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### Pilot Study of Ethnically Sensitive Family Psychoeducation for Chinese-American Patients With Schizophrenia

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## **Pilot Study of Ethnically Sensitive Family Psychoeducation for Chinese-American Patients With Schizophrenia**

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*This pilot study tested the feasibility and receptivity of a family psychoeducation protocol for Chinese-American adult schizophrenic patients and their caregivers. Although family psychoeducation had been proven a robust intervention, little empirical evidence is available on minority groups in the United States. This ethnically sensitive treatment adapted to Chinese immigrants had a shorter 6-month treatment and involved both multifamily group for caregivers and single-family group for individual families. Twelve families were recruited, nine in the intervention group and three in the comparison group. Four waves of data were collected at baseline, 3-month, termination, and 3-month follow-up. Most changes in outcome measures at termination and follow-up for the intervention group compared to baseline and relative to the comparison group were in the expected direction. Patient symptomatology and quality of life, and caregiver knowledge of the illness, treatment and community resources, and social support improved significantly. The protocol was found to be well received by the participants. Various considerations in*

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*terms of format, structure and duration proved to serve its purpose. However, flexibility in carrying out the protocol in order to cater for the specific needs of the families and their circumstance was found to be of paramount importance.*

**KEYWORDS** *mental health, psychosocial intervention, education*

## BACKGROUND AND LITERATURE REVIEW

### Schizophrenic Forms of Disorders, Family Burden, and Impact on the Patient

Schizophrenia is a severe and persistent mental illness with a relapsing course. The enormous stress experienced by families with a member inflicted with this illness and their potential to become allies in treatment have been well documented (Glanville & Dixon, 2005; Tessler & Gamache, 2000). Research indicates that caregiving is draining to families, affecting their health, mental health, and general welfare (Awad & Voruganti, 2008; Hatfield, 1990; Rose, 1996). These families need support.

There is a circular causality in the negative interactions in these families. The core psychological deficits resulting from schizophrenia increase patients' vulnerability to internal and external stimuli (Anderson, Reiss, & Hogarty, 1986). The positive symptoms of the illness such as delusions, hallucination and disruptive behaviors, as well as negative symptoms such as inertia and paucity of affects may cause relatives to feel anxious, angry, guilty, sad, and frustrated, thereby intensifying their expression of criticism and overprotection of the patient (Anderson et al., 1986; Harrison, Dadds, & Smith, 1998; Leff & Vaughn, 1985). However, these intensely expressed emotions and behaviors of the families are likely to exacerbate patients' stress, leading to greater vulnerability to relapse. Studies in the past four decades have clearly indicated that expressed emotions are robust predictors of short-term and long-term patient relapse and rehospitalization (Butzlaff & Hooley, 1998; Hooley, 2007; Leff & Vaughn, 1985; Marom, Munitz, Jones, Weizman, & Hermesh, 2005). Thus support to families leading to calmer family interactions not only benefits the caregivers but also delays patient relapse (Hooley, 2007; Miklowitz, 2004).

### Family as Resource and Effectiveness of Family Psychoeducation

Family is an invaluable resource to both patients with a psychiatric disability and mental health professionals (Hatfield, 1994; Marsh & Johnson, 1997). In the past three decades, mental health practitioners in the West have begun to see families as partners in the treatment and rehabilitation process of patients with schizophrenia. Various family intervention models, including

family psychoeducation, have been developed for caregivers. Numerous reviews indicated that family intervention including psychoeducation has had very robust effects in delaying patient relapse, improving patient symptomatology and functioning, as well as enhancing family functioning and well-being (Jewell, Downing, & McFarlane, 2009; Lefley, 2010; McFarlane, Dixon, Lukens, & Lucksted, 2003). However, some reviews raised the concern over the differential effectiveness in relation to family characteristics and race (Dixon & Lehman, 1995; McFarlane et al., 2003). According to the Surgeon General's report (U.S. Department of Health and Human Services, 2001), research on family psychoeducation, although one of the most systematically studied treatments, offers little empirical evidence in minority samples. Not only does it limit the generalizability of these intervention models, concerns over their negative effect when applied unadapted to minority groups was confirmed in a few studies. These studies include the behavioral family psychoeducation model employed among low-aculturated Hispanic immigrants (Telles et al., 1995) and multifamily problem-solving approach among African-American families (McFarlane, 2002). With increasing acknowledgment of the role of culture in influencing treatment responsiveness (U.S. Department and Human Services, 2001), this knowledge gap needs to be filled so that a better understanding is attained as to what aspects of cultural beliefs and life circumstance of patients and their families would "fit" best with which intervention approach. Thus, the development of culturally sensitive family interventions is called for.

### Chinese-American Caregivers and Their Needs

The growth of the Chinese-American population in the United States has been phenomenal in the past two decades. There was a notable increase of 102.6% from 1980 to 1990, 75% from 1990 to 2000, and another 45% from 2000 to 2007 (U.S. Census Bureau, 2010.) The Chinese is one of the fastest growing and is now the largest group (24%) within the Asian-American Pacific Islander population in the United States (U.S. Census Bureau, 2010). Studies examining the prevalence of mental health problems among Asians compared to other groups reported different findings; some indicated lower rates while others indicated higher rates, which were attributable to varying research methodologies (Chu & Sue, 2011). No epidemiological study had reported the prevalence rate of schizophrenia among Chinese or Asian Americans in general. However, a lifetime prevalence rate of 18% and 12-month prevalence of 10% were noted for any psychiatric disorder (Takeuchi et al., 2007). It may well be that a sizeable Chinese population is affected by the illness.

Family as the basic unit of human life for Asians in general, and for Chinese in particular, has been richly documented in the mental health literature (Sue & Morishima, 1982; Tseng, Lin, & Yeh, 1995). Family involvement

among Chinese in the care of individuals suffering from mental illness has been documented in the United States, China, and elsewhere (Kung, 2001). Such involvement is found to be beneficial to mental health treatment outcome (Lin, Miller, Poland, Nuccia, & Yamaguchi, 1991). However, since the majority of Chinese in the United States are immigrants (61%, U.S. Census Bureau, 2010), the caregiver burden would be aggregated when their knowledge of the health care system is limited while they themselves are still adjusting to this migrated land (Chu & Sue, 2011). Thus, the burden of care for these relatives is likely to be greater compared to Caucasian-American families for at least five reasons: (1) intense involvement in the caregiving process; (2) the lack of knowledge of access to resources due to immigrant status; (3) language barrier to negotiate with service systems; (4) limited knowledge about mental disorders and their treatment; and (5) racial discrimination due to minority status (Kung, 2001, 2003, 2004; Sue, 2002). Thus, it is of great importance to educate and support these caregivers to both alleviate their stress and improve treatment outcome of their ill relatives.

Asian Americans not only tend to underutilize mental health services, but also exhibit a high attrition rate in service use (Chu & Sue, 2011; Kung & Tseng, 2006; Tsui & Schultz, 1985). Such a phenomenon may be attributable to the lack of fit between their expectation of service, life circumstance, and what the system offers (Zane, Sue, Castro, & George, 1982). Hence, culturally sensitive family intervention that meets the specific needs of Chinese families is more likely to retain these families in treatment so that they can reap the full potent benefits of the intervention. While there is increasing acknowledgement of the differences among the over 25 Asian ethnic subgroups who reside in the United States, scholars have also noted some core values that transcend these groups, for example, much of the values were based on Confucianism and Buddhism among the Chinese, Koreans, and Japanese (Ng, 1999; Uba, 1994). Empirical studies have also confirmed some shared values among these groups (Kim, Yang, Atkinson, Wolfe, & Hong, 2001). It is likely that an intervention that is ethnically sensitive to the needs of Chinese Americans could later be further modified for use with other Asian groups.

This investigation, in the form of a pilot study, aims to test the feasibility and receptivity of a family psychoeducation model especially adapted for caregivers of Chinese Americans with schizophrenia and to examine the suitability of the outcome measures. Information from this study would be used to refine the protocol before launching a full-scale multisite randomized clinical trial study.

### Adaptation of the Intervention Protocol

The adapted model was mainly based on two existing models that had been well tested and proven effective with the general population. One is the

family psychoeducation model developed by Anderson and her colleagues (1986) in which only single-family sessions were conducted after an intensive weekend workshop. The other model is MacFarlane's problem-solving multifamily group (2002), which includes a few families with both patients and caregivers being present.

Based on findings from previous studies on Chinese-American caregivers, the intervention protocol was adapted in the following ways: (1) In the family-centered Chinese culture, more than one family member was often intensely involved in caregiving (Kung, 2003), thus attempts were made to recruit more relatives in the intervention. (2) Patients were excluded from the multifamily group, which was different from McFarlane's (2002) model since caregivers are likely to be inhibited in discussing their frustrations about the ill member due to cultural tendencies to avoid direct confrontation within family in front of many "outsiders" (Bae & Kung, 2000). (3) Psychoeducation materials will be given to the caregivers throughout the multifamily group sessions instead of a day-long workshop as in some models (Anderson et al., 1986; McFarlane, 2002). Due to the lack of knowledge about mental illness and medication, and the lower educational background of many immigrant Chinese Americans, loading them with too much information at the beginning could be overwhelming, and the retention of the materials limited (Bae & Kung, 2000). (4) A topic was designated for each group session, with brief lecture followed by discussion around the topic by any caregiver, instead of one family taking the whole session for problem solving around its issues as in McFarlane's (2002) model. This topical discussion provided some structure around which families can freely share, thus reducing the uneasiness of one family being put "in the hot seat" for a whole session, which would be less acceptable to Chinese families. (5) Individual family sessions were offered to help reduce conflict between caregivers and ill relatives and among caregivers, which arises often and was highly predictive of caregivers' burden (Kung, 2004). It also aims at helping the caregivers to implement the acquired knowledge and skills from the multifamily group (Bae & Kung, 2000; Kung, 2001). This was especially necessary when patients were not in the multifamily group. (6) Since the caregivers subscribe highly to both stress and biological causes of the illness (Kung, 2004), it is fitting to adopt a vulnerability-stress framework (Zubin & Spring, 1976) in psychoeducation instead of a strictly biological explanatory model adopted by many models. (7) To engage families, especially at the initial stage, in-home single-family sessions were offered in order to involve more relatives (Bae & Kung, 2000; Xiong et al., 1994; Zhang, Wang, Li, & Phillips, 1994). (8) Dinner was provided before multifamily group meetings because food is important in Chinese culture, and many working caregivers come right after work. The meal together also provided group members a natural opportunity for informal socializing and bonding. This was believed to be more effective than setting aside time for socializing at the beginning



of the formal session (McFarlane, 2002). (9) The duration of the intervention was 6 months instead of the usual 9 months to 2 years in most protocols (e.g., Anderson et al., 1986; McFarlane, 2002; Pollio, North, & Osborne, 2002) since many Chinese immigrants are reluctant to commit to long-term psychosocial treatments primarily because many of them are involved in low paying jobs with long work hours (Bae & Kung, 2000; Kung, 2001).

Feedback was obtained on this proposed model from four researchers and seven practitioners through their written feedback on the protocol and manual, with a follow-up phone call or face-to-face discussion. Three focus groups were conducted with 21 Chinese caregivers to obtain their input.

## METHODS

### Study Design

A quasi experimental design consisting of non-equivalent groups was adopted with nine families in the intervention group and three in the comparison group. The original plan was to use an experimental design with random assignment into either the intervention or the control group. However, due to difficulty in recruitment, families that were interested but could not attend the group meetings due to work schedule, language barrier, physical distance, or frailty were assigned to the comparison group.

Treatment outcome for both patients and caregivers was assessed at baseline, 3 months, termination, and 3-month follow-up. Satisfaction of the program was assessed at the last three evaluation points. Four interviewers, who were proficient in Mandarin/Cantonese and English, were trained for 4.5 hours to interview the patients and caregivers individually. Two of them were Ph.D. students in social work or psychology, one was a psychologist with a doctorate, and the other a master's student in social work. Patients' symptomatology was assessed by their psychiatrist at the four evaluation points.

For both the multifamily group and single-family groups, detailed notes on each session were kept by the two clinicians implementing the pilot study for qualitative analyses that will be reported elsewhere.

### Structure of the Intervention Protocol

This intervention protocol requires 6 months of commitment from participants initially, with an understanding that it could extend for another 3 months if they agreed toward the end. The multifamily group of caregivers met alternate weeks for 2 hours from 6 pm to 8 pm. Dinner was served in the first half hour. The meeting formally started with a brief lecture by either of the two clinicians on the designated topic. While some topics were pre-selected by the clinicians, in the second session, caregivers were invited to

give input on the topics they wanted covered in the group. Handouts were given to promote retention and facilitate sharing among family members who might not participate. Discussion and some role play took place after the lecture or integrated with the lecture. For five sessions, relaxation exercises, including the Chinese Eight Elegant Movements (*Baduanjin*), were introduced and practiced at the end of the session. Sessional topics covered were as follows:

1. Getting to know each other and affirmation of caregivers' strengths and life satisfaction
2. Impact of mental illness on caregivers' lives
3. Prioritize problematic behaviors and rule-setting for unacceptable behaviors
4. The cause, course, and treatment of schizophrenia (by the agency's psychiatrist)
5. Communication with patients: do's and don'ts
6. Stress management (two sessions)
7. Sexuality and emotional intimacy needs of patients
8. Considerations on patient marriage and child bearing
9. Dealing with negative symptoms
10. Relapse prevention
11. Community resources
12. Spirituality and meaning making of adverse experiences

The single-family group for each family generally met every other week between multifamily group sessions; two families met less frequently due to health issue and scheduling difficulty. All relatives or significant others of the patient who wished to participate were included. The patient was present. The content of the single-family group revolved around improving communication between patient and relatives and issues the families were currently faced with (ranging from connecting to needed tangible services, assisting in naturalization procedures, dealing with patients' psychotic behaviors, to resolving conflicts between patient and relatives). With one family, home visits were paid twice to contact hard-to-reach relatives.

Two clinicians were involved in the study. The original design was to deploy at least one full-time clinician at the agency and to employ another part-time clinician for the project. As the participants in the study spoke either Mandarin or Cantonese, and some were more fluent in English, trilingual clinicians were sought. It proved a very difficult task. Eventually, one agency employer with a master's degree in counseling psychology and 4 years of full-time clinical experience was used. The other clinician ended up being the principal investigator (P.I.) of the study and the first author, who had a master's and a doctorate in social work and 9 years of full-time



clinical experience. The P.I. also provided weekly to biweekly supervision to the other clinician.

### Recruitment of Participants

Chinese-American patients currently receiving service for pharmacological treatment and individual counseling from the outpatient clinic or day treatment program at one of the biggest mental health agencies serving the Asian population in a metropolitan city in the North East Coast of the United States were recruited into the study together with their caregivers. The P.I. introduced the study to the clinical staff at the agency's regular meetings and gave out a flyer outlining the study design and the inclusion and exclusion criteria for potential participants. Chinese patients who spoke Mandarin or Cantonese, age 18 or above, with a schizophrenic form of disorder, and currently receiving service were admitted to the study when both they and their relatives consented to participate. Relatives recruited into the study were also at least 18 years of age, spoke either Mandarin or Cantonese, and either lived with the patient or had contacts with him or her at least once a month either in person or over the phone. The caregivers were of varying relationships to the patient (e.g., parents, spouses, or siblings). More than one caregiver in the family were encouraged to participate, although it was not required. Exclusion criteria were patients who were actively psychotic as verified by the treating clinicians, had mental retardation, or had organic brain damage.

Participants to the study were recruited through the patients or the caregivers. In the former, during one of the regular meetings with the patients, clinicians explained the study and handed out a brochure about it to the patients. If the patient showed initial interest and agreed to the clinician's contact with his or her family, they together would decide which relative(s) to contact for recruitment into the study. The clinician then called the relatives directly to introduce the study. If both the family member(s) and the patient were interested, the clinician then asked for permission for the P.I. to contact them by phone to arrange for an interview to further explain the study before obtaining their written informed consent. The other route for recruitment was to reach out to caregivers directly. A family workshop was conducted providing educational information on schizophrenia and its treatment. At the end of the program the P.I. introduced the study to the relatives and recruited interested caregivers. The patients were then contacted through the caregivers and their primary clinicians to obtain their consent to participate in the study. When both the patient and the family showed interest, the P.I. explained further details of the study to them face to face before obtaining their written informed consent. To compensate for the time spent by patients and families in participating in the periodic assessments,

\$15 were given to each participant for each evaluation. The Institutional Review Board (IRB) approval for this study was obtained from the P.I.'s university. The recruitment process with this participating agency lasted for 7 months from the first meeting with the clinicians to the signing of all informed consent from participants.

## Outcome Measures

### PATIENT OUTCOME

The *Brief Psychiatric Rating Scale* (BPRS, Overall & Gorham, 1962), an 18-item 7-point scale was used to evaluate patients' symptomatology from the psychiatrist's perspective. Some symptoms were rated based on the psychiatrist's observation, such as patients' emotional withdrawal; others were rated primarily based on patients' verbal report, such as guilt feelings. Higher score indicates more severe symptoms. The interrater reliability was .62 to .87 with discriminant validity well established (Rhoades & Overall, 1988). The mean score was used for statistical analysis.

*Scale for Assessment of Negative Symptoms* (SANS, Andreasen, 2000) is a 23-item psychiatrist-rated scale used to evaluate patient's negative symptoms. Dimensions for the negative symptoms include affective flattening or blunting, avolition, avolition-apathy, anhedonia-asociality, and attention. Response categories range from 0–5, with higher score indicating more severe negative symptoms. Internal consistency for the total scores was .90 and interrater reliability was .83 to .92 according to the original author. Mean scores of the scale and subscales were used for analysis.

The *Specific Level of Functioning Scale* (SLFS, Schneider & Struening, 1983), a 43-item 5-point scale was used to assess the behavioral functioning of the patient from caregivers' perspective. The six domains tapped were physical functioning, personal care skills, interpersonal relationships, social acceptability, activities of community living, and work skills. Internal consistency for the six domains ranged from .57 to .95 according to the original authors. Higher score indicates higher patient functioning. The mean score of the whole scale was used for analysis.

The main patient outcome from patients' own perspective was the *Wisconsin Quality of Life Index* (WQOL, Diamond & Becker, 2000). It is a multi-item multidimensional scale used to assess nine domains of the patient's life quality, namely, general life satisfaction, activities and occupations, psychological well-being, physical health, social relations/support, economics, activities of daily living, symptoms, and goal attainment. Each domain of the scale is individually weighted indicating the importance of the particular domain to the patient. Higher scores reflect better quality of life. Internal consistency of the various domains ranged from .67 to .93 according to the original authors. The total scores were used for analyses.

## CAREGIVER OUTCOME

*North-Sacher Family Life Questionnaire* (NSFLQ, North et al., 1998) is an 11-item 4-point scale used to assess caregivers' feelings of control over illness-related situations, knowledge of the illness and resources, and family communication. Lower score indicates higher level of control, more knowledge or better communication. The means of the items on control and family communication were as used for analysis.

The *Burden Assessment Scale* (BAS, Reinhard, Gubman, Horwitz, & Minsky, 1994) is a 19-item 4-point scale that assesses both objective and subjective burdens of caregiving. Objective burden items include financial problems, limitations on personal activities and social interactions, and household disruption. Subjective burdens include shame, stigma, guilt, resentment, grief, and worry. Higher scores indicate greater burden. Reliability alpha reported by the original authors ranged from 0.89 to 0.91. Mean scores of the whole and subscales were used in the analyses.

*Perceived Social Support for Caregiving and Social Conflict Scales* (PSSC & SCS, Goodman, 1991), include 9 items on a 4-point scale that reflects caregivers' perception of availability and use of social support from non-professionals. The types of support include understanding, information, advice, insight, emotional control, universality, expression, modeling, and support satisfaction. The 3-item social conflict scale reflects quarrels, conflict, and lack of approval in care giving. Higher scores indicate higher support and higher conflict. The original authors reported reliability alphas for social support and conflict as .84 and .72, respectively. The mean scores were used for analysis.

Three items from the original 23-item *Perceived Causes of Mental Illness Scale* (Krause, 1988) was selected to capture relatives' *mental health belief* (MHB). They tapped the extent to which caregivers believed patients' problematic behaviors were within their own control. Higher scores indicate greater tendencies to subscribe to such beliefs. The mean score was used in the analyses. Reliability alpha for the whole scale was reported as .80 in a study in Taiwan (Yang, Hsieh, Wu, Yeh & Chen, 1999).

*Patient Rejection Scale* (PRS, Kreisman, Simmens, & Joy, 1979) is a 10-item caregiver-rated scale to assess caregivers' rejection of patients. Higher mean score indicated greater rejection, and was used in the analyses. The alpha coefficient was .89 according to the original authors.

*Perceived Criticism Scale* (PCS, Hooley & Teasdale, 1989) is a 2-item 10-point scale to tap the extent to which the caregiver thinks the patient is critical of them and they are critical of the patient. Higher score indicates higher criticism. Its discriminant and concurrent validities were well established by the original authors indicating that it was highly predictive of 9-month relapse rates ( $r = .64, p < .001$ ), and strongly correlated with hostility of spouse ( $r = .62, p < .02$ ).

Feedback was obtained from relatives and patients on their *satisfaction with the intervention* from the single-family sessions using a 5-item 4-point scale developed specifically for the study tapping into content relevance, attainment of practical help and support, promotion of communication within family, and overall satisfaction. Relatives were asked about their satisfaction with the multifamily group in the same way with additional items on opportunity to share and learn from other caregivers.

The outcome measures were translated into Chinese. Back translation was not attempted due to limited financial resources. The P.I. who was proficient in both English and Chinese went over the measures in both languages and made some changes to smooth out the Chinese translation. One of the interviewers, also proficient in both languages, gave feedback to the P.I. on some wordings, which the latter incorporated into the final version of the translated measures.

### Data Analyses

The mean or total scores of each scale or subscale as well as specific items that are of interest were calculated (e.g., caregivers' knowledge of mental illness, community resources, sense of guilt and shame). Results were tabled and eye-balled to examine if changes were in the expected direction. Although statistically significant findings were not expected due to the small sample size, comparisons were made using non-parametric tests. The Wilcoxon Signed-Rank tests were used for within group comparison between pre-post, and baseline and follow-up for each of the experimental and comparison groups separately. The Mann-Whitney U test was used to compare the change scores from pre and post and from baseline to follow-up between the intervention and comparison groups.

## RESULTS

### Basic Information About the Participants

Despite active outreach recruitment efforts, only 12 families were recruited, 9 in the intervention group and 3 in the comparison group. Two families in the intervention group had two caregivers each participated throughout the study. Three additional relatives who did not originally sign up for the program came for the multifamily group for one to six sessions, and yet another eight relatives were contacted a few times in the single-family group sessions. Thus altogether 22 relatives and 12 patients participated in the study. The demographics of the participants in the two groups were detailed in Table 1. Most patients were residing with their immediate and extended families (83%) and the remaining two lived in housing for the mentally ill patients. Caregivers' relationship with patient was quite varied—parents,

**TABLE 1** Participants' Demographics

Demographics	Intervention group		Comparison group	
	Patient (9)	Caregiver (11)	Patient (3)	Caregiver (3)
Age in Years ( <i>SD</i> )	34.2 (13.6)	56.3 (12.4)	50.6 (5.3)	37.7 (19.1)
Gender: Female	77.8%	54.5%	66.7%	33.3%
Education in Years ( <i>SD</i> )	10.0 (3.4)	10.3 (2.4)	12.7 (1.2)	15.0 (1.0)
Marital Status: Married/cohabit	22.2%	66.7%	33.3%	33.3%
Caregiver residing with patient		81.8%		33.3%

spouses, siblings, sons, and a live-in boy-friend; but mothers constituted the most (42%). Of the participating caregivers, 79% were main caregivers of the patients who took care of their day-to-day needs. All families reported an annual family income of less than \$40,000 with 54% having \$20,000 or less.<sup>1</sup> Most of the relatives were not recent immigrants, the median of years living in the United States was 16 (range 1.5 to 70).

Patients in the intervention group were significantly younger than the comparison group (34 vs. 51,  $p = .02$ ) and the age of the relatives were in reverse (56 vs. 38,  $p = .07$ ); two were sons and one was a sister in the comparison group). Relatives in the intervention group were more involved with the patients than those in the comparison group. Only one of the three relatives (33.3%) in the comparison group lived with the patients while 9 out of 11 relatives (81.8%) in the intervention group did. There was no significant difference on the outcome measures at baseline between the two groups with the following exceptions: the intervention group had significantly less knowledge about mental illness and treatment ( $U = 4.6$ ,  $p = .03$ ), but also less social conflicts ( $U = 2.0$ ,  $p = .02$ ).

In terms of attendance, despite the difficulty in recruitment, no family dropped out. For the multifamily group, on average, the caregivers attended 77% of the 13 sessions (i.e., 10 sessions), and more than half attended 85% or more (11 sessions). Only one caregiver attended about one-third of the sessions due to suspected serious illness shortly after the study began. She came back to the groups when the health threat was cleared. For single-family sessions, the mean number of sessions held was 9.78 with a range of three to 14. Two families attended less due to health issue and difficulty in scheduling.

### Receptivity of Program

At termination, 67% of the caregivers indicated that they were very satisfied with the multifamily group, and 71.4% were very satisfied with the

<sup>1</sup> Although the group came from mostly middle and lower middle class, the very low reported income was likely due partly to retirement of some caregivers and less than reliable financial disclosure in others.

single-family group. Eleven percent of the patients were very satisfied with the single-family group, and 67% reported mostly satisfied.

### Results From Outcome Measures

The mean or total outcome scores at baseline (Wave 1), termination (Wave 3), and follow-up (Wave 4) for both the intervention and comparison groups were tabulated in Table 2, with results of Wilcoxon signed ranks test also presented. For the intervention group, expected positive change was noted in all patient outcomes at termination and 3-month follow-up with the exception of the specific level of functioning (SLFS) at follow-up. Notably, despite the small sample size psychiatric symptoms (BPRS) as well as negative symptoms (SANS) rated by the psychiatrist indicated significant improvement ( $p \leq .01$ ) both at termination and follow-up. Most of the patient outcomes indicated at least a trend significance ( $p < .10$ ), except for SLFS and the weighted overall quality of life score (WQOL) at termination, and satisfaction with family relationship and patient's rating of symptoms at follow-up. While improvement in the comparison group also indicated positive change in some patient outcomes, the number of positive change and significant change at trend level or better were less compared to the intervention group.

For caregiver outcomes, 10 out of the 14 scores were changing in the positive direction for the intervention group both at termination and follow-up. Significant changes were noted at termination in knowledge of community resources ( $p < .05$ ), knowledge about mental illness and its treatment ( $p < .05$ ), social support ( $p < .01$ ), and perceived criticism of caregiver to patient ( $p < .10$ ). At follow-up, knowledge about the illness and its treatment sustained its significance ( $p < .05$ ) and so was the reduction of shame at trend level. Less number of positive change was noted in the comparison group at termination (eight). However, at follow-up the number of positive change was the same between the two groups, and unexpectedly, more significant change were noted in the comparison group at the trend level.

Change scores (pre-post and baseline and follow-up) of the two groups were laid out in Table 3 for comparison, Mann-Whitney U test results were also presented. Most of the patient outcome, including variables pertaining to symptomatology and quality of life were in the predicted direction, that is, with greater improvement in the intervention group than the comparison group (seven out of nine at termination and at follow-up). The specific level of functioning (SLFS) score, however, was in the opposite direction than expected which was consistent with the previous within group pre-post and termination and follow-up comparisons, and it was significant at the trend and .05 levels. The only WQOL not in the expected direction was general life satisfaction.

The picture for relative outcome was less desirable comparing the two groups. Only 6 out of 14 measures at termination and 5 at follow-up were in the expected direction of greater improvement in the intervention group



**TABLE 2** Within Group Comparison of Mean Outcome Scores at Three Evaluation Points for the Intervention and Comparison Groups

Outcome	Intervention group						Comparison group					
	Mean			Positive change W1-W3	Wilcoxon Signed Ranks Test Z-value	Positive change W1-W4	Wilcoxon Signed Ranks Test Z-value	Positive Change W1-W3	Positive change W1-W4	Wilcoxon Signed Ranks Test Z-value	Positive change W1-W4	Wilcoxon Signed Ranks Test Z-value
	W1	W3	W4									
<b>Patient Outcome:</b>												
BPRS: Psychiatric sympt	2.79	1.12	1.08	✓	-2.67**	✓	-2.67**	✓	✓	-1.60*	✓	-1.60*
SANS: Negative sympt	2.74	.26	0.33	✓	-2.67**	✓	-2.67**	✓	✓	-1.60*	✓	-1.60*
SLFS: Functioning	4.18	4.26	4.17	✓	-.12	×	-.18	✓	×	-1.60*	×	-1.60*
WQOL: Gen life satisfactn	1.10	1.53	1.59	✓	-1.48†	✓	-2.19**	✓	✓	-1.60*	✓	-1.60*
WQOL: Weighted	1.23	1.50	1.36	✓	-1.24	✓	-1.72*	✓	×	-1.60*	×	-1.07
WQOL: Unweighted	1.19	1.52	1.34	✓	-1.60†	✓	-1.60†	✓	×	1.60*	×	-1.07
WQOL: Satisfaction with family relationship	1.22	2.11	1.67	✓	-1.63†	✓	-1.19	—	✓	.00 <sup>a</sup>	✓	-1.00
WQOL: Symptoms	1.90	2.28	2.06	✓	-1.58†	✓	1.42	—	×	.00 <sup>a</sup>	×	-1.34†
WQOL: Psychological well-being	-.16	.53	0.26	✓	-1.54†	✓	-1.66*	✓	×	-1.07	×	-.45
<b>Caregiver Outcome:</b>												
NSFLQ: Knowledge on community resources	3.25	2.56	2.67	✓	-1.86*	✓	-.78	✓	✓	-1.4†	✓	-1.14†
NSFLQ: Knowledge about the illness and Rx	2.75	2.23	2.11	✓	-.63*	✓	-1.89*	—	—	.00 <sup>a</sup>	—	.00 <sup>a</sup>
NSFLQ: Control over illness-related situations	2.22	2.09	2.00	✓	-.25	✓	-.95	✓	✓	-1.60†	✓	-1.60†

(Continued)

**TABLE 2** (Continued)

Outcome	Intervention group						Comparison group							
	Mean			Positive change W1-W3	Wilcoxon Signed Ranks Test Z-value	Positive change W1-W4	Mean			Positive Change W1-W3	Wilcoxon Signed Ranks Test Z-value	Positive change W1-W4	Wilcoxon Signed Ranks Test Z-value	
	W1	W3	W4				W1	W3	W4					
NSFLQ: Communication with patient	2.38	2.56	2.67	×	-1.0	×	-1.09	2.33	2.33	2.00	—	.00 <sup>a</sup>	✓	-1.00
NSFLQR: Communication with other fam members	2.13	2.56	2.38	×	-1.13	×	-1.13	2.33	2.67	2.00	×	-1.00	✓	-1.00
PSS: Social support	2.37	3.13	2.44	✓	-2.52**	✓	-85	3.13	3.26	3.15	✓	-54	✓	-45
PSC: Social conflict	1.30	1.41	1.44	✓	-.27	✓	-.37	2.67	1.78	1.56	×	-1.63 <sup>†</sup>	×	-1.60*
BAS: Caregiver burden	1.99	1.85	1.77	✓	-.65	✓	-.89	2.16	1.58	1.28	✓	-1.60*	✓	-1.63 <sup>†</sup>
PRS: Patient rejection	2.04	2.06	2.01	×	-1.12	×	-.24	1.70	1.80	1.77	×	-54	×	.00 <sup>a</sup>
PCS: Perceived criticism of caregiver to patient	4.22	3.22	3.56	✓	-.35 <sup>†</sup>	✓	-10	5.33	4.33	4.33	✓	-1.34 <sup>†</sup>	✓	-1.34 <sup>†</sup>
PCS: Perceived criticism of the patient to caregiver	3.33	3.44	3.78	×	-.26	×	-85	6.00	4.00	3.33	✓	-1.60*	✓	-1.60*
MHB: Believes patient can control symptoms	1.85	1.78	1.63	✓	-.09	✓	-.68	2.00	2.00	2.00	—	.00 <sup>a</sup>	—	.00 <sup>a</sup>
Guilt: BAS & NSFLQ	2.54	2.47	2.26	✓	-.85	✓	-.92	2.67	2.56	1.78	✓	-.58	✓	-1.34 <sup>†</sup>
Shame: BAS	1.92	1.70	1.67	✓	-1.16	✓	-1.34 <sup>†</sup>	2.00	1.56	1.22	✓	-1.07	✓	-1.60 <sup>†s</sup>

<sup>a</sup>The sum of negative ranks equals the sum of positive ranks.

<sup>†</sup> $p \leq .10$ ; \* $p \leq .05$ ; \*\* $p \leq .01$ .

**TABLE 3** Cross Group Comparison of Mean Change Scores at Termination and Follow-Up

Outcome	Mean difference between W1 and W3				Mean difference between W1 and W4			
	Intervention group	Comparison group	Expected direction	Mann-Whitney U-value	Intervention group	Comparison group	Expected direction	Mann-Whitney U-value
<b>Patient Outcome:</b>								
BPRS: Psychiatric symptom	-1.67	-1.00	✓	-1.20	-1.71	-0.96	✓	-1.20
SANS: Negative symptom	-2.48	-1.46	✓	-1.20	-2.41	-1.46	✓	-1.01
SIFS: Functioning	0.08	0.39	×	-1.57†	-0.01	0.42	×	-1.76*
WQOL: General life satisfaction	0.43	0.83	×	-1.20	0.49	0.49	—	-0.09
WQOL: Weighted	0.27	0.25	✓	-.46	0.13	-0.26	✓	-1.20
WQOL: Unweighted	0.33	0.29	✓	-.28	0.15	-0.21	✓	-1.39†
WQOL: Satisfaction with family relationship	0.89	0.00	✓	-.87	0.45	0.33	✓	-1.10
WQOL: Symptoms	0.38	.00	✓	-1.22	0.16	-0.60	✓	-1.12
WQOL: Psycho well-being	0.69	0.60	✓	-.09	0.42	-0.25	✓	-1.11
<b>Relative Outcome:</b>								
NSFLQ: Knowledge on community resources	-0.69	-0.66	✓	.00	-0.58	-0.66	×	-1.11
NSFLQ: Knowledge about illness and Rx	-0.52	0.00	✓	-1.35†	-0.64	0.00	✓	-1.72*
NSFLQ: Control over illness-related situations	-0.12	-0.45	×	-1.33†	-0.22	-0.72	×	.09†
NSFLQ: Communication with patient	0.18	0.00	×	-.72	0.29	-0.33	×	-1.07
NSFLQR: Communication with other fam members	0.43	0.34	×	.00	0.25	-0.33	×	-1.22
PSS: Social support	0.76	0.13	✓	-1.53†	0.07	0.02	✓	-0.31

(Continued)

TABLE 3 (Continued)

Outcome	Mean difference between W1 and W3				Mean difference between W1 and W4			
	Intervention group	Comparison group	Expected direction	Mann-Whitney U-value	Intervention group	Comparison group	Expected direction	Mann-Whitney U-value
PSC: Social conflict	0.11	-0.89	✓	-2.07*	0.14	-1.11	✓	-2.02*
BAS: Caregiver burden	-0.14	-0.58	×	-1.02	-0.22	-0.88	×	-1.39†
PRS: Patient rejection	0.02	0.10	✓	-.09	-0.03	0.07	✓	-.37
PCS: Perceived criticism of caregiver to patient	-1.00	-1.00	—	-.29	-0.67	-1.00	×	-.38
PCS: Perceived criticism of patient to caregiver	0.11	-2.00	×	-1.58†	0.44	-2.67	×	-1.83*
MHB: Believes patient can control symptoms	-0.07	0.00	✓	-.09	-0.22	0.00	✓	-.39
Guilt: BAS & NSFLQ	-0.07	-0.11	×	-.10	-0.28	-0.89	×	-1.18
Shame: BAS	-0.22	-0.44	×	-.10	-0.25	-0.78	×	-1.45†

† $p \leq .10$ ; \* $p \leq .05$ ; \*\* $p \leq .01$ .

relative to the comparison group. Worth noting in particular, though, was the significantly greater positive change in the intervention group on knowledge in illness and treatment both at termination and follow up ( $p = .10$  and  $.05$ , respectively), and greater increase in perceived social support (PSS) ( $p < .10$ ) at termination, and greater reduction in social conflict ( $p < .05$ ) at termination. The few variables with greater improvement in the comparison group significant at trend or  $.05$  levels were control over illness-related situation, caregiver burden, perceived criticism of patient to caregiver, and shame.

## DISCUSSION

### Implications of Findings

Overall, the change in the outcome scores from baseline to termination and follow-up was in the expected direction for the intervention group. It was especially notable for patient outcomes, with psychiatric symptomatology and negative symptoms attaining positive change at a highly significant level ( $p < .01$ ). This was particularly impressive considering the small sample size. The magnitude of change in the intervention group was also higher than in the comparison group. The significant positive change in patients' self-reported symptoms and psychological well-being were in agreement with the psychiatrist's evaluation, but such improvements were of lower magnitude and persistence in the comparison group. All quality of life scores including satisfaction with family relationship showed improvement at termination and follow-up for the intervention group, but they were less consistent for the comparison group. It is likely that when patients received support in the single-family group and had the opportunity to better communicate their needs and concerns with their caregivers, the reduced stress led to improved mental state, relationship with family members, and the overall quality of life.

For relative outcome, knowledge about the illness and treatment as well as community resources consistently improved for the intervention group at termination and follow up compared to the baseline and relative to the comparison group. These increase in knowledge coincided with the topics discussed in the multifamily group. The increased sense of social support, which was significant at an impressive level ( $p < .01$ ) given the small sample size, was a result of caregivers' mutual support in the multifamily group. Although not at a significant level, social conflict and burden in caregiving was reduced, which could be attributed to the support and problem-solving process with input from other relatives and clinicians in both the multifamily and single-family groups.

It is interesting to note that while patients in the intervention group found significant increased satisfaction with family relationship at

termination, relatives found communication with patient and other family members worsened though not at a significant level. In the same vein, caregivers perceived heightened criticism from patients towards them but they see themselves as less critical of the patients. It is possible that through increased communication between patients and caregivers in the single-family sessions, patients felt better able to express their needs and feelings and thus felt more satisfied with the relationship with the caregivers. However, family members were not used to or comfortable with the new communication pattern and might perceive them as criticism. It was noted from multifamily group sessions that caregivers were increasingly aware of their own expressed emotions through reprimands and criticisms towards the patients when they better understood that many of the behaviors were beyond patients' control. This likely decreased their negative communication with patients.

The less than expected aspects and magnitude of improvement between the intervention and comparison group especially for caregiver outcome was a bit puzzling. Although patients in the comparison group were comparable in baseline outcome measures relative to the intervention group, their caregivers were less involved with the patients since two out of three of them were not living with the patient, their evaluation of change may be less sensitive compared to relatives in the intervention group.

In order to comprehensively examine the various aspects of patient and relative outcome, a large number of scales with varying lengths were used in the questionnaire. The average time taken to complete the evaluation interviews was 56 minutes for the caregivers, and 45 minutes for the patients. Although most of the patients and relatives were able to manage sitting through and completing the interview, one patient refused to finish the interview saying that the questions were too long and boring. Another patient took over two hours to complete the interview with one five-minute break (she refused to have more breaks). To increase the chance of obtaining more reliable and valid responses from participants, weeding out of some instruments that capture relative and patient outcomes that were less directly related to the intervention should be considered. The WQOF, which is very long, and with many domains not targeted within the 6 or 9 months of intervention should be considered for removal. Although the Self-Report Adjective Checklist was used in the interview, which aimed at capturing caregivers' expressed emotions toward patients, the results were hard to interpret, since some patients referred to different caregivers from one evaluation point to another. In fact, the two-item Perceived Criticism Scales could well serve the function when expediency is necessary. Similarly, goal attainment scales under WQOF for both patients and relatives were not consistently delineated across waves making it hard to keep track of the changes overtime. In order to effectively use them, careful documentation of agreed-on treatment goals need to be kept.



## Receptivity of the Protocol and Reflections About Adaptations

The structure, format, and the contents of the protocol seemed to be quite well received by the participating families. The high attendance rates and no dropout at all were good indicators. Toward the end of the study, most of the caregivers voiced out at the multiple family group the desire to have the two groups continued. However, due to constraints of research staff availability and other resources, it was not considered and caregivers were introduced to a less intensive family support group with monthly meetings, and a couple of families did attempt.

As expected, dinner time proved to be a very good opportunity for caregivers to socialize with each other informally. Some retirees came early to have casual chats. Others used the time to ask clinicians questions and to share concerns. This proved to suit the culture better than the formal socializing time within the formal group session in McFarlane's model (2002).

An overall impression was that flexibility and responsiveness to families' needs were of prime importance in implementing the protocol. For example, in the multifamily group, children or babies had to be accommodated in the group when no separate childcare could be provided by the agency. An 8-year-old and a 1-year-old came to the group periodically. The young child joined us for dinner and was given some toys and crayons and paper to play with within the meeting room. The baby, for the most part, did not cause much disturbance. The caregiver was able to take him out of the room when necessary and the group members were very accepting.

Another flexibility involved the openness to include other relatives of the participating families to join the multifamily group at the level they could, even when they could not or did not commit to the program at the beginning. Three relatives who had not originally signed onto participating were welcomed to the group for one or a few group sessions. Their presence proved meaningful in different ways. An aunt's participation in as many as six sessions was helpful since she had a close relationship with the patient. An uncle who was the brother of a single mother of a male patient came for the session discussing patients' sexual and emotional intimacy needs. This was especially relevant since the patient's psychotic symptoms were related to sexual themes. A daughter accompanied a caregiver who was the patient's sister to the group at the beginning to check on the program. It was important to the caregiver since she was a relatively new immigrant who needed the reassurance from her more educated daughter to feel "safe" about the program and the study.

Being responsive to the families' specific needs, whether in the multifamily group or the single-family sessions was crucial. Although only one topic, relapse prevention, was suggested in the multifamily group when input was formally solicited, other topics emerged from the group discussion

throughout as well as from the single-family sessions. For example, sexual and intimacy needs of single patients and consideration of marriage and raising a family were brought up. This was especially relevant because it is a rather common practice among immigrant Chinese, especially those of lower socioeconomic status, to go back to Mainland China to find a spouse (Congress & Kung, in press). Such unions not only help the spouses to gain entry to the United States legally but also provide avenues for their relatives from the Mainland to migrate. Thus the attraction on both sides is great: to the minds of the caregivers, the patients can then have someone to take care of them; to the potential spouses and their families it is a viable means to come to the United States. Both parties may not have fully understood the implications of such a union and possible adjustments required. The discussion during the multifamily group and single-family sessions was found very informative and helpful.

While the overall attendance of the participants was good, caregivers' own health concerns, preoccupation with other familial responsibilities, and lowered motivation with improvement in patient condition all affected their full participation. Although most of the participating families did not seem to care about the reimbursement of travelling expenses or remuneration for the evaluation interviews, it was an incentive for some patients and caregivers. The duration of the intervention is preferably longer as expressed by the caregivers and by observing the progress in family relationship and group process. However, no prior commitment beyond 6 months should be set at the beginning to better engage families at recruitment.

### Strengths and Limitations of the Study

The carefully adapted protocol for the Chinese-American families and flexibility in its implementation are the main strengths of the study. However, small sample size, the use of comparison group instead of randomly assigned control group, and the less involvement of caregivers in the comparison group were all design weaknesses. For a pilot study with the aim to test the feasibility and receptivity of the adapted protocol for the specified clientele, it did serve the purpose. For the future full-scale clinical trial study, greater comparability between the intervention and comparison or control group needs to be ensured.

## CONCLUSION

This ethnically sensitive family psychoeducation protocol adapted from existing intervention models to meet the specific needs of immigrant Chinese-American families with a schizophrenic patient proved to be feasible and well received. The various considerations in terms of format, structure,

and duration proved to serve its purpose. Most of the outcome measures in terms of the direction of change at termination and 3-month follow-up for the intervention group compared to the baseline and relative to the comparison group was as expected, especially for patients. These were validating of the effectiveness of the intervention. In general, flexibility in carrying out the protocol in order to cater for the specific needs of the families and their circumstance was found to be of paramount importance. A full-scale randomized clinical trial with a larger sample should be the next step to test the efficacy of the protocol.

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