Immigrant Families Coping with Schizophrenia
Behavioural Family Intervention v. Case Management with a Low-Income Spanish-Speaking Population

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**Background.** This investigation compared the effectiveness and cross-cultural applicability of behavioural family management (BFM) and standard case management in preventing exacerbation of symptoms and relapse in schizophrenia.

**Method.** Forty low-income Spanish-speaking people with a diagnosis of schizophrenia were randomly assigned to receive standard case management or behavioural family management after stabilisation with neuroleptic medication.

**Results.** Survival analyses indicated that among the less acculturated patients BFM was significantly related to greater risk of exacerbation of symptoms. Among the more acculturated patients, risk of exacerbation could be predicted by medication compliance but not by type of intervention. In analyses of symptom severity and functional status at 1-year follow-up, the level of patient acculturation was found to be significantly related to various measures of treatment outcome.

**Conclusion.** Sociocultural factors affect responses to different types of intervention. The results did not support earlier findings of a beneficial effect of BFM when applied to a socioculturally diverse population.

There is growing evidence that psychosocial factors contribute significantly to the course and outcome of schizophrenia. Both the International Pilot Study of Schizophrenia (IPSS), sponsored by the World Health Organization (WHO) and conducted in nine field research centres in the late 1960s among socioculturally diverse populations (Sartorius et al, 1978), and the more recent WHO-sponsored study on Determinants of Outcome of Severe Mental Disorder (DOSMD), provide evidence for a better prognosis for patients studied in developing nations than for patients studied in the most developed, industrialised nations (Jablensky et al, 1992). Some authors attribute this difference to sociocultural factors, such as greater tolerance by family members in developing countries of symptoms of mental disorder and, more specifically, lower levels of expressed emotion (EE). The relationship between high EE and schizophrenic relapse has been directly assessed and documented by many investigators (Brown et al, 1972; Vaughn & Leff, 1976; Karno et al, 1987; Bebbington & Kuipers, 1992).

Investigations of the relationship between expressed emotion and relapse have led to studies of psychosocial interventions aimed at reducing relapse rates by lowering EE. Among the most significant are those conducted by Leff et al (1982), Falloon et al (1982), Hogarty et al (1986), Tarrier et al (1988) and Randolph et al (1994). A recent study conducted in China (Xiong et al, 1994) found that family intervention in schizophrenia was significantly more effective than standard care, in terms of rates and duration of hospitalisation.

The present investigation attempted to be a cross-cultural extension of an earlier study by Falloon et al (1982) which compared behavioural family intervention in the home to clinic-based individual case management among 36 patients diagnosed with schizophrenia. The current study tests whether behavioural family intervention in a clinic setting works with a sample of low-income, unacculturated immigrant Hispanic Americans. Additionally, as was the case with the Randolph et al study (1994), the methodology avoids an important limitation of the Falloon design, which confounded the effects of the type and the site of intervention.

**Method**

**Subjects**

Patients were recruited from local public-sector psychiatric facilities. All referrals with Spanish surnames with a diagnosis on admission of schizophrenia or other psychotic disorders were screened. To limit the types of subcultures, the sample included only persons of Mexican, Guatemalan and Salvadoran descent, representing the greatest Hispanic
populations served by the public mental health system in Los Angeles. Patients between 18 and 55 years of age with a clinical diagnosis of schizophrenia or other psychotic disorder, who had been living in the community with a family member for at least 6 months prior to admission, were interviewed.

Diagnosis was determined by the Present State Examination (PSE) (Wing et al, 1974) and DSM-III-R criteria for schizophrenia (APA, 1987), plus evidence of a recent florid psychotic episode based on the Brief Psychiatric Rating Scale (BPRS; Overall & Gorham, 1962) within the previous 6 months. Exclusion criteria included evidence of an organic brain syndrome or primary substance use disorder. The selection criteria were met by 46 patients and their families who agreed to participate in the study. Four patients did not complete the study.

Research design

Stabilisation phase

During this period, patients were seen weekly by the psychosocial therapists (licensed bilingual–bicultural clinical social workers) for case management. They were also assessed weekly or every 2 weeks by the research psychiatrists to attain clinical stability with optimal neuroleptic dosage and to obtain BPRS and Global Assessment Scale (GAS) ratings (Endicott et al, 1976).

Stabilisation was defined as three consecutive BPRS ratings with no psychotic symptom scale score above 5 over a period of one month. This phase averaged 8 weeks, during which baseline data were collected on clinical and social history, EE ratings, family functioning and level of acculturation. Patients admitted consecutively who met selected criteria and were stabilised were then randomly assigned to the two treatments. A research psychologist blind to all patient characteristics assigned subjects to either behavioural family management (BFM) or case management (CM), using a table of random numbers.

Psychosocial intervention

Both methods of treatment were conducted in the clinic setting, to control for the non-specific effects of home vs. clinic treatment and to maximise the applicability of the results to the public mental health care delivery system. Both sets of patients were seen on the same schedule of weekly sessions for the first 6 months; every 2 weeks for the next 3 months; and monthly for the last 3 months. There was no significant difference in the amount of clinical contact time with patients in each condition. Medication visits were scheduled every 2–4 weeks with research psychiatrists who obtained ‘blind’ clinical ratings.

Behavioural family management

BFM is a highly structured behavioural intervention package targeted to the family unit. It encompasses three separate modules, introduced sequentially and later integrated: (i) patient–family education about schizophrenia; (ii) training in communication skills; and (iii) training in problem-solving skills, to help the family to think of solutions and apply them (Falloon et al, 1984). Socioculturally appropriate translations and adaptations of the educational and instructional materials were made on the basis of an earlier pilot study and by consensus among this study’s bicultural clinicians, who had extensive experience with this population. Although the structural core components of BFM and CM were not modified, the sociocultural context was taken into consideration in the therapeutic process.

Individual case management

As described more extensively in the Falloon et al (1984) book, CM involves goal-oriented supportive psychotherapy sessions with only the identified patient and is directed towards enhancing his/her functioning in the community. Family members, though sometimes contacted, were not involved in the treatment sessions.

Medication

The research psychiatrists administered neuroleptic medication at a flexible, minimal dosage for effective control of symptoms. Intramuscular haloperidol or fluphenazine decanoate were the route and the drugs of choice.

Procedures for training and maintaining reliability of instruments

The three bilingual research psychiatrists were trained to administer the diagnostic and symptom scales to a standard of research reliability by the Diagnostic and Psychopathology Unit (DPU) of the UCLA Mental Health Clinical Research Center for the Study of Schizophrenia (MHCRC). The two primary psychosocial therapists were extensively trained and supervised for several months by the MHCRC Director and staff (Dr Robert Liberman and Gayla Blackwell).
to implement the BFM outlined by Falloon. To ensure that the clinicians were keeping to distinct and separate BFM and CM modalities and attaining the goals of BFM, treatment sessions were tape-recorded and reviewed regularly by supervisors, including the Project Director. Clinicians were trained to administer the abbreviated version of the Camberwell Family Interview (CFI) (Vaughn & Leff, 1976) by staff of the Family Assessment Lab (FAL) of the MHCRC. The CFI audiotapes were assigned 'blind' ratings of expressed emotion by a bilingual–bicultural rater, who had been trained by the FAL staff to a standard of research reliability in rating CFI tapes of Hispanic family members during the earlier study (Karno et al, 1987) on the Course of Schizophrenia Among Mexican Americans (COSAMA).

The Project Director, who supervised the implementation of all clinical and research procedures, was trained in BFM by Dr Ian Falloon and in the administration of the diagnostic instruments and clinical scales by the DPU. She was also a research diagnostician and had been a rater of 'relapse' and 'medication compliance' for the COSAMA study. This overall experience helped ensure the comparability of clinical and research procedures used in earlier related studies (Falloon et al, 1982; Karno et al, 1987; Randolph et al, 1994).

Instruments

The instruments administered included: (i) the UCLA–MHCRC expanded version of the Present State Examination (Wing et al, 1974); (ii) the Psychiatric and Social History Schedule developed by the UCLA–MHCRC; (iii) the Acculturation Scale for Mexican-Americans (ARSMAS) (Cuellar et al, 1980), a validated and widely used instrument in cross-cultural research in the United States; (iv) the abbreviated Camberwell Family Interview to measure EE in the key relative, before randomisation and at the one-year point; (v) the Brief Psychiatric Rating Scale (BPRS) to monitor symptomatic exacerbations and relapse monthly; and (vi) the Global Assessment Scale (Endicott et al, 1976) to rate overall psychological functioning monthly.

Results

Sociodemographic variables

The sample of 42 subjects, who completed one year of treatment, consisted of 15 women (35.7%) and 27 men (64.3%), with a mean age of 30 (range 18–55) years. The great majority of the patients (88%) and relatives (95%) were first-generation immigrants with very low mean acculturation scores (1.99 and 1.63, respectively, on a 5-point scale). The level of education of the sample was very low; 45% did not complete grade school and only 7.2% attended college, compared to 0% and 44% respectively in the 1982 Falloon sample. The great majority of this sample (71%, compared to only 25% of the Falloon sample) was in the lowest quintile of socio-economic status as defined by the Hollingshead Index (Hollingshead & Redlich, 1958).

Analyses of demographic and sociocultural characteristics of the patients showed no significant differences between BFM and CM patients with respect to age, gender, educational attainment, level of acculturation of patients and relatives, or immigrant/native status of patients and relatives.

The proportion (9%) of families in this study with high EE was strikingly lower than that in Anglo-American and British samples, and was in fact almost identical to that in the rural Northern Indian sample (Vaughn & Leff, 1976; Wig et al, 1987).

Measures of clinical outcome

To examine the primary hypothesis of the study that BFM, as compared to CM, would have a beneficial effect in preventing relapse and reducing psychotic exacerbations, methods of measuring outcome were derived from two clinical instruments, the BPRS and the GAS. These include the total BPRS severity score; four BPRS clusters (Thought Disturbance, Anxious-Depression, Hostile-Suspiciousness and Anergia); and the Global Assessment Scale total score.

Psychotic exacerbation was operationally defined as a 3-point increase over baseline in either Thought Disturbance or Hostile-Suspiciousness BPRS cluster scores; a 4-point increase in the sum of those two BPRS clusters, or any item score of 6 or more on these subscales. This research definition of symptom exacerbation is in current use at the UCLA Clinical Research Center for the study of Schizophrenia with which this study was affiliated (Marder et al, 1994).

Measures of severity at the follow-up point were derived by averaging clinical ratings obtained in a 1-month window before and after the calendar date at the 1-year point after starting treatment. This strategy of averaging in a narrowly defined window of time eliminated what otherwise would have been missing data, and produced a somewhat more reliable measure, while maintaining a focus on symptom status very close to the 1-year point after starting treatment.
Moderating variables

We had initially planned to explore the prognostic significance of three moderating variables. The first was the family affective climate, as reflected in the measurement of expressed emotion (EE) in the key relative. In the current sample, however, only three of the 42 key relatives were categorised as 'high' in EE. Clearly, there was not enough variability to incorporate into statistical designs. The key relative's levels of acculturation did not vary much either.

The third variable, the patient's level of acculturation, did have enough variability to permit meaningful analyses and was a significant modifier of treatment effects. Accordingly, the sample was divided into two groups at the Acculturation scale mean (2.0), and that dichotomous classification was included in further analyses of treatment as a stratifying factor.

Medication compliance

A rating of medication compliance was completed monthly for 40 patients, using a 5-point rating scale. These ratings were averaged over the course of the first year for a global measure of medication compliance during treatment. Medication compliance did not differ between the two treatment groups; however, it was highly confounded with level of patient acculturation (F = 12.12, d.f. = 1,36, P = 0.001). Unacculturated patients tended to be significantly less compliant than relatively acculturated patients. The difference exceeded one standard deviation, and because of its importance to the course of symptoms in schizophrenia and its association with the degree of acculturation, medication compliance was included in the analyses of treatment affects.

Data analyses of outcome

There was repeated significant improvement in symptoms across the entire sample from the time of entry into the study to the 1-year follow-up, as reflected by changes in all BPRS dimensions/factors (t-tests results ranged from P < 0.003 to P > 0.002) and the total score (P < 0.0002). The most significant clinical changes occurred after entry but before starting BFM, that is, during the phase of assessment and medication stabilisation.

There were 40 complete cases (out of 42) for the exacerbation analyses; and 39 for analyses of symptom severity at the 1-year outcome point on the BPRS-derived measures and GAS. The time to the first exacerbation of symptoms was used as the dependent measure in survival analysis models.

One-year outcome scales were analysed with factorial analyses of covariance, using pretreatment severity as a covariate. In general, the statistical analyses included treatment condition, the summary measure of medication compliance, and level of patient acculturation (dichotomised) as independent variables, usually in a crossed design that included main effects and two-way interactions. Because several interactions of the treatment variable with the level of patient acculturation were highly significant, separate stratified analyses within acculturation subgroups were also carried out.

Exacerbation

The survival analysis yielded a significant effect of treatment (\(\chi^2 = 5.91,\ d.f. = 1,\ P = 0.015\)) and an interaction of medication compliance with patient acculturation level (\(\chi^2 = 5.74,\ d.f. = 1,\ P = 0.017\)). The direction of the effect of treatment was unexpected: the risk of exacerbation of symptoms was significantly greater among patients who had received BFT. We then stratified the sample according to level of patient acculturation, and analysed the treatment variables separately within each stratum. The results (Table 1) indicate striking differences. Among more acculturated patients, risk of exacerbation was predicted by medication compliance, while psychosocial treatment condition was not significant (Fig. 1). Among the unacculturated patients, the reverse pattern was true. In that subgroup, the type of treatment was very significantly related to the risk of exacerbation (with BFT-treated patients being at significantly higher risk), but medication compliance level was not (Fig. 2).

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Parametric survival models stratified by degree of patient acculturation</th>
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<td>Low acculturation (n = 23)</td>
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<tr>
<td></td>
<td>(\chi^2) (\times) (P)</td>
</tr>
<tr>
<td>Medication compliance</td>
<td>0.02</td>
</tr>
<tr>
<td>Treatment group</td>
<td>8.48</td>
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</tbody>
</table>

Note: Models were adjusted for baseline psychopathology (BPRS total and two exacerbated baseline cluster scores).
IMMIGRANT FAMILIES COPING WITH SCHIZOPHRENIA

Fig. 1 One-year survival: highly acculturated patients. ——, good compliance; ----, poor compliance with medication.

for baseline, there were statistically significant interactions of treatment with patient acculturation on the BPRS clusters measuring Thought Disturbance ($F=7.59$, d.f. = 1.33, $P=0.0095$), Anergia (interaction $F=5.20$, $P=0.029$), the total BPRS summary score (interaction $F=9.18$, $P=0.005$), and the GAS assessment of global functioning (interaction $F=15.79$, $P=0.0004$).

To explore these interactions more fully, separate analyses were again carried out, stratifying the sample into two groups based on acculturation level. Significant results are displayed in Table 2.

Among patients who were below average in level of acculturation, there were a number of very significant treatment differences, all in favour of individual case management over BFT. In the Low Acculturation sample, BFT-treated patients had poorer outcomes at 1 year on all of the scales listed above that had shown significant interactions, namely the BPRS Thought Disturbance, Anergia, BPRS total severity scores, and the GAS. Patients whose acculturation level was above average showed a reversed, but non-significant, pattern of treatment effects.

Among subjects with poor medication compliance and less severe thought disorder at baseline, 38% had poor outcomes (relapse and psychotic exacerbations); of subjects with a greater severity of thought disorder at baseline and good medication compliance, eight out of nine had poor outcomes. Finally, all 24 subjects with good medication compliance and less severe thought disorder at baseline, had good outcomes compared to 10/16 bad outcomes in the other groups combined.

### Table 2

<table>
<thead>
<tr>
<th>Low acculturation (n = 23)</th>
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<tr>
<td><strong>Symptom measurement outcome</strong></td>
<td><strong>Behavioural Family Management</strong></td>
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<td></td>
<td>Covariate adjusted mean</td>
</tr>
<tr>
<td>Thought disturbance</td>
<td>2.09</td>
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<tr>
<td>Anergia</td>
<td>1.86</td>
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<tr>
<td>Depression</td>
<td>1.73</td>
</tr>
<tr>
<td>Hostile suspicion</td>
<td>1.56</td>
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<tr>
<td>BPRS total</td>
<td>1.69</td>
</tr>
<tr>
<td>GAS</td>
<td>48.9</td>
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</table>

*Note: Means are adjusted for baseline severity and medication compliance.*
Discussion

In the sample considered as a whole, the efficacy of the two types of treatment did not differ very much. Outcomes were slightly better with conventional treatment than with BFT on most measures, but the differences were not great or statistically significant. These null findings, however, were not the final story. The level of patient acculturation proved to be a very important stratifying factor. Among the 40% of patients who were most highly acculturated, the psychosocial treatment to which the patient was assigned yielded little difference. For these patients, the only relevant treatment variable was the degree of medication compliance. Poor compliance, not surprisingly, was associated with increased risk of exacerbation.

Among the least acculturated patients, on the other hand, the pattern of treatment effects was remarkably different. Unacculturated patients who were treated with BFT had significantly poorer course and one-year outcome than those who received case management, measured in many different ways. In this subgroup of patients, medication compliance, which tended to be much poorer than among more acculturated patients, was not significantly related to any outcome variable.

The results of the study suggest that this model of behavioural family management (BFM) made no significant clinical contribution, beyond the beneficial effects of optimal medication and case management, with this sample of unacculturated Hispanic patients with schizophrenia and families with relatively low levels of expressed emotion. Although there was a very significant improvement in this sample across all dimensions of psychopathology as measured by the BPRS, it appears that the most significant changes occurred during the stabilisation phase, when optimal neuroleptic medication and case management were provided.

The results appear to show that BFM was not more effective than CM, although medication compliance prevented relapse among acculturated patients, and better stabilisation before treatment led to a more positive outcome. The results indicate that this type of highly structured family intervention could have an adverse effect with patients who are less acculturated. More importantly, the results suggest that the benefits of this model of family intervention are particularly questionable when directly applied to a culturally diverse population. It may even be that a highly structured, active intervention programme, which includes specific directives and exercises that are culturally dystonic, is experienced as intrusive and stressful. For example, various traditionally minded and unacculturated subjects expressed discomfort about communication exercises (outlined by Falloon, 1984) that involved establishing eye contact or expressing negative feelings; in speaking to an authority (paternal) figure, this was considered disrespectful.

On the whole, this sample was comprised of unacculturated families with very low levels of high EE, in contrast to Falloon et al's 1982 sample, which was selected mainly on the basis of high EE. The results suggest that, with families in which there are lower levels of EE, the application of this type of BFM may not yield any additional significant benefits; it could even be considered an iatrogenically adverse influence on some families' tolerant attitudes to symptoms. Among the subjects treated by BFM, at least three families shifted from low EE to high EE following the intervention.

An unexpected finding was the remarkably low level of expressed emotion among our sample of immigrants, mostly from rural areas of developing countries and not yet acculturated to the dominant American culture in a highly developed urban environment. This finding of low EE and the strong effect of acculturation are consistent with earlier research on the key role of sociocultural factors in the course and outcome of schizophrenia, and they suggest that these factors may be related to differences in response to different types of intervention.

The demonstrated lack of significant benefit from a structured behavioural family intervention (BFM) in this study, as compared to the findings of Falloon et al (1982), Randolph et al (1994) and Xiong et al (1994), may be attributed to methodological differences. In the Falloon study, there was a confounding effect of the type and the site of intervention, and in the Randolph study there was a confounding effect of treatment modality and additional exposure to treatment. There were also substantial differences in the ethnic composition, level of acculturation, socioeconomic status and expressed emotion of the samples.

It is important to note that Xiong et al (1994), who reported a significantly better outcome for family intervention, specifically state that their model was developed to be appropriate for China's complex family relations and social environment. It is unclear, though, whether the relative success of the family intervention was due to its cultural appropriateness or to methodological factors, including major differences in the frequency and duration of clinical contact for each modality.

It is important, therefore, to do more research on the effects of BFM and CM, utilising a full range
of key variables such as expressed emotion, level of acculturation and the specific cultural orientation and traditions of the patient and family. This information would assist in the identification of high-risk families most likely to benefit from a BFM type of treatment. An empirically-based targeting of specific persons and families would not only maximise the positive effects of the intervention efforts, but would assist in the appropriate and cost-effective allocation of the considerable numbers of staff needed to conduct BFM.

More research is needed to determine the effects of BFM on socioculturally diverse populations before any assumption can be made about the generalisation of earlier findings. At the very least, the results emphasise the need to develop models of intervention which are culturally syntonic and which emerge from an understanding of the special sociocultural characteristics of the family, rather than mere translations of existing models.

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References


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