

EXPRESSED EMOTION AND RELAPSE OF SCHIZOPHRENIA IN HONG KONG

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ABSTRACT

Objective: We examined the cross cultural relevance of expressed emotion in predicting relapse of schizophrenia in Hong Kong.

Methods: A longitudinal prospective study was conducted. Thirty three patients with a Diagnostic and Statistical Manual of Disease IV diagnosis of schizophrenia were recruited. The Camberwell Family Interview was conducted with key relatives to evaluate the expressed emotion status. The patients were followed up for 9 months after their index discharge by a psychiatrist who was blind to the expressed emotion status. The psychiatrist evaluated the mental state of the patients with the Brief Psychiatric Rating Scale. Content analysis was also conducted on the critical comments of the relatives.

Results: The relapse rate in the high expressed emotion group was 60.0% ($p < 0.01$) and that in the low expressed emotion group was 11.1% ($p < 0.01$). The 9-month relapse risk ratio for the high expressed emotion group compared with the low expressed emotion group was 5.4 (95% confidence interval, 1.38 to 21.1). In terms of the subscales, critical comments were found to be the most significant predictor of relapse. However, relapse did not seem to be significantly correlated with high emotional overinvolvement in this study.

Conclusion: The predictive validity of expressed emotion construct for schizophrenic relapse is applicable to Hong Kong Chinese people.

Key words: *Content analysis, Expressed emotion, Prospective study, Relapse, Schizophrenia*

INTRODUCTION

Butzlaff and Hooley concluded in their meta-analysis that expressed emotion (EE) in predicting relapse is a well-defined factor and there is no point in conducting any more study on relationship between EE and relapse.¹ However, EE has been found to be culturally dependent.² As Kuipers has suggested, EE could be seen as an assessment of the quality of the relationship, based on the appraisal of problems.³ The appraisal of problems is dependent on the characteristics of the stressor and of the environment, as well as on the individual's coping styles.⁴ The culture and socioeconomic environment of a community have marked effects on the characteristics of the stressors that are experienced in that community, on the resources available for coping with those stressors, and on the coping strategies.⁵

Specific attitudes and behaviours such as the EE subscales are cultural dimensions of family response and interpretation of mental illness.² Some cultures may have a different social constraint in hostility so that hostility is not invariably associated with a high level of criticism.⁶ In the emotional overinvolvement (EOI) subscale, for example, none of the Indian relatives,⁷ 11% of Mexican-Americans,⁸ 15% of Anglo-American,⁹ and 21% of the British relatives¹⁰ had scores on this item that were rated as high. Studies from the Chinese population may reveal very different findings. Such studies have been

performed in Mainland China¹¹ and Taiwan.¹² It is, however, doubtful if it is appropriate to extrapolate their finding to Hong Kong due to differences in social and political structure. Furthermore, these studies have only shown a non-significant increase in risk of relapse associated with high EE relatives.¹¹ It is under such circumstances that we conducted another prospective longitudinal study on the naturalistic course of relapse in patients living with either high or low EE relatives. The hypothesis is that living with high EE relatives will have an increased risk for relapse of schizophrenia.

MATERIALS AND METHODS

STUDY PARTICIPANTS

This study was conducted at Castle Peak Hospital, the oldest and largest mental hospital in Hong Kong. Patients were recruited from team 4 of Castle Peak Hospital, as the patients admitted to team 4 were from the Tuen Mun catchment area and follow-up in Castle Peak Hospital was more acceptable and accessible to them.

The patients were recruited to the study if they were diagnosed to have schizophrenia using the Diagnostic and Statistical Manual of Disease (DSM)-IV criteria¹³ and were admitted from a service sector in Hong Kong (Tuen Mun and Yuen Long) during the period of January 1997 to March 1998. All patients were aged between 15 and 65 years, and had

been living with their relatives for 3 months or had more than 35 hours of face-to-face contact per week with their relatives prior to admission. They were also expected to return to the same relatives after discharge.

Patients with alcohol dependence, drug dependence, organic brain problems, psychopathic personalities, or severe grade mental deficiency were excluded. Non-Chinese patients and those who did not have permanent residency rights, for example, illegal immigrants, were excluded from the study.

Of the 65 patients admitted during the specified period, 40 met the selection criteria. All participants were Chinese who were born in Hong Kong. Only 33 patients were included in the study because 1 patient did not consent and 1 defaulted follow up after discharge. The other 5 patients with persisting psychotic symptoms had not been discharged from the hospital by the time of the study. There were no significant differences between the study population and the 6 non-participants in terms of age, sex, and duration of illness.

The study protocol was approved by the Research Ethics Committee of the Castle Peak Hospital. Informed consent was obtained from all patients and their relatives for participation in the study.

ASSESSMENT

EXPRESSED EMOTION

Within 2 weeks of the participants' admission to hospital, their relatives were interviewed by the author using the Camberwell Family Interview (CFI).¹⁰ The CFI is a semi-structured interview used to generate the EE index. All interviews were recorded by audiotape. Critical comments, positive remarks, and EOI statements were all recorded verbatim for content analysis.

Relatives were categorised as being either high or low EE status. A relative was considered as high EE when he/she made 6 or more critical comments (CC), revealed any degree of hostility (generalisation or rejection), or rated 3 or more on the EOI scale.

The English version of the CFI was translated into traditional Chinese by the authors, with consent from the original authors. In view of the well-established validity of the CFI in English, no specific validation study was run for this purpose.

Two of the authors attended the EE training course in London, at the Social Psychiatry Section of the Medical Research Council of the UK, before conducting this research in Hong Kong. Both are certified EE raters. The inter-rater reliability between the two EE raters with Pearson's correlation coefficient was $r = 0.85$. Five relatives of patients with schizophrenia not involved in the study were interviewed as a pilot for inter-rater reliability in the Chinese population between the 2 authors. Inter-rater reliability of 0.86 was attained.

PSYCHOPATHOLOGY

The symptoms of the participants were evaluated by the expanded version of Brief Psychiatric Rating Scale (BPRS),¹⁴ at the time of their discharge by another author, who was

blind to the EE status of the patients' families. Inter-rater reliability of the psychiatrist with another Chinese psychiatrist in another sample of Chinese patients was high ($r = 0.89$).

Both high EE and low EE groups were followed up by the same psychiatrist for 9 months after participant discharge, who was blind to the EE status of the relatives during the follow-up period. All participants received routine outpatient care, mainly in the form of medication and general advice. Support and general counselling by social workers and community nurses were provided for ethical reasons. However, it has been suggested that EE would not be modified by simple psychoeducation and counselling.¹⁵ BPRS evaluation was conducted at monthly intervals during the 9-month follow-up.

Relapse risk was compared between high EE and low EE groups after 9 months of follow-up. Psychotic relapse was defined as a 6 or 7 on BPRS scales for hallucinations, unusual thought content, or conceptual disorganisation; non-psychotic relapse was defined as 6 or 7 on scales of bizarre behaviour, self neglect, hostility, depression, or suicidality.¹⁶

Medication compliance was indexed by the treating psychiatrist during the monthly interview. According to the reports given by the patients and relatives, drug compliance was categorised as no compliance, 4 (0 to 24% drug taking); irregular compliance, 3 (25 to 49% drug taking); vaguely regular compliance, 2 (50 to 74% drug taking); regular compliance, 1 (75 to 100% drug taking, including depot injection).

ANALYSIS OF CONTENT

The critical remarks were derived from the 33 interviews conducted. For each comment, the focus of the criticism was noted, and categorised in 5 distinct categories in a similar fashion as those adopted by Moore et al.¹⁷ These were as follows:

- The clinical poverty syndrome — apathy and lack of initiative; fear of outdoor activities; indecisiveness; self-centredness; poor concentration; tendency to do nothing and slowness; poor self-care; negative attitudes.
- Socially embarrassing behaviour and/or difficult behaviour — frequent mood changes including depression and irritability; aggression; talking to self; shouting and interruption of others; chain smoking; gambling; collecting rubbish.
- Personality traits — manipulative, lazy, awkward, or stubborn personality; lack of charm.
- Others — poor compliance with treatment.
- Positive symptoms — auditory and visual hallucinations; grandiosity; delusions of persecution; irrelevant speech; mood lability.

The critical remarks were all allocated by the first author. A randomly selected sample of 50 criticisms was independently categorised by the second author and reliability was assessed. The overall kappa value for the 5 main categories was 0.78, indicating substantial agreement.¹⁸ The content analysis was performed after the completion of the 9-month follow-up period in order to avoid the first author knowing the EE status of the key relatives during the longitudinal follow-up period.

DATA ANALYSIS

The categorical/dichotomous variables were summarised as percentages and compared using chi squared tests with 95% confidence intervals given. The continuous variables were summarised as means and standard deviations, and were compared using the *t* test and one-way ANOVA. In view of the multiple correlations made between the various EE subscales and relapse, Bonferroni correction was applied.

RESULTS

CHARACTERISTICS OF THE PARTICIPANTS

This was a group of patients with relatively chronic schizophrenia. The mean age of the patients was 38.0 (male, 38.7; female, 37.2). Sixteen patients were married (12 females and 4 males) and lived with their spouses. One male patient was divorced and lived with his son. The rest were single and were living with their families (n = 16). There was no statistically

Table 1. Comparison of characteristics of high expressed emotion and low expressed emotion groups.

	High expressed emotion (n = 15; %)	Low expressed emotion (n = 18; %)
Gender		
Male	9 (64.3)	5 (35.7)
Female	6 (31.6)	13 (68.4)
Mean age at admission (years)	37.1	38.8
Mean duration of illness (years)	9.5	9.8
Mean number of previous admissions	2.8	2.6

significant difference between this group and another group of randomly selected psychotic patients (n = 30) in the acute admission unit at the same hospital in terms of age, sex, and duration of illness (mean age, 37.3; sex distribution, 15 males and 15 females; duration of illness, 9.6 years; all *p* values > 0.05). There were no significant differences in the characteristics of the patients in terms of age, duration of illness, and number of previous admissions between the high EE and low EE groups (Table 1). There were 14 males and 19 females. There were also no significant differences in sex distribution across the high and low EE groups (chi squared, *df* = 1; chi value, 3.48; *p* = 0.063).

CHARACTERISTICS OF RELATIVES BY EXPRESSED EMOTION STATUS

Thirty three relatives were interviewed, 1 for each patient. The need for another EE rating for a second relative was assessed by inquiring of the interviewed relative if there were any other relatives who were critical or emotional towards the patients at home. Only 1 low EE relative (mother) reported another relative (sister) at home who might be critical towards a patient. This sister declined an interview with the second author upon explanation. However, this patient did not suffer from any relapse during the follow-up period. Overall, 15 relatives (45.5%) were rated as high EE and 18 (54.5%) as low EE (Table 2).

In the high EE group, 6 relatives (40.0%) were categorised for scoring critical comments only, 2 relatives (13.3%) for both critical comments and hostility; and 7 relatives (46.7%) for a score of 3 or more on EOI. The only hostile relatives were 2 husbands. Mothers were significantly more emotionally overinvolved than other relative types (Fisher exact Test, *p* = 0.002; Table 3).

Table 2. Proportions of different types of respondents who have high expressed emotion.

Types of respondent	Number	High expressed emotion Number (%)	Critical comments only Number (%)	Critical comments and hostility Number (%)	Emotional over-involvement Number (%)
All respondents	33	15 (45.5)	6 (18.1)	2 (6.0)	7 (21.2)
Parents	16	9 (56.3)	4 (25.0)		5 (31.2)
Mothers	12	7 (58.3)	2 (16.7)		5 (41.6)
Fathers	4	2 (50.0)	2 (50.0)		
Spouses	15	6 (40.0)	2 (13.3)	2 (13.3)	2 (13.3)
Wives	4	3 (75.0)	2 (50.0)		1 (25.0)
Husbands	11	3 (27.2)		2 (18.1)	1 (9.0)

Table 3. Types of high expressed emotion relatives and the high expressed emotion subtypes.

Types of respondent and characteristics	Mother (7)	Wife (3)	Husband (3)	Father (2)	Number of relapses
Emotional overinvolvement (7)	5 (2)	1	1	nil	2
Critical comments only (6)	2 (1)	2 (2)	nil	2 (2)	5
Critical comments and hostility (2)	nil	nil	2(2)	nil	2

* The number in parentheses indicates the number of relapse.

Table 4. Nine-month risk of relapse according to the Brief Psychiatric Rating Scale criteria by expressed emotion status.

	Relapse (%)	No relapse (%)
High expressed emotion (n = 15)	9 (60.0)*	6 (40.0)
Low expressed emotion (n = 18)	2 (11.1)*	16 (88.9)

* $p = 0.002$ by χ^2 test ($\chi^2 = 8.800$; $df = 1$)

Table 5. Relationship between relapse and expressed emotion subscales.

	9-Month relapse risk Number (%)
High expressed emotion (n = 15)	9 (60.0)
Critical comments (n = 6)	5 (83.3)
Critical and hostility (n = 2)	2 (100)
Emotional overinvolvement (n = 7)	2 (28.5)

RELAPSE RISK AND EXPRESSED EMOTION

The relapse was defined by the BPRS scores as rated by the first author who was blind to the EE status of the key relatives during the 9-month follow-up period. There were a total of 11 psychotic relapses for 11 patients; no patient suffered more than 1 relapse and there was no non-psychotic relapse. Relapse risk ratio for the high EE group compared with the low EE group was 5.4 (95% confidence interval [CI], 1.38 to 21.1). There was a significantly higher risk of relapse ($p = 0.002$) during the 9 months after discharge if the patient was staying with a high EE relative for more than 35 hours per week (Table 4). Male patients were also significantly more likely to relapse ($r = 0.434$; $p < 0.005$).

The 9-month risk of relapse according to BPRS, by EE components is illustrated in Table 5. The high criticism with hostility group seemed to be at the greatest risk of relapse. However, this is far from conclusive as the sample size was extremely small ($n = 2$). Furthermore, the score of warmth also negatively correlated with relapse, although not to an a priori significant level ($r = 0.38$; $p = 0.05$). EE status showed a high correlation with critical comments ($r = 0.52$; $p < 0.001$) but not with the scores for emotional overinvolvement and hostility.

Table 7. Content of critical comments made by key relatives (respondents) of schizophrenic patients.

	Number of comments by all respondents (% of total comments)	Number of comments made by high expressed emotion relatives (% of total comments)	Number of respondents (% of total respondents)
Clinical poverty syndrome (tendency to do nothing)	21 (36.8)	14 (24.6)	11 (36.7)
Socially embarrassing/difficult behaviour	19 (33.0)	14 (24.6)	11 (36.7)
Personality traits	8 (14.0)	6 (10.5)	7 (23.3)
Others	4 (8.8)	4 (7.0)	5 (16.7)
Positive symptoms	4 (7.0)	3 (5.3)	3 (10.0)

Table 6. Medication compliance and expressed emotion groups.

	High expressed emotion group (n = 15) Number (%)	Low expressed emotion group (n = 18) Number (%)
No compliance	Nil	1 (5.6)
Irregular compliance	Nil	Nil
Vaguely regular compliance	2 (13.3)	2 (11.1)
Regular compliance	13 (86.7)	15 (83.3)

Critical comments were highly correlated with hostility ($r = 0.449$; $p < 0.005$) and were negatively correlated with warmth ($r = 0.673$; $p < 0.005$). Emotional overinvolvement was correlated with warmth ($r = 0.63$; $p < 0.001$) and with positive remarks ($r = 0.46$; $p < 0.001$).

RELATIONSHIP BETWEEN MEDICATION COMPLIANCE AND RELAPSE

There was no significant difference in drug compliance between patients from the high EE and low EE groups ($\chi^2 = 0.577$; $df = 2$; $p = 0.617$; Table 6).

RELATIONSHIP BETWEEN PSYCHOTIC SYMPTOMS AND EXPRESSED EMOTION

There was no significant correlation between the psychotic scores (conceptual disorganisation, hallucinations, suspiciousness, hostility, bizarre behaviour, and self-neglect) in the BPRS, either on admission, discharge, or after 9 months of follow-up, with the EE status of the key relatives.

CONTENT ANALYSIS OF CRITICAL COMMENTS

Thirty of 33 relatives (13 high EE relatives and 17 low EE relatives) generated 57 critical comments. The mean number of critical comments made by high EE relatives was 3.2 and that by low EE relatives was 0.94. Only 3 relatives (9%) made no critical comments about the patient. The 13 high EE relatives made 41 comments (72% of the total CCs).

Most of the critical comments were about clinical poverty syndrome (36.8% of the total CCs) and socially difficult or

embarrassing behaviour (33% of the total CCs). As reported in other EE studies, positive symptoms do not seem to be the focus of criticism (7% of the total CCs). Table 7 shows the detailed breakdown of the contents of the critical comments. Examples of the critical comments are shown in Appendix 1.

DISCUSSION

In the present study, we found a significant increase in the relative risk of relapse for schizophrenic patients with high contact hours (more than 35 hours per week) from high EE households compared with patients from low EE households. The result is consistent with our hypothesis and consistent with other reported studies.¹ The relapse rate of 60% in the high EE group compared with 11% in the low EE group is compatible with the results (high EE and high contact, 58.5%; low EE and high contact, 18.3%) analysed by Bebbington and Kuipers.¹⁹ This is in contrast to the result reported by Phillips and Xiong.¹¹

One reason may be that we have narrowed our focus on those relatives having more than 35 hours of contact with the patients. This restriction of hours of contact was not part of the inclusion criterion in Phillips and Xiong's study.¹¹ Another possible reason is that our monitoring of relapse was more stringent (4-weekly symptom monitoring and the researcher would assess the possibility of relapse once the patient or relative complained of possible clinical deterioration). In Phillips and Xiong's study, relapse that occurred in the periods between each 6-monthly clinical rating and that failed to come to medical attention are likely to be missed.¹¹ The recollection of relapse by relatives was likely to be subjected to recall bias.

The percentage of high EE relatives in this sample (45.4%) is similar to that reported by Phillips and Xiong (42.6%).¹¹ This may provide some support to the theory that this is not due to a misclassification of EE status by neglect of other potential high EE relatives as suggested by them. In terms of the subscales, critical comment was strongly correlated with relapse in this study. This result is consistent with most of the research findings examining this issue.²⁰⁻²² At the same time, based on data generally available in ethnographic accounts, verbal criticism within families is likely to occur in most cultures.⁸

Some studies have found hostility to be a more sensitive predictor of relapse.^{7,22} The Chandigarh study in North India conducted by Leff et al found that the only expressed emotion factor to significantly predict the 2-year outcome of schizophrenia was hostility.⁷ In the present study, the combination of high critical comment with hostility group was at the greatest risk of relapse. However, due to the small sample size and the infrequent occurrence of hostility ($n = 2$), we could not draw any meaningful conclusion.

Critical comments were highly correlated with hostility ($r = 0.449$; $p < 0.005$) and was negatively correlated with warmth ($r = 0.673$; $p < 0.005$). These findings were similar to the results of studies in western countries^{23,24} as well as

in Japan.²⁵ The correlation was unlikely to be spurious as Bonferroni correction was applied.

Regarding the component of EOI, some studies found it to be the most significant predictor of relapse.^{26,27} In this study, we found that EOI was not correlated with relapse. Among the 7 EOI relatives, only 2 clients relapsed within 9 months. This negative finding could be related to the small sample size ($n = 7$), which obscures any possible significant difference. However cultural differences in the definition of emotional overinvolvement between Hong Kong Chinese and western people might explain this finding. Culture, as a system of shared meanings and symbols, provides its members with an available repertoire of affective and behavioural responses to the human condition, including illness.²⁸ The expressed emotion index can be regarded as measuring cultural features because it taps a set of shared meanings and patterns of affective response to the problem of living with schizophrenic illness in a family setting.⁸

In the current study, it is clearly shown that the nature of critical comments mainly focuses on negative symptoms and socially embarrassing behaviour. This is consistent with the results of western studies in families²⁹ and in community residential homes.¹⁶ This is, perhaps, not surprising because verbal criticism is likely to occur in most cultures.⁸ However, it is worth noting that the mean number of critical comments is quite low (3.2), compared with the western studies,^{10,30} but is similar to that reported in the Mexican-American study.⁸

EOI, however, is a more complicated concept among the 3 subscales of EE, comprising elements of overprotection, self sacrifice, and previous exaggerated emotional responses, together with behaviour during the interview (such as crying, dramatisation indicated by extravagant praise, or the tone and tempo of speech). The criteria for high EOI vary by culture.³¹ In order to determine whether behaviour is overly protective, we must consider the acceptable degree of protection for the patient in a given culture.^{27,29}

The cultural heritage of Chinese society in Hong Kong is complex. People in Hong Kong have adopted a western style of social interaction and daily living. Because of the different political and social structure between the community of Hong Kong and China, Chinese people in these 2 areas have great differences in thinking, attitudes, and behaviour. However, Hong Kong Chinese people still maintain some traditional family concepts inherited from parents or grandparents who are immigrants from China. The 1991 Population Census indicated that the proportion of locally born Chinese is 60%, but most are young. Therefore, most families are headed by immigrants who have brought cultural traditions with them from China.

In Chinese culture, it is the family rather than the individual, that is the basic structural and functional unit. Chinese people tend to have strong feelings for the family, including those of belonging, concern, responsibility, and security (familism). This strong family sentiment leads them to subordinate their personal goals, interests, and welfare for the sake of their families.³² As discussed by Phillips and Xiong, these special sentiments are reflected in the differences in attitudes about

autonomy and independence of children and the appropriate roles of parents in China and the West.¹¹ This cultural belief was sanctioned by the Chinese communist government with the legalisation of the so-called ‘overprotective’ and ‘over-intrusive’ roles of parents.

The 1981 China Marriage Law specifies that parents are required to be responsible for children who are “unable to care for themselves”. This difference in the threshold of EOI has caused Phillips and Xiong to modify the CFI for mainland Chinese relatives.¹¹ This kind of over protective attitude is less apparent in Hong Kong and we have, therefore, not modified the CFI for this study.

On the other hand, Chinese people tend to believe in *Yuan*, which is a fatalistic factor believed to predetermine every relationship, no matter how bad, good, short, or durable.³³ As a result, people accept their parent-children relationship and spouse relationship as inescapable fates. Since *Familism* and *Yuan* are deeply rooted in the Chinese mind, the strong belief of *Yuan* leads people to consider it is their responsibility and obligation to stay in the family, taking care of a family member with illness (physical or mental), regardless of their dissatisfaction. Applying this to the family of a schizophrenic patient, the strong family sentiments lead the relatives to display certain degrees of self sacrificing or devoted behaviour to the patients.

Moderate degrees of such behaviour are considered normal and acceptable in the Chinese society of Hong Kong. However, they are generally considered as EOI in the western coding criteria of the CFI. Interestingly, local researchers have argued that Hong Kong Chinese people have a special view of *Yuan*, fatalistic voluntarism, which is a combination of self directed approaches to changing conditions (like changing *feng shui*) and fatalistic acceptance of the way that they are.²⁸ This argues for caution in extrapolating the finding of the EE study in China¹¹ to the local setting.

In this study, the failure to find the predictive value of EOI for relapse does not imply that high EOI is irrelevant to relapse. Among the 7 clients with high EOI relatives, 2 clients relapsed (their relatives had scored 4 and 5 in EOI), and 5 clients had not relapsed (4 relatives had scored 3 and 1 had scored 4 in the EOI). In the initial EE studies by Brown et al³³ and Vaughn and Leff,¹⁰ the cut-off point for EOI was 4.

In the studies performed after 1985, according to cultural differences, the cut-off point of EOI was changed from 4 to 3 in order to rescue the non-significant results in some countries. According to the literature review by Mino et al, approximately half of the EE studies adopted a score of 4 in EOI as the cut-off level and the remaining studies used 3.²⁷ Therefore, to obtain a better predictive value in the local situation, we might consider varying the cut-off point of EOI by using the score of 4 instead of 3. The small number in the present study makes it rather difficult to conduct a meaningful analysis. The hypothesis about the relation of EOI to schizophrenic relapse needs to be examined in a larger group.

Regarding patients’ characteristics, statistical analysis revealed no correlation between relapse and number of previous admissions. The number of admissions may not be

a reliable indicator of the severity or the duration of illness because families may have different thresholds for admission. It has been suggested that the duration of untreated psychosis may explain both the development of EE and the severity of illness.^{22,34} In the present study, we have not specifically looked at the duration of untreated psychosis (DUP).

Accuracy in the estimation of DUP is particularly difficult in this sample in view of the chronicity of the disease. However, there seemed to be moderate correlation between gender and relapse — male patients were found to be more prone to relapse. This finding was also consistent with the research in most EE studies.³¹ Positive symptoms upon discharge or after 9 months were not correlated with EE status of the key relatives. This finding is similar to that reported by Phillips and Xiong.¹¹

LIMITATIONS

There are several limitations to this study. The relatively small sample size is the probable reason that the relative risk of relapse has such a wide confidence interval. This can be improved with a larger sample. The subscore of hostility again requires a larger sample size or a longer follow-up period to prove its predictive validity. The variation of the EOI cut-off points also requires further exploration with a larger study group. However, the result suggests that the predictive validity of the global score of high EE leads to relapse, so the limitation does not seriously bias the overall results.

The author was only able to interview 1 member of each family. The relative who had comparatively higher interaction with the patient before admission was recruited for the interview. For those rated as low EE, the author did not make any standard measure on the EE level of the remaining relatives. However, it did not seem to affect the global rating of EE in this study because the CFI interviews of these relatives did not suggest the presence of a high EE relative at home. Only 1 key relative described a possible high EE sister who declined to be interviewed. However, this particular patient did not relapse within the 9-month period.

CONCLUSION

The purpose of this study was to explore the relationship of EE and schizophrenic relapse in Hong Kong. The result has clearly confirmed that EE is a reliable predictor of relapse in patients with schizophrenia.

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APPENDIX 1

Examples of criticisms in relation to different types of behaviour.

Category I. Clinical poverty syndrome.

Apathy and lack of initiative: "Doesn't do any activities, just enjoys sleeping all the time."

Fear of outside activities: "She won't go anywhere unless someone goes with her."

Inability to make decisions: "He just uses money all at once without leaving a dollar for the family!"

Poor concentration: "She has poor memory. She must have brain degeneration. She forgets to switch off the gas stove all the time!"

Self centredness: "He is very selfish and so he has no friends."

Tendency to do nothing: "Just sits all day long. A totally useless man!"

Poor self care: "He doesn't bath, doesn't wash his hair, doesn't brush his teeth. It is difficult to face such a situation!"

Negative attitude: "You cannot make any comment on him. He never listens to others. You just need to please him and let him have his own way."

Category II. Socially embarrassing/difficult behaviour.

Chain smoking: "Non-stop smoking all the time!"

Frequent mood changes: "His mood is very unstable. If I leave this place, he will definitely beat his brother to death!"

Aggression: "She always threatens to chop me to death. I am not afraid of death but I cannot tolerate becoming a crippled man."

Shouting inappropriately: "He keeps on shouting at home for no reason. I have no idea what he is doing at all!"

Gambling: "He spends all his money on gambling den. He never thinks about the family!"

Category III. Personality.

Stubbornness: "He has his illness because he is a very stubborn person."

Awkwardness: "He has a very strange temper and he is very difficult to live with."

Manipulativeness: “I want to clean the bed linen and she does not allow that. She just leaves them foul at home. When our neighbours came to clean our clothes, she would get cross with them.”

Laziness: “He is a lazy man!”

Lack of charm: “I cannot find one good thing in him!”

Category IV. Others.

Compliance with treatment: “If I rely on him to take drugs, he will

mess them up and die. I have to supervise him to take drugs. But it doesn't make any difference whether he takes drugs or not!”

Category V: Positive symptoms

Suspiciousness: “He always scolds strangers in the street because he believes that they are playing tricks on him.”

Grandiose beliefs: “He just goes into a supermarket and takes the food away as he insists that the supermarket belongs to his father!”

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