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Interpersonal Violence and Mental Health Outcomes among Asian American and Native Hawaiian/Other Pacific Islander College Students

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Abstract

In a cross-sectional survey of college students ($N = 614$) we studied interpersonal violence victimization, perpetration, and mental health outcomes in an ethn racially diverse rural-based sample of Asian Americans (27%), and Native Hawaiian/Other Pacific Islanders (25%), two groups vastly underrepresented in trauma research. High rates of interpersonal violence (34%), violence perpetration (13%), and probable psychiatric diagnoses (77%), including posttraumatic stress disorder, were found. Exposure to physical violence, sexual violence, and life stress all were predictive of psychopathology. Female participants were associated with higher likelihood of sexual violence victimization compared to male participants, and Asian American status (especially among males) was associated with lower likelihood of physical and sexual violence compared with European Americans. These data enhance our understanding of interpersonal violence and mental health outcomes among previously understudied minority groups.

Keywords

interpersonal violence; posttraumatic stress disorder; anxiety; health disparities; rural; trauma

Empirical data on the mental and physical health of ethnoracial minorities in the United States are broadly lacking (Freeman & Payne, 2000) and very few studies have examined potential ethnoracial disparities in medical and psychiatric sequelae after exposure to psychological trauma because most national studies have only very small subsamples of certain minority groups (Pole, Gone, & Kulkarni, 2008). Due to wide variation in regional representation in the U.S. population, some ethnoracial minorities, such as Asian Americans and Native Hawaiians/Other Pacific Islanders, typically appear in insufficient numbers in nationally-representative epidemiological surveys to permit meaningful conclusions. Few studies have been designed to examine trauma exposure and its sequelae in Asian Americans, Native Hawaiians, and other Pacific Islanders (Pole et al., 2008). This is a

concern because interpersonal violence has dramatic adverse effects on mental and physical health (Breslau et al., 1998; Kilpatrick et al., 2003; Magruder et al., 2005). Lower socioeconomic status is an identified risk factor for interpersonal violence (Breslau et al., 1998), and ethnic minorities tend to be disproportionately of lower socioeconomic status, potentially leaving them at higher risk for exposure to violence.

Rates of violent victimization for general population samples across the U.S. range from 20% to 70% of lifetime exposure to violent crimes and vary according to sampling methods (Berman, et al., 1996; Fitzpatrick & Boldizar, 1993) and are high among adolescents (Ford, Elhai, Connor, & Frueh, 2010). One of a few studies on the prevalence and correlates of violence victimization among Native Hawaiians used a sample of adolescents from four Hawaii public schools and found a 3.3% rate of past 6-month victimization (Hishinuma Chang, Goebert, Else, Nishimura, Choi-Misailidis et al., 2005). However, lifetime victimization rates were not reported. This same study found significant differences in victimization rates by ethnicity, with lower rates for Chinese Americans, Filipino Americans, Japanese Americans, and other Asian American adolescents as compared to non-Chinese, non-Filipino, non-Japanese, and non-Asian American adolescents respectively. Also, significantly higher rates of victimization were found for adolescents who were at least part-European Americans relative to non-European American students. Another study that examined data on sexual assault exposure in a community-based probability sample of adults in Hawaii, reported similar findings with Asian Americans having significantly lower prevalence rates for unwanted sexual experiences compared to European Americans. Native Hawaiians/Other Pacific Islanders had a higher 12-month period prevalence, but lower lifetime exposure to sexual assault than European Americans (Crisanti et al., in press).

Survivors of violent assaults frequently suffer from serious psychiatric conditions such as post-traumatic stress disorder (PTSD; Berman, et al., 1996; Frueh, Grubaugh, Acierno, Elhai, Cain, & Magruder, 2007; Magruder, Frueh, Knapp, Davis, Hamner, Martin et al., 2005; Resnick, Kilpatrick, Dansky, Saunders, & Best, 1993), depression (Kilpatrick, Ruggiero, Acierno, Saunders, Resnick, & Best, 2003), anxiety disorders (Dempsey, 2002; Singer et al, 1995), and substance abuse (Kilpatrick, Acierno, Resnick, Saunders, Best, & Schnurr, 2000; Kilpatrick, Acierno, Resnick, Saunders, & Best, 1997). In general, victims of violence have an increased risk of developing one or more psychiatric conditions compared to those who have never been victimized (Boney-McCoy & Finkelhor, 1995, 1996). Research has consistently shown that victims of violent crimes are more likely than non-victims to develop PTSD-related symptoms (Resnick et al., 1993; Yoshihama & Horrocks, 2002; Kilpatrick, Ruggiero, et al., 2003). One study reported the rate of PTSD among crime victims at 26% compared to 9% among non-victims (Resnick et al., 1993).

With regard to violence perpetration, both criminal records and other data indicate that different ethnic and racial groups exhibit differential rates of involvement in the legal system for violent assaults (Hawkins, Laub, Lauritsen, & Cothorn, 2000; Jang, 2002; Malik, et al., 1997; McNulty & Bellair, 2003; Snyder & Sigmund, 2006). Official criminal records for the state of Hawaii suggest that Native Hawaiian offenders are clearly overrepresented in the criminal justice system compared to Asian American groups, such as Chinese, Japanese, and Korean. According to the data presented in Uniform Crime Reports, 25% of adults arrested for aggravated assault in the state of Hawaii in 2004 were Native Hawaiians compared to 8% who were East Asian Americans (i.e. Japanese, Chinese, Korean). This is also true for juvenile offenders. Twenty eight percent (28%) of juveniles arrested for aggravated assault were Native Hawaiians, compared to 19% who were European Americans and 4% who were East Asian Americans (Gao & Perrone, 2005). These results are partially supported by studies that used self-report data in order to examine racial and ethnic differences in perpetration of violence. A study conducted with a large sample of high school students in

Hawaii found that adolescents of Native Hawaiian ancestry had a significantly higher rate of self-reported arrest or serious trouble with the law than Japanese American adolescents (Hishinuma, Johnson, Kim, Nishimura, Makini, Andrade, et al., 2005). Yet another study conducted with a similar sample of high school students in Hawaii found that Japanese American youth had a lower level of violence, deviant behaviors, and delinquency than Filipino American, Native Hawaiian, and Samoan youth, with Samoan youth displaying the highest rates of violence-related behaviors (Maeda, Hishinuma, Nishimura, Garcia-Santiago, & Mark, 2006).

The purpose of the present study was to examine the prevalence of interpersonal violence victimization and perpetration, as well as to replicate previous research findings of mental health outcomes of physical and sexual violence in an ethnoracially diverse rural-based sample of Asian Americans, and Native Hawaiian/Other Pacific Islanders, groups that are vastly underrepresented in research on trauma exposure and its sequelae. Preliminary evidence suggests that interpersonal violence rates in rural areas of Hawaii may be at least as high as rates in urban areas of Hawaii or in the nation more broadly (Affonso, Shibuya, & Frueh, 2007; Affonso et al., 2010; Perrone et al. 1998). In fact, while empirical data show that there may be few rural/urban differences in trauma exposure (Elhai, Baugher, Quevillon, Sauvageot, & Frueh, 2004), none of the extant studies have specifically examined violence rates, correlates and consequences in this specific population. The present study also evaluated the relationship between community violence, life stress, psychiatric morbidity, and demographic risk factors such as ethnoracial status and family income. We hypothesized that exposure to interpersonal violence would increase the risk of developing PTSD, depression, and anxiety symptoms, as well as substance abuse/dependence after controlling for relevant demographic variables.

Method

Study Overview

The present study is a large cross-sectional survey that examined self-reported lifetime exposure to interpersonal violence, mental health outcomes (i.e., PTSD, depression, anxiety, and substance abuse), rates of violence perpetration, and other relevant variables among college students in rural Hawaii. This study was conducted with full approval from the university Institutional Review Board.

Participants

Participants in this study consisted of 614 students enrolled in introductory psychology classes at a university in Hawaii. Participants' demographic information is presented in Table 1. Thirty (30%) percent of participants endorsed their primary racial identity as European American, 27% as Asian American/Non-Filipino, 25% as Native Hawaiian/Pacific Islander, and 11% as Asian American/Filipino. Typically Asian Americans from different countries of origin (e.g., Korea, China, Japan) sampled in U.S. studies are lumped together as one ethnoracial group. We elected to follow this trend so that our results would be comparable to other U.S. samples of Asian Americans. However, because Filipinos in Hawaii may view themselves as more similar to other Pacific Islander groups than Asian groups, we included them as a separate category so as to not risk having an Asian American effect washed out. Our obtained results for several variables support this approach. Due to small numbers, African Americans (2%), American Indians (0.2%), Hispanics (2.6%), and those participants who endorsed "Other" category (2%) were excluded from statistical analyses. Thus, the final sample consisted of Asian American/Non-Filipino, Native Hawaiian/Pacific Islander, Filipino, and European American participants, with European Americans used as a reference category.

The age of participants ranged from 18 to 53 years old ($M=19.71$; $SD=4.0$). Age distribution was similar across all ethnoracial groups in this sample. Because participants were recruited from introductory psychology classes, the study sample consisted of students from many different majors, and only 6 % of participants were psychology majors. Forty two percent (42%) of the participants reported having lived on the Big Island of Hawaii most or all of their lives. It is difficult to precisely estimate the study participation rate. However, the lower bound participation rate for this sample was 70.6% (614/870) and the actual participation rate was probably much higher. This study was one of approximately ten different studies being conducted at any given time and students were also provided other non-research alternatives to fulfilling their requirement. Moreover, no participant elected to not participate in the study after reviewing the informed consent or beginning the study. Thus, there were no decliners or drop-outs.

Procedure

Participants were recruited through the human subjects' pool in the psychology department of the university for course credit. Students had the option to complete other written assignments in lieu of research study participation, which is standard practice with undergraduate human subject pools. Study personnel conducted an informed consent process with all potential participants prior to their participation in the study. The project was explained to potential participants in a group administration format, and at the end of this process, participants willing to complete the survey were asked to sign the informed consent document. Participants were assured that their participation in the project was voluntary and that they could withdraw without penalty at any time. The survey consisted of 17 pages and took approximately 15–30 minutes to complete. Participants anonymously completed the survey, placing the survey in an envelope separate from their informed consent document.

Measures

The survey asked about participants' demographics, victimization and perpetration history, and symptoms of four psychiatric disorders (i.e., depression, anxiety, PTSD, and substance abuse/dependence). The majority of instruments used in the study are standardized questionnaires widely used in epidemiological research on violence and mental health outcomes.

Demographics—Demographic questions covered a wide range of variables, including gender, ethnicity, family income, class standing, and marital status.

Criminal victimization—Participants were asked about lifetime childhood and adult exposure to physical and sexual assaults. Criminal victimization questions were adapted from the Trauma Assessment for Adults: Self-Report Version (TAA; Resnick, 1996). The TAA has been used widely to screen community and medical populations for trauma exposure (Kilpatrick, et al., 2000; Resnick, 1996) and has demonstrated good psychometric qualities (Gray, Elhai, Owen, & Monroe, 2009). History of childhood and adult physical assault was assessed by 6 yes/no questions. Childhood physical assault was defined as: (1) being a victim of a fight (being in a fight that involved pushing, shoving, punching or slapping by someone without the intent to kill or seriously injure) before the age of 18, or (2) being attacked by someone with a weapon and with the intent to kill or seriously injure before the age of 18, or (3) being attacked without a weapon but with the intent to kill or seriously injure before the age of 18. Adult physical assault was defined as: (1) being a victim of a fight (being in a fight that involved pushing, shoving, punching or slapping by someone without the intent to kill or seriously injure) after the age of 18, or (2) being attacked by someone with a weapon and with the intent to kill or seriously injure after the age of 18, or (3) being attacked without a weapon but with the intent to kill or seriously

injure after the age of 18. Childhood and adult sexual assault experiences were assessed by 7 yes/no questions. Childhood sexual assault was defined as: (1) having any sexual contact before the age of 13 with someone who was at least five years older, or (2) being fondled, raped, or sexually assaulted before the age of 13, or (3) having any sexual contact between the ages of 13 and 18 with someone who was older than 18 and at least 3 years older than the victim, or (4) being forced to have sexual contact by means of pressure, coercion, threats, or physical force between the ages of 13 and 18, or (5) being fondled, raped, or sexually assaulted between the ages of 13 and 18. Adult sexual assault was defined as (1) being forced to have sexual contact by means of pressure, coercion, threats, or physical force after the age of 18, or (2) being raped or sexually assaulted after the age of 18.

Participants who endorsed having any physical or sexual assault experiences were asked to indicate whether they experienced fear, helplessness, or horror at the time of the event (PTSD's criterion A2). Only those participants endorsing criterion A2 were categorized as having experienced physical or sexual assault; however, any participant who endorsed a childhood sexual assault prior to the age 13 was classified as being a victim of a sexual trauma regardless of whether or not the response involved fear, helplessness, or horror.

Stressful life experiences—Participants were asked five yes/no questions designed specifically for this study pertaining to recent (past 6 months) stressful life experiences which included questions about: personal divorce/separation, death of a family member, significant financial problems, having been arrested, or being fired from a job. Participants were classified as having experienced recent life stress if they answered yes to any of the five life stress questions.

Violence perpetration—Violence perpetration was assessed by 4 yes/no questions developed for the current study. Participants were asked to indicate whether or not they (1) started a physical fight with someone else since they turned 18, (2) started a physical fight with somebody of the opposite sex since they turned 18, (3) physically assaulted someone else with the intention of killing or seriously injuring them, (4) have been arrested for assault or any other type of violent behavior. Participants who endorsed at least 1 of the above questions were classified as having a history of violence perpetration.

Posttraumatic stress disorder—PTSD was assessed by a brief (10-item) Trauma Screening Questionnaire (TSQ) a screening instrument with (yes/no) responses based on DSM-IV diagnostic criteria of PTSD symptoms experienced at least twice in the past week (Brewin et al., 2002). The presence of PTSD was defined as an affirmative answer to any 6 out of 10 questions (Brewin, et al., 2002). Cronbach's alpha for this sample was 0.85, which is indicative of good internal consistency.

Anxiety—Anxiety symptoms were assessed using three (3) stem questions from the MINI International Neuropsychiatric Interview - one question corresponding to generalized anxiety disorder (GAD), panic or social anxiety, respectively. The questions were as follows: (1) *Have you worried excessively or been anxious about several things over the past 6 months? If yes, are these worries present most days?* (2) *In the past 6 months, have you on more than one occasion had spells or attacks when you suddenly felt anxious, frightened, uncomfortable, or uneasy, even in situations where most people would not feel this way? If yes, did the spells peak (and then start to come down) within 10 minutes?* (3) *In the past 6 months, were you fearful or embarrassed being watched, being the focus of attention, or fearful of being humiliated? This includes things like speaking in public, eating in public or with others, writing while someone watches, or being in social situations.* Participants who endorsed symptoms consistent with any of the three anxiety disorders were classified as having a probable anxiety disorder.

Depression—Depression was assessed by the Center of Epidemiological Studies Depression Scale which is comprised of 20 questions (Radloff, 1977, Knight, Williams, McGee, & Olan, 1997). Participants were asked to rate the frequency of their depressive symptoms (rare or none of the time, some or little of the time, occasionally or moderate amount of time, or most or all of the time) experienced during the past week. Participants with a score 16 or higher were classified as having current depression (Radloff, 1977). Cronbach's alpha for this sample was 0.88.

Substance abuse and dependence (SA/D)—Substance abuse was assessed using five (5) questions based on the DSM-IV-TR criteria for alcohol/substance abuse. Probable alcohol/substance abuse was defined as an affirmative response to any one of the five questions (Kilpatrick et. al., 2000). Alcohol/substance dependence was assessed using a 7-item measure based on the DSM-IV-TR criteria for alcohol/substance dependence. Probable alcohol/substance dependence was defined as an affirmative response to any three of the seven questions (Kilpatrick et. al., 2000). Participants who endorsed the requisite number of items for either alcohol/substance abuse or alcohol/substance dependence were classified as having current substance abuse or dependence (SA/D) in this study.

Data Analysis

Prevalence of victimization and perpetration and probable psychiatric diagnoses was determined by calculating the percent of participants endorsing the corresponding item or criteria. Gender differences in the prevalence of victimization and perpetration rates and the rates of psychopathology were examined by means of chi-square analyses. Univariate logistic regression analyses were performed in order to identify demographic risk factors (i.e., gender, ethnicity, family income) associated with higher rates of violence victimization and perpetration. Hierarchical logistic regression was used to test the hypothesis that lifetime exposure to interpersonal violence victimization is predictive of psychopathology after controlling for relevant demographic variables. The hierarchy consisted of 2 steps: 1) demographics (gender, race, SES) entered in Step 1, 2) traumatic experiences (physical violence, sexual violence, life stress) entered in Step 2. All analyses were conducted using SPSS.

Results

Prevalence of Violence Victimization, Perpetration, and Probable Psychiatric Diagnoses

Prevalence of violence victimization, perpetration, and probable psychiatric diagnoses is presented in Table 2. Overall, 35% of respondents reported being a victim of violence. Twenty four percent (24%) of participants reported being a victim of physical violence, and 21% of participants reported being a victim of sexual violence. In terms of gender differences, significantly more women (28%) than men (6%) reported being a victim of sexual violence ($\chi^2=41.43$, $df=1$, $p<0.0001$).

In terms of violence perpetration, 13% of participants reported starting a physical fight with someone else after the age of 18. Four percent (4%) of the total sample reported physically assaulting someone else with the intention to kill or seriously injure with males reporting significantly more assault perpetrations than females (7% vs. 2%; $\chi^2=8.28$, $df=1$, $p<0.01$). A higher proportion of females reported starting a fight with somebody of the opposite sex (12% vs. 2%; $\chi^2=17.30$, $df=1$, $p<0.0001$).

Overall, 78% of participants had symptoms that might be indicative of at least one psychiatric diagnosis (PTSD, depression, anxiety, SA/D). Prevalence for the total sample was 18.6% for PTSD symptoms, 58% for anxiety symptoms, 35% for SA/D, and 39% for

depression. Females had higher prevalence than males for depression (41% vs. 33%; $\chi^2=4.01$, $df=1$, $p<0.05$) and anxiety symptoms (63% vs. 49%; $\chi^2=10.27$, $df=1$, $p<0.001$). Males had higher prevalence of substance abuse or dependence than females (41% vs. 31%; $\chi^2=5.00$, $df=1$, $p<0.05$).

Sociodemographic Risk Factors for Violence Victimization and Perpetration

Univariate logistic regression analyses for physical and sexual victimization and perpetration are presented in Table 3. Four logistic regression analyses were conducted to determine which demographic risk factors (gender, race, family income) were predictors of physical violence, sexual violence, violence perpetration, and violence perpetration towards opposite sex. Three logistic regression models were statistically reliable in distinguishing the dependent variable: physical violence (-2 Log Likelihood=584.244; $\chi^2(7)=15.79$, $p<0.05$); sexual violence (-2 Log Likelihood=484.750; $\chi^2(7)=54.22$, $p<0.001$); and violence perpetration towards opposite sex (-2 Log Likelihood=259.460; $\chi^2(7)=26.20$, $p<0.001$). Regression coefficients are presented in Table 3. For physical violence victimization, the only significant variable was Asian American (Non-Filipino) ethnicity (OR=0.50 vs. European American). Asian American (Non-Filipino) participants were significantly less likely than European Americans to endorse being a victim of physical violence. Female gender was associated with a significantly higher likelihood of being a victim of sexual violence (OR=7.37 vs. male); and non-Filipino Asian American ethnicity was associated with a significantly lower likelihood of reporting sexual violence (OR=0.42 vs. European Americans). With regard to violence perpetration there was only one statistically significant relationship: Females were more likely to endorse using physical violence toward to opposite sex (OR=9.42 vs. male).

Psychopathology

Five hierarchical logistic regression analyses were conducted: one for each type of psychopathology (PTSD, depression, anxiety, and substance abuse) and one for psychopathology in general. All logistic regression models were statistically reliable in distinguishing the dependent variables: PTSD (-2 Log Likelihood=463.674; $\chi^2(10)=47.87$, $p<0.001$); anxiety (-2 Log Likelihood=671.677; $\chi^2(10)=50.53$, $p<0.001$); depression (-2 Log Likelihood=676.414; $\chi^2(10)=37.53$, $p<0.001$); substance abuse (-2 Log Likelihood=651.197; $\chi^2(10)=39.59$, $p<0.001$); overall psychopathology (-2 Log Likelihood=479.519; $\chi^2(10)=66.65$, $p<0.001$). Final regression model for PTSD correctly classified 79.8% of the cases; final model for anxiety – 65.8% of the cases; for depression – 62.4% of the cases; for substance abuse – 66.8% of the cases; and overall psychopathology – 79.2% of the cases. Regression coefficients are presented in Table 4. Non-Filipino Asian American ethnicity was significantly associated with a lower risk of anxiety and SA/D in the final model (OR=0.62 and OR=0.47 vs. European Americans). Other variables significantly associated with SA/D were female gender as a protective factor (OR=0.62 vs. male), family income \$20,000 to \$39,000 (OR=0.54 vs. family income over \$75,000), family income \$40,000 to \$74,000 (OR=0.46 vs. family income over \$75,000), and life stress (OR=1.59 vs. none). Life stress was also associated with an increased risk of developing depression (OR=1.82 vs. none) and anxiety (OR=1.97 vs. none) symptoms. Being a victim of physical violence was a significant predictor for depression (OR=1.89 vs. none), PTSD (OR=2.97 vs. none), and anxiety (OR=1.83 vs. none) symptoms. Being a victim of sexual violence was associated with an increased risk of PTSD (OR=1.94 vs. none) and anxiety (OR=1.78 vs. none) symptoms. Overall, the risk of developing any psychopathology was significantly associated with physical violence (OR=2.96 vs. none), sexual violence (OR=3.57 vs. none), and life stress (OR=3.18 vs. none).

Discussion

In this study we examined the prevalence of interpersonal violence victimization, perpetration, and mental health outcomes in an ethnoracially diverse rural-based sample of Asian Americans, and Native Hawaiian/Other Pacific Islanders. These are groups that are underrepresented in research on trauma exposure and its sequelae. Study findings indicate that 34% of the total sample of college students in rural Hawaii endorsed interpersonal violence victimization. Traumatic exposure was operationally defined not only as encountering physical or sexual violence, but also experiencing an intense psychological reaction such as fear, horror, or helplessness related to the event (i.e., *DSM-IV* A2 criteria for trauma in the PTSD diagnosis). By adhering to this more rigorous definition of trauma exposure, rates of interpersonal violence exposure may be somewhat lower in the present sample relative to other studies (e.g., 20–70%). This also may account for some of the unexpected findings, such as the failure to find gender differences in physical violence victimization.

The hypothesis that lifetime exposure to interpersonal violence is predictive of psychiatric symptoms was generally supported. Physical violence was significantly related to symptoms of PTSD, depression, anxiety (broadly defined), and overall psychopathology. Sexual violence was a significant predictor of PTSD, anxiety symptoms and overall psychopathology. The results of this study replicated previous research findings on trauma and violence sequelae, most of which have been conducted with predominantly European American and African American samples, which found that exposure to interpersonal violence increased the risk of psychiatric disorders such as PTSD, depression, and substance abuse (e.g. Kilpatrick, et al., 2003; Magruder et al., 2005). Furthermore, stressful life events also appeared to be significantly related to all psychopathology symptoms, except PTSD, supporting previous research findings that have shown life stress (such as financial problems, divorce/separation, death of a family member) to be a very strong predictor of psychopathology, perhaps stronger than exposure to violence or other trauma (Gold, Marx, Soler-Baillo, & Sloan, 2005; Long, Elhai, Schweinle, Gray, & Grubaugh, 2008). This finding reinforces discussions that are currently taking place in the field regarding our understanding of “trauma” and how we conceptualize the etiological events that may lead to PTSD diagnoses (O’Donnell, Creamer, & Cooper, in press; Long et al., 2008), and has implications for the disorder in future revisions of the *DSM* (Elhai, Grubaugh, Kashdan, & Frueh, 2008; Rosen, Lilienfeld, Frueh, McHugh, & Spitzer, 2010).

Contrary to the findings of most studies conducted with the national samples (Catalano, 2006; Fitzpatrick & Boldizar, 1993; Gladstein et al. 1992; Malik et al., 1997; Slovak & Singer, 2002), as well as other Hawaii samples (Hishinuma, Chang, et al., 2005; Mayeda, 2006), the present study found no significant gender differences in physical violence victimization. However, gender differences in sexual victimization were consistent with previous studies on this topic and showed that females have significantly higher rates than males (Catalano, 2006; Tjaden & Toennes, 2000). The rates of violence perpetration towards the opposite sex found in the present study were significantly higher by women than by men (11.8% vs. 1.6%), which is also consistent with previous research findings and supports the hypothesis that women tend to perpetrate more physical violence than men in the context of intimate relationships (Malik, et al., 1997; Spencer & Bryant, 2000). This finding may help explain why there were not gender differences in physical violence victimization. However, the current data do not address severity or adverse outcomes of this violence. Thus, our obtained data cannot address the important question of whether violence perpetrated or received by one gender is different in severity or qualitative experience. Future research should study this question.

Regarding ethnoracial status, Asian American/Non-Filipino participants (especially males) were much less likely than European Americans to endorse being a victim of physical and sexual violence as well as to develop anxiety and substance abuse/dependence symptoms. These results support previous research findings that Asian Americans report lower violence victimization rates than other ethnoracial groups in Hawaii (Crisanti et al., in press; Hishinuma, Chang, et al., 2005) and are less likely to report problematic alcohol or drug use behaviors. Previous research studies have shown higher rates of violence perpetration among Native Hawaiian and Filipino American respondents (Gao & Perrone, 2005; Hishinuma, Johnson, et al., 2005; Maeda et al., 2006). However, this finding was not replicated by the present study, which could be attributed to the nature of the present sample (college students versus the general population). This is an encouraging finding in that it indicates there are not the expected ethnoracial disparities in violence perpetration among college students in this sample.

Limitations

One of the major limitations of the present study is its cross-sectional survey design which prevents us from making causal inferences regarding our study variables. Additionally, our assessment of interpersonal violence exposure was based on self-report, which could yield biased estimates. The assessment of psychopathology was also limited to self-report measures which are less valid than a structured clinical interview administered by an experienced clinician. In addition, anxiety symptoms were assessed using only the stem questions from a structured clinical interview, and thus no conclusions about actual psychiatric diagnoses of anxiety disorders could be made based on the information collected from the participants. Another limitation of the study is the nature of the sample which was limited to introductory psychology students, who are primarily single and in their first year of college. Therefore, generalization of our results to other groups of Asian Americans and Native Hawaiians/Other Pacific Islanders should be made with caution.

Conclusions

The results of the present study provide valuable information about the prevalence of various forms of interpersonal violence victimization and perpetration, as well as the association between interpersonal violence and mental health outcomes among a rural-based ethnoracially diverse sample (27% Asian American/Non-Filipino, 25% Native Hawaiian/Other Pacific Islander) of college students. An important finding is the overall high percentage of psychiatric symptoms, indicating a significant number of college students in rural Hawaii might be suffering from various types of psychopathology, including PTSD, depression, anxiety, and substance abuse problems. Findings also support the association between interpersonal violence exposure and adverse psychiatric sequelae, and suggest important disparities along gender and ethnoracial lines. Results of the present study may be useful in informing violence prevention programs (e.g., Affonso, Shibuya, & Frueh, 2007; Affonso et al., 2010) and guiding implementation of evidence-based mental health practices (Frueh, Ford, Elhai, & Grubaugh, in press) that are appropriate for ethnoracially diverse communities, including those living in rural Hawaii (e.g., Morland, Greene, Rosen, Mauldin, & Frueh, 2009; Morland et al., in press).

Additional research with community samples, structured clinical interviews, and longitudinal designs is needed to further explore interpersonal violence exposure and psychopathology patterns. Risk and protective factors for violence victimization, perpetration, and developing negative mental health outcomes should be further studied in community samples to examine the patterns of victimization and how they are linked to negative mental health outcomes in the general population of Asian Americans and Native Hawaiian/Other Pacific Islanders living in the U.S. Efforts are also needed to better

understand the role of cultural (Kim, 2007), societal, and contextual factors (Frueh, Grubaugh, Elhai, & Buckley, 2007) that influence posttraumatic reactions. Last, effort is needed to better understand the finding that Asian Americans (especially males) report significantly lower rates of physical and sexual violence than other ethnoracial groups. It will be important to understand whether this is a reporting artifact, possibly related to cultural factors, a “true” difference, or some combination of the two.

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Table 1

Demographic Information

	Total Sample		Asian American (Non-Filipino)		Filipino American		NHPI		European American	
	N	%	N	%	N	%	N	%	N	%
Ethnicity:										
African American	13	2.2								
American Indian	1	0.2								
Asian American/Non-Filipino	165	27.3								
Asian American /Filipino	67	11.1								
European American	178	29.5								
Hispanic/Latino(a)	16	2.6								
Native Hawaiian/Pacific Islander	150	24.8								
Other	14	2.3								
Gender:										
Male	205	33.4	64	38.8	17	25.4	114	76.5	68	38.2
Female	408	66.6	101	61.2	50	74.6	35	23.5	110	61.8
Class Standing:										
First-year Students	387	63.2	109	66.5	53	79.1	96	64.4	95	53.4
Sophomore	132	21.6	35	21.3	9	13.4	32	21.5	48	27.0
Juniors	68	11.1	12	7.3	4	6.0	18	12.1	24	13.5
Seniors	23	3.8	8	4.9	1	1.5	3	2.0	9	5.1
Graduate Students	2	0.3	0	0	0	0	0	0	2	1.1
Marital Status:										
Single	548	89.7	155	94.5	63	94.0	134	89.3	148	84.1
Married/Living w/Partner	57	9.3	8	4.9	4	6.0	16	10.7	24	13.6
Divorced/Widowed	6	1.0	1	0.6	0	0	0	0	4	2.3
Family Income:										

	Total Sample		Asian American (Non-Filipino)		Filipino American		NHP1		European American	
	N	%	N	%	N	%	N	%	N	%
Less than 20,000	76	12.8	12	7.4	4	6.2	25	17.1	28	16.3
20,000–39,999	166	27.9	44	27.2	20	31.2	52	35.6	37	21.5
40,000–74,999	228	38.3	66	40.7	28	43.8	54	37.0	59	34.3
75,000 and up	126	21.1	40	24.7	12	18.8	15	10.3	48	27.9

Table 2

Lifetime Prevalence of Violence Victimization, Violence Perpetration, and Psychiatric Diagnoses for Asian American/Non-Filipino, Native Hawaiian/Pacific Islander (NHPI), Filipino, European American Participants, and the total sample

	Males		Females		Total Sample	
	N	%	N	%	N	%
Total Sample:						
Victimization						
Physical Violence	40	19.5	107	26.2	147	24.0
Sexual Violence	12	5.9	115	28.2	127	20.7
Overall Victimization	47	22.9	169	41.4	216	35.2
Perpetration						
Starting Fight	33	16.2	46	11.3	79	12.9
Assault	13	6.8	8	2.0	21	3.6
Fight w/Opposite Sex	3	1.6	46	11.8	49	8.5
Psychopathology						
PTSD	29	14.9	80	20.5	109	18.6
Depression	65	32.8	164	41.3	229	38.5
Anxiety	96	48.7	250	62.5	346	58.0
SA/D	82	40.6	126	31.4	208	34.5
Asian American (Non-Filipino):						
Victimization						
Physical Violence	2	3.1	23	22.8	25	15.2
Sexual Violence	3	4.7	19	18.8	22	13.3
Overall Victimization	4	6.2	33	32.7	37	22.4
Perpetration						
Starting Fight	7	10.9	8	7.9	15	9.1
Assault	1	1.6	4	4.3	5	3.2
Fight w/Opposite Sex	0	0	7	7.3	7	4.5
Psychopathology						
PTSD	7	10.9	17	17.0	24	14.6

	Males		Females		Total Sample	
	N	%	N	%	N	%
Depression	18	28.1	33	33.7	51	31.5
Anxiety	27	42.9	50	50.0	77	47.2
SA/D	19	29.7	24	24.2	43	26.4
Filipino American:						
Victimization						
Physical Violence	7	41.2	14	28.0	21	31.3
Sexual Violence	1	5.9	13	26.0	14	20.9
Overall Victimization	7	41.2	22	44.0	29	43.3
Perpetration						
Starting Fight	2	11.8	5	10.0	7	10.4
Assault	1	6.2	0	0	1	1.5
Fight w/Opposite Sex	0	0	8	16.3	8	12.3
Psychopathology						
PTSD	3	18.8	10	21.3	13	20.6
Depression	7	43.8	20	43.5	27	43.5
Anxiety	9	52.9	33	68.8	42	64.6
SA/D	4	23.5	17	35.4	21	32.3
NHPI:						
Victimization						
Physical Violence	8	22.9	31	27.2	39	26.2
Sexual Violence	3	8.6	29	25.4	32	21.5
Overall Victimization	10	28.6	46	40.4	56	37.6
Perpetration						
Starting Fight	7	20.0	15	13.2	22	14.8
Assault	4	12.5	1	0.9	5	3.6
Fight w/Opposite Sex	1	3.2	14	13.1	15	10.9
Psychopathology						
PTSD	10	29.4	26	24.1	36	25.4
Depression	9	26.5	53	47.3	62	42.5

	Males		Females		Total Sample	
	N	%	N	%	N	%
Anxiety	19	57.6	73	65.2	92	63.4
SA/D	17	48.6	31	27.7	48	32.7
European American:						
Victimization						
Physical Violence	19	27.9	29	26.4	48	27.0
Sexual Violence	3	4.4	42	38.2	45	25.3
Overall Victimization	20	29.4	52	47.3	72	40.4
Perpetration						
Starting Fight	12	17.9	12	11.0	24	13.6
Assault	6	9.7	2	1.9	8	4.7
Fight w/Opposite Sex	1	1.6	11	10.4	12	7.2
Psychopathology						
PTSD	7	11.3	24	23.3	31	18.8
Depression	26	39.4	52	47.7	78	44.6
Anxiety	35	53.0	74	67.9	109	62.3
SA/D	35	51.5	44	40.4	79	44.6

Table 3
Logistic Regression Results: Risk Factors for Violence Victimization and Perpetration

Risk Factor	B	SE	W	OR	CI (95%)
Physical Violence Victimization					
Female Gender	0.29	0.23	1.57	1.33	0.85–2.09
Asian American (Non-Filipino) ^a	−0.69	0.28	6.09	0.50*	0.29–0.87
Filipino American ^a	0.26	0.32	0.63	1.29	0.69–2.43
Native Hawaiian/Pacific Islander ^a	−0.09	0.26	0.13	0.91	0.55–1.52
Family Income: less than \$20,000	0.36	0.36	0.97	1.43	0.70–2.92
Family Income: \$20,000 to \$39,000	0.38	0.31	1.51	1.45	0.80–2.65
Family Income: \$40,000 to \$74,000	0.04	0.30	0.02	1.04	0.58–1.86
Sexual Violence Victimization					
Female Gender	2.00	0.37	29.30	7.37***	3.58–15.19
Asian American (Non-Filipino) ^a	−0.86	0.31	7.90	0.42**	0.23–0.77
Filipino American ^a	−0.47	0.37	1.55	0.63	0.30–1.31
Native Hawaiian/Pacific Islander ^a	−0.52	0.29	3.22	0.60	0.34–1.05
Family Income: less than \$20,000	0.26	0.40	0.42	1.30	0.59–2.84
Family Income: \$20,000 to \$39,000	0.08	0.35	0.05	1.08	0.55–2.15
Family Income: \$40,000 to \$74,000	−0.01	0.33	0.001	0.99	0.52–1.90
Violence Perpetration					
Female Gender	−0.45	0.28	2.61	0.64	0.37–1.10
Asian American (Non-Filipino) ^a	−0.49	0.35	1.90	0.62	0.31–1.23
Filipino American ^a	−0.23	0.46	0.24	0.80	0.32–1.98
Native Hawaiian/Pacific Islander ^a	0.16	0.33	0.23	1.18	0.61–2.26
Family Income: less than \$20,000	−0.24	0.48	0.26	0.78	0.31–2.00
Family Income: \$20,000 to \$39,000	−0.45	0.40	1.28	0.64	0.29–1.40
Family Income: \$40,000 to \$74,000	0.08	0.35	0.05	1.08	0.55–2.13
Violence Perpetration Toward Opposite Sex					
Female Gender	2.24	0.74	9.30	9.42**	2.23–39.85

Risk Factor	B	SE	W	OR	CI (95%)
Asian American (Non-Filipino) ^a	-0.45	0.50	0.80	0.64	0.24-1.71
Filipino American ^a	0.40	0.52	0.61	1.49	0.54-4.10
Native Hawaiian/Pacific Islander ^a	0.30	0.42	0.52	1.36	0.59-3.09
Family Income: less than \$20,000	0.67	0.57	1.37	1.95	0.64-5.99
Family Income: \$20,000 to \$39,000	-0.06	0.54	0.01	0.94	0.32-2.73
Family Income: \$40,000 to \$74,000	0.01	0.51	0.00	1.01	0.37-2.75

Note. W= Wald Statistic; OR= odds ratio; CI= confidence interval.

^a European Americans as reference group

* p<0.05;

** p<0.01;

*** p<0.001

Table 4
 Hierarchical Logistic Regression Results: Risk Factors for PTSD, Anxiety, Depression, Substance Use and Overall Psychopathology

Risk Factor	Step					Final Model				
	B	SE	W	OR	CI (95%)	B	SE	W	OR	CI (95%)
PTSD										
Step1										
Female Gender	0.27	0.25	1.11	1.31	0.79–2.15	0.04	0.28	0.02	1.04	0.60–1.78
Asian American (Non-Filipino) ^a	−0.14	0.31	0.20	0.87	0.47–1.59	0.10	0.32	0.09	1.10	0.59–2.08
Filipino American ^a	0.28	0.38	0.55	1.33	0.63–2.80	0.28	0.40	0.48	1.32	0.60–2.89
Nat. Haw/Pacific Islander ^a	0.46	0.29	2.52	1.59	0.90–2.81	0.49	0.31	2.48	1.63	0.89–2.99
Fam. Income: less than \$20,000	0.70	0.40	3.08	2.01	0.92–4.38	0.48	0.43	1.26	1.61	0.70–3.71
Fam. Income: \$20,000 to \$39,000	0.18	0.35	0.26	1.20	0.60–2.39	0.03	0.37	0.01	1.03	0.50–2.12
Fam. Income: \$40,000 to \$74,000	0.23	0.33	0.47	1.25	0.66–2.40	0.17	0.35	0.24	1.18	0.60–2.33
Step 2										
Physical violence						1.09	0.25	18.71	2.97***	1.81–4.86
Sexual violence						0.67	0.28	5.60	1.94*	1.12–3.37
Life Stress						0.43	0.25	2.92	1.54	0.94–2.54
Anxiety										
Step1										
Female Gender	0.42	0.19	4.78	1.53*	1.05–2.23	0.32	0.21	2.44	1.38	0.92–2.06
Asian American (Non-Filipino) ^a	−0.61	0.23	7.13	0.55**	0.35–0.85	−0.48	0.24	4.19	0.62*	0.39–0.98
Filipino American ^a	0.11	0.32	0.13	1.12	0.60–2.08	0.08	0.33	0.05	1.08	0.57–2.04
Nat. Haw/Pacific Islander ^a	−0.07	0.24	0.09	0.93	0.58–1.50	−0.13	0.25	0.28	0.88	0.53–1.44

Risk Factor	Step					Final Model				
	B	SE	W	OR	CI (95%)	B	SE	W	OR	CI (95%)
Fam. Income: less than \$20,000	0.21	0.33	0.41	1.23	0.65–2.34	–0.03	0.34	0.01	0.97	0.49–1.89
Fam. Income: \$20,000 to \$39,000	0.30	0.27	1.25	1.35	0.80–2.26	0.14	0.28	0.26	1.15	0.67–1.97
Fam. Income: \$40,000 to \$74,000	0.06	0.25	0.06	1.06	0.66–1.72	0.01	0.25	0.00	1.01	0.61–1.65
Step 2										
Physical violence						0.61	0.24	6.32	1.83*	1.14–2.94
Sexual violence						0.58	0.27	4.67	1.78*	1.06–3.00
Life Stress						0.68	0.19	12.50	1.97***	1.35–2.87
Depression										
Step1										
Female Gender	0.40	0.20	4.02	1.49*	1.01–2.19	0.38	0.21	3.28	1.46	0.97–2.21
Asian American (Non-Filipino) ^a	–0.54	0.23	5.32	0.58*	0.37–0.92	–0.45	0.24	3.45	0.64	0.40–1.03
Filipino American ^a	0.05	0.31	0.02	1.05	0.57–1.91	–0.05	0.32	0.02	0.96	0.51–1.78
Nat. Haw/Pacific Islander ^a	–0.12	0.24	0.25	0.89	0.56–1.41	–0.21	0.25	0.75	0.81	0.50–1.31
Fam. Income: less than \$20,000	0.26	0.32	0.65	1.29	0.69–2.41	0.05	0.33	0.02	1.05	0.55–2.00
Fam. Income: \$20,000 to \$39,000	–0.17	0.27	0.41	0.84	0.50–1.42	–0.33	0.28	1.46	0.72	0.42–1.23
Step 2										
Fam. Income: \$40,000 to \$74,000	–0.18	0.25	0.50	0.84	0.52–1.37	–0.24	0.26	0.91	0.78	0.48–1.29

Risk Factor	Step					Final Model				
	B	SE	W	OR	CI (95%)	B	SE	W	OR	CI (95%)
Physical violence						0.64	0.22	8.19	1.89**	1.22–2.92
Sexual violence						0.11	0.24	0.21	1.12	0.70–1.80
Life Stress						0.60	0.19	9.49	1.82**	1.24–2.66
Substance Abuse/Dependence										
Step1										
Female Gender	–0.37	0.20	3.55	0.69	0.47–1.02	–0.47	0.21	4.97	0.63*	0.42–0.95
Asian American (Non-Filipino) ^a	–0.82	0.24	11.59	0.44***	0.27–0.71	–0.76	0.25	9.47	0.47**	0.29–0.76
Filipino American ^a	–0.44	0.32	1.89	0.65	0.35–1.21	–0.48	0.33	2.16	0.62	0.33–1.17
Nat. Haw/Pacific Islander ^a	–0.41	0.24	2.77	0.67	0.41–1.08	–0.46	0.25	3.35	0.63	0.39–1.03
Fam. Income: less than \$20,000	–0.41	0.33	1.57	0.66	0.35–1.26	–0.59	0.34	3.08	0.55	0.29–1.07
Fam. Income: \$20,000 to \$39,000	–0.49	0.27	3.45	0.61	0.36–1.03	–0.62	0.27	5.13	0.54*	0.32–0.92
Fam. Income: \$40,000 to \$74,000	–0.72	0.25	8.23	0.49**	0.30–0.80	–0.79	0.26	9.38	0.46**	0.28–0.75
Step 2										
Physical violence						0.30	0.23	1.78	1.36	0.87–2.12
Sexual violence						0.37	0.25	2.18	1.45	0.89–2.36
Life Stress						0.46	0.20	5.32	1.59*	1.07–2.35
Overall Psychopathology										
Step1										
Female Gender	0.05	0.23	0.06	1.06	0.67–1.67	–0.14	0.25	0.32	0.87	0.54–1.41
Asian American (Non-Filipino) ^a	–0.70	0.27	6.60	0.50*	0.29–0.85	–0.51	0.29	3.18	0.60	0.34–1.05
Filipino American ^a	–0.12	0.39	0.09	0.89	0.42–1.89	–0.19	0.41	0.22	0.83	0.37–1.84
Nat. Haw/Pacific Islander ^a	0.04	0.31	0.01	1.04	0.57–1.90	–0.09	0.33	0.07	0.92	0.48–1.75

Risk Factor	Step					Final Model				
	B	SE	W	OR	CI (95%)	B	SE	W	OR	CI (95%)
Fam. Income: less than \$20,000	-0.11	0.41	0.07	0.87	0.40-2.01	-0.61	0.44	1.88	0.55	0.23-1.30
Fam. Income: \$20,000 to \$39,000	-0.25	0.32	0.59	0.78	0.42-1.47	-0.55	0.34	2.58	0.58	0.30-1.13
Fam. Income: \$40,000 to \$74,000	-0.25	0.32	0.59	0.78	0.42-1.47	-0.35	0.32	1.24	0.71	0.38-1.31
Step 2										
Physical violence						1.09	0.38	8.11	2.96**	1.40-6.24
Sexual violence						1.27	0.43	8.85	3.57**	1.54-8.27
Life Stress						1.16	0.25	22.10	3.18***	1.96-5.14

Note. W= Wald Statistic; OR= odds ratio; CI= confidence interval.

^aEuropean Americans as reference group

* p<0.05;
** p<0.01;
*** p<0.001