Ataques de Nervios: Culturally Bound and Distinct from Panic Attacks?

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ATAQUES DE NERVIOS: CULTURALLY BOUND
AND DISTINCT FROM PANIC ATTACKS?

By

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ABSTRACT

With the U.S. population becoming increasingly diverse, the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM-IV-TR*; American Psychiatric Association [APA], 2000) acknowledged the importance of understanding psychopathology within a cultural framework by including culture-bound syndromes. These syndromes are proposed to be bound to certain cultures and distinct from other psychological disorders. Included among the syndromes are ataques de nervios, which are reported to be bound to the Hispanic culture and closely resemble panic attacks. Previous investigations of ataques de nervios have primarily focused on Hispanic samples without including other ethnicities or measures of acculturation. The current study employed an ethnically diverse study sample (N=342) and included measures of acculturation. In contrast to the DSM-IV’s conceptualization of ataques de nervios, the rate of ataques de nervios did not significantly vary across the three main groups (Black, White and Hispanic participants) nor did it vary based on acculturation. More consistent with the DSM-IV, the results indicate some differentiation between the two types of attacks.
ATAQUES DE NERVIOS: CULTURALLY BOUND AND DISTINCT
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The *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR; American Psychiatric Association [APA], 2000)* is the preeminent diagnostic manual of psychopathology and frames how mental illnesses are defined and differentiated. Produced by the American Psychiatric Association, the DSM is the most widely used diagnostic manual both within the U.S. and internationally (Maser, Kaelber, & Weise, 1991). It is even more widely used than the ICD-10 (International Classification of Diseases; World Health Organization, 1992) which is maintained by the World Health Organization. A clear benefit of its widespread usage is that the DSM encourages use of the same operational definitions when diagnosing or studying psychopathology. Critics of the DSM argue that it is not appropriate for such widespread usage due to its original development in the U.S. for North American patients and that it does not take into account other cultures’ conceptualizations of psychopathology. In an attempt to address these criticisms, the DSM-IV included an appendix featuring 25 culture-bound syndromes.

The DSM-IV-TR asserts that these 25 culture-bound syndromes are bound to certain cultures but may be encountered by North American clinicians through their ethnically diverse clientele (APA, 2000). It further proposes that although many of these syndromes have similar presentations to disorders listed elsewhere in the DSM-IV-TR, they are all distinct and should not be subsumed under other disorders. It is unclear how prevalent these syndromes are in the U.S. population but understanding psychopathology within a cultural framework has become increasingly important due to the growing diversity of the U.S. population (U.S. Census Bureau, 2005) and evidence that race and ethnicity are important factors in the etiology and expression of psychopathology (Carter, Miller, Sbrocco, Suchday, & Lewis, 1999). Ignoring culture in the identification and treatment of psychopathology potentially puts a significant proportion of the population at jeopardy for misdiagnoses and inadequate treatment. The DSM-IV inclusion of culture-bound syndromes begins to address this problem; however, the descriptions of these disorders are very brief, little research has been conducted on them and there are questions as to whether some of them are unique disorders or cultural variants of disorders listed elsewhere in
the DSM-IV. More research is needed regarding these disorders to determine whether or not they bolster the DSM-IV applicability among culturally diverse clientele.

Among the diverse U.S. population, Hispanic Americans represent the largest and fastest growing ethnic minority group with a growth rate four times the U.S. average (U.S. Census Bureau, 2005). One of the culture-bound syndromes reportedly bound to the Hispanic culture is ataque de nervios, which translates in English as attack of nerves (APA, 2000). With a similar presentation to panic attacks, ataques de nervios are reported to have high prevalence rates in Hispanic countries (Guarnaccia, Canino, Rubio-Stipec, & Bravo, 1993). The studies of ataques de nervios in the U.S. have focused on narrow segments of the Hispanic population particularly Puerto Rican individuals in psychiatric or primary health care settings (Salmán et al., 1998; Weingartner, Robison, Fogel, & Gruman, 2002). The current investigation examines ataques de nervios among a young ethnically diverse community sample in order to evaluate the assertion that ataques de nervios are bound solely to the Hispanic culture and to better understand the distinction between ataques de nervios and panic attacks.

**Background**

As noted in the DSM-IV-TR (APA, 2000), the presentation of ataques de nervios can vary widely but is described as an experience of distress characterized by a general sense of being out of control. The most common symptoms include uncontrollable shouting, attacks of crying, trembling, and heat in the chest rising into the head. Dissociative symptoms, suicidal gestures and seizure or fainting episodes are observed in some ataques de nervios but not others (APA, 2000). This syndrome is reported to typically occur following a distressing event such as an interpersonal conflict or the death of a loved one (Guarnaccia, DeLaCancela, & Carrillo, 1989).

Ataques de nervios were first reported in the literature during the 1950s by U.S. military psychiatrists working in Puerto Rico (Fernández-Marina, 1961; Mehlman, 1961; Rubio, Urdaneta, & Doyle, 1955). Young male Puerto Rican military recruits presented with this ‘bizarre’ syndrome to U.S. military psychiatrists, who presumed the syndrome was specific to Puerto Ricans and referred to it as the ‘Puerto Rican Syndrome’ (Fernández-Marina, 1961; Mehlman, 1961). This label has been widely abandoned due to its inaccuracy and condescending nature in favor of the indigenous label, ataques de nervios (Guarnaccia, Lewis-Fernández, & Rivera Marano, 2003). Ataques de nervios occur in other Hispanic groups (Liebowitz et al.,
1994); however, the prevalence rates among non-Puerto Rican groups and whether ataques de nervios occur among all Hispanic groups is unknown (Oquendo, 1994).

**Acculturation and Ethnicity**

The only reported study to determine widespread prevalence rates of ataques de nervios was conducted in Puerto Rico. This study reported a substantial prevalence rate of 13.8% on the island (Guarnaccia et al., 1993). Studies conducted in the U.S. have also exhibited high prevalence rates but have restricted their samples to Hispanic treatment-seeking adults (70%) and older Hispanic patients presenting at primary health care clinics (26%) (e.g., Lewis-Fernández, Guarnaccia, et al., 2002; Weingartner et al., 2002).

Determining individuals’ level of identification with the Hispanic culture through measures of acculturation is also important when examining a syndrome that is reported to be bound specifically to that culture. There is only one investigation to date that has examined the rate of acculturation among individuals in Puerto Rico who have previously experienced an ataque de nervios versus those who have not. No difference in acculturation between the two groups was found (Cintrón, Carter, & Sbrocco, 2006). There have been no investigations of acculturation among individuals living in the U.S. The rate of acculturation among North Americans with a history of ataques de nervios is an important factor considering ataques de nervios are purportedly bound solely to the Hispanic culture. It stands to reason, that Hispanic Americans who do not identify strongly with the Hispanic culture would report lower rates of ataques de nervios than those who strongly identify with the culture.

To further examine the claim that ataques de nervios are bound solely to the Hispanic culture, ataques de nervios must be examined among non-Hispanic groups. Studies to date have primarily examined ataques de nervios among Puerto Ricans (e.g., Guarnaccia et al., 1993; Guarnaccia et al., 2003). Some studies in the U.S. have extended their samples beyond Puerto Ricans to include other Hispanic groups including individuals of Dominican, Columbian and Ecuadorian descent (e.g., Liebowitz et al., 1994; Salmán et al., 1998; Lewis-Fernández, Guarnaccia, et al., 2002). To date there has only been one study to examine ataques de nervios among a non-Hispanic sample. Interian and colleagues (2005) examined ataques de nervios among Hispanic and European Americans with a history of medically unexplained neurological symptoms. Both Hispanic and European Americans reported experiencing ataques de nervios, with significantly more Hispanic individuals reporting a history of ataques de nervios (European
Americans = 21.9%; Hispanics = 41.3%). Although unique in its assessment of ataques de nervios in a non-Hispanic group, this study’s method of assessing ataques de nervios has limitations. They used the Composite International Diagnostic Interview (CIDI) to assess ataques de nervios by examining items that are associated with ataques de nervios. An individual was considered to have a history of ataques de nervios if they endorsed at least three of the identified ataque de nervios-related somatic sensations and also indicated that one of the symptoms occurred following a distressing experience. The measure assessed whether these symptoms occurred but not when they occurred; therefore, these symptoms could have occurred during distinct periods and not during a single episode as would be necessary with an ataque de nervios.

The current study aims to investigate whether ataques de nervios are specific to the Hispanic culture by examining ataques de nervios among Hispanic, White, and Black individuals. White and Black participants were included because they are both well represented in the U.S. population and exhibit similar rates of panic attacks (Valentiner, Mounts, & Deacon, 2004). In line with prior work (Interian et al., 2005), it was expected that non-Hispanic participants would experience ataques de nervios. In fact, based on their similar rates of panic attacks and the similarities between panic attacks and ataques de nervios, it was hypothesized that Black participants would report similar rates of ataques de nervios as White participants. Consistent with the DSM-IV’s notion that ataques de nervios are bound to the Hispanic culture, it was further hypothesized that Hispanic participants would report the highest rate of ataques de nervios among the three groups.

Panic Attacks: Overlap and Differentiation

Ataques de nervios exhibit high rates of comorbidity with several anxiety disorders including posttraumatic stress disorder, generalized anxiety disorder and panic disorder (Guarnaccia et al., 1993). It has been reported that the comorbidity and symptom similarity between panic attacks and ataques de nervios is so pervasive that respondents with both often confuse the two (Oquendo, 1994). Both disorders exhibit rapid onset, a sense of being out of control, and similar somatic symptoms (APA, 2000; Lewis-Fernández, Guarnaccia, et al., 2002). Studies investigating the congruence between the two disorders have concluded that although they may overlap they are in fact distinct and that ataques de nervios are a more inclusive construct among Hispanic patients (Lewis-Fernández, Guarnaccia, et al., 2002; Liebowitz et al., 1994). Several symptoms have been reported to differentiate the two disorders; ataque de nervios...
are proposed to include less unprovoked attacks, more dissociative symptoms and a slower crescendo than panic attacks (Lewis-Fernández, Guarnaccia, et al., 2002). Moreover, the DSM lists uncontrollable shouting, attacks of crying, trembling, heat in the chest rising into the head and verbal or physical aggression as the most common symptoms of ataques de nervios, whereas the hallmark symptoms of panic attacks include dizziness, shortness of breath, chest pain or discomfort, and trembling or shaking (APA, 2000). Although, these symptoms are similar they are not synonymous and support the conceptualization of these two syndromes as distinct constructs.

Another way to examine the differentiation between the two syndromes is to assess differential endorsement of psychological risk factors. In particular, a history of trauma may put an individual at an increased risk for developing both ataques de nervios and panic attacks. The connection between trauma and ataques de nervios is noted in the DSM as it reports that ataques de nervios typically occur following a distressing event such as the death of a loved one or an interpersonal conflict (APA, 2000). Furthermore among the Hispanic population, a history of trauma particularly abuse by parents and spouses is seen as a vulnerability in the development of ataques de nervios (Guarnaccia et al., 1989; Guarnaccia et al., 2003). Trauma is acknowledged to be a risk factor in the development of panic disorder as well as many other anxiety disorders (e.g., Creamer, McFarlane, & Burgess, 2005; Goodwin, Fergusson, & Horwood, 2005; Lubit, Rovine, Defrancisci, & Eth, 2003); however, unlike ataques de nervios they are not reported to typically occur following a distressing event. Thus, it stands to reason that trauma would be a risk factor in the development of both ataques de nervios and panic attacks but it is likely to be a greater risk factor in the development of ataques de nervios. Previous studies that have examined this link between trauma and ataques de nervios have been mixed (Lewis-Fernández, Garrido-Castillo, et al., 2002; Schechter et al., 2000). Further, evaluation is needed to elucidate whether a history of trauma exhibits a greater risk for ataques de nervios than panic attacks.

A second association between the two disorders is a notable emphasis on somatic symptoms (APA, 2002). These symptoms have received a great deal of emphasis in the panic attack literature. Cognitive models of panic attribute panic attacks to misinterpreted somatic sensations (Schmidt, Lerew, & Trakowski, 1997). A substantial body of research has indicated that those with increased levels of anxiety sensitivity, which is the fear of anxiety-related somatic symptoms, are more likely to experience panic attacks (Cintrón et al., 2005; Schmidt, Lerew, &
Trakowski, 1997). Anxiety sensitivity has also been shown to be predictive of panic attack under high levels of stress (Schmidt, Lerew, & Jackson, 1997). Although ataques de nervios are also characterized by a number of somatic symptoms, they are not associated with fear (APA, 2000). Due to the conceptualization of ataques de nervios not involving an experience of fear it would be expected that they would not be as strongly associated with anxiety sensitivity as panic attacks.

Study Aims

To date, investigations of ataques de nervios within the U.S. have primarily focused on Hispanic treatment seeking adults or older Hispanic primary health care patients. The current study is the first to investigate ataques de nervios among a young nonclinical U.S. sample and the most ethnically diverse sample to date. The study sought to elucidate whether ataques de nervios are bound to the Hispanic culture through the use of a diverse sample and the assessment of acculturation. It also seeks to investigate the overlap between ataques de nervios and panic attacks in several ways. The following were the four main study hypotheses:

1) Hispanic participants would exhibit a higher rate of ataque de nervios endorsement than Black or White participants, who would report similarly low rates.

2) Among Hispanic participants, an inverse relationship between acculturation and ataques de nervios would be observed. More simply put, those Hispanic participants who identify strongly with Hispanic culture would report higher rates of ataques de nervios endorsement.

3) The correlation between ataques de nervios and trauma history would be positive and would be of greater magnitude than the correlation between panic attacks and trauma history. The correlation between panic attacks and anxiety sensitivity would be positive and be greater of magnitude than the correlation between ataques de nervios and anxiety sensitivity.

4) Ataques de nervios were hypothesized to include less unprovoked attacks, more dissociative symptoms and a slower crescendo than panic attacks.
METHOD

Participants

Participants were recruited from a pool of introductory level psychology undergraduates at a large public university. All participants were 18 years old or older and received class credit in exchange for their participation. A total of 342 participants were recruited. Due to the predominance of White students at the university, Hispanic and Black students were over sampled. The racial and ethnic representation of the study participants is as follows, 200 White participants, 58 Black participants, 50 Hispanic participants, 8 Asian participants, 25 multi-ethnic participants and 1 participant who did not report race or ethnicity. The sample is representative of the university’s undergraduate population with respect to age ($M = 19$, $SD = 1.58$) and gender (65% Female).

Measures

Acculturation Variables: The Multigroup Ethnic Identity Measure (MEIM; Phinney, 1992) is a 23 item self-report acculturation questionnaire designed to assess ethnic identity and other group orientation. The items are based on aspects of ethnicity that are universal across different ethnicities. For purposes of this study, only the ethnic identity scale was assessed which is made up of 14 items that examine the degree to which participants identify with their reported ethnic group. Each item is rated on a four-point Likert scale from strongly agree (4) to strongly disagree (1). The average of the 14 items results in participants’ total score which range from one to four. The ethnic identity scale has exhibited excellent internal consistency coefficients in both high school (Cronbach’s $\alpha = .81$) and college samples (Cronbach’s $\alpha = .90$) (Phinney, 1992). The alpha coefficient for the ethnic identity scale in this sample was .89.

The Psychological Acculturation Scale (PAS; Tropp, Erkut, García Coll, Alarcón, & Vázquez García, 1999) is a 10 item self-report measure that evaluates participants attachment and belonging to two different cultures. It focuses on psychological aspects of acculturation rather than behaviors and attitudes which are a common focus of acculturation measures. Participants’ answers range from only Hispanic/Latino (1) to only Anglo/American (9). An average of the 10 items is taken. Low scores indicate the participant identifies more with the Hispanic culture and high scores indicate that the participant identifies more with the Anglo/American culture. An intermediary score indicates equal identification. Good internal
consistency ($\alpha = .85$) has been established for this measure (Tropp et al., 1999). The alpha coefficient for the PAS in this sample was .95.

Risk Factor Variables: The Anxiety Sensitivity Index (ASI) is a 16 item self-report questionnaire that measures participants’ anxiety sensitivity, or the fear of consequences resulting from anxiety-related bodily sensations (Reiss, Peterson, Gursky, & McNally, 1986). Each item is rated on a five-point Likert scale from very little (0) to very much (4) with the summation of all items resulting in the final score. The ASI is hierarchical in structure with three lower-order factors (AS-physical concerns, AS-cognitive concerns and AS-social concerns) (Zinbarg, Barlow, & Brown, 1997). The measure has established good internal consistency (Cronbach’s $\alpha = .82-.91$; Peterson & Reiss, 1993). The alpha coefficient for the ASI in this sample was .85.

The Body Vigilance Scale (BVS) is a four item self-report questionnaire that assesses the degree to which respondents focus on panic-related bodily sensations (Schmidt, Lerew, & Trakowski, 1997). The first three items evaluate the degree to which respondents monitor their internal bodily sensations. The fourth item is comprised of a list of the panic attack physical symptoms listed in the DSM-IV-TR (APA, 2000) as well as several others for a total of fifteen different sensations. Participants are instructed to rate how much they attend to these sensations from none (0) to extreme (10). Good internal consistency has been established as well as adequate test-retest reliability (Schmidt, Lerew, & Trakowski, 1997). The alpha coefficient for the BVS in this sample was .96.

The State Trait Anxiety Inventory (STAI; Spielberger, Gorsuch, Luschene, Vagg, & Jacobs, 1983) is a forty item self-report measure that is divided into two subscales. The STAI-T evaluates respondents’ trait level anxiety, while the STAI-S evaluates respondents’ state level anxiety. Both subscales are composed of twenty four-point likert scale items. Good internal consistency has been established as well as adequate test-retest reliability (Spielberger, et al., 1983). The alpha coefficient in this sample was .91 for both the STAI-T and STAI-S.

The Traumatic Events Questionnaire (TEQ; Vrana & Lauterbach, 1994) is an eleven item self-report questionnaire that queries participants as to whether they have experienced any of eleven different types of trauma. Participants were asked whether they had experienced the trauma (yes/no). The detailed follow-up question regarding age, severity and frequency of each traumatic experience are not necessary to establish a history of trauma; therefore, they were not
included. Information regarding the measure’s reliability has not been published but it is widely used in the trauma literature (e.g., Lauterback & Vrana, 2001; Lev-Weisel, Amir, & Besser, 2005; Neller, Denny, Pietz, & Thomlinson, 2005). The alpha coefficient for the modified TEQ in this sample was .59. The relatively low alpha for this measure is to be expected since each item assesses a different type of trauma and would not be expected to tightly cohere.

**Syndrome Assessment:** The Panic Attack Questionnaire-Revised (PAQ-R; Cox, Norton, & Swinson, 1992) is a self-report questionnaire that was designed to provide detailed information about a respondent’s panic attacks including frequency, family history, duration, course, severity, symptoms, functional impairment, onset and perceived control. A description of a panic attack is provided and respondents are asked if they have had a panic attack (see Table 1). If they respond in the affirmative, they complete the detailed follow-up questions. Due to the design of the measure, a single score is not generated.

For the purpose of the current study, the PAQ-R was revised. The label ‘panic attack’ was completely removed from the measure and instead referred to as ‘reaction A’. A brief description of an ataque de nervios, based on the DSM-IV, was added and referred to as ‘reaction B’ (see Table 1). A third syndrome, Koro was added for reliability purposes. A description of Koro, again based on the DSM-IV, was added and referred to as ‘reaction C’ (see Table 1). These labels were used in place of the disorder names to ensure that participants were responding based on their experiences and not based on their level of familiarity with the disorder names.

Koro is listed as a culture-bound syndrome along with ataque de nervios in the appendix of the DSM-IV. It is characterized as primarily affecting Asian men and refers to an episode of intense anxiety in which men fear that their penis (or vulva and nipples in women) is receding into their body and will result in death (APA, 2000). Koro was chosen for use in the current investigation due to its status as an anxiety based culture-bound syndrome that has been reported to have a great deal in common with panic attacks including onset, duration, intensity and symptoms (Amering & Katschnig, 1990). However, due to its rare occurrence in the U.S. and affiliation with the Asian culture (DSM-IV-TR; APA, 2000), it was highly unlikely to present in the study population and thus served as a reliability check for over reporting.

The revised instructions inform the participant that it is possible for them to have experienced all or none of these reactions. After reading a brief description of the three reactions, the participant was asked if they have experienced ‘reaction A’. It they positively endorsed this
reaction, they completed the follow-up question in section A. They then were asked whether they had experienced ‘reaction B’. Again if they endorsed ‘reaction B’, they completed the follow-up questions in section B. The same procedure was followed for ‘reaction C’. If they did not endorse a reaction, they skipped the follow-up question and moved on to the next reaction. The follow-up questions were the same in each section except that they referred the participant to that section’s reaction.

The PAQ-R follow-up questions query the participant about the most recent, typical and worst panic attacks. In order to ensure that the measure was not overly burdensome, participants were only asked about their typical and worst episodes. Panic attacks and ataques de nervios markedly overlap in terms of reported symptoms and situations in which they occur (Lewis-Fernández, Guarnaccia, et al., 2002). A few symptoms and situations were added to the follow-up questions to ensure that all typical ataque de nervios symptoms and situations were included. Although the PAQ-R has not been subjected to psychometric validation studies many of the sections are based on validated and reliable measures. Also, the PAQ-R has been used extensively to investigate the occurrence of panic attacks in nonclinical samples (Norton, Cox, & Malan, 1992) and to assess symptoms in clinical samples (Cox, Endler, & Swinson, 1995; Cox, Swinson, Endler, & Norton, 1994).

Procedure

Participants signed up for a testing session through the department’s confidential electronic research sign-up database. Upon arrival, participants read and signed a consent form. They were then given a packet containing all of the above self-report measures. Although the measures took approximately 30 to 60 minutes to complete, all participants received class credit for the full 60 minutes. After completing the packet, participants were debriefed and given the opportunity to ask questions. Administration of the battery was completed in groups of approximately 10-30 participants.

Data Analysis

Hypothesis 1: To assess the hypothesis that Hispanic participants rate of ataques de nervios are greater than Hispanic or Black participants, separate chi-square analyses were conducted.
Hypothesis 2: To assess the hypothesis that the rate of ataques de nervios (as measured by the PAQ-R) would decrease as the rate of acculturation with non-Hispanic culture increased (as measured by the PAS and MEIM), correlational analyses were conducted.

Hypothesis 3: To assess the hypothesis that ataques de nervios would be significantly more associated with a history of trauma and that panic attacks would be significantly more associated with anxiety sensitivity, Meng’s correlated correlations analysis (Meng, Rosenthal, & Rubin, 1992) was conducted.

Hypothesis 4: To assess the hypothesis that the endorsement rate of attacks out of the blue, crescendo in ≤ 10 minutes and dissociative symptoms would be elevated among the ataques de nervios group in comparison to the panic attack group, separate chi-square analyses were conducted.

RESULTS
Rates of attacks by ethnicity/race and gender

Twenty-five percent (n = 86) of the sample reported a lifetime experience of at least one ataque de nervios. While the rate was slightly higher in Hispanic participants (32%, n = 16) in comparison to White participants (27%, n = 51) and Black participants (23%, n = 13), the differences between the groups were not significant ($X^2 = 1.16$, $p = .56$; $df = 2$). This finding stands in contrast to the hypothesis that ataques de nervios are bound to the Hispanic culture and thus that Hispanic participants would show an elevated rate of ataque de nervios endorsement. There was also no significant difference ($X^2 = 1.39$, $p = .24$; $df = 1$) between the rate of endorsement for females (28%, n = 60) and males (22%, n = 26).

A total of 17% (n = 59) of the sample reported a lifetime experience of at least one panic attack. The rates were as follows among the different ethnic/racial groups; Hispanic participants (12%, n = 6), White participants (17%, n = 33) and Black participants (16%, n = 9). Again the differences among groups were not significant ($X^2 = .62$, $p = .74$; $df = 2$). The rate of endorsement between females (28%, n = 42) and males (22%, n = 17) was not significant ($X^2 = 1.02$, $p = .31$; $df = 1$).

Only thirteen individuals endorsed having experienced both a panic attack and an ataque de nervios. The endorsement rate did not significantly differ for the three primary ethnic/racial groups ($X^2 = .531$, $p = .77$; $df = 2$) nor did it differ by gender ($X^2 = .91$, $p = .34$; $df = 1$).
Participants were also assessed for a history of Koro in part as a check for valid responding. None of the participants endorsed a prior experience of Koro, which is consistent with a close and presumably accurate response style. All remaining analyses focus solely on ataques de nervios and panic attacks.

**Impact of Acculturation**

The rate of acculturation among Hispanic participants (PAS: $M = 4.87, SD = 1.38$; MEIM: $M = 3.04, SD = .59$) was significantly different (PAS: $t = 12.86, p < .01$; MEIM: $t = 3.68, p < .01$) than the rate of acculturation in White participants (PAS: $M = 7.41, SD = 1.2$; MEIM: $M = 2.72, SD = .53$). However, the rate of acculturation as measured by PAS did not correlate with endorsement of ataque de nervios in the entire sample ($r = .059, p = .28$) or among Hispanic participants ($r = .05, p = .74$). The rate of acculturation as measured by the MEIM also did not correlate with ataque de nervios endorsement in the entire sample ($r = .07, p = .18$) or among Hispanic participants ($r = -.17, p = .24$). These results are not consistent with the hypothesis that Hispanic individuals who were less acculturated would be more likely to endorse a history of ataques de nervios.

**Measures of trauma history and anxiety**

Contrary to expectation, ataques de nervios were not significantly correlated with the ASI, TEQ, STAI-T, STAI-S, or BVS (see Table 2). On the other hand, panic attacks were significantly correlated with all of these measures (see Table 2). Tests of correlated correlations (Meng et al., 1992) were used to determine whether the preceding measures were significantly better predictors of panic attacks than ataques de nervios. These analyses indicated that TEQ and the physical subfactor of ASI were significantly better predictors of panic attacks than ataques de nervios, which partially supported the hypothesis.

**Differential symptomatic endorsement**

Separate chi-square analyses were conducted to determine whether the rate of endorsement for the three hypothesized symptoms (attacks out of the blue, crescendo in less than ten minutes and dissociative symptoms) were higher among ataques de nervios than panic attacks. Individuals who endorsed both a panic attack and ataque de nervios were not included in the analyses of differential symptom endorsement. Contrary to prediction, the rates of endorsement between the two groups were not significantly different for attacks out of the blue
(χ² = 1.18, p = .28; df = 1), crescendo in less than ten minutes (χ² = .35, p = .55; df = 1), or dissociative symptoms (χ² = 1.02, p = .31; df = 1).

Exploratory analyses were conducted to examine differential endorsement of symptoms that are commonly associated with panic attacks, ataques de nervios or both (see Table 4). There was some evidence for differential symptom endorsement between these two phenomena. Ataques de nervios were more associated with anger, guilt, fear of causing a scene, uncontrollable shouting, verbal aggression and fear of doing something uncontrolled. Panic attacks were more associated with dizziness, faintness and tingling in hands or feet.

Further exploratory analyses were conducted to examine whether individuals who endorsed panic attacks differed from those who endorsed ataques de nervios in terms of their treatment history (drugs, psychotherapy, or hospitalization). Examination of treatment history revealed that panic attacks were significantly associated with a history of treatment for depression (χ² = 21.48, p < .001; df = 1), anxiety/nervous disorders (χ² = 36.48, p < .001; df = 1) and other psychiatric problems (χ² = 8.35, p = .004; df = 1). Ataques de nervios were significantly associated with a history of treatment for depression (χ² = 5.05, p = .03; df = 1) but were not significantly associated with a history of treatment for anxiety/nervous disorders (χ² = 0.02, p = .898; df = 1) or other psychiatric problems (χ² = 0.99, p = .321; df = 1).

DISCUSSION

The DSM-IV included a group of culturally bound syndromes in its appendices in an effort to be more culturally inclusive and as an acknowledgement that culture can have an impact on etiology and expression of psychopathology. Ataques de nervios are one of the most researched culture-bound syndromes; however, research on this syndrome is still quite nascent. The current investigation sought to expand upon the previous ataque de nervios literature by testing the DSM-IV assertion that ataques de nervios are bound to individuals from Hispanic cultures (APA, 2000). The current study also extended understanding of this syndrome by further examining the differences and similarities between ataques de nervios and panic attacks. Importantly, the current data indicate that ataques de nervios, as described by the DSM-IV, are not unique to the Hispanic culture but are experienced by non-Hispanic individuals. Also suggested by these data, ataques de nervios are similar to panic attacks but do not appear to be the same phenomena.
Twenty-five percent of the current sample reported having previously experienced an ataque de nervios. This is consistent with the endorsement rate of ataques de nervios (26%) in Tolin, Robison, Gaztambide, Horowitz and Blank’s (in press) investigation of primary care Puerto Ricans living in the U.S. In the current investigation, the rate of ataque de nervios endorsement was not significantly higher among Hispanic participants in comparison to Non-Hispanic White or Black participants. This finding is contrary to the conceptualization of ataques de nervios as a syndrome that is unique to the Hispanic culture. Although this conceptualization is widely held, it has not been supported with empirical evidence investigating the syndrome among Non-Hispanic groups (Interian et al., 2005). To assume that a syndrome is unique (i.e., bound) to one culture, it seems that one would also need to presume that the unique aspect of the syndrome is exclusive to the specified culture. Ataques de nervios could be described as similar to panic attacks in that they are both characterized by a sense of being out of control, yet with a more outward display of symptoms. An outward expression of emotions is not unique to the Hispanic culture; thus it is not surprising that when investigated among an ethnically/racially diverse group, ataques de nervios are also not found to be unique to the Hispanic culture.

Consistent with the notion that a syndrome is bound to a particular culture, one would expect that degree of acculturation to that culture should be associated with experiencing the culture-bound syndrome. Yet, the current data indicate that acculturation is not significantly related to the rate of ataque de nervios endorsement among Hispanic participants or across all study participants regardless of ethnicity. This is in line with the findings of Cintrón et al. (2006) that reported no differential rate of acculturation among a group of Puerto Rican participants who either did or did not have a history of ataques de nervios. Consistent with the present study’s similar endorsement rate of ataques de nervios among the different racial and ethnic groups, the lack of relationship between acculturation and ataques de nervios adds to the growing body of research contradicting the conceptualization that ataques de nervios are bound to the Hispanic population since differential rates of identification with this culture do not affect the rate of ataque de nervios endorsement. The acculturation finding together with the similar rate of endorsement among Hispanic, White and Black participants support the conclusion that ataques de nervios are not bound to the Hispanic culture and that this syndrome may be more common than originally thought. Future investigations should be conducted to further elucidate the link
between ataques de nervios and the Hispanic culture and to determine whether ataques de nervios’ current classification as a culture-bound syndrome is erroneous.

Given the reported differences between panic and ataques de nervios, it was hypothesized that these two conditions may be differentially related to underlying vulnerability factors. We therefore examined the association of ataques de nervios and panic attacks with two factors thought to serve as risk factors for panic (anxiety sensitivity) and ataques de nervios (trauma history). Ataques de nervios were not associated with either of these factors. In fact, the current investigation indicated that a history of traumatic events and the physical subfactor of anxiety sensitivity were significantly better indicators of panic attacks than ataques de nervios. It has been suggested that ataques de nervios typically occur following a distressing event such as witnessing the death of a loved one (APA, 2000); however, prior investigations regarding the connection between trauma and ataque de nervios have been mixed (Lewis-Fernández, Garrido-Castillo, et al., 2002; Schechter et al., 2000). The present data add to the growing body of work (Lewis-Fernández, Garrido-Castillo, et al., 2002) indicating that ataques de nervios are not necessarily the result of experiencing traumatic events and suggest that the DSM description may need revision.

The differential rate of association between anxiety sensitivity and the two types of attacks may indicate that individuals with a history of ataques de nervios are less distressed by the physical symptoms they experience than panic-prone individuals. This finding is consistent with the DSM-IV’s assertion that the fear and apprehension that are associated with panic attacks are often absent in ataques de nervios. As is evident by the elevation of anxiety sensitivity, panic attacks are often accompanied by an extreme fear that the panic attack is an indication of impending illness or harm; whereas ataques de nervios are often described in the literature as an acceptable expression of distress (APA, 2000). The lack of association between ataques de nervios and both anxiety sensitivity and trauma history may indicate that although panic attacks and ataques de nervios exhibit a similar presentation, their etiology may be distinct, which provides further evidence that they are distinct syndromes. However, more work is needed to determine if they share other vulnerability factors.

In order to further investigate the distinction between panic attacks and ataques de nervios, symptom endorsement was examined to determine whether the two syndromes are distinct. Prior investigation by Lewis-Fernández, Guarnaccia, et al. (2002), reported several
symptoms that distinguished the two types of attacks specifically ataque de nervios were characterized as being more often provoked, having more dissociative symptoms and having a slower crescendo than panic attacks. The current investigation did not find differential rates of endorsement between panic attacks and ataque de nervios for those symptoms. On the other hand, exploratory analyses did indicate that ataques de nervios were more often characterized by anger, guilt, fear of causing a scene, uncontrollable shouting, verbal aggression and fear of doing something uncontrolled. While panic attacks were characterized by the hallmark somatic symptoms of dizziness, faintness and tingling. This pattern of symptomatic endorsement points to panic attack symptoms as being more physical in nature than the ataque de nervios symptoms. The symptomatic differences also support the conceptualization that ataques de nervios are a more aggressive outward experience of emotional distress than panic attacks. Future investigations assessing anger and lack of control in individuals with ataques de nervios may help to further elucidate the construct.

Further analyses indicated that panic attacks were associated with a history of treatment for depression, anxiety and other psychiatric problems whereas ataques de nervios were only associated with a history of treatment for depression. This may indicate that ataques de nervios are a less severe type of attack as the DSM-IV suggests (APA, 2000) and are less likely to require professional intervention. However, it may also reflect that society views panic attacks as a potentially serious problem while ataques de nervios are seen as an acceptable way of expressing distress.

A final point worth highlighting in regards to the two syndromes is that only thirteen participants reported having experienced both a panic attack and an ataque de nervios. Participants’ ability to differentiate the two syndromes supports the conceptualization of these syndromes as separate constructs. Taken together these results indicate that although panic attacks and ataques de nervios are similar, risk factors (ASI and trauma), specific symptom endorsement, treatment history and syndrome endorsement differentiate the two and support the DSM-IV assertion that ataques de nervios and panic attacks are distinct syndromes.

As with any study, the current findings must be viewed in light of several study limitations. First, the Hispanic culture is composed of a number of different groups (e.g., Cuban, Puerto Rican, Columbian, Mexican); however, due to constriction of sample size and power it was necessary to combine these groups into one. Future work is necessary to determine whether
observed findings generalize to specific Hispanic cultures. Second, the measures employed in this investigation were self-report. There is often a concern of over endorsement of psychopathology with self-report measures; however, the current rates of panic attacks and ataques de nervios do not appear to be out of line with the rates of previous investigations (Kessler, Chiu, Jin, Ruscio, Shear, & Walters, 2006; Tolin, et al., in press). The endorsement of both ataques de nervios and panic attacks by only thirteen participants seems to indicate that participants were able to differentiate the two syndromes based on the DSM descriptions provided. Also, the lack of Koro endorsement is consistent with a valid response style. However, replication using a multi-method, multi-informant approach is warranted.

The current investigation is unique in the ataque de nervios literature due to its inclusion of a racially and ethnically diverse sample of participants. Results further support previous ataque de nervios investigations that indicate panic attacks are similar to ataques de nervios yet distinct. Contrasting the accepted conceptualization of ataques de nervios, the study results indicate that ataques de nervios are not unique to the Hispanic culture and may be experienced by a more widespread group.
Table 1

Description of Syndromes Used in the Modified PAQ-R

<table>
<thead>
<tr>
<th>Reaction A (i.e. Panic Attack)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>An experience characterized by the sudden onset of intense fear or terror, often associated with feelings of impending doom, that is not a result of a real danger. Some of the most common symptoms experienced during an attack are: dizziness, shortness of breath, chest pain or discomfort, and trembling or shaking. This experience differs from feelings of fear, anxiety, or worry that build up over time, and also differs from moderate feelings of fear or anxiety. Rather, it involves quick hitting feelings of extreme terror or fear.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reaction B (i.e. Ataque de Nervios)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>An experience of distress characterized by a general sense of being out of control that does not typically involve fear and often occurs following a stressful family event. Some of the most common symptoms experienced are: uncontrollable shouting, attacks of crying, trembling, heat in the chest rising into the head and verbal or physical aggression.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reaction C (i.e. Koro)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>An experience of sudden and intense anxiety that the penis (or, in females, vulva and nipples) will recede into the body and possibly cause death.</td>
<td></td>
</tr>
</tbody>
</table>
Table 2

Bivariate Correlations between attack type and anxiety measure

<table>
<thead>
<tr>
<th></th>
<th>Panic Attacks</th>
<th>Ataque de Nervios</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAI-T</td>
<td>.164**</td>
<td>.060</td>
</tr>
<tr>
<td>STAI-S</td>
<td>.169**</td>
<td>.030</td>
</tr>
<tr>
<td>TEQ</td>
<td>.240**</td>
<td>-.008</td>
</tr>
<tr>
<td>BVS</td>
<td>.151**</td>
<td>.064</td>
</tr>
<tr>
<td>ASI</td>
<td>.197**</td>
<td>.052</td>
</tr>
<tr>
<td>ASI physical</td>
<td>.230**</td>
<td>.051</td>
</tr>
<tr>
<td>ASI cognitive</td>
<td>.076</td>
<td>-.004</td>
</tr>
<tr>
<td>ASI social</td>
<td>.108*</td>
<td>.080</td>
</tr>
</tbody>
</table>

Note: ASI = Anxiety Sensitivity Index; STAI-T = Trait Anxiety Inventory; STAI-S = State Anxiety Inventory; TEQ = Traumatic Events Questionnaire; BVS = Body Vigilance Scale.
*p<.05. **p<.001.
Table 3

Means and standard deviations for acculturation and anxiety measures

<table>
<thead>
<tr>
<th></th>
<th>Total Sample</th>
<th>Black Sample</th>
<th>Hispanic Sample</th>
<th>White Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEIM Ethnic ID</td>
<td>2.90 (.59)</td>
<td>3.34 (.41)</td>
<td>3.04 (.59)</td>
<td>2.72 (.53)</td>
</tr>
<tr>
<td>PAS</td>
<td>6.46 (1.79)</td>
<td>5.15 (1.63)</td>
<td>4.87 (1.38)</td>
<td>7.41 (1.20)</td>
</tr>
<tr>
<td>STAI-T</td>
<td>38.32 (10.15)</td>
<td>37.54 (9.11)</td>
<td>39.92 (12.08)</td>
<td>37.97 (9.90)</td>
</tr>
<tr>
<td>STAI-S</td>
<td>38.58 (10.70)</td>
<td>38.03 (10.16)</td>
<td>40.14 (11.97)</td>
<td>38.14 (10.59)</td>
</tr>
<tr>
<td>TEQ</td>
<td>2.75 (1.84)</td>
<td>2.79 (1.82)</td>
<td>2.62 (1.69)</td>
<td>2.76 (1.90)</td>
</tr>
<tr>
<td>BVS</td>
<td>14.37 (7.65)</td>
<td>16.98 (8.56)</td>
<td>14.56 (7.00)</td>
<td>13.63 (7.16)</td>
</tr>
<tr>
<td>ASI</td>
<td>19.52 (9.19)</td>
<td>21.95 (10.83)</td>
<td>20.67 (8.94)</td>
<td>18.31 (8.61)</td>
</tr>
<tr>
<td>ASI physical</td>
<td>9.62 (5.80)</td>
<td>11.38 (6.97)</td>
<td>9.92 (5.16)</td>
<td>8.96 (5.49)</td>
</tr>
<tr>
<td>ASI cognitive</td>
<td>2.57 (2.78)</td>
<td>2.97 (3.16)</td>
<td>3.00 (2.89)</td>
<td>2.33 (2.60)</td>
</tr>
<tr>
<td>ASI social</td>
<td>7.28 (2.54)</td>
<td>7.60 (2.80)</td>
<td>7.56 (2.76)</td>
<td>6.99 (2.38)</td>
</tr>
</tbody>
</table>

Note: MEIM = Multigroup Ethnic Identity Measure; PAS = Psychological Acculturation Measure; STAI-T = Trait Anxiety Inventory; STAI-S = State Anxiety Inventory; TEQ = Traumatic Events Questionnaire; BVS = Body Vigilance Scale; ASI = Anxiety Sensitivity Index
Table 4

Differential Symptom endorsement between ataques de nervios and panic attacks

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Worst Attack</th>
<th>Typical Attack</th>
</tr>
</thead>
<tbody>
<tr>
<td>Difficulty breathing</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Neck tension</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Heart pounding</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Chest pain or discomfort</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Joint pain</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Choking or smothering sensations</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Dizziness, vertigo, or unsteady feelings</td>
<td>ns</td>
<td>.003 (PA)</td>
</tr>
<tr>
<td>Feelings of unreality</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Tingling in hands or feet</td>
<td>ns</td>
<td>.005 (PA)</td>
</tr>
<tr>
<td>Headache</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Hot and cold flashes</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Sweating</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Acute neck pain</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Faintness</td>
<td>.013 (PA)</td>
<td>.006 (PA)</td>
</tr>
<tr>
<td>Trembling or shaking</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Cold extremities</td>
<td>.021 (PA)</td>
<td>ns</td>
</tr>
<tr>
<td>Tinnitus/ringing in the ears</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Fears of death or serious illness</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Fear of going crazy</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Fear of doing something uncontrolled</td>
<td>.006 (AN)</td>
<td>ns</td>
</tr>
<tr>
<td>Feeling of nausea</td>
<td>.035 (PA)</td>
<td>ns</td>
</tr>
<tr>
<td>Visual difficulties (e.g. blurred vision)</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Auditory difficulties (e.g. ears ringing)</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Difficulty concentrating</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Extremely rapid heartbeat</td>
<td>ns</td>
<td>.046 (PA)</td>
</tr>
<tr>
<td>Fear of causing a scene</td>
<td>.000 (AN)</td>
<td>.000 (AN)</td>
</tr>
<tr>
<td>Feeling of anger</td>
<td>.000 (AN)</td>
<td>.004 (AN)</td>
</tr>
<tr>
<td>Feeling of sadness</td>
<td>.028 (AN)</td>
<td>.045 (AN)</td>
</tr>
<tr>
<td>Feeling of guilt</td>
<td>.008 (AN)</td>
<td>.008 (AN)</td>
</tr>
<tr>
<td>Urge to escape from scene of the episode</td>
<td>.022 (AN)</td>
<td>.027 (AN)</td>
</tr>
<tr>
<td>Flushing</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Fear of drawing attention to oneself</td>
<td>.023 (AN)</td>
<td>ns</td>
</tr>
<tr>
<td>Mouth feels dry</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Feeling of helplessness</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Neck soreness</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Amnesia for the episode</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Fainting</td>
<td>.018 (PA)</td>
<td>ns</td>
</tr>
<tr>
<td>Seizurelike symptoms</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Suicidal behavior</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Uncontrollable shouting</td>
<td>ns</td>
<td>.006 (AN)</td>
</tr>
<tr>
<td>Attacks of crying</td>
<td>ns</td>
<td>.04 (AN)</td>
</tr>
<tr>
<td>Heat in the chest rising into the head</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Verbal aggression</td>
<td>.013 (AN)</td>
<td>.003 (AN)</td>
</tr>
<tr>
<td>Physical aggression</td>
<td>.019 (AN)</td>
<td>ns</td>
</tr>
</tbody>
</table>
REFERENCES


BIOGRAPHICAL SKETCH

CURRICULUM VITAE

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EDUCATION

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Clinical Psychology
Expected Date of Completion: 2010

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December 2000, magna cum laude

RESEARCH EXPERIENCE

Lab Coordinator, August 2006-Present
Florida State University, Anxiety and Behavioral Health Research Clinic
Supervisor: Norman B. Schmidt, Ph.D.

Volunteer Research Assistant, June 2004 – June 2005
University of Washington, Department of Psychology
Center for Anxiety and Traumatic Stress
Supervisor: Lori Zoellner, Ph.D.

Research Assistant, May 2001- July 2005
University of Washington, Department of Rehabilitation Medicine
Traumatic Brain Injury and Depression Research Study
Supervisor: Charles Bombardier, Ph.D.

Undergraduate Research Assistant, January 1999- December 2000
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Functional Analytic Psychotherapy Laboratory
Supervisor: Robert Kohlenberg, Ph.D.

PUBLICATIONS


**PROFESSIONAL PRESENTATIONS & PUBLISHED ABSTRACTS**


Keough, M., Kanter, J., & Kohlenberg, R. J. (1999, October). *THISS (Therapist In-Vivo Strategy Scale) Rating Protocol.* Presented at the Northwestern Association for Behavior Analysis Annual Conference, Seattle, WA.

**POSTER PRESENTATIONS**


**Clinical Experience**

**Anxiety Specialist**, 2006 – Present
*Anxiety and Behavioral Health Clinic, Tallahassee, FL.*

**Supervisor**: Norman B. Schmidt, Ph.D.

**Duties**: Providing outpatient empirically supported treatments to children and adults with a primary anxiety disorder; conducting psychological assessments for clients; screening interviews; and emergency suicidality assessments.

**Psychological Trainee**, 2006 – Present
*Florida State University Psychology Clinic, Tallahassee, FL.*

**Supervisor**: Donald Kerr, Ph.D.

**Duties**: Individual and group therapy with empirically supported treatments; screening interviews; psychoeducational and personality assessments; emergency suicidality assessments; and comprehensive psychological report writing.

**Crisis Intervention Specialist**, August 2000-August 2005
*King County Crisis Clinic, Seattle, WA.*

**Supervisor**: Cheryl Carp.

**Duties**: Completed 50 hour training in crisis intervention, mental illness, communication and related skills. Logged over 900 hours answering the crisis line and assisting callers in a variety of crisis situations. Trained and assessed new phone volunteers in the skills needed to work on the crisis line.

**Phone Room Supervisor**, May 2003-May 2004
*Teen Link Helpline, Seattle, WA*

**Supervisor**: Daemond Arrindell

**Duties**: Assisted teen phone workers in assessment and de-escalation of crisis and related phone calls. Debriefed phone volunteers after every call.

**Teaching/Supervising Experience**

**Primary Supervisor**, Fall 2006-Present
*Directed Individual Study*
*Department of Psychology, Florida State University, Tallahassee, FL*

**Duties**: Supervise undergraduates in conducting clinical research and conduct seminars in a variety of topics including research methods and assessment of suicidality.

**Teaching Assistant**, January-June, 2000
*Psychology Probability & Statistics*
*Department of Psychology, University of Washington, Seattle, WA*

**Professor**: Geoffrey Loftus, Ph.D.

**Duties**: Taught lab sections, graded homework and tests, assisted with test formulation and held weekly office hours.
Peer Tutor, September-December, 1999
Fundamentals of Psychological Research
Department of Psychology, University of Washington, Seattle, WA
Professor: Beth Kerr, Ph.D.
Duties: Conducted weekly office hours, developed test questions, advised students on scientific writing.

JOURNAL EDITING AND REVIEWING

Behavior Modification (ad hoc reviewer)

PROFESSIONAL MEMBERSHIPS

Member, Society for a Science of Clinical Psychology, 2007-Present
Member, Association Psychological Association, 2006-Present
Member, Anxiety Disorders Association of America, 2006-Present
Member, Association for Behavioral and Cognitive Therapies, 2006-Present
Anxiety Special Interest Group