Interamerican Journal of Psychology
Sociedad Interamericana de Psicología
rip@ufrgs.br
ISSN (Versión impresa): 0034-9690
LATINOAMERICANISTAS

2000
Glorisa Canino / Héctor Bird / Maritza Rubio Stipec / Milagros Bravo
THE EPIDEMIOLOGY OF MENTAL DISORDERS IN THE ADULT POPULATION OF PUERTO RICO
Interamerican Journal of Psychology, vol. 34, número 001
Sociedad Interamericana de Psicología
Austin, Latinoamericanistas
pp. 29-46

Revista Interamericana de Psicología/ Interamerican Journal of Psychology
2000, Vol. 34, No. 1, pp. 29-46

The Epidemiology of Mental Disorders in the Adult Population of Puerto Rico

Glorisa Canino[1]
University of Puerto Rico, Puerto Rico
Héctor Bird
Columbia University, U.S.A.
Maritza Rubio-Stipec
University of Puerto Rico, Puerto Rico
Milagros Bravo
University of Puerto Rico, Puerto Rico

Abstract

A detailed review of the results of psychiatric epidemiological studies carried out in Puerto Rico in the last decade is presented. The results of these studies show that contrary to prior research in this area, the prevalence and correlates of psychiatric disorders and symptoms in the Puerto Rican population are not significantly different from those observed in other communities, in particular in the United States. Exceptions were somatization disorder and symptoms which were found to be significantly more common in Puerto Rico as compared to the U.S. and drug abuse/dependence which was found to be considerably less common. The prevalence of a "culturally defined syndrome" of *ataques de nervios* and its correlates is also discussed. Interpretations of these results are offered as are implications for future research.

Compendio

Presentamos una revisión detallada de los estudios de epidemiología psiquiátrica llevados a cabo en Puerto Rico en la última década. Los resultados de estos estudios demuestran que contrario a lo que se ha encontrado en la investigación previa en esta área, la prevalencia y los correlatos de los trastornos psiquiátricos en Puerto Rico no son significativamente diferentes a los que se observan en otras comunidades, en particular en Estados Unidos. Excepciones a esto fueron el trastorno de somatización y sus síntomas que son más frecuentes en Puerto Rico, y el abuso y dependencia a drogas que encontramos mucho menos común en la

[1] Address for correspondence: Glorisa Canino, Ph.D. Professor and Director Behavioral Sciences Research Institute, UPR Medical Sciences Campus, PO Box 365067, San Juan, PR 00936-5067. Phone: (787) 754-8624 Fax: (787) 767-5959, e-mail: g_canino@rcmaca.upr.clu.edu

isla al compararla con comunidades estadounidenses. También discutimos la prevalencia de síndromes culturales como los "ataques de nervios" y sus correlatos. Ofrecemos interpretaciones de los resultados y discutimos las implicaciones para investigaciones futuras.

Key words: Epidemiology; Mental health in adults
Palabras clave: Epidemiología; Salud mental en personas adultas

Puerto Rico is a United States Commonwealth in the Caribbean with 3,435 square miles of territory and a population of just over 3.5 million. According to the United States Census Bureau the population count for Puerto Rico in 1990 was 3,522,035 inhabitants, with a 1994 projection of 3,641,949, for a population density of 1-60 per square mile, one of the most densely populated areas in the world.

Recent decades have witnessed a rapid transition from a rural, agrarian society to a more urban, industrial and commercial economic structure. These changes, coupled with the predominantly poor socioeconomic level of the population (58.9% is under the United States poverty level, a per capita yearly income of $4,177 and a median yearly family income of $9,988) have created a situation of apparent high risk for the development of psychopathology. Indicators of social disruption traditionally associated with increased risk for mental illness are pervasive in Puerto Rico. Official unemployment remains at the level of over 15%; 10.36% illiteracy in adults over 18 years of age, 42% of adults do not have a high school education; divorce rates are among the highest in the world (5.3% per 1,000 inhabitants); consumption of alcohol is high (8,59 L of ethyl alcohol per capita for persons older than 15 years) (Departamento de Salud, 1990). In addition, the per capita homicide rate for 1991 and 1992 on the island was the highest in the U.S. (23.2 homicides per 100,000 inhabitants). When all U.S. cities were compared, San Juan had the second highest per capita murder rate (80.2 per 100,000) in 1991, twice as high as it had been in 1990, and the second highest in United States territories at 68/100,000.

In spite of several indicators of social disruption in Puerto Rico, there appears to be no correlation between them and the prevalence rates of psychiatric disorders observed in several epidemiological studies carried out on the island in the past decade. What follows is a discussion of the main results and methods of 4 epidemiologic

studies of mental disorders carried out in Puerto Rico for the adult and children population. In general, findings reflect that prevalence rates (except for somatization and drug abuse) do not differ significantly from those obtained in similar studies carried out in the United States and other parts of the world. Risk factors are also similar, although sex risk ratios are more distinct.

PSYCHIATRIC DISORDERS AMONG THE ADULT PUERTO RICAN POPULATION: MAJOR FINDINGS OF TWO EPIDEMIOLOGICAL SURVEYS

There was a long-standing observation that Puerto Ricans reported higher levels of psychiatric symptoms than did other North Americans (Dohrenwend, 1976; Dohrenwend & Dohrenwend, 1969; Srole & Fisher, 1962). This observation had been noted in studies of Puerto Ricans from both the island and the mainland (García, 1974; Haberman, 1976). According to these data Puerto Ricans suffered from unusually high rates of mental illness. Such statements were questionable because measures of disorder in these studies had not been linked explicitly to diagnostic systems; furthermore, the reliability and cultural relevance of the instruments used to collect the data had not been expressly assessed for the Puerto Rican population.

During the last decade, the need for systematic epidemiologic data on mental disorders was recognized in the United states as well as in Puerto Rico. One of the goals of the National Institute of Mental Health Epidemiologic Catchment Area (ECA) program (Regier, Myers & Kramer, 1984) was to address this need in the United states. To ensure the comparability of data obtained at different sites of the ECA program, a newly structured interview, the Diagnostic Interview Schedule (DIS) was created (Robins, Helzer, Croughan, Williams, & Spitzer, 1981). This interview, designed to be administered by non-clinicians, leads to computer-scored diagnoses based on DSM-III criteria.

The availability of the DIS' and the possibility of comparing data from Puerto Rico with that obtained in the ECA program at various U.S. sites' inspired the first major island-wide epidemiologic survey of mental disorders in Puerto Rico. During 1984, several schedules of the DIS were administered to a probability sample (N= 1,554) of the island's adult population 17-64 years old. One

year later torrential rains produced widespread flooding and deadly mudslides in areas inhabitated by a large portion of those previously interviewed, allowing for the assessment of the event's impact both prospectively and retrospectively. Since the sample of this 1987 study was designed to represent the adult population of the island (disaster areas were over-sampled), a supplement from the National Institute of Drug Addiction (NIDA) was obtained to also study (independent of the disaster) the prevalence and correlates of drug abuse-dependence. Thus, the DIS administered in 1987 contained new schedules which were not ascertained in the 1984 survey, namely, drug abuse /dependence, antisocial personality, post-traumatic stress disorder and generalized anxiety.

Testing of the Spanish DIS

During the first phase of the study a Spanish translation of the DIS was adapted and tested for use among the Puerto Rican population (Bravo, Woodbury-Fariña, Canino, & Rubio-Stipec, 1993). A comprehensive cross cultural model was used to adapt and translate the DIS. This model involved testing the instrument for cultural equivalence in five dimensions: 1) content equivalence, or the examination of whether the content of each item is relevant to the population under study, 2) semantic equivalence, or that the meaning of each item is similar in the language of each culture, 3) technical equivalence, or that a similar effect is achieved by the measuring techniques used in the different cultures, 4) conceptual equivalence, or that the same theoretical construct is evaluated in the different cultures involved, and 5) criterion equivalence, or that the interpretation of the measure's results are similar when evaluated in accordance with the established norms of each culture. As part of these complex processes of translation and adaptation, the test retest reliability of the DIS as well as the concordance of the instrument with clinical diagnoses was assessed (Canino, Bird, et al, 1987). The results of this study showed comparable results with those obtained in mainland samples where the DIS's psychometric properties were also tested (Robins, Helzer, Croughan, Williams, & Spitzer, 1981). In general, the results showed that lay interviewers collected almost the same information as clinicians, when both the lay interviewer and the psychiatrist used the DIS. Yet the comparison of the lay interviewer with the DIS and the psychiatrist's clin-

ical diagnoses showed the lowest level of concordance. The values improved with higher rank diagnoses, suggesting that all methods tend to top similar domains of psychopathology even when they disagree about specific diagnoses. The values also improved for dysthymia and obsessive compulsive disorder after modifications were made to the DIS which were culturally syntonic.

Somatization, Cognitive Impairment and Drug Abuse/Dependence

The second phase of the 1984 study involved applying selected schedules of the DIS to a stratified island-wide probability sample of the adult population ages 17 to 64. With the exception of somatization disorder and cognitive impairment, prevalence rates in the study were similar to those obtained in the U.S. ECA studies (28.1% an DIS lifetime disorder; 16.0% last six months) (Canino, Bird, Shrout, et al, 1987). Results of the 1987 survey showed similar rates of antisocial personality, and generalized anxiety between Puerto Rico and the ECA. However, considerably lower prevalence rates of illicit drug use (8.2%) and drug abuse and dependence syndromes (1.2%) were found in Puerto Rico than corresponding estimates from the ECA surveys, 30.4% and 8.0% respectively) (Canino, Anthony, Freeman, Schrout, & Rubio-Stipec, 1993).

The difference in prevalence rates of drug use/abuse between sites could not be explained by differences in the age distributions across the two survey populations. Because the island sample was younger (it included no persons over age 69), and because illicit drug use is more common among 18-39 year old than among older adults, the island's prevalence might be expected to be higher, not lower. The lower rates of drug use/abuse in Puerto Rico are consistent with findings obtained from other Hispanic populations both in the United States and South America. For example, the prevalence of drug abuse/dependence among immigrant Mexican Americans of the Los Angeles ECA site was 1.8% (Burnam, Hough, Karno, Escobar, & Telles, 1987). Much higher rates of drug addiction were obtained for Mexican Americans born in the United States, suggesting that acculturation to the U.S. society may be related to higher rates of drug use. Similarly, higher rates of marihuana use were found for Mexicans living in the United States (42%) as compared to Mexicans living in Mexico (7%) (Ortiz, &

Medina-Mora, 1987). Although the possibility that Hispanics in general tend to underreport drug use compared to Anglos or acculturated Hispanics cannot be ruled out; cultural differences between these populations might explain the findings obtained. It would seem worthwhile to consider in future research whether the apparent differences might be due to greater familism and extended kinship networks existent in Hispanic and Puerto Rican families in particular. The higher rates of family conflict, disintegration and alienation sometimes found in families of those with drug abuse and dependence are less common in Puerto Rico, especially compared with Anglo and Hispanic American populations in the bigger cities of the United States.

Cognitive impairment was found to be considerably more prevalent on the island as compared to the five ECA communities. Further analyses of these differences revealed that cognitive impairment, as measured by the Mini Mental Status Examination, was biased for subjects with an eighth grade education or less (Bird, Canino, Rubio-Stipec, & Shrout, 1987). Since the majority of the island's population is of low income and educational level, the published cut-off points for determining severe cognitive impairment on the island were not appropriate. A cut-off of 16 instead of 12 was recommended for use with the Puerto Rican population.

Somatization disorder and somatic symptoms, were also found to be more prevalent on the island as compared to other U.S. communities. Previous clinical studies have reported that Hispanic patients interviewed both in the U.S. and in their countries of origin tended to present high levels of somatic symptoms (Dohrenwend, & Dohrenwend, 1969; Escobar, Gómez, & Tuason, 1983; Mezzich, & Raab, 1980). Since even in more developed countries, people of lower socioeconomic backgrounds who have a psychiatric disorder are more likely than those of more advantaged backgrounds to present somatic symptoms, the tendency to "somatize" rather than "psychologize" has been viewed as being largely the result of socioeconomic factors. This association with sociodemographic factors was confirmed in the Puerto Rico study (Canino, Escobar, Canino, & Rubio-Stipec, 1992; Rubio-Stipec, Canino, et al, 1993). However, the higher mean number of somatic symptoms in Puerto Rico as compared to other groups (ECA communities,

Mexican Americans and non-Hispanic whites) could not be solely explained by differences in age, sex, level of education, and number of people in the household. This difference remained significant after statistically taking into account sample differences in age, sex and education (Canino, Escobar, Canino, & Rubio-Stipec, 1992).

Previous explorations of these findings revealed that Puerto Rican's tendency to somatize was not related to what has been commonly stated as a tendency to express depressive symptoms or demoralization through somatic symptoms (Rubio-Stipec, Shrout, Bird, Canino, & Bravo, 1989). Using symptom data from the 1984 adult probability sample of residents in Puerto Rico, five clusters of items (those associated with diagnoses of affective disorders, schizophrenia phobic disorder, somatization and alcoholism), quantitative measures of psychopathology were formed from each cluster. The factor structure of these scales was replicated in two probability samples of the Los Angeles (LAECA) study, one composed of Mexican Americans and one of Anglo-Americans. Four of the scales were replicated in both LA samples, however, the scale of somatization was not formed in either of the LA samples, only in the Puerto Rico sample. Of interest was the fact that the depressive and somatization scales formed through the factor analyses were separate and did not contain overlapping items, suggesting that both depressive and somatization symptoms are separate and distinct constructs.

Another possible explanation for this high prevalence of somatic symptoms was explored. In the probing system of the DIS, used to separate physically explained from possible psychiatric symptoms, the respondent reports a symptom, then s/he is asked whether a doctor was told about it and if so, what the doctor said was causing the symptom. If the doctor said it was explained by a physical illness, it is not counted toward the diagnosis or as a somatic symptom. If Puerto Rican doctors are more prone to interpret somatic symptoms as "psychogenic" this could explain the higher prevalence of the symptoms.

Another possibility is related to the accessibility of health care. In countries where health care is not as accessible (for whatever reason) or people do not seek health care as readily, many people with physical symptoms might not come to a physician and, if no

cause is attributed by the respondent, a possible physical symptom would be classified as a symptom of somatization disorder. For this reason, the probe chart of somatization of the Composite International Diagnostic Interview Schedule (CIDI) (which is the same used by the DIS), was examined in order to ascertain its effectiveness in truly classifying a somatic symptom as a psychiatric symptom (Rubio-Stipec, Canino, et al, 1993). Data generated from 17 countries (many of which are underdeveloped and have poor accessibility of care) in the first field trial of the CIDI were used to test the inter-rater reliability of each coding and to examine whether the sum of symptoms classified under the probe flowchart were associated with the known correlates of somatization. The findings showed that the probe flowchart screens somatic symptoms similarly in a variety of settings and cultures and that it is highly reliable for each of its five possible coding classifications. Therefore, comparisons of the rates of somatic symptoms, between different sites and cultures, using the somatization module helped identify true cultural differences. In fact, the findings showed higher prevalence of somatic symptoms among all Latin countries as compared to those of other cultural heritage. This is consonant with the results of previous clinical studies which have reported higher rates of somatization symptoms among patients from Columbia and Peru (Escobar, Randolph, & Hill, 1986; Mezzich, & Raab, 1980).

To explain cultural differences in the presentation of somatic versus psychological symptoms, it has been argued that some groups (e.g., Anglo Saxons) may be more likely to partition somatic and psychological phenomena in a Cartesian way (mind-body dichotomy) while others (e.g., Latin American) may be more likely to integrate both kinds of experiences and express them somatically. Our study of this issue suggests that for Puerto Ricans and Latin populations this may be true.

Except for the somatization disorder, and symptom level analyses, all other comparisons made between the Puerto Rico prevalence rates and those obtained in the U.S. ECA communities did not control for possible differences in sample composition. In addition, the possibility existed that Puerto Ricans might report more psychological symptoms while not suffering any higher rates of most disorders. Because of this, detailed analyses were made comparing prevalence rates and symptom levels between the Puerto Rico site,

and the Los Angeles ECA site which had a sample composed of Mexican Americans (U.S. born and migrants) and Anglo Non-Hispanic whites. To be sure that mental health differences between Puerto Ricans and other ethnic groups were not attributable to important social variables that might be correlated with ethnic subgroup, we statistically adjusted for several demographic variables, including education level, age, gender and number of adults in the household (Shrout, Canino, Bird, Rubio-Stipec, Bravo, & Burnam). We found that Puerto Ricans had more somatization disorder, but less affective and alcohol disorders as compared with U.S.-born Mexican Americans or non-Hispanic whites. We also found no evidence that more psychopathology would be found among Puerto Ricans when symptom counts were considered. No major differences were obtained between sites when symptom counts levels were compared. The only exception were somatization symptoms which were more prevalent among Puerto Ricans as compared with the other ethnic groups and psychotic symptoms which were less prevalent. Drug symptoms were not ascertained in this study.

Utilization of Mental Health Services and Projections to the Year 2,000

In order to make the data more relevant for planners, an analyses was made of the percentage of those who met criteria for DSM-III and also used or did not use mental or health services or sought help from a spiritualist (Hohmann, Richeport, Marriot, Canino, Rubio-Stipec, & Bird, 1990; Martínez, Sesman, Bravo, Canino, & Rubio-Stipec, 1991). The results of these analyses showed that the majority of individuals who are in need of mental health services are not receiving services in the specialty sector but mostly in the general medical health sector. These results were later confirmed in the adult poor population of Puerto Rico by other investigators (Alegría, et al, 1991). These investigators found that the main reason for not using services was related to economic and geographic barriers as well as to the belief of most individuals that they could resolve their problems. It was also found, as part of the 1984 prevalence study, that around 20% of the population consults a spiritualist over a lifetime, however, consultation to the spiritualist does not substitute consulting the formal health sector (Hohmann, Richeport, Marriot, Canino, Rubio-Stipec, & Bird, 1990). Those

who meet criteria for alcohol abuse and dependence seek less mental health services, whereas those who meet criteria for schizophrenia or major depression are the most frequent utilizers of services (Martínez, Sesman, Bravo, Canino, & Rubio-Stipec, 1991).

Projections of the 1984 prevalence data were calculated for the estimated population between 17 and 64 years of age in Puerto Rico for the year 2,000 (Avilés, Canino, & Rubio-Stipec, 1990). These projections showed that given that no major changes in risk factors or treatment accessibility are introduced to the island in the period between 1984 and 2,000, the prevalence of mental disorders will increase. The prevalence of affective and anxiety disorders, in particular, will have a relative increase of 5% in great part due to the expected increase among women. The simultaneous increase in the prevalence of psychiatric disorders and the increase in the population will have the combined effect of increasing the number of psychiatric cases by 25%.

Correlates of Disorder and Cross-Cultural Comparisons

As with the ECA studies, in Puerto Rico, the lifetime prevalence of mental disorders decreased with education (Canino, Bird, Shrout, et al, 1987). Alcohol abuse and dependence, antisocial personality and drug use/abuse were more frequent among males, while anxiety and depressive disorders were more frequent among females. Depressive disorders in Puerto Rico were found to be more than twice as prevalent in women than men (10.7% vs. 4.9%) and the prevalence of dysthymia was almost four times greater for women than men (Canino, et al, 1987). Even after demographic, health and marital and employment status variables were controlled in multiple regression analyses, women continued to be at higher risk of depressive symptomatology when compared to men. Consistent with other studies, separated, widowed or divorced individuals, as well as those with poor physical or mental health, unemployed males and those residing in urban areas had higher number of depressive symptoms than their counterparts. This difference between males and females in the prevalence of depressive disorders was found to be more marked in Puerto Rico as compared to the U.S. ECA were the differences in gender were not as dramatic. The higher sex ratio in Puerto Rico is consistent with a sex role model which postulates that Puerto Rican males and females have

different vulnerability to depressive disorders because of the more patriarchal social context in which they are socialized.

A comparison of the epidemiology of alcohol abuse/dependence in DIS-based population surveys carried out in 10 different regions of the world, showed considerable variation in the prevalence of the disorder across sites (Helzer & Canino, 1992). However, there was considerable similarity in the symptom expressions and course of alcoholism. The mean number of positive alcohol symptoms, the duration of the disorder and symptomatic as well comorbidity patterns were similar across regions of the world. However, differences were observed in sex and age of onset. For most of the sites, the mean age of onset of first symptom was in the early to mid 20's. A later mean age of onset (late 20's and early 30's) was found in four sites, Puerto Rico, Korea, Shanghai and Munich. The later age of onset in Puerto Rico was interpreted as due to the great tolerance of the society for intoxication and alcoholic behavior among men. It was hypothesized that symptomatic alcohol behavior may not be endorsed until it is more severely expressed (Canino, Burnam, & Caetano, 1992).

Although in all the cultures studied, excessive drinking and alcoholism were predominantly male activities, the male/female ratio varied considerably across cultures. The sex ratios were particularly high in the Asian and Hispanic cultures (where alcoholism was considerably more common in men) as compared to Western and Anglo Saxon cultures. In the five U.S. communities, Munich, Edmonton, Christchurch and among the American Indians, alcoholism was 4 to 6 times greater in men than women. In Seoul, Puerto Rico and among the U.S. Mexican American populations, alcoholism was between 12 to 25 times greater in men. The differences in sex ratio across cultures provided evidence in favor of the importance of culture and attitudes towards drinking in determining the prevalence rates. In the more traditional cultures with marked sex role stereotypes (as in Puerto Rico) the prevalence of excessive drinking and alcoholism among women was considerably lower as compared to those societies with less traditional cultures. Of interest, nevertheless was the fact that among the young age group of Puerto Ricans (17-25) the sex ratio in the prevalence of alcoholism was considerably diminished to what is observed in the U.S., suggesting that with new and future generations the prevalence of

alcoholism in women would be increasingly higher than at present (Canino, Bird, Shrout, Rubio-Stipec, Geil, & Bravo, 1987).

In all countries, including Puerto Rico, alcoholism was found to co-occur strongly with depressive disorders, drug use/abuse/-dependence and antisocial personality disorders. Similarly, in all countries, the duration of alcoholism among those in remission for a year was from 8 to 10 years (10 in Puerto Rico).

THE 1987 DISASTER STUDY

A year later, after the 1984 island wide survey of mental disorders in the adult population of Puerto Rico, torrential rains throughout the island caused extensive and disastrous mudslides that left 180 people dead and disrupted the lives of thousands of others. Around 4,000 persons had to be lodged in public shelters for up to several months, and approximately 19,000 suffered considerable material losses. Aimed to document the psychological sequelae of the disaster, 912 adults (17-18) were interviewed with the Spanish version of the DIS (Bravo, Rubio-Stipec, Canino, Woodbury, & Ribera, 1990; Canino, Bravo, Rubio-Stipec, & Woodbury, 1990). A total of 375 persons interviewed both in 1984 and 1987 made up the prospective study's panel sample. The latter sample included these 375 persons plus 537 who were interviewed in 1987 for the first time.

The results of the retrospective data showed that depression, generalized anxiety and post-traumatic stress disorders (PTSD) were more common among those exposed as compared to the non-exposed. In addition, the exposed group reported poorer health, feelings of being overwhelmed by problems as well as greater use of health services. However, although these analyses were made controlling for socio-demographic variables, the possibility existed that the exposed differed from the non-exposed on pre-disaster morbidity. For this reason, the prospective analyses were considered important to disentangle this possible methodological artifact. Our results of those interviewed before and after the disaster confirmed those obtained with the retrospective data (PTSD symptoms were not assessed in the 1984 survey). Both somatic and depressive symptoms were found to be true outcomes of the disaster. This psychiatric morbidity could not be explained by mediating variables or known risk factors such as sex, age, education and previ-

ous symptoms.

We also examined the role of the family (marital and parental status) on response to the disaster in two disaster sites, Puerto Rico and the Times Beach disaster of St. Louis, Missouri (Solomon, Bravo, Rubio-Stipec, & Canino, 1993). We hypothesized that family role would moderate the effect of disaster exposure. In St. Louis, worse outcomes were found for single and married parents exposed to disaster, substantially exceeding the symptomatology of all unexposed respondents except non-victim single parents. In Puerto Rico, victims without families had higher levels of alcohol abuse symptoms than did any other subgroup. Perceived emotional support was found to be an important moderator of disaster's effect on psychiatric distress in Puerto Rico, generally overriding the effect of family role. Single parents in both sites who were exposed to disaster had substantially reduced levels of emotional support available to them, as compared to unexposed single parents, suggesting that single parents are at particularly high risk for losing access to emotional support following disaster. The study suggested that both single and married parents constitute important high risk victim groups and that perceived support from family and friends buffers the effects of disaster exposure.

Ataques de Nervios (Nerve Attacks)

As previously stated, in our 1984 survey we found somatization symptoms to be considerably more prevalent in Puerto Rico as compared to other U.S. communities (Escobar & Canino, 1988). In addition, in analyzing the factor structure of the DIS, we found that when comparative analyses were done using the Los Angeles ECA data for Anglo and Mexican Americans, there was a somatization factor that was unique to the Puerto Rico study. Upon reviewing this factor, we identified a cluster of symptoms that described an *ataque de nervios,* a popular category of distress characterized by trembling, heart palpitations, a sense of heat in the chest rising into the head, faintness and seizure-like episodes. Typical *ataques* occur at culturally appropriate times, such as during funerals, at the scene of an accident, or during a family argument or fight.

We created a scale to measure this popular category of distress, using 12 of the relevant symptom items from the somatization section of the DIS (Guarnaccia, Rubio-Stipec, & Canino, 1989). We

found that approximately 23% of the adult population of Puerto Rico fit the *ataques de nervios* category described in the scale. We also found that women, those with low socio-economic status, formerly married and out of the labor force were significantly overrepresented in the *ataques* group. In addition, a significant proportion of those scoring high on the scale, met diagnostic criteria for a DSM III disorder. Particularly high rates of major depression, dysthymia, agoraphobia, phobic disorder and panic disorder were found among the *ataque de nervios* group.

As a result of these analyses, in the 1987 survey a question was added to the DIS to directly ascertain the presence and severity of *ataque de nervios*. The question posed was: "At some time, have you ever had an *ataque de nervios*"? If the person said yes, they were asked to describe the *ataque* and the situation that provoked it, as well as whether it impaired the person in his/her daily activities or sought help because of the *ataque*. The results showed that 16% of the population had experienced an *ataque* in their lifetime, while 12% reported that the *ataque* was severe enough to either consult a physician or other profession, take medications or cause impaired daily functioning. Common symptoms used in describing the *ataque de nervios* were shouting uncontrollably, becoming nervous, trembling, breaking things, becoming hysterical, fainting or passing out, aggressiveness and desperation. The social characteristics of those experiencing an *ataque* were identical to those reported previously with our *ataque scale*. As in the former study, we found that people who reported an *ataque* were more likely to meet criteria for a depressive or anxiety disorder (63% of those with *ataques*), particularly, dysthymia, major depression, panic disorder, generalized anxiety, and post-traumatic stress disorder. This group was 25 times more likely to meet criteria for panic disorder and 10 times more likely to meet criteria for major depression as compared to those not reporting an *ataque*.

The results of the study suggest two hypotheses concerning the relationship between *ataques de nervios* and psychiatric disorders. One is that people experience *ataques* as a prodromal phase of developing an anxiety or depression disorder. The second is that *ataques de nervios* are a culturally meaningful way that Puerto Ricans, with a history of anxiety and depression describe their conditions. Thus *ataque de nervios* could be a cultural idiom used by

low-income Puerto Rican women and men to describe episodes of anxiety and depression. At this point it is not possible with the available data to determine which of the two hypotheses is more applicable. However, further longitudinal study of this cohort of people is being presently carried out by Dr. Guarnaccia and we hope the new data will be able to clarify the role of *ataques de nervios* in the Puerto Rican culture and whether we can consider it a true culturally defined syndrome or merely a cultural idiom to describe common psychiatric conditions.

CONCLUSIONS

The two main epidemiological surveys of the adult population of Puerto Rico demonstrated that our population is not at greater risk for most psychiatric disorders or symptoms as previously thought. However, somatization disorder and symptoms are more prevalent on the island and drug use/abuse/dependence is significantly less prevalent as compared to U.S. communities. Most correlates of disorders are similar in Puerto Rico as compared to other sites in the U.S. or other regions of the world. However, the sex ratios of most gender specific disorders are higher in Puerto Rico as compared to less traditional societies such as the U.S. or Canada. In addition, the role of social support from family and friends in buffering stress and possibly lowering the risk for drug use seems to be an important component of the Puerto Rican society. A high percentage of our population report having experienced an *ataque de nervios* and most of these people meet criteria for either a depressive or anxiety disorder. It is not clear whether the *ataque* might be a prodromal phase of depressive or anxiety episodes, or whether this is a cultural idiom to describe the episodes of these conditions. We expect to carry out longitudinal studies in the future that can provide incidence data and determine risk factors for the psychiatric conditions studied cross-sectionally in the past.

References

Alegría, M., Robles, R., & Freeman, D., et al. (1991). Patterns of mental health utilization among Puerto Rican poor. *American Journal of Public Health, 81*, 875-879.

Avilés, L., Canino, G., & Rubio-Stipec, M. (1990). Proyecciones de diagnósticos psiquiátricos en Puerto Rico, año 2000. *Puerto Rican Health Science Journal, 9*, 235-243.

Bird H., Canino, G., Rubio-Stipec, M.,& Shrout, P. (1987). Use of the minimental state examination in a probability sample of a Hispanic population. *Journal of Nervous Mental Disorders, 175*, 731-737.

Bravo, M., Rubio-Stipec, M., Canino, G., Woodbury, M., & Ribera, J. (1990). The psychological sequelae of disaster stress: Prospectively and retrospectively evaluated. *American Journal of Community Psychology, 18*, 661-680.

Bravo, M., Woodbury-Fariña, M., Canino, G.J., & Rubio-Stipec, M. (1993). The Spanish translation and cultural adaptation of the Diagnostic Interview Schedule for Children (DISC) in Puerto Rico. *Cultural Medicine Psychiatry, 17*, 329-344.

Burnam, M.A., Hough, R.L., Karno, M., Escobar, J.I., & Telles, C.A. (1987). Acculturation and lifetime prevalence of psychiatric disorders among Mexican Americans in Los Angeles. *Journal of Health Social Behavior, 28*, 89-102.

Canino, G., Anthony, J.C., Freeman, D., Shrout, P., & Rubio-Stipec, M. (1993). Drug abuse and illicit drug use in Puerto Rico. *American Journal of Public Health, 83*, 194-200.

Canino, G., Bird, H., & Shrout, P., et al. (1987). The prevalence of specific psychiatric disorders in Puerto Rico. *Archives of General Psychiatry, 44*, 727-735.

Canino, G., Bird, H., Shrout, P., Rubio-Stipec, M., Geil, K., & Bravo, M. (1987). The prevalence of alcohol abuse and/or dependence in P.R. In M. Gaviria, & J. Arana (Eds.) *Health and behavior: Research agenda for Hispanics*. Chicago, Ill: The University of Illinois at Chicago.

Canino, G., Bird, H., & Shrout, P.E., et al. (1987). The Spanish Diagnostic Interview Schedule: Reliability and concordance with clinical diagnoses in Puerto Rico. *Archives of General Psychiatry, 44*, 720-726.

Canino, G., Bravo, M., Rubio-Stipec, M., & Woodbury, M. (1990). The impact of disaster on mental health: Prospective and retrospective analyses. *International Journal of Mental Health, 19*, 51-69.

Canino, G., Burnam, A., & Caetano, R. (1992). The prevalence of alcohol abuse and/or dependence in two Hispanic communities. In J. Helzer, & G. Canino (Eds.) *Alcoholism-North America, Europe and Asia: A Coordinated Analyses of Population from Ten Regions*. (131-158) London, England: Oxford University Press.

Canino, I., Escobar, J., Canino, G., & Rubio-Stipec, M. (1992). Functional somatic symptoms: A cross-ethnic comparison. *American Journal of Orthopsychiatry, 62*, 605-612.

Departamento de Salud. (1990). *Informe Anual de Estadísticas Vitales, 1990*. San Juan, Puerto Rico: Oficina de Planificación, Evaluación e Informes, Departamento de Servicios Contra la Adicción.

Dohrenwend, B.P. (1976). Social status and psychological disorder: An issue of substance, an issue of method. *American Sociological Review, 31*, 14-34.

Dohrenwend, B.P., & Dohrenwend, B.S. (1969). *Social status and psychological disorder: A causal inquiry*. New York, N.Y.: John Wiley &Sons.

Escobar, J., & Canino, G. (1988). Síntomas somáticos no explicados medicamente. In (Eds.) *Diagnóstico en psiquiatría*. (382-385) Barcelona, España: Salvat.

Escobar, J.I., Gómez, J., & Tuason, V.B. (1983). Depressive phenomenology in North and South American patients. *American Journal of Psychiatry, 140*, 47-51.

Escobar, J.I., Randolph, E.T., & Hill, M.A. (1986). Symptom of schizophrenia in Hispanic and Anglo veterans. *Cultural Medicine Psychiatry, 10*, 259-276.

García, C.S. (1974). Psicopatología de la población normal en Puerto Rico. In J. Roselló (Ed.) (49-76) *Psicología: Investigación científica*. Madrid, España: Talleres de Industrias Gráficas, Diario Día.

Guarnaccia, P., Rubio-Stipec, M., & Canino, G. (1989). Ataques de nervios in the Puerto Rico Diagnostic Interview Schedule: The impact of cultural categories on psychiatric

epidemiology. *Cultural Medicine Psychiatry, 13*, 275-295.

Haberman, P.V. (1976). Psychiatric symptoms among Puerto Ricans in Puerto Rico and New York City. *Ethnicity, 3*, 33-144.

Helzer, J., & Canino, G. (1992). Comparative analysis of alcoholism in ten cultural regions. In J. Helzer, & G. Canino (Eds.) *Alcoholism-North America, Europe and Asia: A Coordinated Analyses of Population from Ten Regions.* (289-308) London, England: Oxford University Press.

Hohmann, A., Richeport, M., Marriot, B., Canino, G., Rubio-Stipec, M., & Bird H. (1990). Spiritism in Puerto Rico: Results of an island-wide community study. *British Journal of Psychiatry, 156*, 328-335.

Martínez, R.E., Sesman, M., Bravo, M., Canino, G., & Rubio-Stipec, M. Utilización de servicios de salud en Puerto Rico por personas con trastornos mentales. *Puerto Rican Health Science Journal, 10*, 39-42.

Mezzich, J.E., & Raab, E.S. (1980). Depressive symptomatology across the Americas. *Archives of General Psychiatry, 37*, 818-823.

Ortiz, A., & Medina-Mora, M.E. (1987). Research on drug abuse in Mexico. *In Epidemiology of drug abuse and issues among Native American Populations.* Washington, D.C.: U.S. Government Printing Office: Community Epidemiology Work Group Proceedings.

Regier, D.A., Myers, J., & Kramer, M., et al. (1984). The NIMH epidemiologic catchment area program: Historical context, major objectives, and study population characteristics. *Archives of General Psychiatry, 41*, 934-941.

Robins, L.N., Helzer, J.E., Croughan, J., Williams, J.B.W., & Spitzer, R.L. (1981). *NIMH Diagnostic Interview Schedule: Version III.* Rockville, MD: NIMH.

Rubio-Stipec, M., & Canino, G., et al. (1993). The somatization schedule of the composite diagnostic interview: The use of the probe chart in 17 different countries. *International Journal of Methods in Psychiatric Research, 3*, 129-136.

Rubio-Stipec, M., Shrout, P., Bird, H., Canino, G., & Bravo, M. (1989). Symptom scales of The Diagnostic Interview Schedule: Factor results in Hispanic and Anglo samples. *Journal of Consulting and Clinical Psychology, 1*, 30-34.

Shrout, P., Canino, G., Bird, H., Rubio-Stipec, M., Bravo, M., & Burnam, A. (1992). Mental health status among Puerto Ricans, Mexican Americans, and Non-Hispanic Whites. *American Journal of Community Psychology, 20*, 729-752.

Solomon, S., Bravo, M., Rubio-Stipec, M., & Canino, G. (1993). Effect of family role on response to disaster. *Journal of Traumatic Stress, 6*, 255-269.

Srole, L., & Fisher, A.K 1962). *Mental health in the metropolis: The midtown Manhattan study.* New York, N.Y.: McGraw-Hill.