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Further Validation of the Chinese Version of the Level of Expressed Emotion Scale for Research and Clinical Use

Abstract

Background: Expressed emotion is a construct that has been used for the past three decades to describe family members' criticism, hostility and emotional involvement with a mentally ill relative within the context of family interactions and care-giving. In Western countries this construct is used as an outcome measure of interventions for families of people with schizophrenia or other psychotic disorders, but the use of this construct in Chinese populations is somewhat limited.

Objective: To test the reliability and validity of a refined Chinese version of the 52-item Level of Expressed Emotion Scale (LEE).

Methods: A convenience sample of 405 outpatients with psychotic disorders in Hong Kong and one of their family caregivers were recruited. Patients were asked to complete a set of questionnaires twice over a six-month period, including the Chinese version of the LEE, the Specific Level of Functioning scale and the Brief Psychiatric Rating Scale; while their caregivers completed the Family Assessment Device twice and a demographic data sheet at recruitment. This study was aimed at establishing the internal consistency, reproducibility, responsiveness, and construct validity of the LEE.

Results: Results indicated that the refined 50-item Chinese version of the LEE and its subscales demonstrated a high internal consistency and satisfactory correlations with patient and family functioning scores. Principal components analysis revealed the presence of four factors, explaining 70.8% of total variance and indicating high factor loadings as well as item-factor inter-correlations. The Chinese version not only indicated a satisfactory reproducibility in assessing change in patients' symptom severity and family functioning but also showed an

adequate responsiveness to the changes in patients' symptoms over six months, especially for detecting symptom improvement.

Discussion: The findings of the psychometric evaluation of the Chinese version of the LEE established its potential as a research instrument in measuring the level of expressed emotion of family members as perceived by Chinese patients with psychotic disorders. Further testing of its psychometric properties is recommended, using larger samples from diverse socio-economic backgrounds and mental illnesses.

Keywords: Expressed emotion, psychotic disorders, factor structure, responsiveness, reproducibility.

What is already known about the topic?

- Expressed emotion of families of people with schizophrenia has been commonly used in Western countries to evaluate the effect of family intervention.

- Major limitations of the traditional assessment tools for expressed emotion such as the Camberwell Family Interview Schedule include the lengthy time required for their administration and the complex scoring system.

What this paper adds

- The Chinese version of the LEE in this study established its potential as a less cumbersome instrument in measuring the level of expressed emotion of families perceived by Chinese patients with psychotic disorders.

- This study also provides evidence that similar to Western studies, the construct of expressed emotion of family members in Chinese population consists of four factor solutions, including intrusiveness, expectations of the patient, attitude towards the illness, and emotional involvement.

1. Introduction

Since the late 1960s, researchers have shown an increasing interest in family characteristics that contribute to health outcomes in patients with schizophrenia. Expressed emotion (EE) refers to the degree of criticism, hostility and emotional involvement in family relationships and interactions with a mentally ill patient (Gerlsma and Hale III, 1997; Vaughn and Leff, 1976). There is a lack of consensus as to the possible role of high EE in the aetiology of schizophrenia (Raune, Kuipers and Bebbington, 2004; Wearden et al., 2000). Indeed there is a growing body of evidence to support that family members' beliefs about schizophrenia, their appraisals of the stress in care-giving and the patient's level of control over their own symptoms are associated with the level of EE (Raune et al., 2004). Wendel et al. (2000) have argued that if family caregivers considered patients' symptoms to be controllable and internal to the patients, they would attempt to coerce the patient to get back to normal (higher EE in terms of criticism and hostility) as their coping response. Barrowclough et al. (2001) and Scazufca and Kuipers (1999) have acknowledged that EE may represent the complex interactions between patients and family caregivers and indeed the patients' illness and behaviours are an important part of the process contributing to the origins and changes of EE within a family over time.

In Western countries, EE has also been proved to be a more generalised risk factor for relapse in different mental health problems such as schizophrenia, depression, dementia, and anxiety disorders (Gerlsma and Hale III, 1997; Götell, Brown and Ekman, in press; Wearden et al., 2000). Studies have also indicated that the level of EE correlates closely with patients' adherence to medications (Flanagan and Wagner, 1991; Peter and Hand, 1988), their level of functioning, and their likelihood of psychiatric relapse (Butzlaff and Hooley, 1998). An assessment of a family's EE can be a useful tool wherever there is reason to suspect that family relationships might be influencing the course of a patient's mental illness.

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Western studies of EE are mainly based on the traditional measures of the attitudes and feelings expressed towards a patient by a key family caregiver during the interview using the Camberwell Family Interview schedule (CFI) developed by Brown et al. (1962) at the Social Psychiatry Unit of Medical Research Unit in London, and further validated and modified by Vaughn and Leff (1976). However, the widespread application of this assessment has been limited by the requirement of lengthy training and administration of the instruments, and the complex scoring system. Therefore, there is a clear need for the design of a less cumbersome alternative method of EE measurement that can be used more conveniently and reliably in clinical settings.

2. Literature Review

The importance of EE as a theoretical construct closely associated with patient relapse in patients with schizophrenia was suggested by Vaughn and Leff (1976) and Butzlaff and Hooley (1998). However, the association of high EE with increased patient relapse appears to lack clarity and certainty when related to illness factors (Heikkilla et al., 2002). This leaves a few unanswered questions about the complexity of family members' emotional responses to the illness and their direction of influence. Recently, an increasing number of studies implicate family's EE as important factors influencing family relationships and dysfunction (Raune et al., 2004), and close relationships between EE and family functioning and distress have been established (Barrowclough and Parle, 1997). For some family caregivers, EE is not stable over time, regardless of whether they had participated in an intervention programme or not (McCreadie et al., 1993; Scazufca and Kuipers, 1999). However, Scazufca and Kuipers (1998) have reported that EE remained constant in two-thirds of the family members recruited and changes in EE levels in the families were predicted by changes in family burden and extent of

contacts between patient and family within a 9-month follow-up period. Bentsen et al. (1998) also found that the three domains of EE (criticism, hostility and emotional over-involvement) are associated with patient and family variables such as patient's functioning and caregiver's emotional state. Therefore, EE has often been used as a measure of treatment outcome for schizophrenic patients.

There are only a few studies examining the internal construct of EE for their potential to guide practice and research. In those studies, an attribution model of EE (Brewin et al., 1991; Butzlaff and Hooley, 1998) was used and criticism and emotional over-involvement towards the patient were found the key components of EE. Higher levels of criticism were correlated with families' perceptions that patients' problem/behaviours are controllable by the patients themselves (Weisman et al., 1998), while more disturbed behaviour by a schizophrenic patient was perceived as the patient's failure to engage in productive activities (Chien and Norman, 2004; King et al., 2003). As described by Leff and Vaughn (1985), emotional over-involvement reflects a set of feelings and behaviour of a family member towards the patient, indicating evidence of over-protectiveness or self-sacrifice, excessive displays of emotion with the use of praise or blame, preconceptions and statements of attitude. Family members who show high emotional involvement tend to be more intrusive. Therefore, families with high emotional involvement may believe that patients cannot help themselves and that their problems are due to causes external to them, and thus high involvement will lead to strategies of taking control and doing things for the patients (Barrowclough et al., 2001). In addition, patients may feel very anxious and frustrated when interacting with family caregivers with high emotional involvement due to such high intrusiveness and emotional display towards them.

On the whole, families with high EE appear to be poorer communicators with their ill relative as they might talk more and listen less effectively (Barrowclough and Parle, 1997) A

caregiver's appraisal model based on Lazarus and Folkman's (1984) transactional model of stress was helpful in understanding how EE develops (Raune et al., 2004). Raune et al. have suggested that family caregivers' psychological appraisal, not patient illness factors, was influential in determining high EE and higher subjective burden. These researchers also report that lower perceived social functioning of the patient may well be associated with higher EE in caregivers. Therefore, high EE behaviour of the caregivers may be an attempt to reduce the perceived stressfulness of the caring role. Several studies of EE (Barrowclough and Parle, 1997; Scazufca and Kuipers, 1999) have also employed Lazarus and Folkman's model and indicated that families with high EE perceived an increased threat of poor family functioning and lower control over family activities. These families also reported higher psychological distress and social withdrawal than those with low EE.

2.1. Measurement of Family EE in Mentally Ill Persons

The traditional and standard instrument for EE measurement is the CFI. Originally administered to family members of schizophrenic patients, the CFI gathers information about the illness history, daily family schedule, current daily functioning, and quality of family relationships (Vaughn and Leff, 1976). The underlying idea was that the way a family caregiver talks to the interviewer about a patient, is similar to the way the relative treats the patient. Research in different cultures and in different languages has shown that the CFI has good face validity and that trained staff can achieve a good level of interrater reliability in its administration and coding (Hashemi and Cochrane, 1999).

However, the CFI has several disadvantages. Three of the major concerns include: (a) an intensive training is required in its administration and coding because of the complexity in analysing the interview data indicating the level of EE; (b) the interview by a trained staff is very

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time consuming and may take as long as 4 hours; and (c) it is difficult to have at least one primary caregiver who is required to participate voluntarily in the interview and some patients may not want to involve their family member. In addition, Hooley and Teasdale (1989) indicated that the patients' perceptions of the criticism and hostility that they had received from family members was more predictive of their relapse rather than the amount of criticism actually expressed by the caregivers during the interview.

As such, alternative instruments were developed between the 1980s and 1990s using the basic concept of EE (i.e., family members' criticism and emotional involvement). However, these instruments, for example, the 5-minute Speech Sample (Magana et al., 1986), the Family Emotional Involvement and Criticism Scale (Shields et al., 1994) and the Client Rejection Scale (Shefler et al., 1995), have continued to target at assessing EE from the family members' perspective. These instruments also failed to address two main limitations, including the accessibility of family caregivers as interviewees and whether it is possible to arrive at a better indication of EE by asking the patients themselves, than by asking the caregivers. Therefore, the LEE scale (Cole and Kararian, 1988) was developed to measure patient's perceived EE of their family caregivers. The results can help us understand the concept of EE from the patient's perspective and provide an interesting comparison with the data obtained from the caregivers' perspective.

2.2. Measurement of Patients' Perceived EE of Family Members

Attitudes of family members such as criticisms and emotions may be perceived by patients as either signs of care and concern or 'coercive attempts' to restore desirable social behaviour (Barrowclough, Tarrier and Johnston, 1996). The meaning of such EE pertaining to their family may be better determined by patients' perceptions and reactions towards the process

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of social transactions. The main focus of assessment of EE should be the patients' perceptions of their caregivers' comments and emotional expressions, and the resulting psychological impacts on the patients, rather than interviewing the caregivers to elicit comments on the patient's behaviour (Hooley and Teasdale, 1989).

In order to address the importance and increasing evidence of the high validity of patients' self-perceived EE (Gerlsma and Hale III, 1997), the 60-item Level of Expressed Emotion scale (LEE) has been developed by Cole and Kazarian (1988). The LEE based on a comprehensive literature review consists of four domains: intrusiveness, attitude towards illness, expectancy/tolerance, and emotional response to illness (Vaughn and Leff, 1976). Each domain comprises 15 items, each item requiring a True/False response, but none of these four dimensions of perceived EE has indicated consistent significant results, using clinical observation and factor analysis (Startup, 1999). Kazarian et al. (1990) have reported that the relationship between the LEE and CFI was satisfactory on the whole, although some of their subscales did not significantly correlate. However, this finding also suggested that schizophrenic patients and their family members might impose a differing focus on the components of EE. Using schizophrenic patients' self-report for measuring EE of their families is indeed of great value but the measurement needs to be repeated with diverse samples.

Variability in the course of schizophrenia among patients of different cultures has been observed in the United States. For example, in early studies in Los Angeles, the number of families with high EE in Anglo-Americans was found to be much greater than that in Hispanic population (Jenkins et al., 1986; Telles et al., 1995). Li and Arthur (2005) tested three measures of EE in a sample of family members of Chinese people with schizophrenia in mainland China. The results indicated that the two Chinese versions of self-report family attitude scales were not significantly correlated with the Five-Minute Speech Sample test (a simplified version of the

CFI). A few limitations were reported, including small sample size, lack of data pertaining to the patients' perceived EE, and limited description of the translation of the two scales and their psychometric evaluation. Therefore, no definite conclusion on the potential usefulness of the two Chinese versions of EE measurement was drawn.

Gerlsma and Hale III (1997) translated the LEE scale into Dutch and modified the scale into three subscales: lack of emotional support, intrusiveness and irritability. Responses to the scale were then changed to 4-point Likert scale. However, this new structure has not been well validated, nor has it been confirmed by the use of samples from different cultures. However, Chien and Chan (2009) translated the LEE into Chinese and conducted a psychometric analysis of its content validity, semantic equivalence with the original English version, tests of reliability, and factor structure. Their results indicated that the Chinese version had a high level of equivalence with the original version (intra-class correlation coefficient was 0.93, $p < 0.01$) and content validity (the scale-level CVI was 0.93 and 0.99 for the universal agreement and averaging method, respectively). The Chinese version also demonstrated good internal consistency (Cronbach's alpha coefficients were 0.88 and from 0.80 to 0.90 for the overall scale and its subscales, respectively) and test-retest reliability at 2-week intervals (0.88 for the overall score and from 0.87 to 0.93 for the subscales, $p < 0.01$). The preliminary factor analysis suggested that the refined 52-item Chinese version consisted of four factors, including: intrusiveness, attitude toward the illness, expectations of the patient, and degree of emotional involvement. However, the study had a few limitations. First, the sample of patients was primarily diagnosed as schizophrenia and was highly selective, for examples, most of the participants were male, well-educated and mentally stable Hong Kong-born Chinese. Second, the sample was restricted to patients whose caregivers were also willing to participate in a cross-sectional survey on families' mental health needs. Last, the sample (about 300 patients) was

relatively small for a factor analysis of a 60-item scale. Despite these limitations, the Chinese version of the LEE appears psychometrically sound as a measure of schizophrenic patients' perceptions of EE of their family members and is recommended for further testing with a larger, and more diverse group of families in the Chinese population.

As no other validated scale in Chinese language is available for the measurement of EE perceived by mentally ill patients, translation and validation of the LEE has potential to set the scene for/ take a systematic step towards the measurement and understanding of EE in Chinese population. In view of the satisfactory results on content validity and reliability of a Chinese version of the LEE in a previous psychometric evaluation by Chien and Chan (2009), the present study, reported in this paper, aims to enhance the scale by further testing the internal consistency, reproducibility, responsiveness, and construct validity of the Chinese version with a sample comprising a larger group of Chinese patients with schizophrenia or other psychotic disorders as well as their families in Hong Kong.

3. Methods

3.1. Sample and Study Venue

A convenience sample of 405 outpatients with schizophrenia or other psychotic disorders in Hong Kong and one family caregiver of each patient were recruited. Pairs consisting of a patient and caregiver completed a set of questionnaires twice over a six-month period, including: the LEE, the Specific Level of Functioning, and the Brief Psychiatric Rating Scale for patients; and the Family Assessment Device for caregivers. Demographic data of caregivers was also collected at the time of recruitment.

To facilitate the testing of EE and family environment in a more diverse group of patients, not only did we include patients primarily diagnosed with schizophrenia but also recruited

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people with other psychotic disorders. More than 400 pairs of outpatients and their main caregivers were recruited from the two psychiatric outpatient clinics, consisting of 2,000 outpatients with psychotic disorders which accounted for 15% of the total patient population in Hong Kong (Hospital Authority Hong Kong, 2006). This resulted in an adequate sample size for exploratory factor analysis (> 5 subjects per item) and allowed a non-response rate of up to 15%, as recommended by Stevens (2002).

Ethical approval to conduct the study was sought from the Research Ethics Committee of the university and study site. Upon collecting a referral from a psychiatrists and the written consent from the patients and their caregivers, a research nurse administered the questionnaires to each pair of participants separately at the clinics. Each interview (for both patient and caregiver) lasted about 20 minutes.

The inclusion criteria for sampling the families were as follows: (i) the patient's primary diagnosis had to be schizophrenia or other psychotic disorders such as schizoaffective disorders, delusional and paranoid disorders, according to the criteria in the *Diagnostic and Statistical Manual IV* (American Psychiatric Association, 1994); (ii) the patient must be living with a family caregiver; (iii) both patient and caregiver had to be at least 18 years old; and (iv) both needed to understand and read the Chinese language. The patients who were mentally unstable or who had been discharged from a psychiatric unit within two months prior to the commencement of the study and the caregivers who had cognitive impairment, or any mental disorders themselves or those taking care of another relative with a chronic illness were excluded from the study.

3.2. Instruments

The Level of Expressed Emotion Scale (LEE) was specifically designed by Cole and Kazarian (1988) on the basis of a comprehensive conceptual framework (Vaughn and Leff, 1981), as a self-reported measure of patient's perceptions of the amount of expressed emotion in family interactions during the past three months. The LEE scale comprised four domains – intrusiveness, attitude toward illness, tolerance/expectancy, and emotional response to illness, and each consisted of 15 items on a four-point Likert scale (1 - Not true; 2 - More or less untrue; 3 - More or less true; and 4 - True). The scale was translated into Chinese and psychometrically tested by Chien and Chan (2009) in 2008 (attached as Appendix I). Their findings indicate high internal consistency of the Chinese version and its four subscales, as well as good test-retest reliability.

The Family Assessment Device (FAD) developed by Epstein et al. (1983) is used to assess multiple dimensions of family functioning among patients with mental illness. It consists of 60 items used to measure family functioning on a 4-point Likert scale, ranging from 1-'strongly disagree' to 4-'strongly agree'. The FAD Chinese version has demonstrated adequate content validity and high internal consistency (Cronbach's alpha ranged from 0.76 to 0.92 for the overall scale and its subscales) among Chinese people with schizophrenia (Sun and Cheung, 1997). The total scores range from 4 to 28, a higher score reflecting poorer family functioning. The overall score and four of the seven subscales were used to test their relationships with the LEE scale. The subscales were: (i) communication, (ii) affective responsiveness (iii) involvement, and (iv) behavioural control.

The Specific Level of Functioning Scale (SLOF) is a 43-item assessment scale, which was developed by Schneider and Struening (1983), and modified by the Division of Mental Health Services in the State of New Jersey, in the United States. It comprises six life domains of

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patients with schizophrenia, including self-care and functioning skills (12 items), social acceptability (14 items), and daily living and work skills (17 items). The items are rated by family members in a face-to-face interview. Using the scale with Chinese patients, Lee (1999) has reported high Cronbach alpha coefficients ranging from 0.88 to 0.96 for the scale and satisfactory test-retest reliability (r = 0.76, $p < 0.05$).

The Brief Psychiatric Rating Scale (BPRS) developed by Overall and Gorham (1962) consists of 18 constructs (global, clinically familiar symptom and behaviour) that span much of the range of manifest psychopathology and have been used effectively in clinical and research areas over the world for a few decades. The assessor rates each item of psychiatric symptom in a 7-point Likert scale (0 – Not present to 6 – Extremely severe). It demonstrates satisfactory internal and interrater reliabilities, and construct and concurrent validity over a wide range of psychiatric patient groups (Mueser et al., 1997; Rhoades and Overall, 1988). Eight items (in thought disturbance and disorganization subscales) from the BPRS were used to assess the severity of positive symptoms (Nicholson et al., 1995). These items included: (i) conceptual disorganization (item 4), (ii) mannerisms and posturing (item 7), (iii) grandiosity (item 8), (iv) suspiciousness (item 11), (v) hallucinatory behaviour (item 12), (vi) uncooperativeness (item 14), (vii) unusual thought content (item 15), and (viii) psychomotor excitement (item 18).

A demographic data sheet completed by the caregivers included questions about: patient's age, gender, educational level, duration of mental illness, number of family members living with the patient, average contact hours per week with primary caregiver, medication use, and length of re-hospitalisation in the past three months. Information regarding caregiver's age, gender, education level, relationship with patient, and monthly household income is also gathered.

3.3. Data Analysis

Descriptive and inferential statistics were employed to analyse the data in the LEE, other measures and demographic data using the SPSS for Windows, version 13.0. The *p* value for all statistical tests used in this study was set at 0.05. Construct validity of the LEE scale was examined by using an exploratory factor analysis and by testing the correlations between the LEE and other measures with relevant theoretical constructs (FAD and SLOF). The 52 items in the Chinese version of the LEE were subjected to principal components analysis and Varimax rotation paralleling the original analyses of the English version.

Internal consistency of the Chinese version and its subscales was tested by calculating the Cronbach's alpha coefficients, which indicated the homogeneity of the constructs of the instrument. Data from patients who reported no major changes in both the severity of positive symptoms (using the BPRS scores) and family functioning (using the FAD scores) between the first and second measurement over six months, were used to assess the reproducibility of the LEE. Intra-class correlation coefficients (*ICC*) were calculated using random effects one-way analysis of variance and *ICC* values of 0.85 or more were considered adequate for representing satisfactory reproducibility (Streiner and Norman, 1989; Stevens, 2002).

To assess the responsiveness to change of the LEE, two common approaches were used in this study (Terwee et al., 2003):

(a) Observed change as indicated by the Mean [First Measurement – Second Measurement] for the two measurements, which was assessed by examining whether the mean change scores followed the expected pattern in patients with mild (mean score of the eight items in the BPRS was < 2) to severe (mean score of the BPRS was ≥ 4) ratings for severity of positive symptoms; ;

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(b) Effect size, which was determined by the observed change divided by the standard deviation of baseline score (first measurement) in the same subject. Separated effect sizes for the LEE were calculated in patients who deteriorated and in those who improved in terms of symptom severity. It is worth noting that Cohen (1988) has suggested that an effect size > 0.8 is large, 0.5 to 0.8 is moderate, and 0.2 to 0.5 is small.

4. Results

4.1. Sample Characteristics

Four hundred and fifty-five family caregivers were invited to participate in this study. Fifty of them refused to participate, mainly due to lack of interest or lack of time available to complete the questionnaire. Finally, 405 families participated in the study and the response rate was 89.0%. Since all the families and patients completed the questionnaires in both measurements over the six-month period, thus there was not any incomplete or missing value or item found in the questionnaires. There were no significant differences in age, gender, marital status, or other family characteristics, between the participants and non-respondents, as determined by using Chi-square test ($p > 0.3$).

More than half of the 405 patients were male (n = 213, 52.6%), and their mean age was 24.1 years (SD = 5.8). The majority of them were ethnic Chinese, either born in Hong Kong (n = 338, 83.5%) or from mainland China (n = 47, 11.6%) and they received education up to secondary school (n = 318, 78.5%). The patients lived with an average of two family members (M = 2.2; SD = 0.9), ranging from one to five. Their co-morbidity with other mental illness included affective disorders (n = 62, 15.3%), anxiety disorders (n = 39, 9.6%), schizoaffective disorder (n = 34, 8.4%), and substance abuse (n = 20, 4.9%).

The mean age of the 405 family caregivers was 32.5 years (SD = 9.5). More than half were female (n = 231, 57.0%) and received education up to secondary school (n = 216, 53.3%). The caregiver's relation to the patient was that of child (n = 125, 30.9%), parent (n = 106, 26.2%), and spouse (n = 90, 22.2%).

Female patients had a higher LEE scale mean score (M = 167.5; SD = 18.2) than male patients (M = 148.8; SD = 20.1); but there was no statistical difference between the two means, $t(404) = 1.45$; $p = 0.26$. There were also no statistical differences in terms of age, educational level, or relationship with the patient, as shown by the Chi-square or one-way analysis of variance tests.

4.2. Construct Validity of the Chinese Version of the LEE

To identify the patterns of consistency among items and to determine the plausible underlying structures of the LEE scale, an analysis of the principal components was conducted. Prior to undertaking the analysis, inspection of the correlation matrix revealed that most of the item-total coefficients were > 0.30, the Kaiser-Meyer-Oklin value was 0.80 (i.e., > 0.60), and the Barlett's Test of Sphericity reached a level of statistical significance, and thus factorability was an acceptable option (Stevens, 2002). All 52 items were inter-correlated between 0.41 and 0.70, indicating that each item contributes to the measurement of the construct (Portney and Watkins, 2000).

Principal components analysis revealed the presence of four components (intrusiveness, attitude towards the illness, caregiver expectations, and emotional involvement) with eigen-values > 1.0 in the un-rotated matrix (see Table 1). Using Catell's Scree test, it was decided that all four components would be retained for further investigation. Fifty of the 52 items met the criterion in terms of factor loading of more than .32 (Nunnally and Bernstein, 1994), and thus

were retained for further analysis. Two items with factor loading of 0.16 and 0.20 were excluded: "Doesn't ask a lot of personal questions" (factor loading = 0.16); and "Flies off the handle when I don't do something well" (factor loading = 0.20).

Factors derived from a rotated matrix were generally more interpretable because each factor tended to load high on a smaller number of items and low, or very low, on the other items using the rotation (Nunnally and Bernstein, 1994). Varimax rotation was performed to ease the interpretation of the resulting factors. The rotated solution revealed that each factor showed a number of strong loadings and all variables loaded substantially (> 0.32) on only one factor, with a difference in loading on the other factors of > 0.20. The results of the Varimax rotation are presented in Table 2. The total scale variance indicated by the four factors was about 70.8%.

In contrast to the original categorisation of items in the four factors suggested by Cole and Kazarian's (1988) study, two items were loaded onto another factor: "Doesn't insist on being with me all the time" was loaded onto 'caregiver expectations' (factor loading = 0.52); and "Supports me when I need it" was loaded onto 'intrusiveness' (factor loading = 0.60). As a result, the final number of items in each of the four factors was either 12 (intrusiveness and caregiver expectations) or 13 (attitude towards the illness and emotional involvement).

Table 3 indicates that the four factors were significantly and moderately correlated with the LEE overall scale (0.51 to 0.64; $p < 0.01$). All of the four factors were also significantly and moderately inter-correlated (0.40 to 0.60). The relationships between the LEE scale and the other two theoretically relevant measures are also shown in Table 3. As expected, the total score of the LEE scale and its four factors were significantly and negatively correlated with the mean scores of FAD and its subscales (communication, affective responsiveness, affective involvement, and behavioural control), and the SLOF.

4.3. Internal Consistency

The mean scores, standard deviations and internal consistencies of the Chinese version of the LEE scale and the other three instruments (FAD, BPRS and SLOF) are presented in Table 4. The alpha coefficients of the Chinese version were 0.88 and from 0.82 to 0.92 for the overall scale and its four factors, respectively.

4.4. Reproducibility

We compared the mean scores of the Chinese version of the LEE scale for families in which the patient (n = 158) reported no major changes in both the severity of positive symptoms (using the BPRS scores) and family functioning (using the FAD scores) between the first and second measurement over six months. Intra-class correlation coefficients (*ICC*) of the LEE scores between the two measurements among the mentally stable patients in this study were 0.88 (*F* = 6.18; *p* = 0.002), indicating a satisfactory level of reproducibility between the two successive tests in stable patients.

4.5. Responsiveness to change

In the patients who indicated a reduction of symptom severity, the observed change in (mean) scores of the Chinese version of the LEE were also negative (i.e., the scores reduced) and varied from -1.0 to -6.1 for the overall score and ranged from -0.2 to -2.5 for the four factors. The LEE showed small effect size for detecting symptom deterioration of psychotic patients (n = 125) in the overall score (effect size = 0.30) and in the four factors (effect sizes ranged from 0.22 to 0.39). The LEE also displayed moderate effect sizes for detecting symptom improvement (n = 122) in both the overall score (effect size = 0.54) and the four factors (effect sizes ranged from

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0.51 to 0.68). Effect sizes for detecting improvement were greater than effect sizes for detecting deterioration, although the latter were still within an acceptable range.

5. Discussion

With only limited evidence in the use of EE in Asian populations, the present study has examined the reliability and validity of the Chinese version of the Level of Expressed Emotion Scale (LEE) in a large sample consisting of Hong Kong Chinese people with schizophrenia or other psychotic disorders and their families as well. The satisfactory results on the psychometric properties of the LEE also indicate that, as suggested by Cole and Karzarian (1988), EE of family members of mentally ill patients can be measured reliably and appropriately from the patients' perspectives. As time constraints and intensive training is required for the CFI which has rendered its use to be somewhat limited in clinical settings, thus a briefer, more readily applicable instrument, such as the LEE, which seems to be reliable, easy and convenient to administer, is needed in contemporary family care settings. This Chinese version can be applied to multidisciplinary mental health practice for utilising the promised benefits of understanding and measuring EE.

In this study, the four-factor structure of the Chinese version of the LEE is not only consistent with the multidimensional nature of the original English version proposed by Cole and Kazarian (1988) but also satisfactorily corresponds with the findings of its initial testing by Chien and Chan (2009) in a similar patient population. Indeed, there is no direct comparison between the original concept of caregivers' perceived EE (Vaughn and Leff, 1976) and the patients' perceived EE measured by the LEE in this study. However, as discussed at the beginning of the paper, Gerlsma et al. (1992) and Gerlsma and Hale III (1997) have suggested that the first and fourth factors (intrusiveness and degree of carer's emotional involvement) in

the LEE may be relevant to the concept of emotional over-involvement defined by Vaughn and Leff, which is best characterised by excessive emotional reactions, over-concern, and over-protectiveness towards the patient. The other two factors (expectations of the patient and attitude towards the illness) can be related to the original concepts of criticism and hostility (Kazarian et al., 1990), which refer to the amount and variety of critical comments that may indicate disapproval or resentment, rejecting remarks, or statements with a critical tone of voice used towards the patient. In addition, the four-factor solution of the Chinese version in this study accounted for a high percentage of variance (about 70%) and was higher than that (60%) identified by Gerlsma et al. (1992) in the Netherlands. Despite this four-factor solution, which replicated parts of Cole and Kazarian's (1988) findings, the Chinese version (50 items) was, in fact, shortened.

The four key components of perceived expressed emotion - intrusiveness, attitude towards the illness, carer's expectations of the patient, and degree of carer's emotional involvement - are the most widely recognised factors in recent studies, evaluating the emotional climate and interpersonal relationships in families of mentally ill patients across cultures (Azhar and Varma, 1996; Weisman et al., 2005). The first and fourth factors (intrusiveness and degree of carer's emotional involvement) in the Chinese version highlight the fact that a schizophrenic patient perceives a family with high EE as being highly intrusive to his/her daily activities and private affairs, and, in addition, the family might be seen to indulge in excessive emotional displays and negative preoccupations as well as statements of attitude towards the patient. This perception is consistent with the Chinese belief that open expression of emotions, either positive or negative, should be discouraged and the cultural emphasis on self and emotional control (Phillips et al., 2002; Yeo and Meiser, 2003). It can be argued that Chinese people believe that excessive emotion is harmful to an individual's physical and mental health and that a person should keep

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his/her emotions under control to maintain family functioning and relationships. The second and third factors (carer's attitude towards the illness and expectations of the patient) reflect that family members with high EE are critical and hostile towards patient's behaviour and expect the patient themselves to take a major responsibility for the illness (Sczufca and Kuiper, 1999). Similar to Western people, Chinese mentally ill patients may also perceive these as two key components of the family caregivers' beliefs and attitudes towards them, which clearly highlights the importance of caregivers' beliefs about the illness in relation to the EE measure. As suggested by Barrowclough et al. (2001), when caregivers consider the patient's symptoms to be controllable, internal to the patient, or stable, they are significantly more critical and hostile than those who consider the symptoms to be non-controllable and external to the patient. Azhar and Varma (1996) found that the nature of EE (particularly in verbal criticism and stigmatised attitude towards mental illness) is a multidimensional concept of the emotional climate of families in caring for patients with mental health problems and is clearly grounded in cultural values and beliefs. However, the findings in the present study indicate that there may be many similarities between Chinese and Western cultures as far as the constructs of EE measured by the LEE are concerned.

In spite of such similarities, two items were further deleted because they did not contribute sufficiently to the construct and its underlying factors intended to be measured. Two items were loaded onto a factor different from that of the original categorization. These differences in item-subscale categorisation may be related to the different perceptions of EE between patients in Chinese and Western cultures. For example, Chinese patients may perceive "Insisting on being with me all the time" as a caregiver's expectation pertaining to the patient's abilities, rather than being a normal supporting and caring behaviour. This shows that not all kinds of caring behaviour typically practised by Chinese families are perceived by the patients as acceptable and

helpful; indeed, only the help requested by the patients themselves may be considered to be appropriate social support necessary to cope with their life problems (Chien, Chan and Morrissey, 2007; Chien, Norman and Thompson, 2004). In addition, in contrast with Gerlsma et al.'s (1992) findings, the 50 items in the Chinese version indicate consistent high factor loadings for each of the four factors, while the four-factor solution can explain the higher percentage of the variance (70% vs. 42%). The differences in the factor structure and item categorisation for different factors between the present study (4-factor) and Gerlsma et al.'s Dutch version (3-factor), suggest that cultural considerations should be taken into account in measuring the perceived EE in mentally ill patients. Confirmatory factor analysis of the Chinese version using patient samples in different psychiatric settings is recommended.

The overall Chinese version of the LEE and its four factors also demonstrated satisfactory positive correlations with family functioning and negative relationships with patient functioning. As there is limited research and thus one would hesitate to for apply the concept of EE to Chinese people (Chien, Norman and Thompson, 2006), the results presented above provide evidence to support the usefulness of the levels of EE measured by the LEE to examine the family relationships and climate, patient's mental condition and daily functioning. Consistent with research in Western countries, the findings in this study suggest that families of schizophrenic patients, with high EE, are likely to have higher levels of family dysfunction such as poor family communication and exacerbation of patient's symptoms as well as problematic behaviours (Boye et al., 1999; Sczufca and Kuipers, 1999). Improvements in family care, with emphasis on reducing EE, may help Chinese families cope with the psychological distress and care-giving responsibilities related to their mentally ill relatives.

Researchers have suggested that an instrument with good scoring stability or reliability, when studying groups of patients, should have an intra-class correlation of more than 0.85

(Streiner and Norman, 1989; Tammemagi et al., 1995). The LEE attained this level of reproducibility in this study. As suggested by Deyo et al. (1991), the one-way analysis of variance (ANOVA) used in this study to calculate ICC values provides a conservative estimate compared with the use of two-way ANOVA that can eliminate the error caused by the systematic shift resulting from a learning effect between testing times. However, using the severity of patients' positive symptoms as the only criterion for selection of subjects for testing the reproducibility of the LEE may not fully reflect the true picture of the whole subject group or total patient population, thus incurring errors in inclusion of appropriate sample. Of course, EE of family members is not the only important factor influencing the stability of patient symptoms but also other related factors such as medication and social environment have to be taken into account.

Responsiveness to clinical significant change is an important and often neglected aspect of measures used in outcome evaluations (Redelmeier, Guyatt and Goldstein, 1996). Detecting improvement of families' psychosocial well-being is usual and important goal of family intervention in mentally ill people. For the LEE scale in this study, effect sizes for detecting improvement of patient symptoms were greater than those for detecting their deterioration. This finding indicates that the LEE scores may be useful not only to investigate the improvements of EE of families caring for people with psychotic disorders but also to detect the clinically significant positive changes of patients' mental condition in a clinical trial, with small sample size. However, the literature demonstrates inconsistency in the methods used for calculating responsiveness statistics such as relative change scores, standardised effect size and standardised response mean (Beaton, Hogg-Johnson and Bombardier, 1997; Kazis, Anderson and Meenan, 1989), and researchers should be cautioned to examine the formulae and rationale behind various different statistics.

It is important to keep in mind the typical limitations of this study. The sample recruited is still selective. Most of the patients in this study were well educated, Hong Kong born Chinese young adults who were relatively stable mentally and had psychiatric consultation in two of the 15 outpatient clinics in Hong Kong. Except the patients under study, the families did not have any other members suffering chronic physical or mental illness. In addition, the family caregivers also included only a very small proportion of siblings and older relatives (about 4%). Therefore, generalisation of the study results, particularly the four factor solutions of EE identified do need replication in diverse groups of Chinese patients from different socio-cultural backgrounds and caregivers with different ages and relationship with patient. Moreover, the findings are by no means clear about how the LEE relates to the original EE measurement from the perspective of family caregivers, which has been operationally defined to measure the family responses and attitude to the patients' illness. Therefore, examining the convergent validity of the LEE with the 'gold standard' measures, such as the CFI, can prove whether the LEE scores reported by the patients is robust enough to indicate any differences in terms of the concept and level of EE between the patients and their family members.

Finally, numerous studies have documented the potential effects and/or association of EE on relapse rate and family burden of mentally ill patients over the past two decades. Assessment of the level of EE of the families caring for a relative with schizophrenia or another psychotic disorder is an important role of mental health nurses in clinical practice. In particular, there is no psychometrically sound instrument in Chinese language, that measures the level of EE in Chinese families of people with mental illness, and this limits the usefulness of the assessment of family environment when used across cultures. The Chinese version of the LEE validated in this study would be important and helpful to mental health nurses for assessing family members' attitudes and emotional involvement as perceived by their mentally ill relatives. In addition, the

assessment results can also be useful to the nurses for understanding family relationship among their mentally ill patients and designing appropriate family-focused interventions for these patients.

6. Conclusion

The findings of this study provide evidence that the Chinese version of the LEE does demonstrated satisfactory internal consistency, reproducibility and responsiveness to change, and confirm the appropriateness of a four-factor construct, to understand family members who take care of a relative with psychotic disorder in Hong Kong. The findings also reflect the cultural relevance of the concept of EE, which although originating from the Western studies, seems to be relevant for Chinese mentally ill people. The LEE, measuring patients' perceived EE of their family members, has potential to be a reliable and effective measure of family emotional climate and attitude to the patient illness for research and clinical use. Further psychometric evaluation is recommended with a more diverse group of patients from different socio-cultural backgrounds and clinical characteristics in Chinese populations.

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Table 1. Results of Principal Component Analysis of the Chinese Version of the LEE Scale

Items	Factor loading			
	Factor 1	Factor 2	Factor 3	Factor 4
1. Doesn't butt into my conversations	0.48			
2. Isn't overprotective with me	0.47			
3. Doesn't insist on doing things with me	0.49			
4. Doesn't pry into my life	0.45			
5. Supports me when I need it	0.54		0.22	
6. Isn't always interfering	0.45	0.21		
7. Leaves me feeling overwhelmed	0.49			0.20
8. Often checks up me to see what I'm doing	0.46			
9. Isn't always nosing into my business	0.48			
10. Always has to know everything about me	0.46			
11. Butts into my private matters	0.41			
12. Gets upset when I don't check in with him/her	0.50			
13. Doesn't ask a lot of personal questions	*0.16*			
1. Is sympathetic toward me when I'm ill or upset		0.46		0.20
2. Encourages me to seek outside help when I'm not feeling well		0.46		
3. Makes me feel valuable as a person	0.26	0.44		
4. Tries to make me feel better when I'm upset or ill		0.48		
5. Is willing to gain more information to understand my condition when I'm not feeling well		0.38		
6. Doesn't blame me when I'm feeling unwell		0.40	0.20	
7. Tries to reassure me when I'm not feeling well		0.39		
8. Says I just want attention when I say I'm not well		0.40		

Item				
9. Doesn't help me when I'm upset or feeling unwell	0.23	0.37		
10. Says I cause my troubles to occur in order to get back at him/her		0.44		
11. Says it is OK to seek professional help	0.28	0.44		
12. Accuses me of exaggerating when I say I'm unwell		0.43		0.20
13. Often accuses me of making things up when I'm not feeling well		0.42		
1. Is tolerant with me even when I'm not meeting his/her expectations			0.40	
2. Can see my point of view		0.20	0.36	
3. Doesn't feel that I'm causing him/her a lot of trouble			0.35	
4. Understands my limitations			0.46	
5. Doesn't insist on being with me all the time	0.21		0.50	
6. Is realistic about what I can and cannot do	0.20		0.45	
7. Is understanding if I make mistakes			0.34	
8. Makes me feel guilty for not meeting his/her expectations			0.35	
9. Puts me down if I don't live up to his/her expectations			0.33	
10. Gets angry with me when things don't go right			0.32	
11. Expects too much from me			0.32	
12. '*Flies off the handle' when I don't do something well*			*0.20*	
13. Expects the same level of effort from me, even if I don't feel well			0.35	

	Factor 1	Factor 2	Factor 3	Factor 4
1. Calms me down when I'm upsets				0.33
2. Doesn't panic when things start going wrong				0.30
3. Is able to be in control in stressful situations		0.23		0.33
4. Hears me out				0.32
5. Makes me feel relaxed when he/she is around				0.30
6. Can cope well with stress				0.31
7. Loses his/her temper when I'm ill or upset				0.33
8. Blames me for things not going well				0.31
9. Doesn't know how to handle my feelings when I'm not feeling well	0.20			0.30
10. Gets angry with me for no reason		0.20		0.30
11. Is impatient with me when I'm not well				0.30
12. Makes matters worse when things aren't going well	0.22			0.32
13. Gets irritated when things don't go right				0.30
Eigen value	7.78	6.67	5.28	4.75
Percentage of variance explained	20.21	19.14	14.96	13.85

Note: LEE: Level of Expressed Emotion.

Factor 1: Intrusiveness; Factor 2: Attitude towards the illness; Factor 3: Caregiver expectations; and Factor 4: Emotional involvement.

Table 2. Results of Varimax Rotation of the Four factors for the Chinese Version

Items	Factor loading			
	Factor 1	Factor 2	Factor 3	Factor 4
1. Doesn't butt into my conversations (3)[#]	0.48			
2. Isn't overprotective with me (6)	0.52			
3. Doesn't insist on doing things with me (14)	0.42			
4. Doesn't pry into my life (41)	0.48			
5. Supports me when I need it (45)	0.58			
6. Isn't always interfering (36)	0.40			
7. Leaves me feeling overwhelmed (10)	0.48			
8. Often checks up me to see what I'm doing (20)	0.43			
9. Isn't always nosing into my business (24)	0.50			
10. Always has to know everything about me (28)	0.46			
11. Butts into my private matters (32)	0.40			
12. Gets upset when I don't check in with him/her (49)	0.54			
1. Is sympathetic toward me when I'm ill or upset (8)		0.53		
2. Encourages me to seek outside help when I'm not feeling well (12)		0.48		
3. Makes me feel valuable as a person (19)		0.54		
4. Tries to make me feel better when I'm upset or ill (26)		0.56		
5. Is willing to gain more information to understand my condition when I'm not feeling well (39)		0.41		
6. Doesn't blame me when I'm feeling unwell (43)		0.42		
7. Tries to reassure me when I'm not feeling well (51)		0.44		
8. Says I just want attention when I say I'm not well (4)		0.41		

9. Doesn't help me when I'm upset or feeling unwell (15)	0.43
10. Says I cause my troubles to occur in order to get back at him/her (22)	0.48
11. Says it is OK to seek professional help (30)	0.44
12. Accuses me of exaggerating when I say I'm unwell (34)	0.45
13. Often accuses me of making things up when I'm not feeling well (47)	0.48

1. Is tolerant with me even when I'm not meeting his/her expectations (2)	0.46
2. Can see my point of view (9)	0.43
3. Doesn't feel that I'm causing him/her a lot of trouble (13)	0.44
4. Understands my limitations (23)	0.43
5. Doesn't insist on being with me all the time (17)	0.50
6. Is realistic about what I can and cannot do (27)	0.44
7. Is understanding if I make mistakes (40)	0.48
8. Makes me feel guilty for not meeting his/her expectations (5)	0.42
9. Puts me down if I don't live up to his/her expectations (16)	0.45
10. Gets angry with me when things don't go right (31)	0.43
11. Expects too much from me (44)	0.46
12. Expects the same level of effort from me, even if I don't feel well (52)	0.48

1. Calms me down when I'm upsets (1)				0.43
2. Doesn't panic when things start going wrong (11)				0.43
3. Is able to be in control in stressful situations (25)				0.44
4. Hears me out (29)				0.43
5. Makes me feel relaxed when he/she is around (33)				0.42
6. Can cope well with stress (38)				0.45
7. Loses his/her temper when I'm ill or upset (7)				0.42
8. Blames me for things not going well (18)				0.43
9. Doesn't know how to handle my feelings when I'm not feeling well (21)				0.44
10. Gets angry with me for no reason (35)				0.42
11. Is impatient with me when I'm not well (42)				0.42
12. Makes matters worse when things aren't going well (46)				0.40
13. Gets irritated when things don't go right (50)				0.45
Percentage of variance explained	21.88	18.71	15.71	14.50

Note: Factor loadings ≥ 0.40 are reported.

LEE: Level of Expressed Emotion scale.

[#] Numbers in the parentheses represent the item sequence in the Chinese version (Appendix I)

Factor 1: Intrusiveness; Factor 2: Attitude towards the illness; Factor 3: Caregiver expectations; and Factor 4: Emotional involvement.

Table 3. Correlations between the LEE Scale and Other Theoretically Relevant Measures

Measures	LEE	IN	AT	EP	EI	FAD	CO	AR	AI	BC	SLOF
LEE	1.00										
Intrusiveness	0.64**	1.00									
Attitude towards the illness	0.56**	0.40*	1.00								
Caregiver expectations	0.51**	0.42*	0.56**	1.00							
Emotional involvement	0.56**	0.45*	0.43*	0.60**	1.00						
FAD	-0.52**	-0.32*	-0.37*	-0.51**	-0.50**	1.00					
Communication	-0.50**	-0.40*	-0.52**	-0. 31*	-0.36*	0.61**	1.00				
Affective responsiveness	-0.50**	-0.38*	-0.68***	-0.52**	-0.40*	0.52**	0.42*	1.00			
Affective involvement	-0.52**	-0.42*	-0.39*	-0.55**	-0.69***	0.54**	0.43*	0.52**	1.00		
Behavioural control	-0.49**	-0.63**	-0.51**	-0.42*	-0.40*	0.53**	0.41*	0.42*	0.37*	1.00	
SLOF	-0.52**	-0.54**	-0.40*	-0.41*	-0.51**	0.49**	0.40*	0.52**	0.41*	0.54**	1.00

Note: Pearson's correlation test was used, two-tailed; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

LEE: Level of Expressed Emotion scale; IN: Intrusiveness subscale; AT: Attitude towards the illness subscale; EP: Caregiver expectations subscale; EI: Emotional involvement subscale.

FAD: Family Assessment Device; CO: Communication subscale; AR: Affective responsiveness subscale; AI: Affective involvement subscale; BC: Behavioural control subscale.

SLOF: Specific Level of Functioning scale.

Table 4. Means, Standard Deviations and Internal Consistencies of the Instruments

Instrument	M	SD	Alpha coefficient
LEE	27.02	5.56	0.88
Intrusiveness	8.73	1.51	0.89
Attitude towards the illness	6.51	1.41	0.82
Caregiver expectations	7.61	1.32	0.92
Emotional involvement	6.01	1.21	0.88
Family Assessment Device	19.98	4.23	0.89
Communication	2.30	0.21	0.88
Affective responsiveness	2.18	0.30	0.84
Affective involvement	2.19	0.19	0.86
Behavioural control	2.40	0.22	0.80
Brief Psychiatric Rating Scale	10.30	5.89	0.83
Specific Level of Functioning	120.36	21.08	0.90

Note. M: Mean; SD: Standard deviation.

Appendix I　The Chinese Version of the Level of Expressed Emotion Scale

情緒表達程度的量度

如果你認為那句子是「正確」的，請該題號右側圈出"T"字；
如果你認為那句子是「可算正確」的，請圈出"QT"字；
如果你認為那句子是「可算不正確」的，請圈出"QF"字；
如果你認為那句子是「不正確」的，請圈出"F"字。
** 請留意準確地在正確的題號右側方格內圈出答案。

	正確	可算正確	可算不正確	不正確
1. 當我感到不安時，他／她能令我冷靜下來	T	QT	QF	F
2. 就算我未能達到他／她的期望，他／她會容忍我	T	QT	QF	F
3. 他／她從來不會打斷我的話柄	T	QT	QF	F
4. 當我說我不舒服時，他／她會說我只是想要別人關注	T	QT	QF	F
5. 如果我未能達到他／她的期望時，他／她會使我感到內疚	T	QT	QF	F
6. 他／她不是過份保護我	T	QT	QF	F
7. 當我感到不舒服時，他／她會發脾氣	T	QT	QF	F
8. 當我生病或不開心時，他／她會對我表示同情	T	QT	QF	F
9. 他／她會知道我的看法	T	QT	QF	F
10. 他／她會常常干涉我	T	QT	QF	F
11. 當事情開始出現問題時，他／她不會驚惶失措	T	QT	QF	F
12. 當我感到不舒服時，他／她會鼓勵我去尋找外界的幫助	T	QT	QF	F
13. 他／她不會覺得我為他／她帶來很多麻煩	T	QT	QF	F
14. 他／她不會強迫我要與他一起做某些事情	T	QT	QF	F
15. 當我覺得不安或不舒服時，他／她不能幫助我	T	QT	QF	F
16. 如果我在生活上永能達到他／她預期的目標，他／她會羞辱我	T	QT	QF	F
17. 他／她不會堅持全部時間要與我一起	T	QT	QF	F
18. 如果事情不太順利，他／她會責罵我	T	QT	QF	F
19. 他／她會令我覺得自己是有價值的	T	QT	QF	F
20. 當我感到悲傷、絕望時，他／她會丟下我	T	QT	QF	F
21. 當我覺得不舒服時，他／她不知道怎樣去處理我的感受	T	QT	QF	F
22. 他／她會說我製造痲煩，目的是向他／她報復	T	QT	QF	F
23. 他／她明白我的弱點	T	QT	QF	F
24. 他／她有時會檢查我在做什麼	T	QT	QF	F
25. 在受壓力的情況下，他／她能夠控制自己的情緒	T	QT	QF	F
26. 當我不開心或生病時，他／她會嘗試令我感覺好一些	T	QT	QF	F
27. 他／她明白我能夠和不能夠做的事情	T	QT	QF	F
28. 他／她常常打聽關於我的事情	T	QT	QF	F

29. 他／她會聽我把話說完	T	QT	QF	F
30. 他／她告訴我不應該尋求專業的幫助	T	QT	QF	F
31. 當事情弄錯時，他／她會生我氣	T	QT	QF	F
32. 他／她常常要知道我每一件事情	T	QT	QF	F
33. 當他／她在我附近時，我會覺得輕鬆	T	QT	QF	F
34. 當我說我不舒服時，他／她會斥責我說得誇張	T	QT	QF	F
35. 他／她會毫無原因地生我氣	T	QT	QF	F
36. 當我有需要時，他／她很支持我	T	QT	QF	F
37. 他／她會干涉我的私事	T	QT	QF	F
38. 他／她處理壓力的能力很好	T	QT	QF	F
39. 當我覺得不舒服時，他／她會願意得到更多資料了解我的情況	T	QT	QF	F
40. 如果我犯錯，他／她會表示明白和理解	T	QT	QF	F
41. 他／她不會打聽／刺探我的生活	T	QT	QF	F
42. 當我覺得不舒服時，他／她會對我毫無耐性	T	QT	QF	F
43. 當我覺得不舒服時，他／她不會怪責我	T	QT	QF	F
44. 他／她會對我抱有過份的期望	T	QT	QF	F
45. 他／她不會問我很多私人的問題	T	QT	QF	F
46. 當事情做得不好時，他／她會把事情越弄越壞	T	QT	QF	F
47. 當我覺得不舒服時，他／她有時會指責我在編做藉口	T	QT	QF	F
48. 當我把事情辦得不妥當時，他／她會狂怒	T	QT	QF	F
49. 當我沒有與他／她同時到達或入住某地方時，他／她會感到不安	T	QT	QF	F
50. 當事情不如意時，他／她表示憤怒	T	QT	QF	F
51. 當我感覺不舒服時，他／她會安慰我	T	QT	QF	F
52. 就算我覺得不舒服，他／她期望我同相同程度的精力去做事	T	QT	QF	F