Effects of a mutual support group for families of Chinese people with schizophrenia: 18-month follow-up

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Background Family intervention in schizophrenia can reduce patient relapse and improve medication adherence, but few studies on this have involved a Chinese population.

Aims To examine the effects of a mutual support group for Chinese families of people with schizophrenia, compared with psychoeducation and standard care.

Method Randomised controlled trial in Hong Kong with 96 families of out-patients with schizophrenia, of whom 32 received mutual support, 33 psychoeducation and 31 standard care. The psychoeducation group included patients in all the sessions, the mutual support group did not. Intervention was provided over 6 months, and patient- and family-related psychosocial outcomes were compared over an 18-month follow-up.

Results Mutual support consistently produced greater improvement in patient and family functioning and caregiver burden over the intervention and follow-up periods, compared with the other two conditions. The number of readmissions did not decrease significantly, but their duration did.

Conclusions Mutual support for families of Chinese people with schizophrenia can substantially benefit family and patient functioning and caregiver burden.

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Practice guidelines (American Psychiatric Association, 1997; National Collaborative Centre for Mental Health, 2002) recommend that families caring for a relative with schizophrenia should be offered some types of psychosocial intervention. Reviews of trials suggest that psychoeducation is consistently effective in reducing relapse and readmission and in improving treatment and medication adherence (Dixon et al, 2000; Bustillo et al, 2001; Pilling et al, 2002), although the effects on other patient- and family-related outcomes are inconclusive (Pitschel-Walz et al, 2001). Mutual support groups, characterised as client-led programmes and not including the patients, reduce family burden and improve family coping and social support, but appear not to reduce rates of patient relapse or symptoms (Fadden, 1998; Wituk et al, 2000). Such intervention also requires relatively less intensive staff training than other treatment models. This study attempted to evaluate the effects of a mutual support group for the families of Chinese people with schizophrenia on patient- and family-related outcomes over 18 months, compared with families who received psychoeducation or standard out-patient care only.

METHOD

A randomised controlled trial with a three-group repeated-measures design was used to compare three different groups of families of out-patients with schizophrenia: a family mutual support group, a family psychoeducation group and a group receiving standard psychiatric care. The study was undertaken between February 2002 and April 2004. Analysis of data was on an intention-to-treat basis (Montori & Guyatt, 2001). All participants, irrespective of whether the intervention was completed or not, were followed-up over 18 months. Participants were selected randomly from over 2000 patients with schizophrenia attending two regional psychiatric out-patient clinics in the largest geographical region of Hong Kong, representing about 10% of this patient population in Hong Kong.

Participants and study settings

Chinese families caring for a relative with schizophrenia from the two psychiatric out-patient clinics were eligible to participate, providing they met the following inclusion criteria:

(a) they were living with and caring for one relative with a primary diagnosis of schizophrenia, according to the criteria of the DSM–IV (American Psychiatric Association, 1994);

(b) their relative with schizophrenia had no other mental illness, and the duration of the schizophrenia was 3 years or less at the time of recruitment;

(c) they were aged at least 18 years and were able to understand Mandarin or Cantonese.

Families were excluded if:

(a) they had a diagnosis of mental illness;

(b) they cared for more than one family member with chronic physical or mental illness;

(c) they had been the primary carer for less than 3 months.

Although these study criteria ensured the homogeneity and specificity of the sample, it is noteworthy that in this study the inclusion of participants was quite selective compared with previous studies of family intervention in Western countries (Zhang et al, 1994; Dixon et al, 2000; Bustillo et al, 2001), in that care recipients with co-morbidity were excluded. Those who were eligible were listed alphabetically, by the patients' surname, and then selected randomly from the patient list, using a computer-generated random numbers table.

A power calculation based on previous controlled trials of supportive and psychoeducational group treatments for Chinese families (Xiong et al, 1994; Zhang et al, 1994) showed that a sample size of 96 (n=32 in each group) was required to detect statistically significant differences in family burden and patient readmission to hospital between three groups, at effect sizes of 0.68 and 0.70 respectively, P-value of 0.05 and power of 0.8, and to account for a 15% attrition rate (Cohen, 1992).

Of the 300 patients whose families were eligible to participate, 200 gave initial verbal consent. Of the 200 families thus identified (for patients with more than one carer, we approached the family member having the primary and major caring role) 96 agreed to participate in the study. These were randomly assigned to one of the three study groups: mutual support (*n*=32), psycho-education (*n*=33), or standard care (*n*=31). The remaining 104 families refused to participate because of the inconvenience of attending the group sessions (*n*=48), lack of interest in group participation (*n*=28) or lack of alternative care arrangements for the patient (*n*=28).

Ethical approval and access to the study venue were obtained from the Clinical Research Ethics Committee and the outpatient departments. Participant recruitment, treatments, measures and analyses of data are summarised in Fig. 1 in accordance with the revised version of the Consolidated Standards of Reporting Trials (CONSORT) statements (Altman *et al*, 2001). With the written consent of both patients and family carers, participants were asked to draw a sealed opaque envelope, in which a number card indicated the group to which they had been allocated. Following intervention, an independent trained assessor (research assistant) undertook measurements at baseline (Time 1), 6 months (Time 2) and 18 months (Time 3), using a set of questionnaires. Both assessor and clinic staff were masked to treatment allocation.

Fig. 1 Flow diagram of clinical trial comparing mutual support, psychoeducation and standard care groups. FBIS, Family Burden Interview Schedule; BPRS, Brief Psychiatric Rating Scale; FSSI, Family Support Service Index; SLOF, Specific Level of Functioning Scale.

Measures

At Times 1, 2 and 3, the participants completed three scales: Family Burden Interview Schedule (FBIS), Family Support Services Index (FSSI) and Specific Level of Functioning Scale (SLOF). Demographic data were also collected. The questionnaires took about 45 min to complete.

The FBIS (Pai & Kapur, 1982) is a 25-item semi-structured interview used to assess the burden of care experienced by families of people with schizophrenia living in the community. It consists of six domains: family finance, routine, leisure, interaction, physical health and mental health. The items are rated on a 3-point Likert scale (0: no burden; 1: moderate burden; 2: severe burden). Satisfactory internal consistency and significant correlations with patients' psychopathology and social dysfunction were reported (Pai & Kapur,
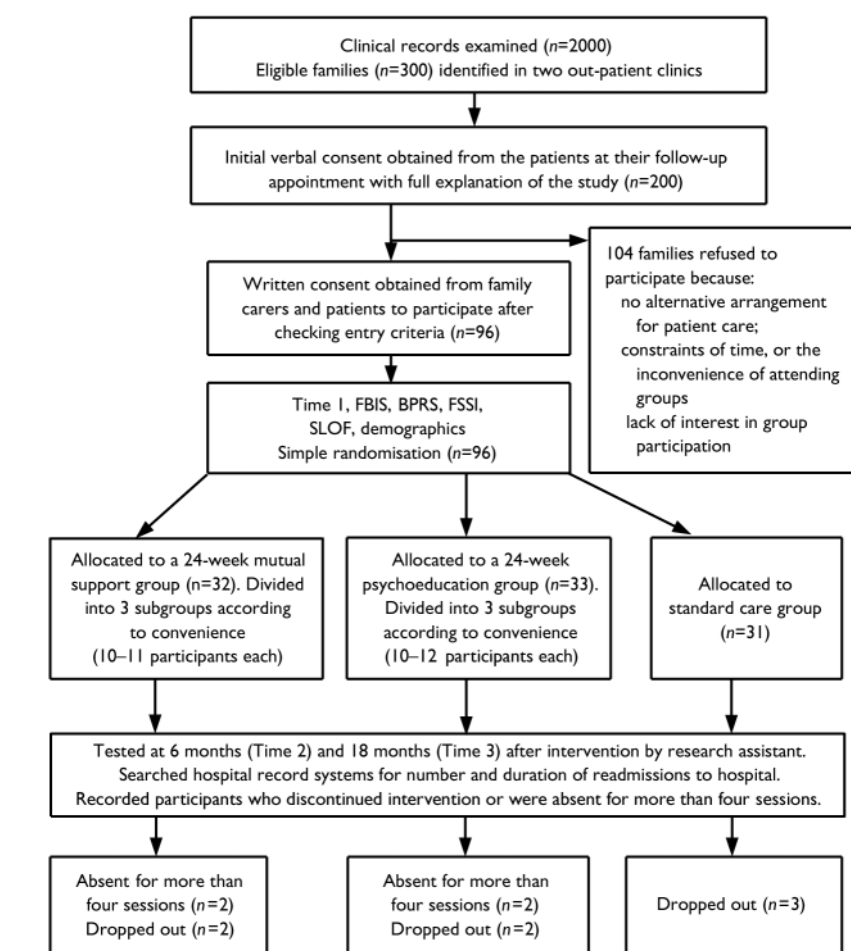
1982). The scale was translated into Mandarin with a high level of equivalence with the original English version (intraclass correlation coefficient, 0.87) and demonstrated good internal consistency, with Cronbach's α between 0.78 and 0.88 for the scale and its subscales (Chien & Norman, 2004).

The FSSI (Heller & Factor, 1991) is a checklist that measures the need for and use of formal support services by psychiatric patients and their families. The scale was translated into Mandarin and checked against the services available in Hong Kong. An expert panel of psychiatrists, community psychiatric nurses and medical social workers reviewed and agreed the appropriateness of the list and its relevance in the Hong Kong setting, except for one item (in-home respite service), which was deleted. The modified index contained 16 items concerning the need for family support services and whether these needs were

met (yes/no). It demonstrated an adequate test–retest response stability with Pearson's $r=0.88$ and good internal consistency with Cronbach's $\alpha=0.84$ (Chien & Chan, 2004).

The SLOF (Schneider & Struening, 1983) is a 43-item assessment scale that comprises three functional domains for people with schizophrenia: self-maintenance (12 items covering physical functioning and personal care), social functioning (14 items) and community living skills (17 items). It was translated into Mandarin and showed satisfactory content validity, test–retest reliability (Pearson's $r=0.76$) and internal consistency (Cronbach's $\alpha=0.90$ for the scale and 0.94–0.96 for its sub-scales) for people with schizophrenia (Chien & Norman, 2004).

At baseline, the participants also completed a demographic data sheet. The number and duration of psychiatric hospital admissions during the preceding 6 months at Times 1, 2 and 3 were obtained from

the out-patient clinic records. The Brief Psychiatric Rating Scale (BPRS; Overall & Gorham, 1962), which was translated into Mandarin by Chien & Chan (2004) and indicated satisfactory content validity and internal consistency (Cronbach's $\alpha = 0.85$), was used for assessing the severity of positive symptoms at baseline assessment and subsequent tests. The patients' antipsychotic medications were checked from their out-patient prescription sheets, and dosages were converted to haloperidol equivalents for comparison (Bezchlibnyk-Butler & Jeffries, 1998).

Mutual support group intervention

Thirty-two of the participants received a 24-week programme of mutual support in addition to their routine psychiatric out-patient care. Group intervention was limited to 12 bi-weekly 2 h sessions (over 6 months), which followed the principles developed by Wilson (1995) and did not include the patients. It was led by one family carer (an elected group member), assisted by a group facilitator (a trained psychiatric nurse) who encouraged the development of the group and continuously reinforced the six principles for strengthening a mutual support group (Galinsky & Schopler, 1995; Chien *et al*, 2004). These principles comprise:

(a) disclosing personal information with trust;

(b) thinking about ideas and alternatives to solve problems (the dialectical process);

(c) discussing a taboo area (sharing secret and internal psychological conflicts);

(d) recognising similarity of situation and working against a common plight ('all in the same boat');

(e) mutual support and assistance;

(f) individual problem-solving.

The five stages and major themes of the intervention are summarised in Table 1. The participants presented their caregiving situations and then alternative ways of coping and problem-solving were discussed at each session. Practice after the meeting in caring for the family member with schizophrenia at home was also emphasised and evaluated in each of the later group sessions.

Such family intervention met the unique sociocultural needs of Asian American and Hong Kong Chinese people with schizophrenia and their families (Bae & Kung,

Table I Five stages in development of a mutual support group for families of people with schizophrenia

Stage	Goals	Content
Engagement (2 sessions)	Establishment of trust and common goals	Orientation to group intervention and establishing trust and acceptance Negotiation of goals and roles and responsibilities Initial discussion of the mental illness and its effects on family
Recognition of psychological needs (3 sessions)	Sharing and understanding of individual concerns and cultural issues	Resolution around power, control and decision-making within group Sharing of intense emotions and feelings about patient care provision and family interactions More information-sharing about schizophrenia and related behaviour Discussion of Chinese culture concerning family and mental illness Discussion of ways of dealing with negative emotions towards patient
Dealing with psychosocial needs of self and family (3 sessions)	Understanding own important needs and those of patient and family	Discussion of each member's psychosocial needs Information about medications, managing illness and available mental health services Effective communication skills in relating to patient and seeking social support from others Exploration of home management strategies, e.g. finance and budgets, environment and hygiene
Adopting new roles and challenges (3 sessions)	Learning from members the skills of coping and management of the patient's behaviour	Sharing of coping skills and mutual support Enhancing problem-solving skills by working on individual management situations Conducting behavioural rehearsals of interaction with patient and other family members within group Practising coping skills learned during the sessions in real family life (in between group sessions) and evaluating the results
Ending (1–2 sessions)	Preparation for disbanding of the group	Preparation and discussion of termination issues, e.g. separation anxiety, independent living and use of coping skills learned Evaluation of learning experiences and achievement of goals Discussion of continuity of care after group programme, and use of community resources Explanation of post-intervention assessment and follow up in the subsequent months

2000; Chien *et al*, 2004). Specific Chinese cultural characteristics were emphasised during each group session. These included the high social stigma associated with mental illness and seeking mental health services, the hierarchical but inter-dependent family structure, the traditional reluctance to disclose feelings at the early group stage and the high expectation of immediate and practical help from other family members (Meredith *et al*, 1994; Bae & Kung, 2000).

Psychoeducation group intervention

Thirty-three of the participants received a programme of psychological support and education conducted by two trained psychiatric nurses in addition to routine psychiatric out-patient care. The programme consisted of 12 bi-weekly 2 h sessions over 6 months and included the patients in all the group sessions. The two programme providers were experienced in leading groups for psychiatric rehabilitation and had been trained by the research team and one family therapist, with two 3-day workshops and practice within five family group sessions. The programme content had been modified from the one developed by Anderson *et al* (1986). It consisted of four stages:

(a) joining with individual patients and families (two sessions, mainly for orientation and engagement of families in the programme and discussion about its purposes and goals);

(b) a workshop in education and survival skills (four sessions, covering basic facts about schizophrenia and family carers' stress and coping strategies);

(c) preventing relapse through the use of problem-solving training (four sessions);

(d) evaluation of knowledge and skills learned and preparation for the future (two sessions).

Supervision and progress-monitoring of this group (and of the mutual support group) comprised repeated reviews of each session's audiotape by the research team and regular clarification of any problems and issues that arose between group meetings.

Standard psychiatric out-patient care

The remaining 31 participants received the routine psychiatric out-patient and family support services. These services varied very little between the two clinics and included medical consultation and advice, individual nursing support and advice on available community healthcare services, social welfare and financial services provided by a medical social worker and counselling by a clinical psychologist as needed.

Statistical analysis

Baseline and post-test data were analysed using the Statistical Package for the Social Sciences for Windows version 11.0 (SPSS, 2001). Demographic differences between the three groups were assessed by an analysis of variance (ANOVA) or the Kruskal–Wallis test by ranks (H statistic), as appropriate. The baseline scores of the dependent variables (FBIS, FSSI, SLOF, BPRS, and number and duration of admissions to hospital) at Time 1 were compared between the three groups using ANOVA tests. Without any violation of preliminary assumptions of normality, linearity, homogeneity of variance/covariance or multicollinearity (Tabachnick & Fidell, 2001), multivariate analyses of variance (MANOVA) were performed for the dependent variables to determine whether the treatments produced the interactive effects postulated (group × time). The level of significance was set at 0.05. Following the significant multivariate test results, univariate analyses of the five dependent variables (repeated-measures ANOVA) were carried out. To guard against wrongly rejecting a null hypothesis, the Bonferroni multi-stage procedure (Tabachnick & Fidell, 2001) was used to set the appropriate significant level for the multiple ANOVA analyses. Adjusted *P*-value was set at 0.01. *Post hoc* analysis using Tukey's honestly significant difference (HSD) test for multiple comparisons was performed on those measures that indicated a significant interaction effect of time-by-group in the repeated-measures ANOVA tests.

RESULTS

Sample characteristics

The socio-demographic characteristics of the family carers and the patients in the three groups are summarised in Table 2. These characteristics did not differ from those of the families who refused to participate in the study (ANOVA or Kruskal–Wallis test, $P > 0.1$). More than half of the patients (56% to 61%) were taking medium dosages of oral or intramuscular antipsychotic medications (haloperidol equivalent mean values suggested by the American Psychiatric Association, cited in Bezchlibnyk-Butler & Jeffries (1998) were between 8.30 mg/day, s.d.=7.02 and 10.34 mg/day, s.d.=8.13). The average number of family members living with the patient was about two (1.9–2.4) in the three groups. The mean duration of the illness was about 2 years (ranging from 6 months to 3 years).

As shown in Fig. 1, four participants in the mutual support group, four in the psychoeducation group and three in the standard care group either dropped out or were absent for more than four of the 12 group sessions. Reasons for dropping out of the group interventions were similar, and included insufficient time to attend, worsening of the patient's mental state and unavailability of another person to take care of the patient.

Testing the homogeneity of groups

Comparing the socio-demographic characteristics of the family carers and patients between the three groups showed that there were no significant differences in any of these variables between the groups. Nor did group comparison of the amount of and the use of atypical versus conventional antipsychotic medications reveal any difference at Time 1, 2 or 3 (ANOVA or chi-squared tests, $P > 0.1$). There were also no significant correlations ($r < 0.30$) between the socio-demographic characteristics and five outcome measures, thus indicating no covariate effects.

Treatment effects

The first analysis examined whether there were any differences in the responses to the outcome measures between the three groups before intervention. A multivariate analysis of baseline scores indicated that there was no significant difference in the mean scores of the three groups, $F(5,90)=1.28$, $P > 0.17$. However, the multivariate analysis of the dependent variables (group × time) indicated a statistically significant difference between the three groups, $F(5,90)=4.39$, $P=0.004$ (Wilks' lambda=0.81; a large effect with partial eta-squared=0.20).

Following this significant multivariate test result, the repeated-measures ANOVA tests of the outcome variables were performed separately. Results (summarised in

Table 2 Socio-demographic characteristics of family carers and patients in the three study groups at baseline

Characteristics	Mutual support group (n=32)	Psychoeducation group (n=33)	Standard care group (n=31)
Family carers			
Gender, n (%)			
Male	20 (62.5)	21 (63.6)	20 (64.5)
Female	12 (37.5)	12 (36.4)	11 (35.5)
Age, years: mean (s.d.)	42.1 (6.1)	40.6 (7.2)	43.2 (7.8)
Age-group, n (%)			
20–29 years	6 (18.8)	7 (21.2)	7 (22.5)
30–39 years	11 (34.4)	12 (36.4)	10 (32.3)
40–49 years	11 (34.4)	11 (33.3)	11 (35.5)
50 years or above	4 (12.4)	3 (9.1)	3 (9.7)
Educational level, n (%)			
Primary school or below	9 (28.1)	9 (27.3)	6 (19.4)
Secondary school	19 (59.4)	20 (60.6)	20 (64.5)
University or above	4 (12.5)	4 (12.1)	5 (16.1)
Relationship with patient, n (%)			
Child	8 (25.0)	8 (24.2)	7 (22.6)
Parent	10 (31.3)	11 (33.3)	9 (29.0)
Partner	9 (28.1)	10 (30.3)	10 (32.3)
Other (e.g., sibling, grandparent)	5 (15.6)	4 (12.1)	5 (16.1)
Monthly household income, HK$:[1] mean (s.d.)	15 500 (1580)	13 500 (2980)	12 300 (2050)
Income group, n (%)			
5000–10 000	7 (21.9)	8 (24.2)	8 (25.0)
10 001–15 000	11 (34.4)	12 (36.4)	10 (32.3)
15 001–25 000	10 (31.3)	10 (30.3)	10 (32.3)
25 001–35 000	4 (12.5)	3 (9.1)	3 (9.4)
Patients			
Gender, n (%)			
Male	20 (62.5)	22 (66.7)	22 (71.0)
Female	12 (37.5)	11 (33.3)	9 (29.0)
Age, years: mean (s.d.)	27.3 (5.8)	27.8 (6.1)	28.8 (7.5)
Age group, n (%)			
20–29 years	22 (68.8)	21 (63.6)	20 (64.5)
30–39 years	7 (21.8)	8 (24.3)	7 (22.6)
40–49 years	3 (9.4)	4 (12.1)	4 (12.9)
Educational level, n (%)			
Primary school or below	7 (21.9)	8 (24.2)	7 (22.6)
Secondary school	20 (62.5)	19 (57.6)	18 (58.1)
University or above	5 (15.6)	6 (18.2)	6 (19.3)
Mental condition in the preceding 3 months, n (%)			
Improved	6 (18.8)	6 (18.2)	6 (19.4)
Stable	14 (43.7)	15 (45.5)	15 (48.4)
Worsened/unstable	12 (37.5)	12 (36.3)	10 (32.2)

1. US$1=HK$7.8.

Table 3) indicated that there were significant statistical differences between the three groups on: reduction of FBIS score, $F_{(2,95)}=5.13$, $P<0.007$; reduction in duration of readmission to hospital, $F_{(2,95)}=4.70$, $P<0.009$; and improvement in SLOF score, $F_{(2,95)}=4.58$, $P<0.01$, using a Bonferroni adjusted alpha level of 0.01. An inspection of the adjusted mean scores at Times 1–3 indicated that the mutual support and psychoeducation groups reported consistently positive improvements in the FBIS and SLOF scores and duration of readmissions to hospital, whereas the standard care group reported minimal changes of score in the five measures between the same time periods and a significant deterioration of patient functioning at Time 3.

Comparing the mean scores of the FBIS and SLOF sub-scales also indicated that there were significant statistical differences between the three groups in all sub-scales, except the physical health domain in the FBIS; $F_{(2,95)}=3.02$, $P=0.01$. Tukey's HSD test served to identify the intergroup mean score differences of each variable over time. The intergroup mean differences that exceeded the minimum significant difference for Tukey's procedure indicated the following.

(a) The perceived burden score of the mutual support group reduced significantly from Time 1 to Time 3, compared with the score for the psychoeducation and standard care groups, whereas for the psychoeducation group it reduced only slightly over time.

(b) The patients' level of functioning in the mutual support group improved significantly over time from Time 1 to Time 3, compared with the other two groups. The patient functioning of the psychoeducation group also improved over time and differed significantly from the standard care group. In addition, the SLOF score of the standard care group showed a marked deterioration at Time 3.

(c) The average duration of patients' readmissions to hospital in the mutual support group reduced significantly over time from Time 1 to Time 3, compared with the other two groups. At Times 2 and 3, this duration reduced only slightly in the psychoeducation group, whereas the standard care group reported a slight increase in the duration over time.

The FSSI mean scores in the three groups ranged from 3.6 (s.d.=1.5) to 4.2 (s.d.=1.2) and indicated that there was no significant change in demand for mental health service use over the 18-month follow-up in the three groups. The family

Table 3 Outcome measure scores at Times 1, 2 and 3 and analysis of variance (group × time) test results

Instrument	Mutual support group (n=32)						Psychoeducation group (n=33)						Standard care group (n=31)						F (2,95)
	Time 1		Time 2		Time 3		Time 1		Time 2		Time 3		Time 1		Time 2		Time 3		
	Mean	(s.d.)	Mean	(s.d.)	Mean	(s.d.)	Mean	(s.d.)	Mean	(s.d.)	Mean	(s.d.)	Mean	(s.d.)	Mean	(s.d.)	Mean	(s.d.)	
FBIS (range 0–50)	29.7	(8.0)	24.2	(7.9)	21.9	(8.9)	30.5	(8.6)	28.2	(9.6)	26.8	(10.1)	30.3	(9.0)	29.1	(8.9)	29.2	(9.1)	5.23***
Financial burden	9.2	(2.9)	7.7	(1.1)	7.0	(1.8)	9.6	(2.6)	9.1	(2.3)	8.7	(2.0)	9.6	(2.2)	9.5	(1.6)	9.5	(0.7)	5.68***
Family routine	4.1	(1.0)	3.3	(0.7)	3.0	(0.8)	4.1	(1.0)	3.7	(0.9)	3.4	(1.0)	4.1	(0.9)	3.8	(1.0)	3.9	(1.2)	4.81**
Leisure	4.4	(1.0)	3.3	(0.9)	3.0	(0.8)	4.4	(0.9)	4.0	(1.1)	3.8	(1.2)	4.3	(0.8)	4.0	(1.3)	4.0	(1.4)	4.63**
Interaction	5.9	(1.1)	4.4	(0.9)	4.0	(1.0)	5.9	(1.1)	5.4	(1.1)	5.3	(1.0)	6.0	(1.0)	5.6	(1.3)	5.6	(1.1)	5.03***
Physical health	2.2	(0.8)	2.1	(1.0)	1.9	(1.1)	2.4	(0.9)	2.3	(0.9)	2.1	(0.8)	2.3	(1.0)	2.2	(0.8)	2.3	(0.8)	2.12
Mental health	4.0	(1.7)	3.4	(0.9)	3.0	(0.7)	4.1	(1.3)	3.7	(1.3)	3.5	(1.0)	4.0	(1.0)	3.9	(1.0)	3.9	(1.3)	4.86**
SLOF (range 43–215)	128.1	(16.8)	155.9	(23.8)	169.6	(26.1)	125.9	(17.3)	136.0	(20.0)	145.5	(21.4)	121.4	(16.1)	125.3	(18.1)	118.0	(21.3)	4.58*
Self-maintenance	42.5	(10.8)	52.8	(12.1)	59.3	(16.4)	41.5	(10.8)	45.0	(12.1)	47.7	(14.5)	39.4	(15.8)	41.4	(13.9)	38.2	(17.8)	4.89**
Social functioning	39.4	(11.8)	49.3	(14.4)	54.0	(12.1)	38.5	(11.8)	42.5	(16.0)	46.1	(16.2)	38.1	(14.9)	38.9	(13.1)	36.0	(17.2)	4.78**
Community living skills	46.2	(10.1)	53.8	(15.6)	56.3	(15.3)	45.9	(10.1)	48.5	(14.3)	51.7	(12.3)	43.9	(18.1)	45.0	(14.2)	43.8	(18.1)	4.12*
FSSI (range 1–16)	3.6	(1.5)	3.8	(1.0)	3.8	(0.9)	3.9	(1.7)	4.0	(1.1)	4.0	(1.1)	3.6	(1.2)	3.9	(1.8)	4.0	(1.9)	2.4
Readmissions to hospital																			
Number	1.8	(0.6)	1.4	(0.8)	1.1	(0.6)	2.1	(0.7)	1.9	(1.1)	1.5	(1.0)	2.1	(1.1)	2.0	(1.8)	2.0	(1.6)	2.81
Duration[1]	19.0	(4.3)	16.7	(7.1)	14.0	(7.6)	18.1	(5.7)	17.0	(8.1)	16.0	(6.9)	18.2	(4.1)	19.4	(8.2)	20.8	(7.2)	4.70*
Severity of positive symptoms (range 0–30)[2]	10.5	(3.7)	10.1	(3.3)	9.8	(5.6)	10.1	(4.1)	10.0	(4.5)	9.7	(3.1)	10.0	(3.9)	10.4	(6.1)	10.6	(6.8)	2.08
Medication[3]	12.1	(8.7)	11.7	(7.1)	11.2	(6.2)	11.8	(9.1)	11.5	(7.8)	11.3	(8.0)	12.3	(7.8)	11.9	(8.6)	12.1	(9.0)	1.96

Time 1, baseline measurement at the start of intervention; Time 2, 6 months after intervention; Time 3, 18 months after intervention; FBIS, Family Burden Interview Schedule; SLOF, Specific Level of Functioning Scale; FSSI, Family Support Service Index.
1. Duration of readmissions in a psychiatric in-patient unit at Times 1, 2 and 3, in terms of average days of hospital stay over 6 to 12 months at three data collection periods.
2. Scores were based on ratings for five items from the Brief Psychiatric Rating Scale.
3. Medication scores were based on the converted haloperidol equivalents, as recommended by the American Psychiatric Association.
*$P < 0.01$, **$P < 0.005$, ***$P < 0.001$.

support services that the families in all groups were receiving at 18 months following intervention included mainly occupational training and social and recreational activities for patients, government financial assistance, home visits by community psychiatric nurses and respite care. There was no significant difference in the types and frequency of participation in other family programmes (two-way ANOVA, $P < 0.1$).

DISCUSSION

Substantial effects of mutual support and psychoeducation

The mutual support group intervention in this study, which excluded the patients, demonstrated substantial positive effects over the 18 months following the intervention. In comparison with psychoeducation and standard care, the results indicated significant and consistent improvements in the family burden of care in terms of finance, daily life and activities, interaction with the patient, mental health, and all aspects of patient functioning, including self-maintenance, interpersonal functioning and community living skills. Indeed, the psychoeducation group also demonstrated a significant and consistent improvement in patient functioning compared with standard care. Whereas the total number of patients' readmissions to hospital did not differ between the three groups, the participants in the mutual support group reported a greater reduction in the duration of readmissions than the other two groups.

The results of these psychosocial outcomes for both patients and family carers in this study, including family burden and patient functioning and duration of re-admission to hospital, demonstrated the benefits of supportive family intervention in schizophrenia. Although family psychoeducation is well accepted and widely used in Western countries (Heller *et al*, 1997) and mainland China (Xiong *et al*, 1994; Zhang *et al*, 1994; Cheng & Chan, 2005), a family mutual support group should be considered an effective alternative approach for family intervention in schizophrenia. Few studies have included Hispanic or Asian families (Telles *et al*, 1995; Bae & Kung, 2000), but these results suggest that mutual support groups, accepted as routine practice in Western countries, may be equally successful in a Chinese family-oriented culture.

The results also indicate that there was no increase in demand for family support services in either the mutual support group or the psychoeducation group. The patients' mental condition in the two groups remained stable over the 18-month follow-up, as indicated by the mild improvement in positive symptoms (BPRS scores) over time. These may be explained by the fact that, with increased knowledge about the illness and improved caregiving skills, family carers of people with schizophrenia can better cope with their caregiving role and manage patients' behaviour, with an appropriate and effective use of family support services if needed (McFarlane *et al*, 1995; Pearson & Ning, 1997).

It is also noteworthy that the attrition rates of the three groups were very low ($n = 2–3$) and the attendance rates of the two group interventions were very high (around 88% and 90%). This may reflect the high motivation and optimism for patient recovery among the families who voluntarily participated in the study (Sellwood *et al*, 2001). The regular telephone follow-up to the group participants by the group facilitator and peer leaders could also have influenced attendance. Despite the low attrition rates, the participants expressed problems over attending the group sessions, and gave reasons similar to those given by families who refused to participate in the group interventions. These were consistent with the barriers found in any type of family group work (McCallion & Toseland, 1995; Borkman, 1999). Therefore, to succeed, family support services should provide a range of options, taking account of service users' preferences and convenience.

Why a mutual support group?

Increasing research evidence indicates that peer support within family groups is associated with considerable improvement in psychological functioning and caregiver burden for families of a relative with mental illness (Heller *et al*, 1997). Mutual support is a participatory process, in which sharing common experiences, situations and problems focuses on getting and giving help, applying self-help skills and developing knowledge (Cook *et al*, 1999). In agreement with the findings of this study, research indicates that participation in a mutual support group by family carers of people with chronic physical or mental illnesses (usually not including the patients

in the group) is associated with significant improvements in psychological adjustments by family members (McCallion & Toseland, 1995), better acceptance of the illness, better coping with the caregiving role (Pearson & Ning, 1997) and improvements in patients' physical and mental condition (Cook *et al*, 1999). It appears that mutual support groups may provide an informal, consistent parallel system of peer support that complements professional help and social support from family members and friends (Fadden, 1998; Wituk *et al*, 2000).

The Treatment Strategies for Schizophrenia study in the USA (Mueser *et al*, 2001) also found that social support and training in problem-solving skills used in supportive and behavioural family management programmes, similar to the key elements in this mutual support group, were crucial to improvements in family burden and patient functioning. Mutual support groups, introducing an interactive family-focused approach to caregiving, require less intensive training for health professionals who serve as facilitators, compared with other interventions. Family carers are conceptualised as informal caretakers who play a significant role in the service delivery system. The beneficial effects of an intervention on the family's health needs and competence in caregiving are essential in helping the patients to cope with the stress and demands of living in the community (Dixon *et al*, 2001).

It is also noteworthy that the mutual support group intervention was embedded in routine out-patient care and was provided by trained psychiatric registered nurses. As Bustillo *et al* (2001) suggested in their literature review on psychosocial treatment of schizophrenia, a relatively simple, supportive and educational family intervention (such as the mutual support and psychoeducation groups in this study) should be available in community-based care. In view of the resource and staffing constraints in community care (Brooker, 2001), a flexible, client-led mutual support group can be a feasible and cost-saving alternative in service delivery, and better able to meet families' needs.

Limitations and future research

Despite the random selection of the participants, most of the families in this study were volunteers and highly motivated to participate in the group interventions, with very low drop-out rates from the three

groups. As already mentioned, the participants were chosen from the out-patient clinics in one geographical region of Hong Kong. They were caring for only one adult family member (the patient), whose schizophrenia was of short duration (not more than 3 years of illness). This sample may not be representative of families caring for individuals with long-term schizophrenia or with schizophrenia together with other mental illnesses for which they were seeking or receiving mental health service care. This highly selective sampling should be noted when comparisons are made between this and other studies of family intervention. In addition, unlike the samples in many other Western studies on family intervention, it is also important to note that nearly half of the patients in this study were recruited when they were mentally stable, and about two-thirds of the family carers were male.

Although the continuation of group meetings and professional input into group administration have been found important in maintaining the effects of mutual support groups (Dixon *et al*, 1999; Pharoah *et al*, 2001), the content and duration of the intervention in this study were standardised and time-limited, with no booster sessions. However, as a preliminary pragmatic trial designed to evaluate whether an intervention worked at all, these results certainly support future research into such intervention as a treatment approach for families of people with schizophrenia. Formal checking of treatment integrity was not undertaken in this study, but the programme providers had received training and supervision from the research team.

Other factors may have contributed to the effects of mutual support demonstrated in the study. Previous studies indicate that contacts and interactions between group participants may have an effect on participation, emotional support and practical help (Luke *et al*, 1993; Maton, 1993). An exploration of the group process, in terms of group integrity and development, participants' level of involvement and helping mechanisms active within groups is essential to better understand the therapeutic ingredients of a mutual support group.

The client-led family mutual support group intervention examined in this study indicated substantial positive effects on family burden, patient functioning and duration of readmission to hospital. However, there were no significant changes in patients' positive symptoms,

dosages of medication or service use. In view of the preliminary positive findings of the effects of family mutual support groups in this study, we recommend further investigation into mutual support groups in larger representative samples from different socioeconomic and cultural backgrounds in the Chinese population and in samples including carers for people with chronic schizophrenia and with schizophrenia together with other mental illnesses.

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