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Risk factors of suicide and depression among Asian American, Native Hawaiian, and Pacific Islander youth: a systematic literature review

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Abstract

Suicide has become an increasing public health challenge, with growing incidence among Asian American, Native Hawaiian, and Pacific Islander (AA and NHPI) youth. Using an ecological framework, the purpose of this systematic review was to explicate risk and protective factors for depression or suicide among AA and NHPI youth from available peer reviewed research. The ecological framework provides a useful blueprint for translating social determinants of health to explain the experience of depression and suicidal behaviors among AA and NHPI youth. Sixty-six studies were extracted from PsychInfo, Ovid Medline, EMBASE, CINAHL, and Web of Science. Policy and practice recommendations are offered in light of relevant themes that emerged. Further research and data disaggregation is needed to develop and strengthen population health strategies, interventions, and policies that address the underlying social conditions and cultural contexts of mental health disparities associated with depression and suicide among AA and NHPI youth.

Keywords

Suicide; depression; Asian Americans; Pacific Islanders; minority health; adolescent; child; family health; health status disparities; public health; social determinants of health

Mental health disorders such as depression among youth and children are an important public health issue, particularly because of their early onset and the risk for later problems in life. According to a recent brief released by the National Institute of Mental Health, approximately 11% of youth experience a depressive disorder by 18 years of age.¹ Depression is defined as a mood disorder that causes a persistent feeling of sadness and loss of interest in things, and can lead to emotional and physical problems.² Moreover, depression can lead to suicidal feelings and suicide attempts. Risk factors for youth and teen depression include issues affecting self-esteem, such as obesity, peer relationships, bullying, or academic achievement; abusing alcohol, nicotine, or other drugs; sexual orientation; having few friends or personal relationships; conditions such as anxiety disorder or bulimia;

having been the victim of violence; and family history of depression or recent stressful life events.³

In 2011, the Centers for Disease Control and Prevention (CDC), identified suicide as the second leading cause of death among 12–18 year olds.⁴ National data from the 2013 Youth Risk Behavior Surveillance System reported that 8.0% of American youth had at least one suicide attempt within the twelve months preceding the survey; comparatively, 11.8% of Native Hawaiian and Pacific Islander (NHPI) youth and 9.5% of Asian American (AA) youth had at least one suicide attempt. When stratified by sex, females showed a higher rate of suicide attempts compared with males. However, among males, Asians were the most likely to attempt suicide compared to other groups. A similar pattern was seen for feeling sad or helpless almost every day for two or more weeks in a row. AA and NHPI youth may be susceptible to different risks than other racial/ethnic groups, such as ethnic and cultural socialization or orientation, poverty, education related stress, familialism, discrimination, and acculturation that can take root at a young age, affecting mental health outcomes. Additionally, cultural socialization and unique life experiences specific to AA and NHPI populations can also promote resilience and serve as protective factors against suicide. Consequently, it is clinically important to understand more fully the ways in which cultural, social, and psychological factors may manifest among AA and NHPI individuals relative to suicidality and depression.

By the year 2060, it is projected that one in 10 children in the United States (U.S.) will be Asian.⁵ According to the 2010 Census, the AA and NHPI community is one of the fastest growing racial/ethnic groups within the U.S., representing over 5% of the U.S. population.⁶ Between 2000 and 2010, the percentage growth of AAs was 46%, more than any other major racial group, and the percentage growth for NHPIs was 40%.⁷ Geographically, California has the largest AA population, followed by New York; Hawaii and California have the largest population of NHPIs.⁷

As a whole, AAs and NHPIs appear to be socioeconomically better off than other racial/ethnic minorities and consistent with their non-Hispanic White counterparts, giving rise to the “model minority myth”—a perception that AAs achieve higher degrees of economic and educational success and have fewer health problems than the overall population.^{8,9} Health disparities, however, are particularly evident when disaggregating out the data and looking at differences across AA and NHPI subgroups and certain diseases, especially cancer, stroke, and mental health.^{10,11} AA and NHPI groups are often under-represented in research, including in studies on depression and suicide prevalence among youth and adolescents. When AA and NHPI groups are included in studies, they are often combined into one aggregated group, masking significant subgroup differences which can hamper the ability to draw meaningful conclusions regarding this population.¹¹

This report uses an ecological lens to extrapolate risk and protective factors from the peer-reviewed literature associated with depression and suicide among AA and NHPI youth who are 18 years of age or younger in the U.S. Risk and protective factors are mapped across three interdependent and dynamic social systems in which AA and NHPI youth live and develop. Adapting an ecological perspective is relevant to this systematic analysis for two

reasons. First, AA and NHPI youth do not develop in isolation nor do the mental health conditions they suffer. The social and cultural conditions and contexts that underlie the experience of depression and suicide ideation, planning, and attempts among AA and NHPI youth are dynamic and complex. As such, they truly reflect the human ecology of dynamic interactions across diverse populations that evolve over time in a non-linear fashion. Effective assessment and intervention with regards to depression and suicide therefore depends on an accurate understanding of the social, cultural, and interpersonal complexities faced by AA and NHPI youth as they navigate their daily lives. Any valid analysis must explicitly account for the influence of and interactions with larger social systems.

Second, an ecological systems perspective provides theoretical scaffolding that can support the integration of intersectionality with the social determinants of health framework. Knowing that health, broadly speaking, is associated with social variables like poverty, unemployment, and stigma is not enough, particularly if an assumption of linearity underlies their relationship to health behaviors and outcomes. Intersectionality suggests that human experience is informed by our identities, which is multiplicative not additive.^{12,13} In this sense, behavior is merely the tip of the iceberg – pushed to the surface by deeper intersecting systems and structures of power (e.g., policies, laws, economic regulations) that create deeper meaning about who we are, and how we organize ourselves and engage the world around us.¹⁴ Bringing these bodies of work together through an ecological framing of suicidality and depression among AA and NHPI youth enables clarity of experience, and promotes specificity with regards to targets of prevention and intervention in an otherwise complex web of dynamic players across multiple settings and contexts. This is particularly critical when thinking about future and actionable research, policy, service delivery, access, and practice.

Ecological theory: Organizational framework for systematic review

Understanding risk and protective factors related to depression and suicidality among AA and NHPI youth in the U.S. requires an understanding of the ecological parameters that define the contexts and conditions under which AA and NHPI youth live and develop. Risk and protective factors for depression and suicidality in the lives of AA and NHPI youth are far from static and cannot be fully understood through an independent examination of the sum of its parts. Instead, they are part of a complex, integrated, diverse, and nonlinear network of systems. Consequently, individual risk and protective factors collide with numerous other agents in the social environment effecting varying developmental outcomes for individual AA and NHPI youth. In applying an ecological framework the clinician would need to see and treat the whole person, rather than assess and treat separate or specific entities of a person. For example, within this framework, gender can be understood as both a biological and a social construct. Moreover, identity is a multi-dimensional phenomenon, simultaneously influenced by varying levels of the social environment (e.g., social, political, legal, economic).

At its core, human ecology theory is “unique in its focus on humans as both biological organisms and social beings in interaction with their environment. ... Emphasis is given to the creation, use, and management of resources for creative adaptation, human development,

and sustainability of environments.”¹⁵ Rooted in this perspective is the understanding that youth are a product of their social environment. How youth think, feel, and act is a direct result of their interpersonal interactions within and exposure to overlapping social systems. These individual behaviors and experiences can be both maladaptive and symptomatic, such as depression or suicide, or they can be adaptive and take the form of protective and resilient mechanisms such as self-compassion, and ethnic pride.

The three systems surrounding the individual adolescent are commonly referred to as micro-, meso-, and macrosystems. Microsystems reflect the social environments in which adolescents live their day-to-day life. As such, microsystems are comprised of interpersonal relationships and social scenarios that youth engage with and encounter directly on a daily basis (e.g., with family, friends, school teachers, church personnel, extracurricular activities/settings). Microsystemic factors and variables have a direct impact on determining the adolescent’s behaviors, perceptions, and feelings, thereby contributing directly to his/her meaning making and to interpretation of experiences.

Mesosystems are the transmitters, mediators, and brokers of micro- and macrosystemic interactions. Mesosystem variables reflect interactions between two different microsystems present in the youth’s life. They also reflect standards of practice and norms that are passed down from the larger macrosystems. Parent-teacher conferences are an example of a mesosystemic interaction. For the AA community, Chinese language school or Korean churches, where the youths’ two microsystems may come together, are examples of mesosystemic activity and factors. Kinship networks are also meso-systemic interactions, as are the integration of adolescent peer networks with family life and vice versa (e.g., bringing a friend to family events).

Macrosystems are institutional and structural systems like political, social, and economical institutions and structures. Macro variables/factors establish and codify a collective social norm, thereby setting specific and uncompromising expectations about what is socially acceptable and what is not. Macrolevel factors and variables are formally established standards by which we conform or live. These are the gatekeepers, creating and reinforcing specific social norms and expectations. Such norms and expectations are codified into specific policies, regulations, and best practices, essentially defining what are acceptable systems of care and service delivery. They are distinguished from micro- and meso-level factors because the person of interest – in this case, AA and NHPI youth – do not directly engage or interact with macro-level factors, yet remain significantly affected by them. Immigration policies and service delivery practices and protocols that do not account for social determinants of health and well-being are examples of macro-level factors that affect AA and NHPI youth, even though youth may not be directly engaged with these systems or have direct influence on the development of the policies and practices.

Methods

A systematic review of the peer reviewed literature was conducted from which the authors extrapolated and synthesized evidence delineating specific risk and protective factors

associated with depression and suicide among AA and NHPI youth living in the U.S.

Pertinent questions associated with this effort include:

1. What do we know about risk and protective factors associated with depression and suicide among different AA and NHPI subgroups?
2. What are the unique social conditions that make AA and NHPI youth vulnerable to depression and/or suicide?
3. Are there cultural factors that contribute to or protect AA and NHPI youth from the experience of depression and/or engagement of suicidal thinking and behaviors?
4. What protective factors exist to buffer the effects of depression and suicidal ideation, planning, and attempts among AA and NHPI youth?

Currently no reporting protocol exists for this type of systematic review. When relevant, the system review guidelines from the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) were incorporated to aid in the structure of our approach and disseminating findings.¹⁶

Eligibility criteria and rationale

Peer reviewed articles eligible for inclusion met all five of the following criteria: 1) AA and NHPIs are analyzed as a separate group or groups (to minimize racial/ethnic bias); 2) research was conducted in the U.S. to focus on target youth populations; 3) depression and/or suicide related outcome was a primary focus of the research; 4) majority of sample participants were 18 years of age or younger; and 5) article was published in 2000 or later. Exclusion criteria included: 1) publications primarily testing a scale or reporting prevalence of suicide or depression; 2) dissertations, conference abstracts, and book abstracts; 3) literature reviews or theoretical discussion papers.

Search strategy

Electronic searches were undertaken in the following five databases: PsychInfo, Ovid Medline, EMBASE, CINAHL, and Web of Science, and mesh subject headings were used where applicable. Wildcards (denoted as *) and keywords were searched for in the full manuscript text. The final search results were limited to peer-reviewed literature, between January 1, 2000 and September, 9 2014 (see Figure 1).

The initial search was not limited by year of publication. The following search term example is presented for Psychinfo:

1. (*asia** or *japanese** or *korea** or *chinese** or *bangladesh** or *bhutanese** or *burmese** or *cambodia** or *filipin** or *phillipin** or *pilipin** or *hmong** or *nepal** or *pakistan** or *singapor** or *sri lanka** or *taiwan** or *thai** or *vietnamese** or *afghani** or *pacific islander** or *asian indian** or *south asian** or *native hawaiian** or *okinawa** or *maldiv**) and *america**).mp
2. Exp asian americans

3. (*amoan** or *tahitian** or *tongan** or *polynesian** or *micronesian** or *Exp guam or guamanium** or *mariana adj islander** or *saipanese** or *palauan** or *carolinian** or *kosraean** or *pohnpeian** or *chuukese** or *yapese** or *marshallese** or *kirbati** or *melanesian** or *papua adj new adj guinean** or *solomon adj islander** or *ni-vanuatu**)
4. 1 or 2 or 3
5. (*adolescen** or *youth* or *teen** or *child** or *exp adolescent* or *exp child*).mp
6. (*suicid** or *parasuicid** or *depress**).mp or *exp suicide* or *exp depressive disorder* or *exp depression* or *exp dysthymic disorder*
7. 4 and 5 and 6

Study selection and data extraction

The first author screened titles, abstracts and references lists for potential inclusion. A total of 304 publications were selected for full-text review for inclusion eligibility assessment. A standardized form for data extraction was created to capture key study characteristics by depression and suicide, and included relevant research objectives, participants, geographic location, AA and NHPI subgroups, study design and analysis, and ecological framework (table 2). Data were synthesized by categorizing geographic location, study methodology, % AA and NHPI, and AA and NHPI groups (table 1).

Summary of key constructs/concepts

Depression, a mood disorder that causes a persistent feeling of sadness or loss of interest, can hinder a person's ability to engage in normal day-to-day activities. Depression can also be called major depression, major depressive disorder, or clinical depression, and is a risk factor for suicide.³

Suicide is self-directed violence, or death caused by self-directed injurious behavior with any intent to die. It can include attempts (a non-fatal self-directed behavior that can be potentially injurious with any intent to die as a result, and may or may not result in injury) and suicidal ideation (thoughts about, considering, or planning for suicide).¹⁷

Study participants included overall AAs and NHPIs who are 18 years of age or younger, as well as individual subgroups that represent different cultures and ethnicities. Asian subgroups include Afghanis, Bangladeshis, Bhutanese, Burmese, Cambodians, Chinese, Filipinos, Hmong, Japanese, Koreans, Nepalese, Pakistanis, Singaporeans, Sri Lankans, Taiwanese, Thai, Vietnamese, and South Asians. Native Hawaiian and Pacific Islander subgroups include Carolinians, Chuukese, Guamanians, i-Kirbati, Kosraeans, Maldivians, Marshallese, Mariana Islanders, Melanesians, Micronesians, ni-Vanuatus, Okinawans, Palauans, Papua New Guineans, Pohnpeians, Polynesians, Saipanese, Samoans, Solomon Islanders, Tahitians, Tongans and Yapese.

Risk factors include variables associated with an increased risk of depression or suicide. In this review study a risk factor was defined as any variable that showed direct effects,

indirect effects, and/or significantly predicted increased or elevated measures of depression or suicide.

Protective factors include variables that mitigate or eliminate the risk of depression or suicide. In this review study a protective factor was defined as any variable that attenuated either direct or indirect effects of depression or suicide.

Although definitions vary, acculturation for immigrant populations is broadly defined as the process by which individuals adopt the attitudes, values, customs, beliefs, and behaviors of another culture.¹⁸ Acculturation assumes a linear and reciprocal exchange between individuals of two different cultures resulting in positive adaptation and a balanced blending of cultural differences into a hybrid identity. However, it does not account for power differences that can significantly influence the direction of change resulting in a non-negotiable expectation for conformity to the dominant culture by the indigenous culture.

Acculturation reflects interactions between microsystems directly associated with the AA and NHPI youth. For example, communications between parents and an adolescent's school system is a mesosystemic dynamic that can create or exacerbate acculturative stress through the establishment of expectations around varying educational related social norms. This suggests that acculturation reflects conformity, but not necessarily acceptance or belonging for adolescents. Further, the absence of family social capital, the presence of different rates of acculturation between parents and their adolescent children, and bicultural tension as a result of enculturation, or the preservation of one's ethnic identity and cultural norms, can serve as risk factors for depression and suicidality.

Acculturative stress is a type of stress that is related to the acculturation process as experienced by the individual. The Acculturative Stress Theory proposes that when individuals are exposed to two or more cultures, they must negotiate and adapt to cultural differences (e.g. languages, customs, values, norms for appropriate behaviors).¹⁹ With this adaptation come certain stressors, such as being of minority status.

Racial triangulation theory suggests that AAs are viewed as foreigners who are not able to fully integrate into U.S. society.^{20,21} Consequently, AAs are vulnerable to social exclusion or marginalization because of their racial and ethnic backgrounds. The presence of racial discrimination against AAs coupled with the unspoken expectation that AAs and NHPIs orient to U.S. culture creates a bicultural tension and conflict, or acculturative stress, which could be ubiquitously present yet not directly observable in the everyday lives of AAs and NHPIs living in the U.S. Additionally, the theory of Acculturative Family Distancing, the distancing that occurs between parents and youth as a result of communication difficulties and cultural value incongruence, may further explain these findings, as distancing may be exacerbated by parent-child differences in acculturation and enculturation. Accented English is another source of discrimination that is manifest at the micro level. It is a concrete variable that can directly affect interrelations and contribute to the perception of discrimination.

Results

A total of 2,722 citations were downloaded into a single EndNote library (Thomson Reuters, Philadelphia). After 695 duplicate citations were removed, titles and abstracts of 2,027 articles were screened for relevance according to inclusion and exclusion criteria. Of these, 304 articles were identified as potentially relevant and were read in full. A few depression studies were excluded based on what was deemed as specialized or unique circumstances. In all these cases depression was explored as a comorbid condition or as an outcome specific to very unique circumstances. For example, a few studies were excluded when depression was examined as a comorbid condition for other conditions, such as peer warmth,²² coping mechanisms,²³ discrimination,²⁴ religiousness,²⁵ and socialization.²⁶ Similarly, another study explored depression as a secondary or associated condition to smoking.²⁷ A few publications focused primarily on experiences of refugees or U.S. visitors with extended visas (e.g., foreign students).^{28–30} In these cases, it was decided to exclude the studies due to the uniqueness of the conditions surrounding the particular subgroup's experience with depression and/or suicidality. Including them in the final analysis would dilute their specific experiences with depression and eliminate the unique conditions and context associated with those experiences. A total of 66 publications were included for this review. A flowchart of the studies that were included and excluded at each stage is shown following the PRISMA 2009 flow diagram, and reasons for the second round of exclusions are provided (See Figure 1).

Publications were categorized by study objectives, methodology, percentage of the sample who were AA and NHPI, and specifically if any specific subgroups were analyzed (Table 1). A majority of the studies were focused on depression (86%), and geographically, the Western part of the U.S. was well represented (47%). The majority of studies were cross-sectional (75.8%) as opposed to longitudinally designed. About two-thirds of the studies looked specifically at AA and NHPI samples, while 16.7% had an AA or NHPI sample size that was less than 25%. Only 3% of the studies represented the experiences of NHPI as a sub-ethnic group, and approximately 61% of the studies were conducted on a specific AA or NHPI ethnic subgroup. The AA ethnic subgroup reflected most often were Chinese, followed by Korean, Vietnamese, and Filipino. Depressive symptoms across the reviewed publications consisted of participant self-reports of typical neurovegetative signs of depression (e.g., feelings of sadness, loss of appetite, poor sleep hygiene, etc.), and ratings of study participants' depressive symptoms. In some cases, standardized scales of depression were administered (e.g., Center for Epidemiological Studies Depression Scale and the Beck Depression Inventory). For suicide, all the reviewed studies included one or more of the criteria for suicide (e.g., ideation, planning, and attempts).

What follows is a summary of the findings from the reviewed studies organized by the four framing questions that guided the systematic review. The results were further organized by themes using an ecological framework: Risk and protective factors for depression (Table 2) and risk and protective factors for suicide (Table 3). These themes are associated with the primary system where the most observable transmission occurs. Together, they represent nested and interdependent transactions between systems exerting reciprocal and dynamic influence versus separate and linear processes. Therefore, a macro systemic factor like

discrimination exerts direct and indirect depression related risk to AA and NHPI youth through effects on individual and family functioning. Likewise, individual and family functioning exerts direct and indirect effect on discrimination through mesosystemic interactions. For example, how an individual or family navigates the effects of discrimination influences their social behavior in other social settings, which affects how they are perceived and informs larger social beliefs about them as a racial being or group. Specific findings from each of the studies are summarized in each section. Interpretation and analysis of the findings from an ecological lens is provided in the discussion section along with recommendations for further research, policy, and practice.

Question 1: What do we know about risk and protective factors associated with depression and suicide among different AA and NHPI subgroups?

Risk factors for depression

Individual—Risk factors that manifest directly within the individual from larger systemic influence can be transmitted in three intersecting or overlapping ways: developmentally (i.e., biological mechanisms), by way of social construction (i.e., social mechanisms) or through psychological mechanisms (e.g., how one feels, thinks, and acts). Findings from the 57 reviewed studies are organized at the individual system level through this framework.

Biological mechanism: Age: Chen et al. (2011) found a decline in depressive symptoms over time for Asian adolescents.³¹ Conversely, Gupta et al. (2014) found that later adolescence brought about an increase in depressive symptoms for Asian adolescents,³² and Rogers-Sirin and Gupta found that later adolescents (12th graders) experienced greater depression than younger adolescents.³³ Developmental theories may help explain the higher risk for developing depressive symptoms in late adolescence, such as pubertal transition, increased involvement in romantic relationships, and stressors associated with these changes.

Social mechanism: Gender: Overall, females were more at risk for depression than males. Song et al. found that female gender was associated with depressed mood among female Asian high school students,³⁴ Chen et al. and Juang et al. found that Chinese adolescent females had higher levels of depressive symptoms than males,^{31,35} Javier et al. found that Filipino females reported higher levels of depressive symptomology than males,³⁶ and Williams et al. found an association between female gender and depressive symptoms among Japanese American adolescents.³⁷

Social mechanism: Ethnic subgroup: A few studies examined differences between AA ethnic subgroups. Willgerodt and Thompson found that compared with Chinese subgroup, Filipino subgroup was associated with higher depression,³⁸ and Williams et al. found that being Japanese American vs. part-Japanese American was associated with depressive symptoms.³⁷

Psychological mechanism: Personal self-esteem and anxiety: Low self-esteem and anxiety, and conditions associated with these psychological mechanisms, also shared

associations with depression. Bisaga et al. found moderate correlations between the rates of depressive disorder symptoms and eating disorder symptoms among adolescent girls,³⁹ and Xie et al. found that being overweight was significantly related to more depressive symptoms among AA middle student girls.⁴⁰ Huntsinger and Jose found that anxiety over time was a significant predictor of depression among Chinese middle-school students.⁴¹ Song et al. found that worrying about school failure or grades was associated with depressed mood among Asian high school students.³⁴ Additionally, Mistry et al. found that parental reports of economic stress predicted Chinese adolescents' depressive symptoms.⁴²

Psychological mechanism: Cigarettes and alcohol: Otsuki found that cigarette smoking was related to depression among Chinese, Korean, and Filipino females. In addition, depression was significantly related to alcohol use for females.⁴³ Song et al. also found that cigarette smoking was related to depressed mood among Asian youth.³⁴

Psychological mechanism: Other violence: Tummala-Narra et al. reported that negative interactions with the police were associated with higher levels of depressive symptoms among AA and NHPI adolescents.⁴⁴

Risk factors for suicide

Individual—Findings from the nine reviewed studies on suicide are organized at the individual system level by biological, social, and psychological mechanisms.

Biological mechanism: Age: Lau et al. found that older age was related to an elevated risk for suicidal presentation among AA youth.⁴⁵

Social mechanism: Gender: While depression was associated with female gender, Supple et al. found that Southeast Asian boys, particularly older boys, reported more suicidal thoughts and attempts than Southeast Asian girls.⁴⁶

Social mechanism: Ethnic subgroup: Nishimura et al. found that Hawaiian girls were at a higher risk for suicide ideation and planning compared with other NHPI girls.⁴⁷

Social mechanism: Sexual orientation: Bostwick et al. found that AA and PI sexual minority youths were at a higher risk for a suicide attempt in the past year compared with White sexual minority youths.⁴⁸ Pinhey and Millman found that same-sex orientation was associated with a greater risk of suicide attempt among students in Guam.⁴⁹

Psychological mechanism: Personal self-esteem and anxiety: Whaley et al. found poor grades to predict higher depressed/suicidal scores (risk of suicide) among AA students.⁵⁰ Pinhey and Millman found that feelings of hopelessness were associated with a greater risk for suicide ideation and attempts among students in Guam.⁴⁹ Lau et al. found that internalizing symptoms and depressive symptoms were related to an elevated risk for suicidal presentation among AA youth.⁴⁵

Psychological mechanism: Violence: Pinhey and Millman found that AA and PI adolescents reporting hopelessness or relationship physical abuse were more likely to report suicidal thoughts.⁴⁹

Psychological mechanism: Cigarettes and alcohol: Nishimura et al. found that binge drinking and alcohol use were associated with higher suicide ideation and planning among Hawaiian adolescents.⁴⁷ Similarly, Pinhey and Millman found that API adolescents reporting binge drinking were more likely to report suicidal thoughts.⁴⁹

Suicide vs. Depression Findings

Similar findings between risk for suicide and depression were identified across the studies including older age, female gender, cigarette smoking, alcohol use, and general anxiety and worrying.

Question 2: What are the unique social conditions that make AA and NHPI youth vulnerable to depression and/or suicide?

Risk factors for depression

Macro

Discrimination: Perceived discrimination and stress from perceived discrimination was related to an increase in depressive symptoms in several studies; Benner and Kim found that discrimination predicted later depression among Chinese American adolescents.⁵¹ Grossman and Liang found that stress from perceived discrimination was associated with increased depressive symptoms among Chinese American youth,⁵² and by Stein et al. found that ethnic/racial discrimination predicted more depressive symptoms.⁵³ Juang and Cookston found that an increase in a perception of discrimination was associated with an increase in depressive symptoms among Chinese American adolescents,⁵⁴ and Rivas-Drake et al. found that peer discrimination was associated with depressive symptoms among Chinese 6th graders.⁵⁵

Ethnic marginalization: Ethnic marginalization, a manifestation of discrimination, suggests social exclusion or a sense of alienation experienced by the AA and NHPI individual. Kim et al. (2006) found that the experience of Asian and AA marginalization rather than Anglo marginalization is associated with depressive symptoms among Asian adolescents.⁵⁶

Acculturation: According to Choi et al., greater acculturation was associated with more depressive symptoms, and enculturation was associated with an increase in depressive symptoms a year later.⁵⁷ Crane et al. found that greater differences between acculturation of parents and adolescents were associated with greater levels of depression among adolescents,⁵⁸ and Kim et al. found that a discrepancy in parent-child American orientation was associated with depressive symptoms among Chinese adolescents with foreign-born parents.^{59,60}

Meso

Acculturative stress: Park found that acculturative stress was positively associated with depression among Korean adolescents.⁶¹ Additionally, Juang et al. found that higher initial levels of acculturation-based conflict and everyday conflict were associated with higher depressive symptoms among Chinese high school students.³⁵

Risk factors for suicide

Macro

Acculturation: Lau et al. found that lower acculturation was associated with a greater risk of suicidality among AA youth.⁴⁵

Meso—Among the reviewed publications, no studies looked at risk factors for suicide at a meso-systemic level.

Suicide vs. Depression Findings

Acculturation was the only identified social risk factor for both depression and suicide. Lower acculturation was associated with a greater risk of suicide, while greater acculturation was associated with a greater risk of depression. Additionally, discrepancies in parent and adolescent acculturation were associated with higher levels of depression.

Question 3: Are there social and/or cultural factors that contribute to the experience of depression and/or engagement of suicidal thinking and behaviors among AA and NHPI youth?

Risk factors for depression

Micro

Orientation to U.S. culture: Juang and Cookston found that low orientation to U.S. culture was associated with an increase in depressive symptoms among Chinese Americans adolescents.⁵⁴ Benner and Kim found that Chinese American adolescents with low American orientation experienced greater depressive symptoms at early and middle adolescence,⁵¹ and Wong found that higher ethnic orientation and low American orientation were associated with greater depression levels among AA high school students.⁶²

Generational status: Khuwaja et al. found that migration at older ages was associated with higher levels of depression among female Pakistanis.⁶³ Song et al. found that being foreign-born was associated with depressed mood among AA high school students,³⁴ and Shin et al. found U.S.-born Korean high school students to experience higher levels of depression compared with their foreign-born counterparts.⁶⁴

Language proficiency: Kim et al. found that lack of English proficiency in middle school was associated with English speaking when studied four years later among Chinese adolescents, which further increased the likelihood of discrimination, relating to more depressive symptoms in high school.⁶⁵

Peer relations, collective self-esteem, and bullying/violence: Shin et al. found that being bullied, as well as being bullied and bullying others, were associated with a higher level of depression among Korean adolescents.⁶⁴ Ozer and McDonald examined the relationship between violence and depression, and found that exposure to violence and daily hassles were associated with greater symptoms of depression among Chinese adolescents.⁶⁶ Additionally, DuongTran found that individuals mobilizing more coping responses tended to have more depressive symptoms.⁶⁷

Family relationships: 1) Family conflict: Chung et al. found that adolescents from Asian backgrounds experienced a larger increase in emotional distress (a depression and anxiety measure) on days when their parents argued with each other when compared with their European peers. When immigration status of parents' was controlled for, this association was no longer significant.²² Similarly, Qin et al. found that family conflict was associated with depression among Chinese adolescents,⁶⁸ and Yeh et al. found that family conflict predicted depression among Samoan middle and high school students.⁶⁹ Ying and Han found that intergenerational conflict was associated with increased depressive symptoms among Southeast Asians during adolescence,⁷⁰ and Kim and Cain found that intergenerational conflicts were associated with depressive symptoms among Korean adolescents.⁷¹ Nguyen and Nguyen and Cheung reported that authoritarian parenting styles rather than authoritative parenting styles were related to higher depression among Vietnamese adolescents,^{72,73} and Kim et al. found that unsupportive parenting and parent-child alienation were related to depression.⁵⁹ Park et al. found that higher levels of perceived family conflict and lower levels of perceived family cohesion were associated with depressive symptoms among Korean adolescents.⁷⁴ Hwang et al. found that acculturative family distancing increased the risk for youth depression among Chinese high school students.⁷⁵ 2) Parental control: Juang et al. found that greater differences concerning parental control were related to greater adolescent depressive symptoms; family conflict further mediated this effect.⁷⁶ Similarly, Kim and Cain found that higher maternal control was positively correlated with elevated depressive symptoms among Korean adolescents.⁷¹ 3) Parental emotional support: Vaughn and Roesch found that AA high school students using more emotional support experienced more depression.⁷⁷ Lam et al., while examining how non-parental adults contribute to adolescents' depressed mood, found that the problem behaviors and warmth of these adults made a significant contribution to the explanation of depressive symptomology.⁷⁸ Kim and Ge found that parental depression contributed to parenting practices, which were then significantly related to adolescent depressive symptoms.⁷⁹ Finally, Kim and Cain found that low parental warmth was associated with elevated depressive symptoms among Korean adolescents.⁷¹ 4) Family economic strain: Javier et al. found that lower parental education and living in a single parent household were positively associated with depression among Filipinos.³⁶

Risk factors for suicide

Micro

Peer relations, emotional support, and bullying/violence: Else et al. found that both victims and perpetrators were vulnerable to suicide ideation, planning, and attempt.⁸⁰ Wong

and Maffini found that stronger school relationships were associated with higher rates of suicide attempts among AA adolescents.⁸¹

Family relations: Lau et al. found that high parent-child conflict was associated with suicidal behavior among AA youth.⁴⁵

Suicide vs. Depression Findings

Similar risk factors were identified for depression and suicide which included exposure to violence and being bullied. While family relationships were a prevalent risk factor for depression, they were not included as risk factors for suicide in the studies reviewed.

Question 4: What protective factors exist to buffer the effects of depression and suicidal ideation, planning, and attempts among AA and NHPI youth?

Protective factors for depression

Individual

Self-esteem: Huntsinger and Jose found that extraversion was negatively associated with depression for Chinese American adolescents.⁴¹ Park found that self-esteem is negatively associated with depression among Korean adolescents,⁶¹ and Tummala-Narra et al. found that AAs who used more emotional support experienced less depression.⁴⁴ Yuan found that among AA girls, decreases in depressive symptoms were associated with perceptions of being more physically developed than their peers; among AA boys, decreases in depressive symptoms were associated with perceived underweight.⁸² Lam found that interdependent self-construal was associated with high family cohesion, which increased self-esteem and contributed to lower depression; increasing levels of self-esteem were associated with less depression.⁸³

Meso

Bicultural identity: Lam found that bicultural Vietnamese students reported lower levels of depression compared with other groups.⁸⁴

School involvement: Gore and Aseltine found that school involvement, which varies by ethnic status, is negatively associated with depression.⁸⁵

Micro

Acculturation: Khuwaja et al. found that a longer period of stay in the U.S. was associated with fewer depressive symptoms,⁶³ and Rogers-Sirin and Gupta found that subgroup ethnic identity was associated with lower levels of depressed symptoms for AA youth, while U.S. identity was not associated with depressed symptoms.³³

Enculturation: Choi et al. found that Korean language proficiency was predictive of a decrease in the number of depressive symptoms both concurrently and longitudinally, while controlling for previous level of depressive symptoms; English proficiency was associated with fewer depressive symptoms.⁵⁷ Similarly, Guerrero et al. found that speaking a language

other than English protected against depression among Filipino adolescents in Hawaii.⁸⁶ Liu et al. found that Chinese language proficiency was protective against depressive symptoms for foreign-born but not U.S.-born AA youth; additionally, youth proficient in Chinese who had mothers highly proficient in Chinese reported fewer depressive symptoms.⁸⁷ Juang and Cookston found that orientation to Chinese culture was associated with fewer depressive symptoms among Chinese adolescents.⁵⁴

Peer relationships: Grossman and Liang found that peer support serves as a buffer to depression symptoms among Chinese American youth.⁵²

Collective self-esteem: Gupta et al. found that collective ethnic self-esteem was protective against anxious-depressed symptoms,³² and Yeh et al. found that collective self-esteem was associated with lower depression among Samoans.⁶⁹ Rivas-Drake et al. found that public and private regard are protective of depression among Chinese 6th graders.⁵⁵

Family relationships: Gore and Aseltine found that social and family relationships were protective of depression outcomes,⁸⁵ and Guerrero et al. found that family support protected against depression among Filipino adolescents in Hawaii.⁸⁶ Hishinuma et al. found family support, friends' support, and number of relatives frequently seen to be protective against depression among AAs and NHPIs in Hawaii; as friends' support increased, depressive symptoms decreased, except for Hawaiians.⁸⁸ Juang and Cookston found that higher levels of family obligation were associated with fewer depressive symptoms among Chinese American adolescents; increasing family obligation behaviors were associated with decreasing depressive symptoms over time.⁸⁹ Park (2009) found that parental care is negatively associated with depression among Korean adolescents,⁹⁰ and Qin et al. found that family cohesion is protective of depression among Chinese adolescents.⁶⁸ According to Willgerodt et al., family bonds had a significant negative effect on emotional distress (depression) over time among Filipinos and Chinese adolescents,⁹¹ and Wong found that positive peer and parent relationships were associated with lower depression levels among Chinese and Southeast Asians.⁶² Ying and Han found that parental involvement mediates negative effects of parental acculturation on intergenerational conflict.⁷⁰

Personal spirituality: Kang and Romo found that higher levels of personal spirituality were predictive of less depressive symptoms for Korean American girls; personal spirituality was a mediating factor in the relationship of church engagement on depressive symptoms.⁹²

Ethnic belonging: Kiang et al. found that a strong ethnic identity factor is associated with less depression among AA 9th and 10th graders,⁹³ and Stein et al. found that ethnic belonging was associated with lower depressive symptoms, and ethnic exploration predicted fewer depressive symptoms over time.⁵³

Protective factors for suicide

Individual

Sexual orientation: Bostwick et al. found that AA sexual minority youths had a lower odds of suicidal ideation and suicidal planning compared with White sexual minority youths;

additionally, AA sexual minority females had lower suicidal ideation prevalence than White sexual minority females.⁴⁸

Micro

Family relationships: Liu found that close relationships between fathers and girls, and close relationships with mothers and boys, specifically during early adolescence and late teens, was protective of suicidal ideation.⁹⁴ Wong and Maffini found that family relationships were protective of suicide attempts.⁸¹

Anxiety: Lau et al. found that externalizing symptoms were negatively related to an elevated risk for suicidal presentation among AA youth.⁴⁵

Suicide vs. Depression Findings

Close family relationships were found to be protective factors for both suicide and depression across multiple studies.

Discussion

The studies provided some insight on the literature available on suicide and depression among AA and NHPI youth, and the risk and protective factors identified for AA and NHPI youth specifically. For example, the majority of the studies were conducted on the Western coast of the U.S., primarily in California. As such, AA and NHPI groups in California are not the same as in other areas of the country, and there are Asian ethnic enclaves forming all over the U.S., away from the coastal regions that were once prominent migration centers. A sizable proportion of the studies also used national data, which aggregated AA and NHPI groups into one group comparable to Whites, Hispanics, and Blacks. These studies are not able to take into account the cultural differences that exist between AA and NHPI subgroups.

It is also important to note risk factors for these samples often included more encompassing frameworks such as acculturation and acculturative stress, as well as enculturation and generational status that would not be present among non-ethnic and non-immigrant youth. Additionally, family variables such as support, conflict, and engagement were often seen as risk and protective factors among AA and NHPI youth. Moreover, other established risk factors including family history of depression were not assessed across the 66 reviewed studies and previous experience with violence was only assessed in two studies to understand suicide risk.^{49,80} However, other risk factors such as older age and female gender were identified, that are also evident among non-minority youth. It is important to consider the AA and NHPI youth are at various stages of acculturation, and some have lived in the U.S. for longer than others, adopting different cultural values than youth in their home countries. Collectively, these studies highlight the lack of explanatory power of acculturation theory and the presence of bicultural conflict and tension in the process of ethnic identity development. Additionally, they suggest a complex interaction between macrosystemic, or cultural norms and expectations on microsystemic processes (e.g., family

functioning and peer relationships) and individual functioning (e.g., adolescent depression and suicide).

Across these studies, acculturation and acculturative stress were measured in varying ways. This in part could explain some of the variation in findings. Collectively, these studies highlight the lack of explanatory power of acculturation theory and the presence of bicultural conflict and tension in the process of ethnic identity development. Additionally, they suggest a complex interaction between macrosystemic, or cultural norms and expectations on microsystemic processes (e.g., family functioning and peer relationships) and individual functioning (e.g., adolescent depression and suicide).

To fully understand the complex and interdependent social, cultural, and developmental context of the AA and NHPI youth living in the U.S. as it relates to the manifestation of depression and suicidality, it is useful to draw on Norton's elaboration of ecological thinking.⁹⁵ Norton suggests a dual perspective, which involves consideration of the interaction between a person's nurturing system (Context #1) and the same person's sustaining system (Context #2). Drawing from ecological theory, Norton suggests that an adolescent's nurturing system is comprised of her micro system – the immediate social context in which she lives and would therefore include her family, extended family, and the immediate neighborhood in which she lives. The sustaining system is the macro system, in which the micro nurturing system is embedded. Of particular relevance to the findings from this review is that majority and minority groups synchronously occupy both systems and are in constant interaction through mesosystemic mechanisms (e.g., interaction between microsystems through structured programming like school and extracurricular activities).

Within this dual perspective, bicultural conflict and tension arises as a result of incongruence between cultural norms and beliefs between different cultural groups in the shared social and systemic locations and spaces. For example, differences in cultural beliefs about health, help-seeking, stress, and child rearing can create conflict and tension as AA and NHPIs navigate daily living. More specifically as reflected in the findings associated with Kim et al.'s study, marginalization is one manifest outcome of such tensions and something important to attend to in assessing the needs of AA and NHPI youth especially in the context of depressive symptoms.⁵⁶

Joiner's Interpersonal-Psychological Theory of suicidal behavior contends that individuals gradually acquire the ability to enact lethal self-injury when they have previous experience with self-injury; this ability is not acted upon unless the desire for death includes two factors: the desire for death and a sense of failed belongingness.⁹⁶ Juxtaposed with Norton's thinking about nurturing and sustaining systems, this hybrid framework may be applicable to AA communities because of its emphasis on unmet interpersonal needs, congruent with Asian cultural norms that emphasize the centrality of interpersonal relationships. From this perspective, suicidal ideation and pressure can stem from disruption of interpersonal functioning and needs within the nurturing system – that is, between the AA and NHPI youth, their family and extended kin network, which is imposed by a surrounding sustaining system demanding conformity to social and familial norms and expectations that are incongruent with the nurturing system's values and beliefs. For example, the focus on

development of a collective identity, or we as central to Asian individual development, is in direct contrast to the focus on individuation or independence from family that is critical to Western individual development. The role of family and norms of interpersonal functioning within each cultural reference point is therefore also different and can thwart one's interpersonal needs.

The sequential connection between depressive mood and cigarette smoking found in a few studies is consistent with self-medication hypothesis and motivational theory, which propose that smoking may develop in an attempt to cope with psychological distress and feelings of depression.⁹⁷

Interpreting the systems and environments that influence and affect AA and NHPI youth further allude to the various contexts that must be taken into account in thinking about research, policy, service delivery, and practice. Several themes in this vein that surfaced in our findings include the persistent and pervasive role of stigma as an important variable. While stigma was not measured in any of these studies to date, marginalization, alienation, and discrimination were measured. Moreover, marginalization and alienation, in and of themselves, are a form of social exclusion illustrative of discrimination. All three of these factors underlie the phenomenon of stigma, possibly de-confounding some of these findings.³⁸ The U.S. Department of Health and Human Services considers stigma "the most formidable obstacle to future progress in the area of mental illness and health".⁹⁸ For instance, foreign-born AAs are less likely than U.S.-born AAs to seek mental health care services.⁹⁹ Given cultural factors of social stigma and shame around these two facets of health, minority groups are less likely to report mental health issues to peers or medical providers⁹⁹⁻¹⁰¹ or seek care,¹⁰² and they are more likely to attribute mental health problems to religious and other culturally sanctioned belief systems.^{99,101} Collectively these factors, along with racism, discrimination, and the model minority myth, converge to effectively disable help-seeking behaviors among AAs and NHPIs and, thereby, sustain myths about mental illness within the community that can perpetuate stigma and shame.

It is critical to dispel the model minority myth, stigma and shame around mental illness, and recognize provider discrimination and biases in referral and treatment of care. This will require development of future research focused on accurately differentiating between depression, anxiety, and trauma as well as co-morbidity between these conditions within AA and NHPI youth. Related to this issue is the need to educate providers about the effects of stigma and shame in compromising the ability for individual patients to communicate symptoms and providers to make accurate diagnoses related to mental health.^{100,103-106} Convening disparate and diverse groups of AAs and NHPIs with their providers around mental health and illness is paramount in fostering collective agency and reducing isolation and stigma. Integrated delivery strategies combined with community and provider education may further break down the barriers associated with stigma and create both patient- and family-centered approaches to health and, ultimately, reduce population health disparities.

In terms of cultural variables: socioeconomic status, family cohesion, family conflict, intergenerational conflict, parent-child conflict, cultural orientation, and ethnic pride seem to be outcomes in some ways of larger cultural beliefs though they have not been measured as

such. Acculturation appears to erase important protective factors, and it surfaces the tension, stress, and conflict that can come about or arise from the pressures to conform to dominant norms. Acculturation is complex, and factors such as English language proficiency, length of residence in the U.S., and nativity have a significant impact on mental health, access, and utilization of mental health services.^{107–109}

Our findings also suggest religion and spirituality as a protective factor in a study of Korean American youth. This is an emerging area that requires more exploration in other AA and NHPI groups given the social roles and points of intervention that faith-based organizations and spiritual leaders may play on the influence of stigma, issues of spirituality, religiosity, death and suicide. Along with religiousness, this area of study on social comparison has surfaced and is an important area to pursue.

Strengths and limitations

Strengths—There have been no previous systematic literature reviews on the risk and protective factors of depression and suicide among AA and NHPI youth. Additionally, NHPI groups are often excluded from research, and we confirm that few studies have been undertaken in these communities on depression and suicide. This paper is the first to summarize peer-reviewed literature that examines these topic areas, while using an ecological framework to summarize the results. No qualitative studies were found in the review, which might have helped to further explain some of our quantitative findings, and why these risk and protective factors are relevant for this population. While theories regarding bicultural socialization,^{95,110,111} acculturation,¹¹² and acculturative stress^{113–115} can provide some insights into the experiences of differently acculturated youth, it is important to articulate a theoretical framework that can account for the experience of AA and NHPI youth who have not migrated to the U.S., but nevertheless have complex identities based on their race, ethnicity, sexual orientation, and gender. Crenshaw's model of intersectionality, or the theory of intersecting oppressions juxtaposed with a deep ecological orientation offers this fuller understanding of the findings.¹¹⁶ This hybrid ecological perspective offers a conceptual framework that helps to explain the ways in which people's multiple identities – for example, being Asian, female, and lesbian for example might interact to produce experiences of depression and suicidal ideation. The current discourse can only offer adequate explanation for Asians depending on their migration status.

Limitations—Research pertaining to AA and NHPI communities is compromised by major methodological biases and challenges, which impede representative collection of national and state level data that accurately reflects the needs and experiences of the AA community in the U.S.¹¹⁷ Main challenges in the studies selected for this review include small aggregated samples of Asians in national and regional health and mental health surveys, poor classification of Asian ethnicity in larger epidemiological studies, monolingual or English and/or Spanish only instruments, and local and convenient samples which provide critical data relevant to underserved communities of high need but are otherwise not generalizable to the larger population. For example, three studies provided greater than three ways to ethnically classify Asians;^{43,53,93} and only one study acquired a large enough national sample with diverse Asian subsamples to produce significant subgroup

comparisons.⁴³ Three studies did include at least two Asian subgroups in the sampling frame; in all cases, the sample sizes were not large enough to employ valid subgroup comparisons once grouped into ethnic specific categories.^{56,67,118}

Cross-sectional and longitudinal designs were utilized across the studies, and cross-sectional designs were more common, especially in the suicide-specific studies, where only one of the relevant studies employed a longitudinal design (Liu, 2005). Across all studies, multiple statistical analyses were employed. Notably absent from the design of research among the studies were qualitative studies, mixed methods studies, multi-level modeling, and interaction studies. This is particularly noteworthy, as these approaches are important to capturing the complexity of the person and environment interaction across varying levels of identity and social influence (e.g., structural and cultural systems). Because we focus specifically on AA and NHPI groups, our review does not delve into specific ethnic subgroups and the risk and protective factors for each. Our main goal was to synthesize the results and provide publications for review. Because of this, different cultural values associated with suicide and depression may have been overlooked.

Recommendations for future research

Our key recommendations include the need for more qualitative and mixed method studies utilizing an ecological framework that are relevant to family members of youth who contemplate suicide⁴⁵ and to disentangle and highlight these protective factors that are embedded and not yet closely examined in the empirical literature, especially in the context of depression and suicidality. It is important to identify the internalizing symptoms as a risk factor and how this fits with AA and NHPI culture and coping strategies. Additional lenses and factors that potentially affect AA and NHPI youth include parental warmth, family cohesion, and the presence of other ethnic-like adults in youth's lives and whether they offer enough of a protective buffering to youth who are contemplating suicide, as well as the intergenerational barriers/facilitators that can bridge or disconnect youth and adolescents in expressing experiences with bullying or internalizing issues with immigrant parents, teachers, or the education system. Additionally, given the central role of stigma in the experience of AA and NHPI youth, as well as the mental health disparities they face, future research must make an effort to include designs and methods supporting the model of intersectionality. Hankivsky developed a broad set of research questions that would guide the design and research process to more accurately reflect the dynamics of intersecting oppressions in disparity and equity related research.¹¹⁹

The way forward calls for the need for family-centered approaches in increasing access and strengthening family/parenting skills to reduce risk of internalizing/externalizing symptoms which are early trajectories for anxiety/depression. In response to restructuring and reforming health care, another key recommendation is to address and strengthen the workforce through institutional change and reframing of the burdens of mental health. There are multiple community-level and system-level barriers that influence disparities in the access to and delivery of culturally-congruent models of care, mental health services, and programs. This process can be facilitated through peer approaches, promoting diversity in the mental health services and treatment workforce¹²⁰ and the integration of community

health workers in mental health service delivery and other community-based approaches. Due to stigma of mental health, integrating mental health screening in primary care settings may help to identify individuals at risk. Most importantly, understanding the role of acculturative stress in depression and suicide risk that transcends across generations is part of the meta-narrative of AA and NHPI communities in the U.S. at large.

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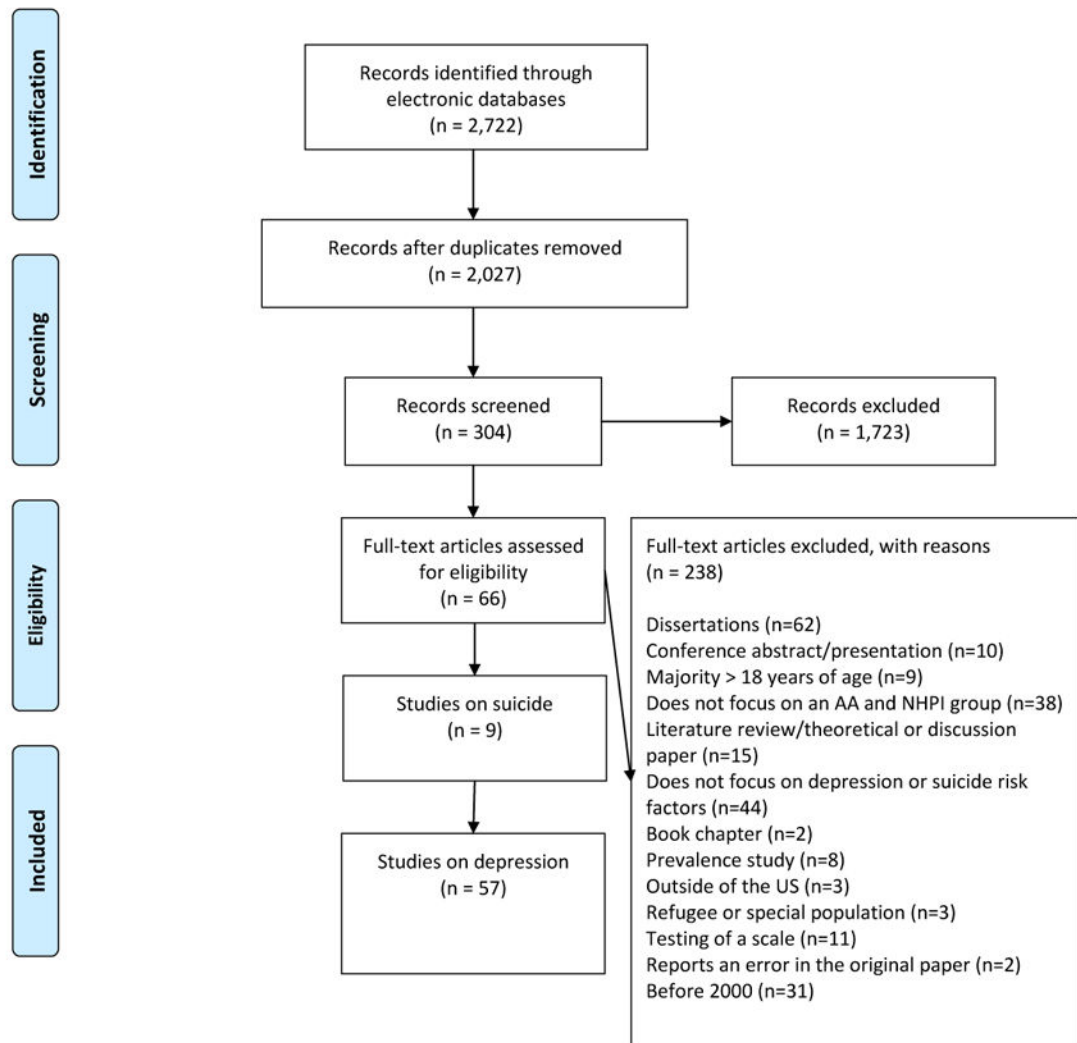
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PRISMA 2009 Flow Diagram



From: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(6): e1000097. doi:10.1371/journal.pmed1000097

For more information, visit www.prisma-statement.org.

Figure 1.

Table 1

Key study characteristics

	Depression, n=57	Suicide, n=9	Total, n=66
	n (%)	n (%)	n (%)
Geographic location			
National	4 (7.0)	4 (44.5)	8 (12.1)
Eastern US	7 (12.3)	0 (0.0)	7 (10.6)
Western US	30 (52.6)	1 (11.1)	31 (47.0)
Pacific Islands	3 (5.3)	3 (33.3)	6 (9.1)
Other US location	10 (17.5)	1 (11.1)	11 (16.7)
Unknown	3 (5.3)	0 (0.0)	3 (4.5)
Methodology			
Cross-sectional	42 (73.7)	8 (88.9)	50 (75.8)
Longitudinal	15 (26.3)	1 (11.1)	16 (24.2)
% AA and NHPI			
100%	40 (70.2)	4 (44.4)	44 (66.6)
50–99%	4 (7.0)	0 (0.0)	4 (6.1)
25–49%	6 (10.5)	0 (0.0)	6 (9.1)
<25%	7 (12.3)	4 (44.4)	11 (16.7)
Unknown	0 (0.0)	1 (11.1)	1 (1.5)
AA and NHPI groups			
Aggregated AA and NHPI	2 (3.5)	1 (1.1)	3 (4.5)
Aggregated AA	9 (15.8)	4 (44.5)	13 (19.7)
Aggregated NHPI	0 (0.0)	0 (0.0)	0 (0.0)
Disaggregated AA	8 (14.0)	0 (0.0)	8 (12.1)
Disaggregated NHPI	0 (0.0)	0 (0.0)	0 (0.0)
Disaggregated AA and NHPI	0 (0.0)	2 (22.2)	2 (3.0)
AA ethnic subgroup specific	37 (64.9)	1 (1.1)	38 (57.6)
NHPI ethnic subgroup specific	1 (1.8)	1 (1.1)	2 (3.0)

Table 2

Characteristics and key findings of studies on depression (N=57)

Authors (date)	Relevant research objectives	Participants and geographic location	AA and NHPI subgroups	Study design and analysis	Ecological framework – Risk	Ecological framework – Protective
Benner and Kim (2009)	To examine the relationship between discrimination and adolescents' depression and academic performance across early and middle adolescence; to determine if adolescents' enculturation, acculturation, or nativity influence mean-level differences in depression	444 Chinese American adolescents in Northern CA	Chinese (100%)	Longitudinal – autoregressive and cross-lagged techniques	<i>Macro</i> – Discrimination predicts later depression <i>Micro</i> : Low American orientation was associated with depressive symptoms at early and middle adolescence	
Bisaga, Whitaker, Davies, et al. (2005)	To examine ethnic group differences in the rates of depressive disorder symptoms (DDS) and eating disorder symptoms (EDS) with respect to ethnic identity, relative body weight, and abnormal eating behaviors among adolescent girls	1,445 adolescent high school girls in New York City, NY	Asian (10.6%)	Cross-sectional – analysis of covariance and logistic regression	<i>Individual</i> – Correlations between EDS and DDS were moderate and significant for all ethnic groups	
Chen, Haas, Gilmore, et al. (2011)	To examine if Chinese Americans report higher levels of depressive symptoms than their same-sex White counterparts	20,745 adolescents – National YRBS data	Chinese (n=403)	Longitudinal – structural equation modeling	<i>Individual</i> – a decline in depressive symptoms was seen during the transition into young adulthood across both sexes and race/ethnicities; adolescent females had higher levels of depressive symptoms than males across age groups and time in both Chinese and White groups	
Choi, Tan, Yasui et al. (2014)	To examine the concurrent and longitudinal impact of race-ethnicity and culture on youth development	291 families from the Korean American Families Project (n= 220 youths in first wave, n=220 youths in second wave) – Midwest metropolitan area	Korean (100%)	Longitudinal – path analysis with structural equation modeling	<i>Macro</i> – Acculturation was associated with more depressive symptoms; enculturation was associated with an increase in depressive symptoms a year later; parental ethnic identity and pride via youth acculturation and parent report cultural socialization via English proficiency were related to depressive symptoms	<i>Micro</i> – Korean proficiency was predictive of a decrease in the number of depressive symptoms both concurrently and longitudinally, while controlling for the previous level of depressive symptoms; English proficiency was associated with fewer depressive symptoms

Authors (date)	Relevant research objectives	Participants and geographic location	AA and NHPI subgroups	Study design and analysis	Ecological framework – Risk	Ecological framework – Protective
Chung, Flook, and Fuligni (2009)	To determine if the frequency of interparental, mother-adolescent, and father-adolescent conflict is associated with adolescents' emotional distress (average of depression and anxiety scores) across grades; to examine how the frequency of each type of conflict mediates the association between interparental conflict and adolescents' emotional distress	415 adolescents in Los Angeles, CA	n=191 Asians (64.4% Chinese)	Longitudinal – hierarchical linear regression	<i>Micro</i> – Adolescents from Asian backgrounds experienced a larger increase in emotional distress on days when their parents argued with each other compared to European peers; this was no longer significant when parents' immigration status was controlled for	
Crane, Ngai, Larson, et al (2005)	To determine how family functioning and acculturation differences between parents and adolescents contribute to adolescent depression among Chinese adolescents	41 adolescents (7 from Canada, 34 from CA and UT)	Chinese (100%)	Cross-sectional – hierarchical stepwise regression analyses	<i>Macro</i> – difference in acculturation between parents and adolescents is the strongest predictor of depression <i>Micro</i> – Low family functioning is positively associated with depression	
Duong-Tran (2011)	To examine the relationship between depression, coping efforts, and stressful life events	70 Asian American high school students in CA and WA	Vietnamese (n=30), Cambodian (n=20), Hmong (n=20)	Cross-sectional – correlations	<i>Individual</i> – individuals who mobilize more coping responses tended to have more depressive symptoms	
Gore and Aseltine (2003)	To investigate the role of race and ethnicity in mental health processes during the transition to adulthood.	1,325 young adults in Boston, MA	Asian (n=93)	Longitudinal – multiple regression		<i>Meso</i> – School involvement, which varies by ethnic status, is negatively associated with depression <i>Micro</i> – social and family relationships were protective of depression outcomes
Grossman and Liang (2008)	To examine if stress from perceived discrimination would predict higher levels of depressive symptoms; to determine if peer support would directly predict depressive symptoms and moderate the relationship between discrimination-related stress and depressive symptoms	158 6 th to 8 th grade Chinese American youth in Boston, MA	Chinese (100%)	Cross-sectional – structural equation modeling	<i>Macro</i> – Discrimination distress was associated with increased depressive symptoms	<i>Micro</i> – Peer relationships serve as a buffer to depression symptoms
Guerrero, Hishinuma,	To determine if measures of economic hardship and lower SES would be	216 Filipino adolescents from	Filipino (100%)	Cross-sectional – correlations, multiple regression		<i>Micro</i> – family support and

Authors (date)	Relevant research objectives	Participants and geographic location	AA and NHPI subgroups	Study design and analysis	Ecological framework – Risk	Ecological framework – Protective
Andrade, et al. (2006)	positively correlated with depression; to further determine if family support and cultural identification would be negatively correlated with depression	4 public high schools in HI				speaking a language other than English were protective factors against depression in the whole sample and the lower SES sample; cultural identification was not significantly related to depression
Gupta, Rogers-Sirin, Okazaki, et al. (2014)	To determine if changes in ethnic and US collective self-esteem are related differently to mental health symptoms, and to investigate if these effects are moderated by ethnicity (Asian vs. Latino)	171 Asian and Latino immigrant-origin high school students in an urban area	Asian (n=74)	Longitudinal – unconditional growth models	<i>Individual</i> – Later adolescence (11 th grade) brought about an increase in depressive symptoms for both groups.	<i>Micro</i> – Collective ethnic self-esteem was protective against anxious-depressed symptoms
Hishinuma, Johnson, Carlton, et al. (2004)	To investigate the relationship between demographic, social, and depression measures	2,577 adolescents from 4 public high schools in HI	AA and NHPI (100%)	Cross-sectional – multiple regression		<i>Micro</i> – Family support, friends' support, and adjusted number of relatives frequently seen were protective against depression; as friends' support increased, depressive symptoms decreased, except for Hawaiians
Huntsinger and Jose (2006)	To determine if time 2 extraversion would be negatively associated with depression because sociable behavior leads to higher confidence, social adjustment, and psychological well-being	120 Chinese American and European American middle-school students in a Midwestern city	Chinese (n=60)	Longitudinal – hierarchical regression	<i>Individual</i> – Anxiety at time 2 was a significant predictor of depression among the Chinese participants.	<i>Individual</i> – Extraversion was negatively associated with depression for Chinese American adolescents but not European American adolescents
Hwang, Wood, and Fujimoto (2010)	To examine how acculturation-related processes affect depression among Chinese American adolescents; in particular, to examine how acculturative family distancing would serve as a predictor of depression through family conflict.	105 Chinese American high school students and their mothers in the Western US	Chinese (100%)	Cross-sectional – Structural equation modeling	<i>Macro</i> – Acculturative family distancing increased the risk for youth depression; this relation for youth was partially mediated by family conflict	
Javier, Lahiff, Ferrer, et al. (2010)	To describe predictors of depressive symptoms for Filipinos.	4,421 adolescents from	Filipino (n=217)	Cross-sectional – linear regression	<i>Individual</i> – Filipino ethnicity was associated	

Authors (date)	Relevant research objectives	Participants and geographic location	AA and NHPD subgroups	Study design and analysis	Ecological framework – Risk	Ecological framework – Protective
Juang and Cookston (2009)	To determine if adolescents with a stronger sense of family obligation will report fewer depressive symptoms over time	the California Health Interview Survey the California Health Interview Survey the California Health Interview Survey	Chinese (100%)	Longitudinal – latent growth curve modeling	with higher depressive symptoms compared to non-Hispanic Whites; female gender <i>Micro</i> – living in a single-parent household and lower parental education positively associated with depression among both groups <i>Macro</i> – poverty was associated with depressive symptoms among both groups	<i>Micro</i> – higher levels of family obligation were associated with fewer depressive symptoms; increasing family obligation behaviors were associated with decreasing depressive symptoms over time
Juang and Cookston (2009)	To test if adolescents who perceive greater discrimination will report more depressive symptoms over time	316 Chinese American high school students in San Francisco, CA	Chinese (100%)	Longitudinal – latent growth curve modeling	<i>Macro</i> – An increase in a perceptions of discrimination was associated with an increase in depressive symptoms <i>Micro</i> – Low orientation to U.S. culture associated with increase in depressive symptoms	<i>Micro</i> – Orientation to Chinese culture was associated with fewer depressive symptoms
Juang, Syed, and Cookston (2012)	To determine if acculturation-based conflict will predict greater depressive symptoms at time 1 and across time	276 Chinese American high school students in San Francisco, CA	Chinese (100%)	Longitudinal – latent growth curve modeling	<i>Individual</i> – female gender; parent education <i>Meso</i> – Higher initial levels of acculturation-based conflict and everyday conflict were associated with higher depressive symptoms,	
Juang, Syed, and Takagi (2007)	To examine how discrepancies between adolescents' and parents' endorsement of parental control	166 pairs of Chinese American	Chinese (100%)	Cross-sectional – hierarchical linear regression	<i>Micro</i> – Greater parental-adolescent differences concerning	

Authors (date)	Relevant research objectives	Participants and geographic location	AA and NHPI subgroups	Study design and analysis	Ecological framework – Risk	Ecological framework – Protective
	contribute to adolescent depressive symptoms contribute to adolescent depressive symptoms contribute to adolescent depressive symptoms	adolescents with family conflict as a possible moderator adolescents with family conflict as a possible moderator adolescents with family conflict as a possible moderator in Northern CA			parental control were related to greater adolescent depressive symptoms, and family conflict mediated this effect	
Kang and Romo (2011)	To determine how church engagement is linked to depressive symptoms, and whether the processes of personal spirituality and mentorship relationship quality serve as mediators	248 Korean American high adolescents (grades 7 through 12) in Los Angeles, CA	Korean (100%)	Cross-sectional – recursive path model		<i>Micro</i> – Higher levels of personal spirituality predicted less depressive symptoms for girls
Khuwaja, Selwyn, Kapadia, et al. (2007)	To examine correlates of depression in young Pakistani Ismaili Muslim females	30 Ismaili Muslim immigrant females (age 15–18) from Pakistan in Houston, TX	Pakistani (100%)	Cross-sectional – correlation and multiple regression	<i>Individual</i> – Migration at older ages was associated with higher levels of depression	<i>Meso</i> – longer period of stay in the US is associated with fewer depressive symptoms
Kiang, Witkow, and Champagne (2013)	To identify direct and interactive influence of ethnic and American identities on depressive symptoms over time	180 Asian American 9 th and 10 th graders in NC	Hmong (28%), Multirethnic (22%), South Asian (11%), Chinese (8%), Panethnic (8%), and other groups (23%)	Cross-sectional – hierarchical linear modeling		<i>Micro</i> – A strong ethnic identity factor is associated with less depression; this was not seen for American identity
Kim and Cain (2008)	To examine how parent-adolescent relationships are associated with adolescents' depressive symptoms	56 Korean American adolescents (aged 11 to 17)	Korean (100%)	Cross-sectional – correlations, regression, ANOVA, chi-square tests	<i>Micro</i> – Low maternal warmth and higher maternal control were positively correlated with adolescents' elevated depressive symptoms; lower paternal warmth was associated with adolescents' elevated depressive symptoms. <i>Macro</i> – Intergenerational conflicts with mothers and fathers were positively correlated with adolescents' elevated depressive symptoms relationships	
Kim, Chen, Li, et al. (2009)	To determine if a dissonant family context, where there is a high discrepancy in parent-child acculturation levels, will be related to	388 father-adolescent dyads and 399 mother-adolescent dyads	Chinese (100%)	Cross-sectional – structural equation modeling	<i>Macro</i> – A discrepancy in parent-child American orientation is significantly associated	

Authors (date)	Relevant research objectives	Participants and geographic location	AA and NHPI subgroups	Study design and analysis	Ecological framework – Risk	Ecological framework – Protective
Kim, Chen, Wang, et al. (2013)	depressive symptoms in adolescents; to determine if unsupportive parenting and parent-child sense of alienation sequentially mediate the relationship between parent-child acculturation discrepancy and child adjustment during early and middle adolescence	379 Chinese American families with foreign-born parents in Northern CA	Chinese (100%)	Longitudinal – structural equation modeling	<i>Micro</i> – Unsupportive parenting is related to an increased sense of parent-child alienation, which is related to more depressive symptoms <i>Macro</i> – A discrepancy in parent-child American orientation was associated with depressive symptoms	
Kim and Ge (2000)	To test a process model linking parents' depressive symptoms, parenting practices, and adolescent depressive symptoms	Chinese American adolescents and their parents in Northern CA	Chinese (100%)	Cross-sectional – confirmatory actor-analytical models	<i>Micro</i> – Parental depression contributed to less effective parenting practices perceived by the adolescent and significantly related to adolescent depressive symptoms	
Kim, Gonzales, Stroh, et al. (2006)	To determine whether three types of cultural marginalization (Anglo, Asian, and Asian American) are significantly related to depressive symptoms of adolescents; to examine how parent-child cultural marginalization may be related to adolescent depressive symptoms	60 Asian American adolescents and their parents in Northern and Southern CA	Chinese (18%), Japanese (5%), and Korean (77%)	Cross-sectional – structural equation modeling	<i>Macro</i> – The experience of Asian and Asian American marginalization are related to depressive symptoms	
Kim, Wang, Deng, et al. (2011)	To understand the mechanisms by which self-report of early adolescent English proficiency relates to experiences of adolescent depressive symptoms over time	444 Chinese American adolescents and their parents in Northern CA	Chinese (100%)	Longitudinal – structural equation modeling	<i>Micro</i> – Lack of English proficiency in middle school relates to English speaking four years later, increasing the likelihood of discrimination, which, in turn, relates to more depressive symptoms in high school	
Lam (2005)	To examine the role of self-construal and its direct and indirect impact on depression	152 Vietnamese American high school students in Southern CA	Vietnamese (100%)	Cross-sectional – structural equation modeling		<i>Individual</i> – Interdependent self-construal was associated with high

Authors (date)	Relevant research objectives	Participants and geographic location	AA and NHPI subgroups	Study design and analysis	Ecological framework – Risk	Ecological framework – Protective
Lam (2006)	To examine how four different types of self-construal affect perception of depression and perception of relationship with community	152 Vietnamese American high school students in Southern CA	Vietnamese (100%)	Cross-sectional – hierarchical cluster analysis		family cohesion, which increased self-esteem family cohesion, which increased self-esteem family cohesion, which increased self-esteem family cohesion, which increased self-esteem family cohesion, which increased self-esteem family cohesion, which increased self-esteem family cohesion, which increased self-esteem family cohesion, which increased self-esteem
Lam, Chen, and Greenberger (2012)	To determine how important non-parental adults contribute to adolescents' depressed mood	192 Vietnamese-American high school students in Los Angeles, CA	Vietnamese (100%)	Cross-sectional – correlational and regression analyses	<i>Micro</i> – The problem behaviors and warmth of important non-parental adults made a significant contribution to the explanation of depressive symptomatology	<i>Meso</i> – The bicultural group reported lower depression than other groups
Liu, Benner, and Lau (2009)	To determine if youth proficient in English and Chinese would have lower levels of depression than their monolingual English or English-limited peers	444 Chinese American families in Northern CA	Chinese (100%)	Cross-sectional – ordinary least squares regression		<i>Micro</i> – Maternal English proficiency was negatively related with youth depressive symptoms; Chinese language proficiency was protective against depressive symptoms for foreign-born but not US born youth. Youth proficient in Chinese with mothers highly proficient in Chinese reported fewer depressive symptoms
Mistry, Benner, Tan, et al. (2009)	To examine if Chinese American adolescents reporting higher levels of family economic strain would report higher levels of depressive symptoms; to determine if associations would be stronger during later adolescence	444 Chinese American families in Northern CA	Chinese (100%)	Cross-sectional – latent variable structural equation modeling	<i>Micro</i> – Adolescents' perceptions of family economic stress and their own financial constraints were related to depressive symptoms <i>Individual</i> – Parental reports of family	

Authors (date)	Relevant research objectives	Participants and geographic location	AA and NHPI subgroups	Study design and analysis	Ecological framework – Risk	Ecological framework – Protective
Park (2009)	To investigate the relationship between parental attachment styles and depression	11–15) in the Midwest 11–15) in the Midwest	Korean (100%)	Cross-sectional – correlations	family cohesion were associated with depressive symptoms <i>Individual – Anger</i> regulation was associated with depressive symptoms	<i>Micro – Parental</i> care is negatively correlated with depression
Park (2009)	To examine acculturative stress, depression, and self-esteem among Korean adolescents and look at group differences based on immigration status, age, and gender	260 Korean American adolescents (age 12–18) from Korean churches in the Southeastern US	Korean (100%)	Cross-sectional – correlations	<i>Meso – Acculturative</i> stress was positively correlated with depression	<i>Individual – Self-esteem</i> was negatively associated with depression
Qin, Rak, Rana, et al. (2012)	To examine associations between family cohesion and conflict and adolescent psychological adjustment	679 Chinese and European American 9 th grade students in the Northeastern US	Chinese (n=487)	Cross-sectional – regression, moderated regression	<i>Micro – Family</i> conflict was associated with depression	<i>Micro – Family</i> cohesion is protective of depression
Rivas-Drake, Hughes, and Way (2008)	To examine associations of discrimination with self-esteem and depressive symptoms	219 Chinese and African American 6 th graders in New York City, NY	Chinese (n=84)	Cross-sectional – ordinary least squares regression	<i>Macro – Peer</i> discrimination was associated with depressive symptoms	<i>Micro – Public</i> and private regard
Rogers-Sirin and Gupta (2012)	To examine how ethnic identity and US identity, as two separate processes, affect depression symptoms; to examine if these relationships are moderated by Asian or Latino ethnic group	171 first- and second-generation Asian and Latino 10 th grade students	Asian (n=74)	Longitudinal – hierarchical linear modeling	<i>Individual – Later</i> adolescence (12 th grade) experienced greater depression	<i>Meso – Ethnic</i> identity was associated with lower levels of depressed symptoms for Asian and Latino youth US identity was not associated with depressed symptoms
Shin, D'Antonio, Son, et al. (2011)	To examine if individuals who were bullied would experience a higher level of depression than their non-bullied counterparts	259 Korean American high school students in NY and NJ	Korean (100%)	Cross-sectional – structural equation modeling	<i>Micro – Being</i> bullied, as well as being bullied and bullying others, were associated with a higher level of	

Authors (date)	Relevant research objectives	Participants and geographic location	AA and NHPI subgroups	Study design and analysis	Ecological framework – Risk	Ecological framework – Protective
Song, Ziegler, Arseneault, et al. (2011)	To identify personal and social risk and protective factors associated with depressive symptoms among Asian youth compared to Caucasian youth	2,542 high school students in Boston, MA	Asian (n=198) – Chinese, Korean, Indian	Cross-sectional – bivariate comparisons	<i>Individual</i> – foreign born and injury at work in the past year were associated with depressed mood among Asians; female gender, worrying about school failure or grades, low parental interest in students’ feelings and ideas, and cigarette smoking were associated with depressed mood among both groups	Individuals experienced a higher level of depression; US born individuals experienced a higher level of depression; US born individuals experienced a higher level of depression; US born individuals experienced a higher level of depression
Stein, Kiang, Supple, et al. (2014)	To examine if, both concurrently and longitudinally, 1) stronger ethnic identity would be protective against depression; 2) greater discrimination and economic stress would be associated with greater depression outcomes; and 3) a stronger ethnic identity would buffer against the negative psychosocial effects of discrimination and economic stress on depression	176 Asian 9 th and 10 th graders in the Southeastern US	Hmong (28%), multiethnic Asian (22%), South Asian (11%), Chinese (8%), pan-ethnic (8%), and other Asian (23%)	Longitudinal – correlations, hierarchical regressions, and interactions	<i>Macro</i> – Ethnic/racial discrimination predicted more depressive symptoms at time 1 (main effect model); economic stress at time 1 was associated with greater depressive symptoms at time 2 for those with high levels of ethnic belonging at time 1 (interaction)	<i>Micro</i> – Ethnic exploration predicted fewer depressive symptoms at time 2
Tummala-Narra and Sathasivam-Rueckert (2013)	To examine the relationship between perceived support from adults at home and at school and depressive symptomatology, and if this relationship varied across sex, race, and social class	707 adolescents in an urban high school	AA and NHPI (26.3%)	Cross-sectional	<i>Individual</i> – Negative interactions with police were associated with higher levels of depressive symptoms among Asians	<i>Individual</i> – Asian Americans using more emotional support experienced less depression
Vaughn and Roesch (2003)	To examine if Asian Americans reporting more avoidance coping would be healthier psychologically	182 high school students in San Diego, CA	Asian American (11%)	Cross-sectional – hierarchical regression equations	<i>Micro</i> – Asian Americans using more emotional support experienced more depression	
Willgerodt (2008)	To test and compare a theoretical model that examines the influence of family and peer factors on emotional distress (depression) over time	875 Filipino, Chinese and White adolescents – Add Health national survey	Filipino (n=335) and Chinese (n=195)	Cross-sectional – structural equation modeling	<i>Micro</i> – Peer risky behaviors significantly influenced emotional distress among Filipino and White but not Chinese adolescents	<i>Micro</i> – Family bonds had a significant negative effect on emotional distress over time for all three groups

Authors (date)	Relevant research objectives	Participants and geographic location	AA and NHPI subgroups	Study design and analysis	Ecological framework – Risk	Ecological framework – Protective
Willgerodt and Thompson (2006)	To determine if ethnicity influences depression among Chinese, Filipino, and European American adolescents and to see if generational status influences depression	1,003 Chinese, Filipino, and European American adolescents – Add Health national survey	Chinese (n=216) and Filipino (n=387)	Cross-sectional – regression analyses	<i>Individual</i> – being Filipino was associated with higher depression	
Williams, Else, Hishinuma, et al. (2005)	To assess a hypothesized model comparing depressive symptoms in Japanese American and part-Japanese American high school seniors	140 Japanese American and part-Japanese American Senior high school students in HI	Japanese (n=49) and part-Japanese (n=91)	Cross-sectional – structural equation modeling	<i>Macro</i> – The higher the degree of culturally intensified stress, the higher the level of depressive symptoms <i>Individual</i> – female gender, Japanese American vs. part-Japanese American	
Wong (2001)	To examine if cultural orientation will have an effect on depression with bicultural students reporting the least amount of depressive symptoms	144 Asian high school students in San Francisco, CA	Chinese and Southeast Asian (100%)	Cross-sectional – multivariate analysis	<i>Micro</i> – Higher ethnic orientation and low American orientation were associated with greater depression levels	<i>Micro</i> – Positive peer and parent relationships were associated with lower depression levels
Xie, Unger, Gallaher, et al. (2010)	To investigate associations between overweight and depressive symptoms in Asian and Hispanic adolescents	1,155 middle school students in Los Angeles, CA	Asian (32.5%)	Cross-sectional – structural equation modeling	<i>Individual</i> – Among Asian girls, overweight was significantly related to more depressive symptoms	
Yeh, Borrero, and Tito (2013)	To investigate Samoan middle and high school students' perceptions of family conflict and collective self-esteem as predictors of mental health	128 Samoan middle and high school students in San Francisco, CA	Samoan (100%)	Cross-sectional – multivariate analysis	<i>Micro</i> – Family conflict predicted depression	<i>Micro</i> – Collective self-esteem was associated with lower depressive symptoms
Ying and Han (2008)	To see if a positive intergenerational relationship would decrease Southeast Asian adolescents' depressive level	491 Southeast Asian adolescents and their parents in San Diego, CA and Ft. Lauderdale, FL	Southeast Asian (100%)	Cross-sectional – path analysis	<i>Micro</i> – Parental involvement mediates negative effects of parental acculturation on intergenerational conflict	<i>Micro</i> – Parental involvement mediates negative effects of parental acculturation on intergenerational conflict
Ying and Han (2008)	To assess the relationship of perceived intergenerational discrepancy in acculturation during early adolescence and intergenerational/intercultural conflict and depression symptoms in late adolescence	8 th and 9 th grade students – 507 at wave 1, 490 at wave 2 in San Diego, CA and Ft. Lauderdale, FL	Southeast Asian (100%)	Longitudinal – multiple regression	<i>Micro</i> – Intergenerational conflict was associated with increased depressive symptoms	

Authors (date)	Relevant research objectives	Participants and geographic location	AA and NHPI subgroups	Study design and analysis	Ecological framework – Risk	Ecological framework – Protective
Yuan (2010)	To examine whether the relationship between body perceptions and behavior and adolescents' psychological well-being (depressive symptoms) differs by racial-ethnic group	12,814 adolescents aged 11–20 – Add Health National survey	Asian (4%)	Cross-sectional – correlations and multiple regression		<i>Individual</i> – Among Asian American girls, decreases in depressive symptoms were associated with perceptions of being more developed than their peers; among Asian American boys, decreases in depressive symptoms were associated with perceived underweight

Table 3

Characteristics and key findings of studies on suicide (N=9)

Authors (date)	Relevant research objectives	Participants and geographic location	AA and NHPI subgroups	Study design and analysis	Ecological framework – Risk	Ecological framework –Protective
Bostwick, Meyer, Aranda, et al. (2014)	To assess suicidality patterns among youths based on sexual orientation, race/ethnicity, and sex.	72,691 adolescents – National YRBS data	7,028 Asian Americans and 2,057 American Native/Pacific Islanders	Cross-sectional – hierarchical linear modeling	<i>Individual</i> – PI sexual minority youths were at higher odds of a suicide attempt in the past year compared to White sexual minority youths	<i>Individual</i> – Asian sexual minority youths were at lower odds of suicidal ideation and suicidal planning compared to White sexual minority youths; Asian sexual minority females had lower suicidal ideation prevalence compared to White sexual minority females
Eise, Goebert, Bell, et al. (2009)	To examine the relationship between interpersonal violence and suicide indicators among AAPI youth using the teen power wheel.	881 students in grades 9–12 in HI	Filipino and Native Hawaiian (100%)	Cross-sectional – logistic regression	<i>Micro</i> – both victims and perpetrators were vulnerable to suicide ideation, planning, and attempt; victims reported a higher prevalence rate which was attributed to depression as an outcome of victimization	
Lau, Jernewall, Zane, et al. (2002)	To test if there are ethnic differences in the risk of suicidality among Asian American youths and further determine if intragroup differences in acculturation among Asian American youths affect the risk of suicidal behavior; to test if one's level of acculturation moderates the relationship between other risk factors and suicidality	285 Asian American youth in Rosemead, CA	Asian American	Cross-sectional – t-tests and chi-square analyses	<i>Individual</i> – Internalizing symptoms, depressive symptomology, and older age were related to an elevated risk for suicidal presentation <i>Micro</i> – High parent-child conflict was associated with suicidal behavior <i>Macro</i> – Lower acculturation was associated with greater risk of suicidality	<i>Individual</i> – Externalizing symptoms were negatively related to an elevated risk for suicidal presentation
Liu (2005)	To examine gender-specific influence of parent-youth closeness on youth's suicidal ideation and its variations by stages of adolescence and race or ethnicity	6,504 youth at Wave 1, 4,837 at Wave 2 – national	Asian (5%)	Longitudinal – logistic regression		Micro – Close relationships with fathers and girls across adolescence; close relationships with mothers and boys – specifically early adolescence and late teens; fathers influence on boys in late adolescence
Nishimura, Goebert, Ramisetty-	To examine whether alcohol use and binge drinking increase the risk for suicide indicators	2,657 high school students in HI	Native Hawaiian (21.0%) and Asian/Pacific Islander (46.4%)	Cross-sectional –	<i>Individual</i> – Hawaiian girls are at a higher risk for suicide ideation and	

Authors (date)	Relevant research objectives	Participants and geographic location	AA and NHPI subgroups	Study design and analysis	Ecological framework – Risk	Ecological framework –Protective
Mikler, et al. (2005)				logistic regression	planning; binge drinking and alcohol use were associated with higher suicide ideation and planning among Hawaiian boys and girls	
Pinhey and Millman (2004)	To examine the effects of sexual orientation, race/ethnicity, binge alcohol consumption, hopelessness, and relationship physical abuse on suicidal ideation and suicide attempts	1,381 high school students in Guam	API (% unclear)	Cross-sectional – logistic regression	<i>Individual</i> – Same-sex orientation was associated with a greater risk of suicide attempt; physical abuse in a relationship context, binge drinking, and feelings of hopelessness were associated with a greater risk for suicide ideation and attempts	
Supple, Graves, Daniel, et al. (2013)	To compare rates of suicidal thoughts and attempts across racial/ethnic groups, considering age and gender variation within ethnic groups	14,346 adolescents (grades 7 through 12) in Dane County, WI	Southeast Asian and Asian (6%)	Cross-sectional – logistic regression	<i>Individual</i> – Southeast Asian boys (particularly older boys) reported more suicidal thoughts and attempts than Southeast Asian girls	
Whaley and Noel (2013)	To examine the relationship between academic performance and suicide risk	3,008 students (age 14 through 18) – YREBS national	Asian American (n=408)	Cross-sectional – regression analyses	<i>Individual</i> – Poor grades were predictive of higher depressed/suicidal scores	
Wong and Maffmi (2011)	To assess the optimal number of latent classes that explained the associations between family, school, and peer relationships and subsequent suicide attempts	959 Asian American adolescents – Add Health National Survey	Asian American (100%)	Cross-sectional – latent class logistic regression	<i>Micro</i> – Stronger school relationship were associated with higher rates of suicide attempts	<i>Micro</i> – Family relationships were protective of suicide attempts