An Attributional Analysis of Emotional Reactions to Schizophrenia in Mexican and Anglo American Cultures1

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The present study uses attribution theory to identify factors that may lead to unfavorable emotional reactions toward patients with schizophrenia and to highlight factors that may contribute to the observed inverse relationship between industrial status of a country and schizophrenia outcome. University students from Mexico and the U.S., 2 countries differing in industrial status, served as participants. Eighty-eight Mexicans from Guadalajara and 88 Anglo Americans from Los Angeles, California read vignettes of a patient described to meet DSM-IV criteria for schizophrenia. In one vignette, the patient's disorder was characterized by predominantly positive symptoms (e.g., hallucinations, delusions), whereas in the other vignette negative symptoms (e.g., social withdrawal, apathy) predominated. In support of an attributional approach, negative symptoms were associated with greater perceived control than were positive symptoms. Correspondingly, negative symptoms were found to provoke more intense negative affect and less intense positive affect than were positive symptoms. Some national and gender differences were also found.

The antecedents of emotions such as compassion or anger are extremely relevant to understanding the tension and distress that sometimes surface among family members. Research suggests that controllability attributions may aid in this understanding. Specifically, perceptions of one's ability to control the cause of an event or a particular outcome have been found to be closely linked to the emotional reactions that follow (Leff & Vaughn, 1985; Weiner, 1993, 1995). In one study, for example, Weiner (1980) manipulated the perceived control of an event, a man stumbling and falling down, by informing half of the subjects that it was due to an illness and the other half that he fell because he was intoxicated. As hypothesized, Weiner found that for the same event, research participants who believed that it was due to a potentially controllable factor (getting drunk), were more likely to report negative feelings, less

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sympathy, and less desire to help than were subjects who believed that the event was caused by uncontrollable physical factors.

In another investigation, Weiner, Perry, and Magnusson (1988) found evidence for the same relationship between perceived controllability and affective reactions toward people with a wide range of disorders. Physically based stigmas (e.g., Alzheimer's disease) were perceived as uncontrollable and elicited positive emotions, whereas mental–behavioral stigmas (e.g., child abuse) were perceived as controllable and elicited negative emotions. When the authors manipulated perceptions of controllability in a second study, attributional shifts resulted in changes in affective responses. Manipulations that resulted in uncontrollable judgments for the disorder (e.g., telling subjects that heart disease was caused by genetic factors) elicited emotions reflective of support for the person with the illness, while shifts that resulted in controllable judgments (e.g., informing subjects that heart disease was the result of drinking and smoking) elicited negative emotions. From these and similar observations, Weiner (1993, 1995) derived an attributional (controllability) affect theory of social behavior. The theory proposes that when presented with an unpleasant event (e.g., a physical disorder) or behavior of another person, individuals will evaluate that person's ability to have controlled or prevented the occurrence. According to the theory, when controllable factors are implicated, people are likely to respond to the person with negative emotions such as anger and dislike and, in turn, antisocial responses. Correspondingly, when the same event or behavior is perceived as outside of the perpetrator's personal control, people are expected to respond with positive emotions such as sympathy and pity and prosocial behavior.

Expressed Emotion and Controllability Attributions

There is strong evidence that schizophrenia is highly responsive to the emotional atmosphere of the family. For example, research over the past 2 decades using a construct termed expressed emotion (EE) has provided good evidence that patients with schizophrenia returning from the hospital to live with relatives who talk about them in a critical or hostile manner (high EE) suffer elevated relapse rates in comparison with patients whose relatives do not express these negative attitudes (Kavanagh, 1992). Furthermore, these findings have been replicated across diverse cultural groups (i.e., British, Mexican American, and East Indian; see Jenkins & Karno, 1992, for a review).

Despite the strength of the association between EE and relapse and the robustness across cultures, the initial 25 years of EE research offered little theoretical explanation of the underlying link between EE and schizophrenic relapse. Three groups of researchers have recently applied attribution theory to the study of EE (Barrowclough, Johnston, & Tarrier, 1994; Brewin, MacCarthy,
Duda, & Vaughn, 1991; Weisman, López, Kano, & Jenkins, 1993). These investigators offer empirical evidence to suggest that controllability attributions toward patients with schizophrenia differ between high and low EE relatives. For example, Barrowclough et al. (1994) and Brewin et al. (1991) found that low EE relatives made less controllable and less personal attributions for their relatives' behavior than did high EE relatives who were designated by high levels of criticism and hostility. Weisman et al. (1993) also explored this relation. This study found that relatives' attributions were related to their emotional reactions toward the patient. Specifically, relatives who viewed the patient's behavior as more controllable were found to emit proportionately more negative emotions when talking about the patient than did relatives who viewed the patient's behavior as outside of his or her personal control.

An Attributional Analysis of Relatives' Reactions to Schizophrenia

The purpose of this study is to build on prior attributional research, specifically with the aim of identifying factors related to attributions toward schizophrenia. There is growing evidence that Weiner's (1993, 1995) attributional (controllability) affect model applies to reactions of relatives toward others with severe mental illnesses. As mentioned earlier, Weisman et al. (1993) reported a positive correlation between relatives' controllability attributions and their affect toward patients. Specifically, they found that the more relatives viewed the patient as having control over his or her behavior, including schizophrenia-related symptoms, the more they expressed negative emotions such as anger and annoyance toward their ill family member.

Weisman et al. (1993), however, did not distinguish between attributions regarding the onset of the disorder and attributions regarding behavioral symptoms. López and Wolkenstein (1990) imply that the perceptions regarding the original cause of a mental disorder such as schizophrenia may be quite different than perceptions of the day-to-day problem behaviors associated with the disorder. López and Wolkenstein suggest that attributions for daily behaviors or present functioning may be more closely tied to social consequences than attributions regarding the onset of a mental disorder. From the Weisman et al. (1993) study however, it is unclear whether the causal and behavioral perceptions functioned similarly in their impact on emotional reactions. This differentiation is examined in the present research.

Other indirect evidence that attributions of controllability are significantly related to relatives' emotional reactions is offered by a study concerning the symptomatology of schizophrenia as it relates to families' views of the patient (Vaughn, 1977, as cited in Fadden, Beddington, & Kuipers, 1987). In schizophrenia, two types of symptom clusters have been identified (Andreasen...
& Olsen, 1982). The first cluster, positive symptoms, refers to the behavioral excesses or florid symptoms of schizophrenia, such as hallucinations, thought disorders, and delusions. The second cluster, negative symptoms, refers to the behavioral deficits such as affective flattening, limited communication, social withdrawal, and apathy. In the Vaughn (1977) study (as cited in Fadden et al., 1987), the content of critical comments directed toward schizophrenic patients was examined. The authors observed that most criticisms concerned behavior reflective of negative symptoms (e.g., lack of communication, interest, and initiative), while positive symptoms were found to be less frequently criticized. Because the positive symptomatology of schizophrenia includes the most clearly recognizable signs of psychosis (e.g., hallucinations and delusions), these findings may indicate that relatives attribute the positive symptoms to the patient’s mental illness (uncontrollable) and are thus less likely to hold him or her accountable for this behavior. On the other hand, the less recognizable negative symptoms (e.g., apathy, limited communication, and social withdrawal) are likely attributed to the patient’s long-term personality characteristics (a perceived controllable factor), thus causing relatives to respond with criticism.

From the Vaughn (1977) study (as cited in Fadden et al., 1987), it is unclear whether negative symptoms were criticized more frequently than positive symptoms simply because relatives were exposed to greater numbers of these types of symptoms or because the negative symptoms were actually experienced as more bothersome than the positive symptoms. The present study uses an experimental design to examine this issue.

Culture and Relapse

The World Health Organization’s (1979) International Pilot Study on Schizophrenia and the subsequent Determinants of Outcomes of Severe Mental Disorder study (Jablensky et al., 1992) have reported that the course of schizophrenia is more favorable in “developing” than in “developed” societies (see Edgerton & Cohen, 1994, for a critique of this research). Several lines of evidence suggest that precipitants of relapse may be related to specific sociocultural factors. For example, Jenkins, Karno, De La Selva, and Santana (1986) pointed out marked differences in percentages of high EE families between Mexican American and Anglo American key relatives for a matched sample. In their research, the majority (69.0%) of Mexican Americans were rated as low EE. For Anglo Americans on the other hand, the majority were rated as high EE, with only 33.8% falling in the low EE category.

Although their impressions are based on selected cases rather than on an assessment of attributions and affect for all key relatives, Jenkins et al. (1986) also provide some support for cross-cultural differences in attributions and
affect toward schizophrenia that are supportive of an attributional approach. For instance, the authors noted that Mexican Americans seemed more likely to view the problem as one of legitimate illness than Anglo Americans, and that the legitimacy of schizophrenia as an illness appeared to be linked to views that symptom-related behaviors lie outside the patient's personal control. Furthermore, the investigators noted that while Mexican Americans generally conveyed emotions of sadness, sorrow, and concern, Anglo Americans frequently expressed other negative emotions such as anger and annoyance. Jenkins et al.'s cross-cultural observations are examined empirically in the present study, using a sample of Anglo and Mexican participants.

Research Aims and Hypotheses

The studies reviewed above provide evidence that controllability attributions do, in part, underlie the EE construct. That is, relatives who view the patient as having more control over the illness tend to respond more critically, and their emotional reactions toward the patient tend to be more negative in valence. These studies also suggest a relationship between patient symptomatology and family members' affective reactions. Specifically, relative to positive symptoms, negative symptoms may be more frequently targeted for criticism (Vaughn, 1977, as cited in Fadden et al., 1987) and may precipitate more negative affect because they are perceived as more controllable than are positive symptoms. To date, however, no studies have addressed the direct relationship between symptomatology and the expression of favorable and unfavorable emotional reactions toward patients. Identifying symptoms prone to precipitate unfavorable emotions is especially important in light of mounting evidence that negatively charged household environments are associated with a poorer course of schizophrenia.

From the qualitative literature, it also seems that controllability attributions might account for differences in schizophrenic outcome observed among countries of different developing statuses. Qualitative observations by previous researchers suggest that attributions toward mental illness differ between cultural groups. To date, however, no empirical studies have directly tested for such differences. If differences in attributions do underlie the cultural differences in expressed emotion, then attributions should be expected to differ between cultures such as Anglos and Mexicans, which have been found in the past to emit different proportions of high EE levels.

In the present study, research participants were presented with two vignettes of a hypothetical family member characteristically described as having schizophrenia. In one vignette, the patient's illness was characterized by predominantly positive symptoms of the disorder, while in the other he was depicted by mainly negative symptoms.
One important consideration is that actual relatives of schizophrenic patients were not evaluated. Although the analogue nature of this project may limit external validity, the experimental design is also an important strength of the study. This design provides a unique opportunity to examine the influence of symptom type on attributions and affect while holding other potentially important mediator variables (e.g., frequency of symptom displays) constant. This is important in that at least one previous study found a relationship between family members’ emotional reactions toward patients and the types of behaviors their ill relatives displayed. Specifically, Rosenfarb, Goldstein, Mintz, and Nuechterlein (1995) observed that patients of critical and emotionally overinvolved relatives (high EE) displayed greater psychopathology and acted more disturbed during family interactions than did patients whose relatives did not express as many negative and overinvolved attitudes (low EE).

An experimental design may also be beneficial in clarifying the following clinical issue. Negative symptoms tend to occur more frequently than positive symptoms in certain stages of schizophrenia (e.g., prodromal and residual phases). Thus, it is unclear from previous research (e.g., Vaughn, 1977, as cited in Fadden et al., 1987) whether negative symptoms were criticized more frequently than positive symptoms simply because relatives were exposed to greater numbers of these types of symptoms or, as hypothesized in this study, because the negative symptoms were actually experienced as more bothersome than the positive symptoms. Because an experimental design affords an opportunity to control for frequency of positive and negative symptoms, we are in a position to rule out greater exposure to certain symptom types as a primary factor in explaining any observed differences in attributional and emotional reactions to positive and negative symptoms.

Based on the qualitative and empirical observations previously discussed, this study tested the following hypotheses. First, it was expected that increasing perceptions of patient control over both the cause and symptoms of the disorder would be related to stronger unfavorable and less intense favorable feelings toward the hypothetical patient. These findings would support Weiner’s (1993, 1995) attribution (controllability) affect conception.

Second, stemming from Vaughn’s (1977, as cited in Fadden et al., 1987) observations that negative symptoms are more frequently criticized than are positive symptoms, positive symptoms were hypothesized to be associated with lower ratings of perceived controllability than were negative symptoms. We expected this to occur for both cultural groups. We also hypothesized that symptom type would be associated with affect in the direction predicted by attribution theory. That is, subjects were expected to respond to the positive symptom patient with more intense favorable emotion and less intense unfavorable emotion; this is because the patient described by primarily positive
symptoms was anticipated to be perceived as less in control of his or her affliction than the patient described by primarily negative symptoms.

The third set of hypotheses in this study concerned cultural differences in controllability attributions and affect. Based on Jenkins et al.'s (1986) observations, it was expected that participants of Mexican descent would view the cause and symptoms of schizophrenia as less controllable than would Anglos. This study also tested the hypothesis that nationality would be related to affective reactions. Specifically, stemming from Jenkins et al.'s observations, it was hypothesized that Mexicans, relative to Anglos, would express less intense unfavorable emotions and stronger favorable emotions toward the patient.

In addition to examining the main hypotheses, two related areas were explored. First, the effects of gender were assessed. In the psychological literature, females are frequently presented as more external than males in generalized locus of control beliefs (e.g., Furnham, 1984). However, the reverse outcome has also been found (Singer, Stacey, & Ritchie, 1988), and some studies report no gender differences with respect to controllability attributions (Singer & Stacey, 1986). Although no specific hypotheses were tested regarding gender, the relationship of gender to controllability attributions and affect was explored. Finding gender differences could shed some light on gender roles in the families of schizophrenic patients. Also, our study examined López and Wolkenstein's (1990) impression that controllability attributions regarding the behavioral symptoms of schizophrenia would be more strongly related to affective reactions than would controllability attributions regarding the initial cause or onset of the disorder.

Method

Research Participants

The sample was comprised of 88 Mexican and 88 Anglo American undergraduate psychology students. Subjects were recruited from two private universities, one in Guadalajara, Mexico, the other in Los Angeles, California. Data

3In some attribution taxonomies, locus of control (perceptions regarding the origin of the cause of an event as either within the individual [internal] or within the environment [external]) is distinguished from general controllability attributions (perceptions about one's capacity to have caused or controlled an occurrence). Nonetheless, we believe that the two are highly related with respect to an attribution affect model. Previous research suggests that people will respond favorably toward and be more willing to help another if they believe that the person's problem stems from environmental (external) or uncontrollable barriers but are less likely to respond favorably and to help if they believe that the problem was caused by internal or controllable forces (Fiske & Taylor, 1984; Weiner, 1986, 1993).
were first collected in Mexico during regularly scheduled class periods. Sixty Mexican females and 28 Mexican males completed the survey. Mexican students participated on a voluntary basis. All Mexican students who were solicited to participate agreed to do so. In Los Angeles, students who agreed to participate received participation credit from their class instructors, and data were collected outside of regularly scheduled class time. To attain equal sample sizes with equal gender constitution, data collection with Anglo female participants was halted after 60 completed surveys were obtained. Data collection continued with Anglo males until 28 completed surveys were obtained. Additional demographic information regarding the sample is presented in the Results section.

Measures

The questionnaire used in this study was first developed in English and then translated into Spanish by the first author. The initial translation was then back-translated into English by a bilingual advanced undergraduate student (of Mexican descent) who was blind to the original English version. Although highly comparable, a few subtle discrepancies were found. The first author and the back-translator then discussed the differences, and a consensus translation was formed. English- and Spanish-language questionnaires consisted of a background information section, vignettes, measures of controllability, and measures of affect. The background information section assessed demographic factors such as respondents' age, gender, nationality, and parental occupations. The key sections of the questionnaire are described below.

Vignettes. Subjects read two vignettes of an individual meeting DSM-IV (American Psychiatric Association, 1994) criteria for schizophrenia. In the first vignette, the patient was described by predominantly positive symptoms. For example, he was said to report hearing voices that no one else in the family seemed to hear, to believe that household items were possessed by the devil, and to complain that others were stealing his ideas. In the second vignette, the patient was described by predominantly negative symptoms. In this scenario, he was characterized as apathetic and withdrawn, less interested in his usual social activities, and insufficiently concerned about personal hygiene. To ensure that the patient in the negative symptom scenario met DSM-IV criteria for schizophrenia, he was also depicted as displaying the following two positive symptoms: laughing and smiling to himself, and complaining that family members were talking behind his back. All research participants received both vignettes, and the order of the positive and negative symptom scenarios was counterbalanced throughout.

Measures of controllability. After reading the vignettes, research participants were instructed to write down what they believed caused the disorder.
They were then asked to rate the cause using a slight variation of the Causal Controllability subscale developed by Russell (1982). Subjects were asked to rate their causal perceptions in terms of controllability, intentionality, and responsibility, using 9-point Likert-type scale (e.g., 1 [little perceived control] to 9 [a great deal of perceived control]). Subjects were asked to rate these three items once following the positive symptom scenario, and again following the negative symptom scenario. Mean causal controllability scores were then obtained. High scores indicated that the cause of the disorder was perceived as controllable. In the present study, internal reliability was found to be adequate (coefficient $\alpha = .73$) and sufficiently comparable to that of the original study by Russell (1982; $\alpha = .81$).

To assess perceptions of behavioral controllability, subjects were asked to write down the specific symptomatic behaviors that stood out from the vignettes. Using the same Likert-style format as in the causality subscale, subjects were asked to rate their perceptions of the symptomatic behaviors in terms of controllability and responsibility. Subjects were asked to rate these two items once following the positive symptom scenario, and once following the negative symptom scenario. Mean behavioral controllability scores were then computed. High scores indicated that the symptomatic behavior was perceived as controllable. Cronbach’s alpha for the Behavioral Controllability subscale was found to be .79.

**Measures of affect.** To assess favorable and unfavorable affect, subjects were asked to rate five emotions thought to express compassion and positive sentiments toward the patient, and five emotions thought to express animosity and negative emotions toward the patient. Ratings were made once following the positive symptom scenario, and once following the negative symptom scenario. The five favorable emotions were sympathy, affection, pity, worry, and sorrow. The five unfavorable emotions were anger, frustration, hatred, shame, and fury. The 10 affects chosen were found to be among the most frequently elicited emotions by relatives of schizophrenic patients in a recent study of expressed emotion and attribution theory (Weisman et al., 1993). Hence, they are thought to be representative of likely emotional reactions toward schizophrenic behavior. It should be pointed out that some of the emotions considered to be favorable in this study (e.g., worry, sorrow) may be classified as negative or unfavorable emotions in other research. Although these emotions are likely to be experienced as unpleasant, they have been categorized as positive emotions in recent attribution studies because they are theorized to reflect positive sentiments toward another person, in the form of compassion and concern.

Mean favorable and unfavorable affect scores were obtained based on 9-point Likert-type scales ranging from 1 (no feeling of the stated emotion) to 9 (a great deal of the stated emotion). Cronbach’s alphas for the favorable and
unfavorable emotion scales were found to be .70 and .87, respectively. It is important to note that the favorable and unfavorable affect scales were uncorrelated ($r = .01, p > .05$).

**Procedure**

This study was described to subjects as an assessment of people’s reactions toward a disturbed family member. Participants were given oral instructions that were also included in written form in the questionnaire. Specifically, before reading each vignette, subjects were told to assume that the person depicted in the scenario was their brother. Participants were asked to imagine that they had lived in the same residence with this brother growing up and that they had been very close. The difficulty of this assignment was emphasized both orally and in writing. Subjects were encouraged to “really think of how [they] might feel if [their] brother began behaving like the person described in the scenario.”

**Results**

**Subject Characteristics**

Several analyses were conducted to assess the comparability of cultural groups on important demographic variables. No significant age differences were observed between cultural groups, $t(174) = 1.65, p > .05$. Anglo students ranged in age from 17 to 39 years, with an average age of 20.01. Mexican students ranged in age from 17 to 43 years, with the mean age being 20.93. A chi square using three levels of father’s occupation (skilled, semiskilled, unskilled) revealed no cultural differences, $\chi^2(2, N = 162) = 0.72, p > .05$. However, a chi square of mother’s occupation using four levels (skilled, semiskilled, unskilled, homemaker) revealed that there were cultural differences on this variable, $\chi^2(3, N = 167) = 50.59, p < .0001$. This difference appears to be due to the fact that a small percentage (36%) of the Mexican mothers work outside of the home, whereas the vast majority (86%) of the Anglo mothers work outside of the home.

Given the nature of this study, it is conceivable that previous exposure to mental illness may influence attributions and emotional reactions. As a precaution, subjects were asked whether one of their family members had ever been diagnosed with a mental illness. Nineteen Anglos and 19 Mexicans reported having a relative diagnosed with mental illness. Chronic mental illness, organic-based illness, and drug addiction/abuse were the most prevalent types of mental disorder reported. Mexicans and Anglos reported similar proportions of each class of illness in their family members.
Table 1

Correlations Between Affect and Perceptions of Controllability

<table>
<thead>
<tr>
<th></th>
<th>Favorable affect</th>
<th>Unfavorable affect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavioral controllability (positive symptom type)</td>
<td>-.28*</td>
<td>.06</td>
</tr>
<tr>
<td>Behavioral controllability (negative symptom type)</td>
<td>-.29*</td>
<td>.14</td>
</tr>
<tr>
<td>Causal controllability (positive symptom type)</td>
<td>-.35*</td>
<td>.05</td>
</tr>
<tr>
<td>Causal controllability (negative symptom type)</td>
<td>-.28*</td>
<td>.03</td>
</tr>
</tbody>
</table>

*p < .001.

Controllability Attributions and Affect

The first set of analyses in this section examines the relationship between attributions and affect by testing Weiner’s (1986, 1993) attributional (controllability) affect conception. Table 1 presents the correlation coefficients between affect and controllability broken down by affect type (favorable vs. unfavorable) and symptom type (positive vs. negative). As hypothesized, increasing perceptions of causal and behavioral controllability for both symptom types were associated with decreasing intensity of favorable affect. In other words, the more participants viewed the cause and symptoms of the disorder as controllable (regardless of whether the symptoms were predominantly positive or predominantly negative), the less they expressed favorable emotion toward the patient. However, support for the model was limited to favorable affect. Contrary to expectations, unfavorable affect was not significantly associated with behavioral or causal controllability attributions for either symptom type.

In addition to testing Weiner’s (1993, 1995) theory, we also examined López and Wolkenstein’s (1990) hypothesis that affect would be more strongly associated with behavioral controllability attributions, as compared to causal controllability attributions. To examine this hypothesis, Hotelling’s (1940; as cited in Williams, 1959) test for differences between two nonindependent correlation coefficients was used. Contrary to the hypothesis, the association between favorable affect and behavioral controllability attributions was not found to differ significantly from the association between favorable affect and causal controllability attributions for either the positive, \( t(173) = 1.21, p > .05 \), or the negative, \( t(173) = 0.16, p > .05 \) symptom scenario. The same tests were not
applied for unfavorable affect because unfavorable affect was not found to correlate with controllability attributions. Thus, there is no evidence that affect relates more strongly to noncausal attributions regarding the patient’s behavior than to causal attributions regarding the onset of the disorder.

**Symptom Type, Gender, and Nationality**

*Overview of main analyses.* A series of $2 \times 2 \times 2$ (Symptom Type × Gender × Nationality) ANOVAs were performed to test the main hypotheses using a mixed factorial design. For each analysis, symptom type (positive vs. negative) served as a within-subjects variable, and nationality and gender served as between-subjects variables. In each section, the findings for controllability are presented first, followed by the findings for affect.

*Symptom type.* As hypothesized, ANOVAs revealed that the negative behavioral symptoms were associated with greater controllability attributions than were the positive symptoms for both behavioral, $F(1, 172) = 93.16, p < .0001$, and causal, $F(1, 172) = 36.80, p < .0001$, controllability attributions (Table 2). This pattern was true for both males and females, and for both cultural groups. There were also significant gender by nationality interactions for both behavioral and causal controllability attributions that will be addressed in the following section.

Similar analyses were conducted to assess the effect of symptom type on affect. As hypothesized, results of an ANOVA revealed that the positive symptom scenario was associated with greater intensity of favorable affect than the negative symptom scenario, $F(1, 172) = 23.29, p < .0001$ (Table 3). Results of the ANOVA also revealed a significant main effect for gender on favorable affect, $F(1, 172) = 23.29, p < .0001$. For both cultural groups and for both types of symptoms, females reported a significantly greater intensity of positive emotions than did males. Turning to unfavorable affect, the hypotheses were again supported. As expected, the negative-symptom scenario was associated with more unfavorable affect than was the positive-symptom scenario, $F(1, 172) = 5.18, p < .05$. However, there was also a significant nationality by symptom type interaction, $F(1, 172) = 4.05, p < .05$. Simple effects tests revealed that this relationship was significant for Anglos, $F(1, 86) = 8.46, p < .01$, but not for Mexicans, $F(1, 86) = 0.04, p > .05$. Results of the ANOVA did not reveal significant gender main effects or interactions for unfavorable affect ($p > .05$).

*Nationality.* As expected, an ANOVA revealed that total behavioral controllability attributions (for both the positive and the negative symptom types) were higher for Anglos than for Mexicans, $F(1, 172) = 7.67, p < .01$ (Table 2). However, there was also a significant interaction between nationality and symptom
### Table 2

**Mean Controllability Ratings and Standard Deviations by Nationality, Gender, and Symptom Type**

<table>
<thead>
<tr>
<th></th>
<th>Behavioral control</th>
<th>Causal control</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>+ symptoms</td>
<td>- symptoms</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td><strong>Anglos</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males (n = 28)</td>
<td>4.30</td>
<td>2.00</td>
</tr>
<tr>
<td>Females (n = 60)</td>
<td>2.82</td>
<td>1.56</td>
</tr>
<tr>
<td><strong>Mexicans</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males (n = 28)</td>
<td>3.13</td>
<td>1.67</td>
</tr>
<tr>
<td>Females (n = 60)</td>
<td>2.99</td>
<td>1.81</td>
</tr>
</tbody>
</table>

*Note.* + = positive; - = negative.

### Table 3

**Mean Affect Ratings and Standard Deviations by Nationality, Gender, and Symptom Type**

<table>
<thead>
<tr>
<th></th>
<th>Favorable affect</th>
<th>Unfavorable affect</th>
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<tbody>
<tr>
<td></td>
<td>+ symptoms</td>
<td>- symptoms</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td><strong>Anglos</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males (n = 28)</td>
<td>6.79</td>
<td>1.42</td>
</tr>
<tr>
<td>Females (n = 60)</td>
<td>7.20</td>
<td>1.07</td>
</tr>
<tr>
<td><strong>Mexicans</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males (n = 28)</td>
<td>6.05</td>
<td>1.19</td>
</tr>
<tr>
<td>Females (n = 60)</td>
<td>6.71</td>
<td>1.13</td>
</tr>
</tbody>
</table>

*Note.* + = positive; - = negative.
type, \( F(1, 72) = 6.73, p < .01 \). Follow-up simple effects tests showed that Anglos had significantly higher behavioral controllability ratings with respect to the negative symptoms than did Mexicans, \( F(1, 172) = 13.88, p < .001 \). However, no significant group differences were found with respect to the positive symptoms \( (p > .05) \). There was also a significant nationality by gender interaction, \( F(1, 172) = 4.69, p < .05 \). For Anglos, males reported significantly higher overall behavioral controllability attributions for both symptom types than did females, \( F(1, 86) = 10.01, p < .01 \). For Mexicans, however, no significant gender differences were found with respect to controllability attributions \( (p > .05) \).

Results of the ANOVA did not reveal significant differences between cultural groups for total causal controllability attributions \( (p > .05) \). That is, contrary to expectations, Anglos were not found to perceive the cause of the disorder as more controllable than Mexicans. However, consistent with the previous analysis, results of the ANOVA did reveal a significant nationality by gender interaction for causal controllability attributions, \( F(1, 172) = 5.93, p < .05 \). For Anglos, males again reported significantly higher overall causal controllability attributions for both sets of symptoms than did females, \( F(1, 86) = 12.21, p < .01 \). For Mexicans, however, no significant gender differences were found with respect to causal controllability attributions \( (p > .05) \). Together, these findings suggest that nationality moderates the relationship between gender and both causal and behavioral controllability attributions.

Discussion

**Symptom Type**

One of the most important findings of this study is that the more florid positive symptoms of schizophrenia (hallucinations, thought disorders, delusions,
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eq.

etc.) were found to be perceived as less controllable than were the negative symptoms (limited communication, social withdrawal, and apathy). These findings may help elucidate Vaughn’s (1977, as cited in Fadden et al., 1987) earlier observation that negative symptoms of schizophrenia are more frequently targeted for criticism than are positive symptoms. Results of the present study indicate that positive and negative symptoms elicit different beliefs about a patient’s ability to exert control over symptomatic behaviors. Accordingly, the increased criticism observed toward negative symptoms may stem from the view that these behaviors can and should be controlled by the patient. As several researchers have speculated (e.g., Hooley 1987; Vaughn, 1977, as cited in Fadden et al., 1987), negative symptoms may be associated with negative personality characteristics (a controllable factor) rather than genuine illness. Social withdrawal of a patient with schizophrenia, for example, may appear to be similar, albeit in exaggerated form, to an otherwise well-functioning individual who is shy or reserved in speech. The fact that both cultural groups perceived the positive-symptom patient as having less personal control over the cause and symptoms of the disorder than the negative-symptom patient demonstrates that the findings are robust. In other words, psychotic symptomatology (e.g., hallucinations, delusions) may be recognized as reflecting pathology across cultures.

Our results also extend previous research findings by demonstrating that symptom type is associated with favorable affect in the direction predicted by attribution theory. That is, patients described by primarily positive symptoms (which were perceived as uncontrollable) were responded to by more intense positive emotion than were patients characterized by negative symptoms. Symptom type was also related to unfavorable affect in the direction predicted by attribution theory. Negative symptoms (which were perceived as uncontrollable) were associated with more unfavorable affect than were positive symptoms.

An important contribution of this study is that its experimental design allowed us to evaluate the direct effects of symptom type on attributions and affect, while controlling for other possible mediators of reactions to schizophrenia symptoms (e.g., frequency of symptom type display). Given that research participants were exposed to approximately the same number of positive and negative symptoms in the present study, previous differences observed in emotional reactions toward positive and negative symptoms (Vaughn, 1977, as cited in Fadden et al., 1987) are not likely to be explained by greater exposure to negative symptoms. Rather, our results suggest that negative symptoms are actually experienced by others as more controllable and more bothersome than are positive symptoms. The findings from this study suggest that individuals are at greater risk of misinterpreting negative
symptoms of schizophrenic illness as purposeful misconduct, and are also more likely to respond unfavorably in their emotions toward primarily negative-symptom patients. This is salient in the light of mounting evidence that negatively charged environments correlate positively with poor outcomes for patients with schizophrenia (Kavanagh, 1992).

Controllability Attributions and Affect

Another aim of this investigation was to directly test the applicability of Weiner's (1986, 1993, 1995) attributional (controllability) affect theory. Weiner proposes that, given an individual's negative behavior, unfavorable emotions are aroused toward that person if the occurrence is perceived as controllable. On the other hand, favorable or sympathetic emotions are directed toward the person when the occurrence is perceived as uncontrollable. In the present study, Weiner's model was partially supported. Controllability attributions were associated with favorable emotions in the expected direction. As predicted, participants perceiving the patient as having less control over the cause and symptoms of his disorder responded more favorably toward the patient than did participants who attributed greater personal control to the patient in bringing on and managing his illness.

Support for Weiner's model was limited to favorable affect, however. No relationship was found between controllability attributions and unfavorable emotions. That is, participants who viewed the cause and symptoms of the patient's disorder as largely controllable did not respond more unfavorably toward the patient than did participants who viewed the cause and symptoms as less controllable. One explanation for the lack of a significant correlation between controllability attributions and unfavorable affect may relate to the analogue nature of the study. It is possible that our artificial setting failed to capture the negative emotion that is generally elicited by the day-to-day difficulty of living with a schizophrenic patient. In other words, even the belief that a patient is responsible for his or her symptoms may not result in strong negative emotions, unless one is directly impacted by the consequences of the disruptive behavior. This point warrants further investigation.

In this study, we also tested López and Wolkenstein's (1990) impression that behavioral controllability attributions are more closely tied to affective reactions than are causal controllability attributions. Statistical analyses, however, did not support this expectation. Lack of support for this hypothesis may suggest that emotions toward an ill family member are derived from a global consideration of the patient's role in the illness, reflecting equally his or her ability to have prevented the onset of the disorder and his or her capacity to control the day-to-day symptoms.
Nationality and Gender

To the authors' knowledge, this was the first study to directly compare controllability attributions for schizophrenia between cultural groups and between genders. As hypothesized, Mexicans were found to perceive the negative behavioral symptoms of schizophrenia as less controllable than were Anglos. In other words, Mexicans viewed the hypothetical patient as having less responsibility for and less personal control over his negative symptoms than did Anglos. This finding is consistent with Jenkins et al.'s (1986) observations that Mexican Americans appear to attribute schizophrenic behaviors to legitimate side effects of illness, while Anglos were noted to more frequently attribute the behaviors to volitional or characterological factors. This finding parallels observations by other cross-cultural investigators. For example, Waxler (1977) noted that in Sri Lanka mental illness is generally believed to be caused by demons or other external agents. Consequently, patients are usually exempted from blame, criticism, and other more negative reactions, and are treated with sympathy and warmth. Similar observations have been made in Mauritius (Murphy & Raman, 1971), Samoa (Clement, 1982), and Bali (Connor, 1982), all countries appearing to demonstrate a quicker and more complete recovery from mental illness. A "blame-free" view of schizophrenia could contribute to the more favorable course observed in developing countries by encouraging compassionate attitudes and prosocial, help-giving behaviors toward patients.

In this study, interesting interactions between gender and nationality on causal and behavioral controllability attributions were also found. Nationality appears to moderate the relation between gender and controllability attributions. For Anglos, males perceived both the cause and the behavioral symptoms of the disorder as more controllable by the patient than did females. For Mexicans, however, no gender differences were found with respect to controllability attributions. These findings partially contradict Singer and Stacey's (1986) finding of no controllability attributional differences in gender. However, the present study's results are in line with the majority of psychological research suggesting that females are more external in their attributions of control than are males (Furnham, 1984). Finding this gender-controllability attribution pattern in Anglos yet not in Mexicans may suggest a culture-specific process. For example, American culture may socialize Anglo males to be more competitive than Anglo females and to therefore view

\[4\] Although related, we acknowledge that locus of control and controllability attributions are not synonymous, and therefore caution is advised in making comparisons between the present study and those of Singer et al. (1988) and of Furnham (1984).
triumphs or failures as directly related to one's personal attributes and efforts. Mexicans' beliefs about the causes of events or outcomes may be more closely tied to other factors (e.g., God's will) which may be less clearly demarcated across gender lines.

This study also examined the relationships between gender and nationality on affect. Results revealed significant gender differences in favorable affect. For both cultural groups, females were found to report a greater intensity of positive affect than males, especially for the negative-symptom scenario. Females may be socialized to be more nurturing and compassionate than men toward relatives in distress because of their general assumption of caregiving responsibilities for children and infirm relatives (Dworetzky, 1987). This may also relate to the prognostic variability observed for schizophrenia across cultures. For example, in the U.S., the practice of institutionalization is more common than in Third World countries. In the latter, mentally ill patients typically remain at home in the care of mothers and wives (Escobar & Randolph, 1982). Spending more time with a close female relative who expresses considerable sympathy and warmth may play a mitigating role in a schizophrenic patient's outcome.

Consistent with our expectations, Mexicans, compared to Anglos, were found to report less intense unfavorable emotions toward a hypothetical schizophrenic relative. This pattern occurred when the imagined relative was described by predominantly positive symptoms, as well as by predominantly negative symptoms. This finding is consistent with Jenkins et al.'s (1986) observation that Anglos tend to express more anger and annoyance toward actual schizophrenic relatives than do Mexican Americans. Unfavorable emotions such as anger have been linked to high EE levels, a known marker of poor schizophrenic outcome. For example, Weisman et al. (1993) found that high EE relatives express significantly more negative affects than do low EE relatives. If Mexicans' tendency to express low levels of unfavorable emotion is also reflective of other developing countries, this might contribute to the more benign outcome for their patients suffering from schizophrenia. As stated above, there is now empirical evidence linking high levels of negative emotion on the part of relatives to high EE, a known marker of poor outcome for schizophrenia (Weisman et al., 1993).

Limitations and Conclusions

One limitation of this study is that actual relatives of schizophrenic patients were not assessed. Research participants may have difficulty assuming that their relative might have such an unfathomable disorder. For instance, in a real-life situation, emotions such as sympathy and concern in
response to mental illness of a loved one may be experienced considerably more intensely than they might be in a simulated setting. Similarly, as mentioned above, negative emotions such as anger and frustration may be greater in family members who are actually impacted by a patient’s symptomatic behavior. Replication studies that assess attributions and affect in actual relatives of schizophrenic patients are needed to assess the generalizability of our findings.

An important conclusion that can be drawn from this study is that symptom type is critical in shaping attributions toward schizophrenic illness and emotional reactions toward patients. Findings from this study suggest that individuals are likely to attribute greater blame and responsibility for schizophrenic behavior and are likely to respond in more emotionally unfavorable manners when patients’ behaviors are characterized by predominately negative rather than predominantly positive symptoms. These findings may have important treatment and research implications. When working with families of schizophrenic patients, for example, employing psychoeducational programs that teach relatives of specific aspects of the disorder such as that behavioral deficits (e.g., apathy, poor hygiene) as well as behavioral excesses (e.g., hallucinations, delusions) are integral components of schizophrenia may be useful in reducing blameworthy attributions for negative symptoms. Including measures of symptom type in research protocols may also contribute to a more thorough assessment of the emotional climate of the household, and may serve as a useful diagnostic tool for schizophrenic prognosis and the identification of high-risk patients.

Finally, this study contributes to a greater understanding of the cross-cultural prognostic variability observed for schizophrenia. Two main conclusions can be drawn. First, Anglos residing in the industrialized U.S. perceive some aspects of schizophrenia (particularly the negative behavioral symptoms) as more controllable than do Mexicans residing in their developing homeland. Second, Anglos appear to express more negative emotions toward relatives suffering from schizophrenia than do Mexicans. High levels of perceived control and negative emotions directed from family members toward ill relatives have both been empirically linked to other markers of poor prognosis for schizophrenic patients (Weisman et al., 1993). These findings suggest that controllability attributions and the expression of negative emotions may play a key role in the prognostic variability observed between countries of differing developmental statuses. An important direction in furthering our knowledge about factors that relate to the course and outcome of psychiatric illnesses will be to begin identifying and examining specific sociocultural factors (e.g., family values, religiosity) that may underlie differences in attributions and emotional reactions toward schizophrenia across cultures.
References


