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Gender, Family, and Community Correlates of Mental Health in South Asian Americans

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Abstract

Nationally representative data from the National Latino and Asian American Study (Alegría et al., 2004) was used to examine both disorder prevalence rates and correlates of distress for the South Asian American subgroup (n = 164). South Asian Americans generally appeared to have lower or comparable rates of lifetime and 12-month mood and anxiety disorders when compared with the overall Asian American sample. A multiple-regression model fitted to predict recent psychological distress, with 12-month diagnosis as a covariate, found gender differences. For women, lack of extended family support was related to higher levels of distress, whereas for men, greater conflict with family culture, and a lower community social position (but higher U.S. social position) predicted higher distress scores. Findings suggest that mental health services consider a broad framework of psychological functioning for South Asian Americans that reflect their gendered, familial, and sociopolitical realities.

Keywords

South Asian Americans; mental health; cultural influences

Recent immigration trends have brought South Asian Americans to comprise the third largest and fastest growing Asian American ethnic group in the United States (U.S. American Community Survey, 2005; U.S. Census Bureau, 2000). They are among the most diverse U.S. ethnic groups, having formed communities and social networks along overlapping lines of national, religious, linguistic, and cultural distinction that reflect the vast pluralism of South Asia. Approximately two-thirds of South Asian Americans are foreign-born, and the majority (87%) are of Indian origin (U.S. Census Bureau, 2000). Seen widely as upwardly mobile and high achieving, South Asian Americans have been primarily defined by the economic success of science professionals who had dominated initial waves of post-1965 immigration from South Asia (Abraham, 2006; Ong, Cheng, & Evans, 1992). However, the largely positive portrayals of South Asian Americans as a successful immigrant group have tended to overshadow research and discussion of psychosocial challenges such as domestic and sexual violence, AIDS, and immigration-related stress that likely impact their mental health status. That these social problems continue to be met with

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denial and silence among many within South Asian American communities has been attributed to widespread internalization of the model minority myth (Abraham, 2006; Purkayastha, 2000).

Indeed, very little is known about the psychological adjustment of South Asian immigrants and their U.S. born children. The existing empirical literature largely centers on distress experienced as a result of familial pressures to conform to traditional gender roles and norms of sexuality (e.g., Dasgupta, 1998; Inman, Ladany, Constantine & Morano, 2001). Moreover, the vast majority of existing psychological research on South Asian Americans has focused on the Indian American population, Hindu cultural groups, and college or postcollege samples. As a result, even basic information about the rates of major mental disorders in a community sample has not been examined for South Asian Americans. In addition, the existing mental health literature reflects a set of specific interest areas that have not been placed within a larger conceptual framework tailored for this fairly heterogeneous group. Drawing on epidemiological data from the National Latino and Asian American Study (NLAAS; Alegría et al., 2004), this paper examines their mental health needs and the potential role of gender, family, and extrafamilial factors that have been identified in the literature as relevant to this population's adult psychological functioning.

Family Factors in South Asian American Mental Health

Existing literature suggests that family life plays a central role in the South Asian American experience. South Asians and South Asian Americans are viewed as socialized to identify primarily with the needs of the family above individual needs, developing what Roland (1988) termed a *we-self*, a deeply felt sense of connection to others that supersedes development of an autonomous self (Nath, 2005; Segal, 1991). The observance of deference and other acts of familial duty (Almeida, 2005; Nath, 2005) have been theorized to result in the continual awareness of the demands of one's social environment (Roland, 1988). For example, Bacon (1996) noted in her study of the Indian immigrant community in Chicago that Indian immigrants and their U.S.-born children appeared to be highly attuned to and troubled by interpersonal familial and communal tensions.

Indeed, the family environment has been consistently noted as a major contributor of psychological functioning for South Asian Americans (Inman & Tewari, 2003; Pettys & Balgopal, 1998). Clinical literature on this population has suggested that a disruption in nuclear and extended family support, particularly for South Asian immigrants, may create feelings of isolation and precipitate acute distress (e.g., Ahmed & Lemkau, 2000), whereas some researchers have proposed family based interventions as a culturally competent treatment model for South Asian Americans (e.g., Almeida & Dolan-Delvecchio, 1999; Inman & Tewari, 2003). Almeida (2005) further speculated that the clinical presentation of problems such as depression was a common expression that signified family problems among Indian Americans. It is possible that a sense of closeness in some families may make it more difficult for a family member to pursue individual goals that are discrepant from the family's expectations (Dugsin, 2001). Conversely, a sense of closeness to—and support within—one's family and extended kinship, could also contribute to positive mental health as part of a “collectivistic coping” strategy (Inman, Yeh, Madan-Bahel, & Nath, 2007; Yeh, Inman, Kim, & Okubu, 2006). In this way, support within immediate and extended South Asian American families could serve as a protective factor or a risk factor when problems and conflicts occur.

Another family level factor that has been noted in South Asian American mental health literature is the contested role of traditionalism that creates cultural conflicts for individuals and families. Dasgupta (1998) examined the anxiety levels of Indian immigrant parents and

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their U.S.-born college-age children and found that mothers' and daughters' anxiety levels, which were higher than those of their male counterparts, were associated with the endorsement of nontraditional values such as dating and female autonomy. Dugsin (2001) noted that the duty-based moral orientation of Indian culture created inner conflicts among second-generation Indian Americans when familial closeness was threatened by decisions unpopular with their family, and that their immigrant parents in turn experienced similar pressures by extended family. Thus, cultural conflicts within the family may also contribute to individual distress.

Gender and South Asian American Mental Health

Many researchers have theorized that the socialization of the we-self and the attendant expectation of self-deference to others' needs within the family is emphasized especially for South Asian American women, who are expected to shoulder the responsibility of "cultural continuity" in the face of American assimilation (Dasgupta, 1998; Mahalingam & Haritatos, 2006). Kurien (2003) further suggested that the U.S. immigration bias toward South Asian professionals has resulted in a higher proportion of families with conservative attitudes toward family and gender. Inman et al. (2001) argued that the psychological pressures exerted by family members on South Asian American women to maintain traditional, gender-differentiated cultural values when those women's individual values depart from such ethnocultural expectations can lead to greater distress. In their study of 319 South Asian American college-age women, they found that the degree of cultural values conflict was associated with anxiety and cultural adjustment difficulties. Patel and Gaw (1996) also found that younger Indian-origin women in the United States were at higher risk for suicide than their male and older female counterparts. Although gender appears to be intricately related to mental health status among South Asian Americans, research is limited particularly on South Asian American men's mental health, necessitating further investigation.

Extra-Familial Factors in South Asian American Mental Health

There is a large body of literature documenting the general link between one's social resources, social capital, and sense of community to individual well-being (Shinn & Toohey, 2003). In her study of an Indian American immigrant community, Bacon (1996) found that the salience of other-orientation in family relationships also extended to social networks beyond the extended family unit. A reliance on one's friendship networks for support and coping also reflects the collectivistic-communal bent of South Asian culture (Inman et al., 2007). Furthermore, although tightly knit ethnic communities have long provided avenues for psychosocial adjustment and integration in major U.S. metropolitan centers for immigrant groups (Portes & Rumbaut, 2006), South Asian Americans have maintained community organizations and other large ethnic institutions despite moderate geographic dispersal (Fleuret, 1998; Khandelwal, 2002).

More than simply fostering a sense of collective identity, Bacon (1996) viewed ethnic community organizations as analogous to an extended kinship network in which one's status and that of one's family could be negotiated. For example, she viewed first-generation Indian Americans' sensitivity about being seen by others as personally accomplished, reputable, and selflessly duty bound—termed *status anxiety*—as a reflection of their continual desire to place themselves favorably within the fluid, multilayered social hierarchies of their communities. Community life likewise provided the symbolic resources for South Asian immigrants to help them to adjust to, reflect on, and advocate for the advancement of their collective place within the United States (Bacon, 1996; Kurien, 2003.) Moreover, collective self-esteem regarding the standing of one's group within American

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society has been shown to be an important mediator between racism-related stress and individual self-esteem among Asian Americans (Liang & Fassinger, 2008). Finally, a recent study found that subjective social status was related to mental health of Asian American immigrants who arrived in the United States as adults (Leu et al., 2008). Consequently, a perception of one's status within the ethnic community as well as in the American society may be a particularly salient aspect of South Asian American individuals' identity and well-being.

Current Study

There has been a growing perception among leaders of South Asian American communities that mental health problems are going untreated, with few mental health services that are specifically tailored to meet their communities' needs. Moreover, whereas the existing South Asian American mental health literature has emphasized the importance of family and family based interventions, few studies have explored the extent to which extrafamilial factors, such as community standing, may also be implicated in psychological functioning for South Asian Americans. The present study examines the mental health profile of South Asian Americans using psychiatric epidemiological data from the NLAAS (Alegría et al., 2004), a nationally representative community household survey of adult Latino and Asian Americans in the United States. The NLAAS study assessed whether individuals met criteria for major psychiatric disorders as well as levels of self-reported psychological distress in an adult community sample, and in addition considered various individual, familial, social, demographic, and other cultural variables to examine the role of "context, place and culture" in mental health (Alegría et al., 2004).

To examine the mental health status of South Asian Americans in the NLAAS sample we used two indexes to examine two broad hypotheses. First, we examined the 12-month and lifetime prevalence estimates of major psychiatric disorder categories and the potential role of gender as a predictor. Based on the existing literature citing gender as a critical factor in South Asian American mental health (e.g., Dasgupta, 1998; Inman et al., 2001), we hypothesized that women would exhibit higher rates of psychiatric disorders than men. Second, we examined respondents' scores on the self-report measure of nonspecific psychological distress, which allowed for an analysis of psychological distress prediction. Based on the literature suggesting the importance of familial and extrafamilial factors to South Asian American life (Bacon, 1996; Inman & Tewari, 2003), we examined the extent to which gender, family factors (e.g., support, cultural conflict), and extrafamilial factors (e.g., social standing in the community, support from friends) serve as risk or protective factors for psychological distress among South Asian American community residents. Family and extrafamilial factors were hypothesized to be significantly associated with distress above and beyond individual factors such as gender and recent psychiatric diagnosis.

Method

Participants

The sample of South Asian Americans consisted of 164 adult participants drawn from the NLAAS with main ethnic origins from South Asia (India, Pakistan, Bangladesh, Sri Lanka, Nepal, and the Maldives). The details of protocol and sampling methods for the NLAAS dataset have been detailed elsewhere (e.g., Alegría et al., 2004). The study employed a multistage stratified area probability sampling design to obtain a nationally representative household sample of Latino and Asian Americans, in addition to sampling from geographical areas of key high ethnic-density areas and by interviewing two respondents from the same household (a cluster variable). The overall Asian American sample consisted

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of 2,095 adults whose ethnic-national roots were from any part of Asia. From this sample, 164 participants of South Asian ancestry were identified based on (a) identifying a South Asian country as one of their reported nations of ancestry; and, (b) in the case of multiracial individuals, racially identifying as non-White.

South Asian American respondents in the subsample identified the following primary national or ancestral origins: Bangladesh (*n* = 4, 3.0%), India (*n* = 140, 82.4%), Pakistan (*n* = 17, 11.8%), and Sri Lanka (*n* = 3, 2.9%). About 4% (*n* = 6) of respondents claimed national origin from more than one of these South Asian countries, and 3% (*n* = 3) identified as multiracial. Mean age and the distribution of gender, generation status, and length of residence for the South Asian American sample are reported in Table 1. These figures appear comparable with census figures for South Asian Americans (U.S. Census Bureau, 2000) except for age and distribution of generation status, which in the present study underrepresent U.S.-born individuals likely due to the exclusion of individuals under 18 years of age.

The majority of participants in the South Asian American sample were highly educated, with 76 (36.9%) individuals having obtained a graduate-level degree and 41 individuals (22.3%) with a bachelor's degree. The income distribution was accordingly highly skewed, with 43 individuals (30.6%) reporting a household income ranging from $35,000 to $74,999, and 80 individuals (51.8%) reporting a household income above $75,000. The religious diversity of South Asia was also well-represented in the sample, with participants identifying the following religious affiliations: Buddhism (*n* = 4, 1.6%), Christianity (*n* = 16, 11.6%), Hinduism (*n* = 92, 48.7%), and Islam (*n* = 26, 17.4%). An unidentified “other” category of religious affiliation (*n* = 15, 8.4%) likely included representation from South Asia's other religious traditions (i.e., Sikhism, Jainism, and Zoroastrianism), and several participants did not identify with any particular religion (i.e., none or Agnosticism; *n* = 9, 7.4%).

Table 1 also includes the aggregate Asian American sample from the NLAAS data previously reported by Takeuchi, Hong, Gile, and Alegría (2007) as a context for interpreting the demographic and diagnostic data of the South Asian American sample in this study. In contrast with the overall Asian American sample, a substantially greater proportion of adult South Asian Americans appeared to be foreign born (9.1% were U.S. born vs. 23.1% for Asian Americans), a quarter of whom had immigrated within 5 years of the interview (25.6% vs. 10.6% of Asian Americans) with the majority having done so as adults. The overwhelming majority of the South Asian respondents who had immigrated reported migrating voluntarily, for the purposes of employment, and improved opportunities and quality of life for themselves and their families at rates similar to the Asian American sample.

Measures

Psychiatric diagnosis—We report lifetime (presence of a disorder in one's lifetime) and 12-month (presence of a disorder within a year of interviewing) prevalence rates for both clinical and subthreshold level diagnoses for the South Asian American participants. The NLAAS interview used the World Mental Health Survey Initiative version of the World Health Organization Composite International Diagnostic Interview (World Mental Health Survey Consortium, 2004) to assess lifetime and 12-month psychiatric disorders based on criteria from the Diagnostic and Statistical Manual of Mental Disorders (4th ed. [*DSM–IV*]; American Psychiatric Association, 1994) for affective, anxiety, and substance-related disorders. The category of “any” disorder indicated a diagnosis meeting *DSM–IV* criteria for at least one of the following three disorder categories: (a) affective (major depression or dysthymia), (b) anxiety (panic disorder, agoraphobia, social phobia, generalized anxiety

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disorder, or posttraumatic stress disorder), and/or (c) substance related (alcohol abuse/dependence or drug abuse/dependence). Subthreshold diagnoses, in which *DSM–IV* criteria were partially met, were also included to account for the possibility of underdiagnosis (cf. Alegría et al., 2004; Bhui, Bhugra, Goldberg, Sauer, & Tylee, 2004). A variable indicating the 12-month presence of any aforementioned diagnosis was also used as a covariate in regression analyses of distress.

Psychological distress—Nonspecific distress scores, as measured by the 10-item Kessler Psychological Distress Scale (K10; Kessler et al., 2002), were used to test a broad model of distress. The K10 measures nonspecific psychological distress experienced in the previous 30 days and employs a 5-point scale, ranging from “all of the time” to “none of the time”) to rate the frequency of behavioral, emotional, cognitive, and somatic expressions of distress experienced (e.g., “During the last 30 days, about how often did you feel restless or fidgety?”). Existing literature on South Asian distress suggest some cultural differences between South Asian and European or American conceptions and subjective experiences of depression (Burr & Chapman, 2004; Karasz, 2005). The K10 scale was selected as an index of general psychological distress that is culturally consistent with existing literature on South Asian American experiences with distress. In a national Australian community survey sample, higher scores on the K10 scale were found to correspond reliably with higher prevalence rates of *DSM–IV* based 12-month anxiety and affective disorders (Andrews & Slade, 2001). The internal consistency for the South Asian American sample was good (α = .79).

Individual variables—In addition to gender, nativity, and 12-month diagnosis, a scale measuring subjective financial hardship was also included as an individual-level predictor of psychological distress. The 2-item Financial Strain scale (“How difficult is it for you to pay your monthly bills: very difficult, somewhat, not very, or not at all?” and, “In general, would you say you have more, just enough, or not enough money to meet your needs?”) respectively used a three- and four-point Likert scale such that higher scores reflected greater financial strain. It was shown to have fair reliability in the sample (α = .70). Although South Asian Americans in aggregate are seen as economically successful, the past two decades of chain migrations have introduced more pronounced variability within the communities along educational, occupation, and class factors. We included financial strain in our analyses because class distinctions and lack of economic mobility among immigrants have been cited as added stressors that affect South Asian men and women (Abraham, 2006).

Family variables—Three scales were used to measure varying dimensions of family attributes. The Family Support scale was a four-point, four-item adaptation of questions from the Family Environment and Cohesion Scales (Olson, 1989). Higher scores reflected a greater endorsement of family closeness and communication (e.g., “Family members feel very close to each other”) and the internal consistency for South Asian Americans was good (α = .86). The Family Cultural Conflict scale, developed from a sub-scale of the Hispanic Stress Inventory (Cervantes, Padilla, & Salgado de Snyder, 1991), measured the extent of cultural and intergenerational conflict due to the existence of different belief systems within the family and familial interference with personal goals. Its five items (e.g., “You have felt that being too close to your family interfered with your own goals”) use a 3-point Likert-type scale, ranging from “Hardly never or ever” to “Often,” such that higher scores represent greater levels of family cultural conflict, and had a reliability of .76 among South Asian American respondents. Finally, a set of two, 4-point scaled items comprised the Extended Family Support scale (Kessler et al., 2003), ranging from “A lot” to “Not at all,” measuring the availability of positive support from one's nonhousehold relatives. The two items were:

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"How much can you rely on relatives who do not live with you for help if you have a serious problem?" and "How much can you open up to relatives who do not live with you for help if you need to talk about your worries?" and had good reliability (α = .81).

Extrafamilial variables—Three variables were used to represent different extrafamilial variables theorized to be important to South Asian American psychological functioning. Analogous to the Extended Family Support scale, the Friend Support (Kessler et al., 2003) scale measured the availability of positive support from one's friends. The two items, rated on a 4-point scale, were: "How much can you rely on your friends for help if you have a serious problem?" and "How much can you open up to your friends for help if you need to talk about your worries?" Response options ranged from "A lot" to "Not at all." The scale demonstrated good reliability (α = .84), with higher scores reflecting greater perceived support from one's friends. Finally, two separate items measured the respondent's perceived social standing (wealth, education, and occupational prestige) relative to peers in U.S. society and in their chosen community of reference on a 10-point scale. Participants were shown and explained a schematic drawing of a ladder with numbered rungs to endorse their relative social position in these two social groups in response to two questions: "What is the number to the right of the (ladder) rung where you think you stand at this time in your life, relative to other people in the United States?" and "What is the number to right of the (ladder) rung where you think you stand at this time in your life, relative to other people in your community?"

Analyses

Unless otherwise noted, all reported percentages, means, standard errors, and regression analyses were calculated using the SAS-Callable SUDAAN 9.0 statistical package (Research Triangle Institute, 2004) to account for the data's sample design effects (e.g., stratification and clustering). Significance tests were based on standard error estimates that adjusted for complex survey sampling design variables using Taylor-series linearization methods available in SUDAAN. In addition to weighting individual responses to match U.S. Census Bureau (2000) estimates of age and gender distribution for Asian Americans, weights also reflected adjustments to account for nonresponses and other post-stratification factors designed to improve the representativeness of resulting analyses. Finally, because the South Asian American responses were part of a larger survey dataset, analyses suggested by Graubard and Korn (1996) were utilized to yield statistically valid subpopulation calculations.

Results

Prevalence data for South Asian Americans' 12-month and lifetime psychiatric rates are presented first, followed by a series of hierarchical regression analyses that test the contribution of a broad set of psychosocial factors in predicting 30-day distress scores for this population.

Prevalence of DSM–IV Psychiatric Disorders

The rates of both 12-month and lifetime diagnoses for South Asian American participants are presented in Table 1 alongside the previously published rates of *DSM–IV* incidence and prevalence rates for the overall Asian American sample (Takeuchi, Hong, et al., 2007). In light of published rates for Asian Americans, the proportions of South Asian Americans meeting *DSM–IV* criteria for 12-month and lifetime disorders appeared to be low. However, 12-month and lifetime rates for subthreshold anxiety disorders appeared to be comparable (respectively, 5.9% and 13.1% for South Asian Americans and 6.1% and 14.7% for Asian Americans), and the lifetime rate for subthreshold affective disorders for South Asian

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Americans also appeared comparable to the previously reported rate for Asian Americans (4.4% vs. 3.3%, respectively).

Next we examined the first hypothesis regarding whether gender was a risk factor for affective and anxiety disorders. Univariate logistic regression analyses showed that gender was not a significant predictor of lifetime affective disorders (odds ratio [OR] = 1.21, 95% confidence interval [CI]= 0.22, 6.60, *ns*) or 12-month anxiety or affective disorders (OR = 2.80, 95% CI = 0.78, 10.07, *ns*; OR = 1.38, 95% CI = 0.15, 12.78, *ns*). However, gender did emerge as a significant predictor of lifetime anxiety disorders as women had higher odds of reporting anxiety disorders in their lifetime compared with men (OR = 2.71, 95% CI = 1.74, 4.20, $p < .05$).

Predictors of Distress

Bivariate correlations of demographic, individual, family, and other psychosocial variables showed several significant associations, especially with 30-day distress scores (see Table 2). Gender was not significantly associated with any of the variables. However, 12-month diagnosis status was moderately correlated with higher distress scores and lower family support ($r = .29$, $p < .01$ and $r = –.32$, $p < .01$, respectively). Greater perceived financial strain was also significantly associated with lower community and U.S. status ratings (respectively, $r = –.29$, $p < .01$ and $r = –.33$, $p < .01$), whereas lower family support and higher family cultural conflict scores correlated with a lower U.S. status ($r = .18$, $p < .05$ and $r = –.23$, $p < .01$, respectively).

A series of multiple-regression analyses was used to examine the second hypothesis that familial and extrafamilial factors would be associated with distress for South Asian Americans, above and beyond the effects of gender and any clinical and subthreshold 12-month diagnosis. Table 3 shows the results of a hierarchical regression analysis for the sample, using blocks of individual, family, and extrafamilial variables to cumulatively predict 30-day distress scores. The hierarchy consisted of three steps and was structured as follows: (a) demographics and individual risk factors (gender, nativity, 12-month diagnosis status, financial strain), (b) family factors (support, cultural conflict, extended family support), and (c) extrafamilial factors (friends support, community, and U.S. social status). Eight cases were omitted from these analyses due to missing data; variance inflation factors suggested no concerns with multicollinearity (range = 1.07 to 1.93).

Although the individual/demographic variables had some explanatory power ($R^2 = .15$), the addition of family factors to the model resulted in substantially greater explanation of distress scores ($\Delta R^2 = .17$) with family cultural conflict making a significant contribution, $t(26) = 2.62$, $p < .05$. Extrafamilial factors explained an additional 4% of variation in distress scores, and in the final model, one's social position in a community of peers emerged as an additional significant predictor of distress, $t(26) = –2.30$, $p < .05$. Thus, a higher self-rating of one's community position was associated with lower levels of distress when controlling for the other predictors. Finally, although financial strain was significantly and positively associated with distress scores, this relationship became nonsignificant once extrafamilial factors were included, $t(26) = 1.98$, $p < .10$.

Gender significantly predicted distress scores such that women reported experiencing greater levels of nonspecific psychological distress even when we accounted for other individual and family factors, $t(26) = 2.17$, $p < .05$. However, this relationship between gender and distress became nonsignificant once extrafamilial variables were included in the model, $t(26) = 1.71$, *ns*. Given the possibility that extrafamilial factors may play different roles for men and women (Bacon, 1996; Kurien, 2001), additional regression analyses were conducted separately for each gender to further explore gender differences in predictors of

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distress (see Table 4). Results showed that a model with only individual and demographic risk variables showed significant fit and explanatory power for men, $F(3, 87) = 23.08$, $p < .01$, $R^2 = .217$, but not for women, $F(3, 67) = 0.77$, *ns*, $R^2 = .101$. Furthermore, for women, family factors (Step 2) explained the majority of variation in psychological distress scores in the model ($\Delta R^2 = .32$), whereas for men, family and extrafamilial factors made moderate contributions to explaining distress score variation beyond the first step ($\Delta R^2 = .10$, and $\Delta R^2 = .09$, respectively). Variance inflation factors for both sets of regressions suggested no concerns with multicollinearity (range for women's = 1.18 to 2.28; range for men's = 1.18 to 2.13)

An examination of individual predictors for these analyses showed that a 12-month diagnosis significantly predicted distress scores in the final model for men, $t(26) = 4.95$, $p < .01$, but not for women, $t(26) = 1.96$, $p < .10$. The loading pattern for women suggested that being U.S. born and having lower extended-family support significantly predicted higher distress scores in the full model (respectively, $t = 2.30$, $p < .05$ and $t = –2.71$, $p < .05$). For men, however, greater financial strain, higher family cultural conflict, and lower self-rated social position in the community were associated with higher distress when controlling for other variables (respectively, $t = 3.05$, $p < .01$; $t = 2.49$, $p < .05$; and $t = –3.07$, $p < .01$). Paradoxically, a higher social position in the United States also predicted higher distress scores for men, $t = 3.04$, $p < .01$, although on further analysis this result appeared to meet criteria as a suppressor variable, suggesting that the predictor's association with the outcome variable was primarily attributable to its correlation with other variables in the model (Tzelgov & Henik, 1991).

Discussion

Psychiatric Rates

The present data suggested some important trends in South Asian American adults' mental health status. Generally, the psychiatric rates for the South Asian American group were comparable to or lower than those for the overall Asian American sample. Given that the sample was largely foreign born, there was not enough statistical power to formally test the hypothesis that they would have lower disorder rates than those who were U.S. born (Takeuchi, Zane, et al., 2007). However, one possible explanation for the lower rates of psychiatric disorders among South Asian Americans in general may be due to the bias of selection factors involved in their immigration. According to demographic trends, larger numbers of South Asian Americans in the aggregate had migrated as highly skilled health and science professionals compared with some other Asian American subgroups. In earlier waves of U.S. migration, Indians had comprised the largest proportion of highly skilled Asian immigrants (Ong et al., 1992), and the 1990s saw a similar surge of highly educated professionals (Pillari, 2005). Immigration scholars have noted that individuals who were among the elites in their countries of origin and who reside in the United States as documented immigrants report fewer mental problems and better adjustment to their adopted residence than those who migrate with less social capital and are undocumented (Portes & Rumbaut, 2006). It is also possible that cultural factors such as shame or greater attention to somatic symptoms led to the underendorsement of symptoms (Conrad & Pacquiao, 2005; Karasz, Dempsey, & Fallek, 2007).

The hypothesis that women would report higher rates of anxiety and affective disorders than men was only partially supported: although women had higher odds of experiencing lifetime anxiety disorders than men, this pattern was not confirmed for 12-month anxiety disorders or 12-month and lifetime affective disorders. This is generally inconsistent with the literature that women are at higher risk for anxiety or depression than men (Kessler et al., 2003, 2005). The lower base rates for affective disorders and 12-month anxiety disorders in

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the sample combined with potential underdiagnosis (cf., Bhui et al., 2004) may partly explain the absence of such findings. Nonetheless, previous findings that nativity consistently moderates the pattern of gender differences in psychiatric rates for Asian Americans (cf. Takeuchi, Zane, et al., 2007) suggests that the interaction between nativity and gender should be explored in future research with South Asian Americans.

Predictors of Modeling

Overall, there was empirical support for the hypothesis that South Asian Americans' psychological distress levels are related to individual, familial, and extrafamilial factors. In addition, we found some notable gender differences. In the hierarchical regression analyses, South Asian American women had significantly higher levels of distress than men but only when demographic and family variables were taken into account. Gender-specific distress models showed different loading patterns: for women, family factors accounted for the majority of distress, whereas for the men the pattern was more diffuse. These findings of gender differences in distress lend empirical support to the gender-specific research directions already underway (e.g., Inman et al., 2001).

These gender differences appear to be consistent with the literature on South Asian Americans. For example, studies have consistently explored the contention that South Asian American women face unique familial and cultural pressures that differ from men even though family dynamics are theorized to figure prominently for both (e.g., Dasgupta, 1998; Inman et al., 2001; Pettys & Balgopal, 1998). That for women, family factors alone accounted for the overwhelming majority of variability in distress explained by the model appears to be consistent with the literature that a familial we-self is emphasized for women. For example, the salience of harmonious extended family relations—which may include in-law relatives—is consistent with the frequent expectation that they accede to familial demands, often on behalf of their male counterparts (Mahalingam & Haritatos, 2006). The mechanisms that account for psychological functioning in South Asian American men, on the other hand, appear to be more diffuse and span individual through to more abstract communal and societal levels. For men, the impact of family cultural conflict in their functioning may suggest the extent to which the singular concerns of traditionalism within South Asian American families (Dasgupta, 1998; Mahalingam & Haritatos, 2006) have also been internalized by men.

Extrafamilial factors were also strongly implicated in psychological functioning for South Asian American men. In particular, a lower social position in the community was associated with increased distress. Both Bacon (1996) and Kurien (2001) documented the importance of leadership and participation by first-generation men in most ethnic-based community organizations and institutions, which were formed out of desire for community and social distinction. The paradoxical pattern that higher status in the United States was associated with increased distress may be reflective of the compensatory nature of community formation that Bacon (1996) described, whereby the ethnic community served to protect members individually and collectively against cultural assimilation or marginalization by the U.S. "mainstream." It is possible that those South Asian American men who have achieved higher status within the larger American society may be more immersed in a mainstream American setting that marginalizes its ethnic minority members. Although additional research is needed to strengthen this interpretation, the potential significance of social status as a risk factor should be considered given the reputed widespread endorsement of a model minority image within the community (e.g., Abraham, 2006; Prasad, 2000).

Findings from this study have important implications for practice. For example, the findings confirm the importance of considering family factors when treating individuals of South Asian descent, as has been widely suggested in the South Asian American mental health

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literature (e.g., Inman & Tewari, 2003). The tentative significance of extrafamilial networks may further suggest incorporating a collectivistic-communal element to interventions to enhance individual or familial well-being. For example, Almeida and Dolan-Delvecchio (1999) designed a model of batterers intervention that addressed both individual behavior and family wellness through the use of ethnic peer group counseling. The incorporation of peer groups were meant to draw on extended-family systems of support and accountability indigenous to South Asia but largely absent in the U.S. context.

The results also point to a need for additional research in some areas. Although there was support for the importance of extended families and social distinction in psychological functioning, additional research is needed to bear out the particularities of its significance for South Asian American mental health and for informing culturally appropriate strategies of intervention. Because the foregoing analyses examined these factors only in relation to distress, their role in prevention or psychological well-being also need to be borne out in future research. Nonetheless, models of distress can provide insight into varying worldviews and narrations of distress that produce a broader picture of mental illness and social problems.

The present results must be interpreted with some limitations in mind. First, our findings are reflective of aggregated data, which—given the cultural heterogeneity of South Asian American subgroups—may not be generalizable to all South Asian Americans. Because the majority of the sample were individuals of Indian origin who were Hindu and foreign born, these findings may be less applicable to non-Indian and non-Hindu cultural groups and those who are U.S. born. Second, the case weights used in the analyses were not created based on the U.S. census sex-age distributions specific to South Asian Americans but for an aggregate of Asian American groups. Although the difference is usually negligible, this may have slightly biased the estimates of some of the parameters reported (cf. Lohr, 1999). Third, many of the measures used were found to perform well for the limited purposes of this study; however, they should be regarded as tentative proxy variables that require cross-validation and further use to determine how well they represent the claimed constructs. Finally, the statistical analyses used were correlational in nature and do not imply causality nor unidirectionality.

Conclusions

The present study is the first to report national rates of psychiatric disorders for the adult South Asian American population. The analyses provided limited support for gender differences in rates of diagnoses and in distress levels. However, gender-specific analyses suggested that different sets of factors are associated with psychological functioning between men and women. Overall, we found support for a model predicting recent distress scores using familial and extrafamilial factors. This is consistent with literature that emphasize familial relationships and broader social networks for South Asian Americans. These findings suggest that mental health professionals serving this population must attend to the potential significance of their familial and sociopolitical circumstances and its particular impact on their clients' worldview.

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Table 1

Distribution of Demographic Characteristics and Rates of Psychiatric Disorders Among South Asian and Asian Americans in NLAAS

	South Asian Americans		Asian Americans	
Variable	***n***	**Weighted % (*SE*)**	***n***	**Weighted % (*SE*)**
Age				
Age (*M*)	164	38.7 (0.26)	2,095	41.3 (0.89)
Gender				
Female	73	48.1 (0.06)	1,097	52.6 (1.22)
Male	91	51.9 (0.06)	998	47.5 (1.22)
Generation status (age of immigration)				
U.S. born	13	9.1 (0.66)	454	23.1 (3.17)
1.5 (0 to 12)	8	7.1 (0.08)	237	12.7 (1.42)
1.25 (13 to 17)	5	3.0 (1.78)	130	5.1 (0.57)
1.0a (18 to 40)	128	72.8 (2.78)	1,022	47.9 (2.61)
1.0b (Above 41)	10	7.9 (3.98)	249	11.3 (1.36)
Length of residence				
Less than 5 years	65	25.6 (2.30)	234	10.6 (3.22)
5 to 14 years	45	26.6 (2.11)	609	26.3 (0.29)
Over 15 years	41	38.7 (0.86)	795	39.3 (0.87)
U.S. born	13	9.1 (0.66)	457	23.9 (4.38)
Lifetime *DSM–IV* diagnosis				
Any disorder[a]	41	20.8 (4.18)	566	26.8 (1.25)
Affective	6	2.7 (1.05)	196	9.1 (0.88)
Affective subthreshold	10	4.4 (2.21)	71	3.7 (0.68)
Anxiety	9	5.3 (1.73)	198	9.8 (1.23)
Anxiety subthreshold	27	13.1 (3.34)	305	14.7 (0.67)
Substance abuse/dependence	3	1.0 (0.58)	85	4.0 (0.69)
12-month *DSM–IV* diagnosis				
Any disorder[a]	18	8.7 (2.11)	273	13.0 (0.76)
Affective	3	1.2 (0.78)	95	4.7 (0.59)
Affective subthreshold	2	0.8 (0.56)	90	4.2 (0.62)
Anxiety	6	3.3 (1.30)	117	5.8 (0.71)
Anxiety subthreshold	12	5.9 (1.77)	124	6.1 (0.50)
Substance abuse/dependence	2	0.7 (0.45)	28	1.3 (0.27)

Note. $N = 164$. *N* for the NLAAS = 2,095. Except for the subthreshold and length of residence data, values for Asian Americans are from "Developmental Contexts and Mental Disorders Among Asian Americans," by D. T. Takeuchi, S. Hong, K. Gile, and M. Alegría (2007), *Research in Human Development, 4*, p. 58. Copyright 2007 by Lawrence Erlbaum Associates. Reprinted with permission. NLAAS = National Latino and Asian American Study; *DSM–IV = Diagnostic and Statistical Manual of Mental Disorders* (4th ed.).

[a]Values are inclusive of categories listed, including subthreshold cases.

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Table 2

Bivariate Correlations of Distress Scores and Variables Used in Regression Analyses

Variable	1	2	3	4	5	6	7	8	9	10	11
1. Psychological distress (K10)	—										
2. Gender (male = 0)	.11	—									
3. Nativity (foreign = 0)	.11	.08	—								
4. 12-month diagnosis (absent = 0)	.29***	.14	.10	—							
5. Financial strain	.23**	–.07	.08	.01	—						
6. Family support	–.34***	–.08	–.19*	–.32***	–.05	—					
7. Family cultural conflict	.38***	.01	–.15	.04	.14	–.32***	—				
8. Extended family support	–.27***	.06	.19*	.06	–.02	.20*	–.32***	—			
9. Friends support	–.02	.03	.26***	.06	.02	.06	–.17*	.26***	—		
10. Position in community	–.28***	–.11	–.03	–.03	–.29***	.12	–.12	.02	.02	—	
11. Position in United States	–.25**	.06	–.06	.09	–.33***	.18*	–.23**	–.06	–.07	.58***	—
n	164	164	164	164	160	163	162	164	164	162	163
M	12.6	0.5	0.1	0.1	3.8	15.0	6.7	3.9	3.8	6.8	6.5
SD	0.35	0.04	0.03	0.01	0.18	0.16	0.22	0.14	0.17	0.22	0.16

Note. $N = 164$. Correlations and their significance levels were adjusted based on weighted responses. K10 = Kessler Psychological Distress Scale.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

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Table 3

Results of Hierarchical Regression Analyses Predicting 30-Day Distress Scores (K10)

	Step 1			Step 2			Step 3		
Variable	***B***	***SE B***	***p***	***B***	***SE B***	***p***	***B***	***SE B***	***p***
Individual/demographic									
Gender (male = 0)	0.96*	0.43	.035	0.86*	0.40	.039	0.68	0.40	.099
Nativity (foreign = 0)	0.50	1.49	.742	1.36	1.02	.192	1.27	1.00	.217
12-month diagnosis (absent = 0)	3.14*	1.48	.043	2.41*	0.99	.022	2.50*	0.90	.010
Financial strain	0.63**a	0.18	.002	0.48**b	0.14	.002	0.32†	0.16	.058
Family factors									
Family support				–0.20	0.24	.412	–0.16	0.24	.506
Family cultural conflict				0.53*	0.20	.015	0.51**	0.17	.006
Extended family support				–0.36	0.19	.068	–0.40†	0.20	.056
Extrafamilial factors									
Friends support							–0.09	0.15	.538
Position in community							–0.40*	0.17	.030
Position in United States							–0.02	0.17	.907
n		156			156			156	
df		(4, 155)			(7, 155)			(10, 155)	
Wald *F* statistic		6.93***			10.95***			9.03***	
R^2		0.150			0.318			0.354	
ΔR^2		—			.168			.036	

Note. K10 = Kessler Psychological Distress Scale.

[a] These coefficients remained significant after a Bonferroni correction for multiple tests (respectively: α = .05/4 = .0125; α = .05/7 = .0071).

[b] These coefficients remained significant after a Bonferroni correction for multiple tests (respectively: α = .05/4 = .0125; α = .05/7 = .0071).

* $p < .05$.

** $p < .01$.

*** $p < .001$.

† $p < .06$.

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Table 4

Final Regression Models Predicting 30-Day Distress Scores (K10) by Gender

	Female			Male		
Variable	***B***	***SE B***	***p***	***B***	***SE B***	***p***
Individual/demographic						
Immigrant status (foreign = 0)	2.42*	1.05	.030	–1.33	1.62	.422
12-month diagnosis (absent = 0)	2.29†	1.17	.061	3.96***a	0.80	.000
Financial strain	0.13	0.30	.669	0.73**a	0.24	.005
Family factors						
Family support	–0.17	0.37	.654	–0.10	0.17	.561
Family cultural conflict	0.31	0.26	.248	0.59*	0.24	.020
Extended family support	–0.86*	0.32	.012	–0.08	0.16	.611
Extrafamilial Factors						
Friends support	–0.08	0.35	.819	–0.02	0.12	.879
Position in community	0.07	0.35	.834	–0.72**a	0.23	.005
Position in United States	–0.43	0.44	.343	0.64**a	0.21	.005
n		68			88	
df		(9, 67)			(9, 87)	
Wald *F* statistic		29.32***			65.50***	
R^2		0.439			0.405	

Note. For females, Step 1 model: $F(3, 67) = 0.77$, $p = ns$, $R^2 = .101$; Step 2 model: $F(6, 67) = 7.15$, $p < .01$, $R^2 = .425$. For males, Step 1 model: $F(3, 87) = 23.08$, $p < .01$, $R^2 = .217$; Step 2 model: $F(6, 87) = 29.46$, $p < .01$, $R^2 = .317$. K10 = Kessler Psychological Distress Scale.

[a] These coefficients remained significant after a Bonferroni correction for nine multiple tests ($\alpha = .05/9 = .0055$).

* $p < .05$.

** $p < .01$.

*** $p < .001$.

† $p < .07$.