Similarly, under the column 'Education' are partial correlations in which the effect of age is held constant.

As Table 2 shows, age is significantly related to Factor 3 and 11. That is, older patients tend to be more preoccupied with thoughts of being defeated and feel less able to cope with responsibilities. They are also more inclined to feel inferior because of their illness. The significant relationships of education level to Factors 6 and 7 suggest that patients of higher education ('O' level or above) are more likely to adopt an intellectual, problem solving, and active approach to illness. There is also a greater tendency for them to accept responsibility for their illness and to be more capable of discussing it freely and openly.

DISCUSSION

Through the use of principal component analysis, 11 basic factors underlying illness behaviour have been identified. As varimax rotation is used in simplifying the factor structure, different factors may have significant loading from the same test items. For example, Factor 1 and Factor 4 both have positive loadings from the test items of 'feeling angry' and 'feeling miserable'. However, in Factor 1, these feelings are more a result of not getting enough help, while in Factor 4, they are associated with not getting enough information. The item of 'to fight it' also has loading on more than one factors. Its loading on Factor 2 suggests a behavioural response of outward hostility, while on Factor 6, it is concerned with an active and intellectual tackling of illness. Its negative loading on Factor 9, on the other hand, represents a fight for independence and autonomy. Likewise, the meaning of other individual items having loading on different factors can be viewed and understood within the context of each factor.

The identification of the 11 meaningful factors provides further evidence for the validity of the questionnaire as well as the theoretical framework from which it was derived. Although the sample size of this study

TABLE 2
PARTIAL CORRELATION COEFFICIENTS OF ILLNESS BEHAVIOUR
FACTOR SCORES WITH AGE AND EDUCATION

Factor of Illness Behaviour	Age	Education
1 Depression and anxiety	-.02	-.21
2 Outward hostility vs. non-resented withdrawal	-.07	-.11
3 Defeat preoccupation vs. challenge appraisal	.40*	-.32
4 Fear and anger	.33	-.14
5 Inconsistent perception of severity	.13	-.08
6 Active information seeking vs. passive sympathy appreciation	.21	.43*
7 Unjust punishment and concealment vs. self-responsibility and openness	-.23	-.54*
8 Help appreciation	-.18	.14
9 Dependence vs. autonomy	.10	.16
10 Self-involvement vs. passive resentment	.27	.19
11 Inferior feelings	.43*	.30

* $P < .05$ (one-tailed test)

is relatively small, it seems justifiable in view of the exploratory nature of the study on this group of patients (7). Nevertheless, confirmation of the findings with a larger group of patients is certainly desirable.

Of the 11 factors extracted, four of them were found to be significantly related to either age or education level. According to the pattern of factor loadings, these four factors concerned more with the cognitive and behavioural aspects of reaction to illness. Factors which are affective in nature, eg. Factor 1 (Depression and Anxiety) and Factor 4 (Fear and anger), were found to have no significant relationship with age nor educational level. However, if the process of recovery and rehabilitation is positively associated with the perception of illness as a challenge to be overcome (Factor 3); an active approach to tackling of illness (Factor 6); a sense of self-responsibility and willingness to discuss health problems freely and openly (Factor 7) without feelings of inferiority (Factor 11), then other things being equal, younger patients who are highly educated can be expected to have the most favourable therapeutic outcome. Further study is certainly needed to establish the relationship empirically. For this purpose, a multivariate analysis can be used to ascertain the relative contribution of age and education to treatment outcome.

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Appendix

Loadings of Test Items on the 11 Rotated Factors*

Test Item	Loading
Factor 1 (23.9% variance)	
24 feel depressed about it	.89
20 feel anxious about it	.86
34 don't get enough help from others	.78
38 feel resentful about it	.69
1 like an enemy that has attacked me	.63
18 put the thought of it out of my mind	.57
21 a matter of chance that it has happened	-.51
43 feel miserable about it	.45
35 a sign of weakness in me	.45
13 think a good deal about it	.43
14 feel angry about it	.39
Factor 2 (11.5% variance)	
9 others are to be blame for it	.93
36 others are responsible for it	.92
7 feel ashamed because of it	.79
22 resent having to depend on others	-.59
19 look on it as a challenge	.56
26 unjust and unfair that it should happen	.44
1 like an enemy that has attacked me	.40
12 defeats me and have to give in	-.37
17 the way to deal with it is to fight it	.36
Factor 3 (10.3% variance)	
13 think a good deal about it	.83
37 worried can't cope with responsibilities	.81
12 defeats me and have to give in to it	.59
4 defenceless and unable to resist it	.59
19 look on it as a challenge	-.56
30 worse than others realize	.53
8 nothing I can do about it myself	.47
6 kept in the dark/not told enough about it	.42
15 my own fault that it has happened	.40
Factor 4 (9.1% variance)	
40 feel frightened of it	.79
14 feel angry about it	.66
43 feel miserable about it	.65
6 kept in the dark/not told enough about it	.63
27 dislike others knowing about it	.58
32 feel like escaping from it	.40
31 results in a burden on family and friends	.37

	Test Item	Loading
	Factor 5 (8.2% variance)	
5	less serious than most people think	.81
33	taken something from me	.71
8	nothing I can do about it myself	.70
30	worse than others realize	.53
39	appreciate sympathy it has brought me	.47
	Factor 6 (5.8% variance)	
23	want to find out all I can about it	.87
29	think about how I can deal with it	.86
17	the way to deal with it is to fight it	.59
39	appreciate sympathy it has brought me	-.46
	Factor 7 (5.0% variance)	
41	a punishment which I don't deserve	.78
11	like to talk to others about it	-.76
27	dislike others knowing about it	.61
26	unjust and unfair that it should happen	.59
35	a sign of weakness in me	-.38
15	my own fault that it has happened	-.37
	Factor 8 (4.4% variance)	
28	pleased with the help I get	.83
10	feel a failure because of it	.72
12	defeats me and have to give in to it	.52
40	feel frightened of it	.40
	Factor 9 (4.0% variance)	
16	makes me dependent on others	.88
31	results in a burden on family and friends	.65
4	defenceless and unable to resist it	.55
3	have gained from it	.51
1	like an enemy that has attacked me	.39
17	the way to deal with it is to fight it	-.36
	Factor 10 (3.7% variance)	
25	something I must overcome myself	.85
15	my own fault that it has happened	-.63
38	feel resentful about it	-.51
39	appreciate sympathy it has brought me	-.50
	Factor 11 (2.8% variance)	
2	indicates that I am inferior	.90
3	have gained from it	.56
42	never be the same again	.53
21	a matter of chance that it has happened	.47

* Items with factor loading of less than .35 are not included.